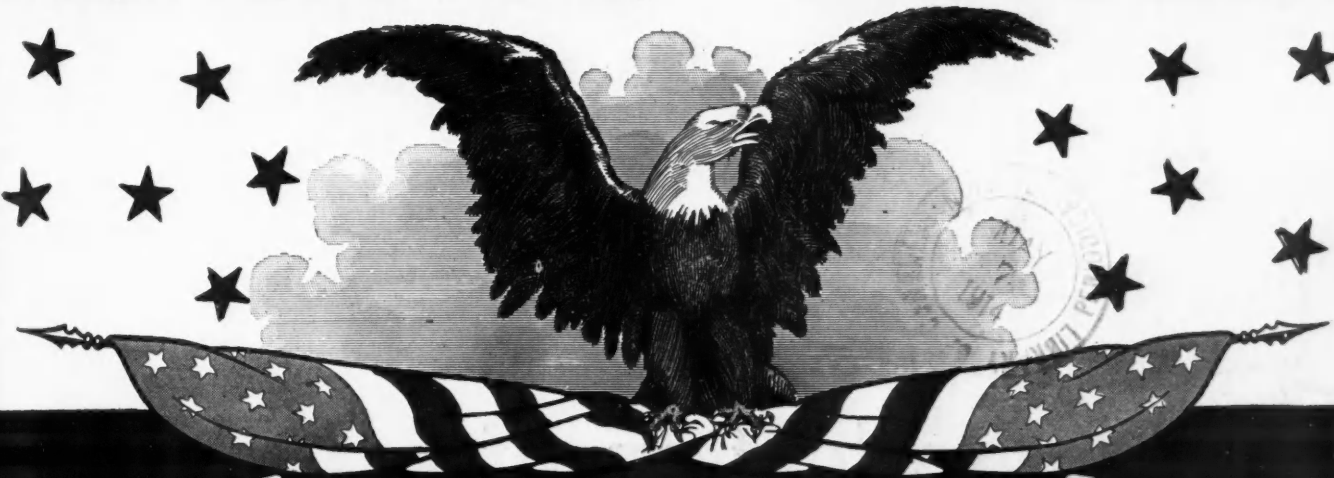


MAY 1914

AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER



Busy Building
Season

Price 20 Cents



The Reflection of a Good Saw is Lasting

Are you really proud of your own Saw? Do you feel—down in your heart—a warm place for this most important tool? Is your Saw standing up to its work and making life pleasanter and easier for you?

If Not—It Should

ATKINS SILVER STEEL SAWS are the kind of Saws that seem—somehow—to earn their way into the hearts of those who use them.

It's because they are dependable—because they can be relied upon to make good. If you do not feel that your Saw is really a better Saw than the other fellows—then you ought to try an ATKINS—and be happy.

SILVER STEEL is as fine and as highly tempered as a razor blade. It's hard and tough—but not brittle. It won't go back on you—when you need it. Then these blades are ground on a taper and will run—even in wet lumber—free and easy with but very little set. They are distinctive and different and finer than any other Saws.

How To Get Them

Tell your dealer to show you a genuine ATKINS SILVER STEEL SAW and look for our name on the blade. He has it or will get it for you if you ask. If he won't, then write to us—we'll tell you how to get quick service.

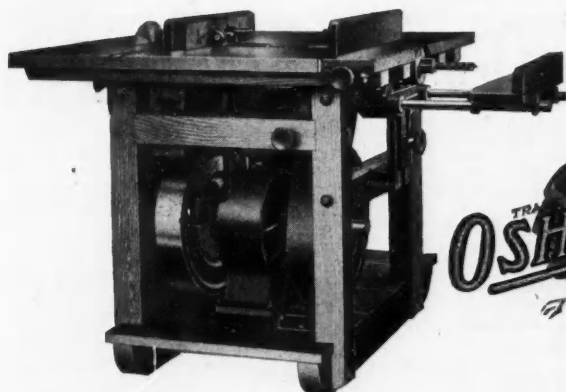
A Free Carpenter's Apron

Send us ten cents, to pay postage, and we will forward, free of charge, a fine strong carpenter's apron with a monthly time book and lots of useful information in regard to the purchase and care of Saws. Perhaps there will be something else in the pocket which you would like to have.

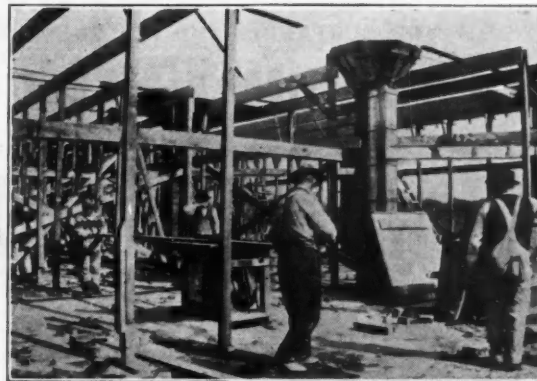
E. C. ATKINS & CO., Inc. :-: **Indianapolis, Indiana**

THE SILVER STEEL SAW PEOPLE

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



Complete Set of
Attachments
FREE



An Eveready Saw Rig Saves the Wages of Six Men

NEW LIST OF AGENCIES

- CHICAGO, ILL.—Oshkosh Mfg. Company, 1440 Monadnock Bldg.
 - ATLANTA, GA.—Oshkosh Mfg. Company, Southern Sales Office, 604 Walton Bldg.
 - CINCINNATI, O.—S. O. Holder Supply Co., 1123 Gilbert Ave.
 - DENVER, COLO.—Geo. W. Summers & Company, 355 Railway Exchange.
 - EVANSVILLE, IND.—Indiana Builders' Supply Co., Furniture Exchange Bldg.
 - MILWAUKEE, WIS.—Badger-Packard Mchy. Co., 74 West Water St.
 - NEW ORLEANS, LA.—Henry J. Malochee, 802 Ferrin Bldg.
 - OMAHA, NEBR.—Sunderland Mchy. & Supply Company.
 - PORTLAND, ORE.—G. A. Saunders Supply Co., Bldrs. Exchange, 2nd and Alder Sts.
 - RICHMOND, VA.—I. Bluford & Company, 1538 East Cary St.
 - SALT LAKE CITY, UTAH—F. C. Richmond Mchy. Co., 117 West Second South St.
 - SAN FRANCISCO, CAL.—J. E. Dwan & Co., 445 Turk St.
 - LOS ANGELES, CAL.—J. E. Dwan & Co., 1835 South Main St.
 - SAN DIEGO, CAL.—J. E. Dwan & Co., 250 Fifth St.
 - PHOENIX, ARIZ.—J. E. Dwan & Co., Creighton Bldg.
 - SEATTLE, WASH.—Harold G. Stern & Company, 524 First Ave. South.
 - ST. LOUIS, MO.—C. O. Fischer & Company, 712 International Life Bldg.
 - KANSAS CITY, MO.—King Supply & Equipment Co., 1201 Scarritt Bldg.
 - PITTSBURGH, PA.—Patterson Bros., 421 Wood St.
 - BIRMINGHAM, ALA.—Chadwick & Company, 510 Empire Bldg.
 - ST. PAUL, MINN.—Dally-Fraser Hdwe. Company, 417 Cedar St.
 - CHARLESTON - ON - KANAWHA, WEST VA.—O. A. & H. G. Thayer Company.
 - MONTREAL, QUE.—The Canada Mchy. Agency, 298 St. James Str.
 - WINNIPEG, MAN.—John H. Alexander, 604 Builders' Exchange Bldg.
 - VANCOUVER, B. C.—Dominion Dock & Supply Co., 304 Northwest Trust Bldg.
- MIXERS AND PUMPS EXCLUSIVELY.
NEW YORK, N. Y.—John J. Duggan, Room 1652, 50 Church Str.

Oshkosh Mixer

It will pay any contractor to get acquainted with the OSHKOSH MIXER. Request brings full information. Write us today for prices and Special Offer. The Mixer with the Effective 4-Way Mix. Also built for steam or electric power.



Ask for the Bore and Stroke of the Engine

Whether a Portable Saw Rig will *pay* you or not, depends largely on the *Engine*. It requires *power* for a machine to turn out the work of from 4 to 6 men and soon return its *full cost*. Some makers of Saw Rigs *claim* all kind of power for their machines. We state the facts—bore, 4¾ inches—stroke, 6 inches. More than that, we guarantee our Engines will develop over 4 actual brake horse power. Now for some tangible

Proof of What the Eveready Portable Saw Rig Has Done

Note we did not say *will do*. One contractor who formerly bought factory-made window frames, now makes all his own frames with our machine, at 30% less cost and secures even better frames. Another, a building contracting concern, used our machine in building a church and it saved them enough the first season on that *one* contract alone to almost pay for the Saw Rig.

Our Eveready Saw Rig is not a frail, weak machine like some are, but built heavy and strong enough for any service. It is also constructed so that it is easy to *move* from one job to another. Also, so *simple*—anyone can operate it. Besides doing cross-cutting and rip-sawing, it joints, sands, jig saws, grooves, bores, miters, and grinds tools. All attachments complete come with it—*no extras* to buy. Send for our Catalog, which gives complete details and contains a long list of letters from well known users.

Live Agents Wanted in Open Territory

OSHKOSH MFG. COMPANY

316 South Main Street

Oshkosh, Wisconsin

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

FOR SURFACING AND POILSHING HARDWOOD FLOORS
The American Floor Surfacing Machine

IS NO EXPERIMENT. Its work since 1903 has established a standard for finely surfaced and polished floors. It is the only machine whose work is specified by leading architects and used in the best government buildings and will surface and polish any kind of a floor from common pine to finest parquetry.

IT IS THE ORIGINAL and only two-roll, self-propelled, dust-collecting machine, that surfaces close to the wall and can be used in small rooms. Anyone can operate it.

ITS WORK IS RAPID, regular, smooth and even because the power that drives the rolls also propels the machine at the same ratio of speed. It has surfaced and polished millions of square feet of the best floors in America and Europe.

GET A MACHINE that does first-class work and in paying quantities, that is fully guaranteed and sold on its merits. Don't be fooled with an imitation.

We sell direct to the users. Write for our free book "Surfacing Floors as a Business"

Use Our Champion Double Disc Machine for Cement, Terrazzo and Marble Floors.

Manufactured by **The American Floor Surfacing Machine Co., Toledo, O.**



\$25.85



THE ADJUSTABLE TOOL



The Haven Planing Floor Scraper

THE
Haven Planing Floor Scraper
 Becomes the **STANDARD TOOL ON THE JOB**

wherever it is used. Builders have awakened to the fact that it solves the problem for good. Our machine differs entirely from all others. The secret of our splendid success rests on the following points:—

- (1) The scraping tool is a true plane, the world's standard leveler.
- (2) A light running carriage.
- (3) A smooth trackway for carriage.
- (4) A shearing cut on the instant.
- (5) Machine remains stationary while scraping enclosed area.
- (6) Angle of blade and thickness of shaving regulated with ease.
- (7) All woods are alike easy.
- (8) No man-killing truck to pull or push; you rest on the return stroke.
- (9) Planes and scrapes simultaneously
- (10) No chattering, waving or gouging.
- (11) The planing head does better work than the usual hand work, and from four to six times as much.

If you have tried other machines and been disappointed, then TRY OURS AND BE CONVINCED THAT WE HAVE THE GOODS. A TRIAL COSTS YOU NOTHING. DON'T BUY AN INFERIOR MACHINE WHEN YOU CAN GET THE BEST ON EARTH FOR \$25.85. Send for booklet and complete information concerning our guaranteed machine and free trial offer.

THE HAVEN MFG. CO.

--:

RACINE, WIS.

The
Record-Breaking
ROCK-BOTTOM
PRICE

on a guaranteed

FLOOR
SCRAPER

is **\$12.50**



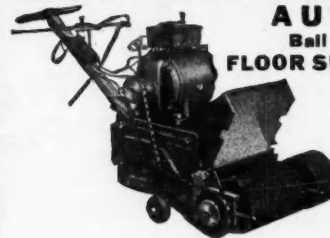
This new FOX model is a wonder

THE body of the scraper slides on the floor like a plane, insuring a cut of uniform depth. It works equally well on all kinds of hard-wood flooring, including Georgia pine. It is particularly well adapted to the smoothing of old floors. It positively will not jump or leave waves. A rubber cushion over the knives prevents chattering. The handle is adjustable. Weight, 65 lbs. Cutting edge, 4 inches.

The equipment includes 6 genuine Foxtempered knives, 1 oil stone, 1 burnishing steel and 1 wrench. Price, complete, \$12.50. Also made with 6-inch cutting edge, 90-lb. weight, at \$15.00. Other styles at \$18.00, \$25.00 and \$35.00. We would like to send you our catalogue.

FOX SUPPLY CO. Manufacturers. Dept. A
 BROOKLYN, WIS.

AUTOMATIC
 Ball Bearing Electric
FLOOR SURFACING MACHINE



Quickly dresses new floors to stand inspection against the light, or rapidly refinishes old floors. Self propelling; has automatic brake for easy, continuous and uniform work. Surfaces to base board with Edge Roller quickly adjusted to either side

doing away altogether with hand scraping.

Our Price Will Interest You

If you are interested in the best floor finishing, we want to show you what others are doing with our machine. Send for the names of well-known users. You should have our booklet too. Above all, get particulars about our Free Trial Offer. Made in 3 sizes for small rooms and large areas.

WAYVELL CHAPPELL & CO. Dept. 4847 E. Ravenswood Ave.
 CHICAGO, ILLINOIS

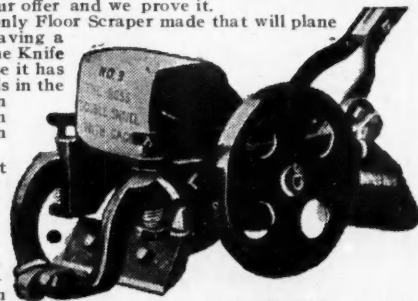
\$75.00 IN GOLD and the Machine FREE to any one if the Boss leaves a square cut in the Floor where you start to take

a shaving, this is our offer and we prove it.

The Boss is the only Floor Scraper made that will plane

a Floor without leaving a square cut where the Knife first starts. Because it has Gage in front Wheels in the rear and Knife in the middle, it can not follow the Grain of the Wood.

A Scraper without a Gage will follow the Grain of the Wood, when the Grain runs in the Knife will follow and when it runs up it will follow it, leaving a wavy uneven Floor. The Boss is fully guaranteed. WRITE FOR PRICES.



G. J. KEPPLINGER, Main Office: Dwight Ill.

Factories: Dwight, Ill. and London Foundry Co., London, Canada

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

IMPERVITE is Guaranteed to Waterproof Walls: Cellars & Pits.

A facing of IMPERVITE MORTAR on the inside will resist water on the outside.

ASK FOR BOOK No. 62 **The Standard Paint Co.** NEW YORK BOSTON CHICAGO

Scrape Your Floors with a LITTLE GIANT SCRAPER

At Our Expense

Its low cost and efficiency make it a very desirable part of each builder's equipment.

Try It Before Buying

Prove to yourself that it is the best floor-scraper on the market.

Send Today for Our Special Offer

HURLEY MACHINE CO.

1008 Flat Iron Bldg., New York, N. Y.

Specify and Install THOR WASHING MACHINES

They are a necessary requirement to every home. Do away with Laundry troubles. Your clients will appreciate them. So will your wife.

Built to Meet Requirements

Electric Washers from \$30.00 up.

Sold on Liberal Free Trial Easy Payments

HURLEY MACHINE CO.

37 So. Clinton St., CHICAGO, ILL.





The Adjustable Sander

THIS SANDER ← FREE

To Cash Buyers of the **ADJUSTABLE FLOOR FINISHER**



It does as good and as rapid work in soft pine as in hard maple, **BECAUSE**—every working part is **adjustable**.

Just the right pressure being brought to bear directly on the blade where it is wanted—the blade tilted to the required pitch or angle to the floor, anyone can do good, rapid work, with a true, perfect cut of any desired depth, free from wave or chatter on any wood floor.

Having cut out the dealer, I can now offer you the complete \$45.00 outfit for only \$24.50, or, for \$22.00 without the Sander, and give you a **TEN-DAY FREE TRIAL** besides.

If you send cash with order, or attach this coupon to your inquiry and order later, I will include the Sander **FREE**, and **PROTECT YOU** with my **unlimited guarantee**—**READ IT BELOW**.

Even if you don't want to buy now, send the coupon anyway—**RIGHT NOW** before you forget it. It will save you \$2.50 when you do buy.

GUARANTEE

*If at any time or for any reason thru fault of the machine the **ADJUSTABLE FLOOR FINISHER** fails to please you, you may have your money back if you want it.*

THIS COUPON IS WORTH \$2.50

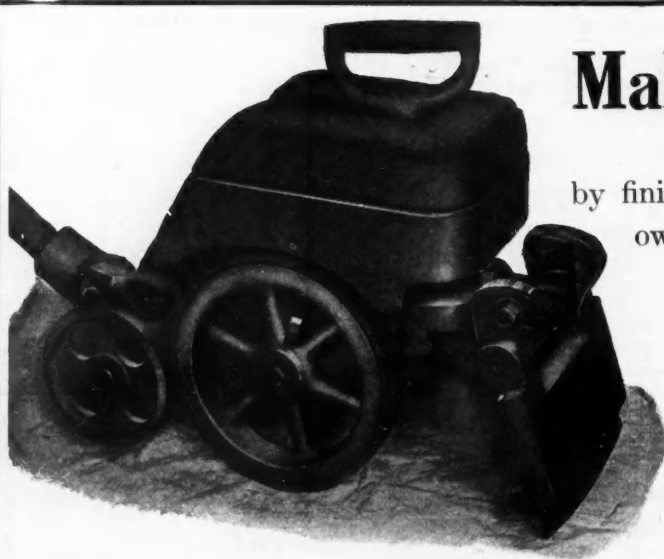
Without obligating me in any way, you may send your printed matter, provided you accept this coupon as payment for the Sander, if I decide to buy for cash.

H. P. Didriksen
Anderson
Ind.

Name.....

Town..... State.....

You will get **SPECIAL ATTENTION** if you tell Advertisers you read **American Carpenter and Builder**.



Make Your Jobs Pay AN EXTRA PROFIT

by finishing the hardwood floors the way the owner wants them finished. The quickest and most profitable way to finish any kind of a floor is by using the

TRIPLE "A" Spring Driven FLOOR SMOOTHER

It finishes an average of 1,500 square feet of floor a day. Works equally well on old, new, painted, varnished, oiled, or grimy floors. Adjustable in weight and depth of cut. The SPRING MOTOR gives the TRIPLE "A" as great efficiency as the power machines. The cost is much less. It is the best of all hand power machines, because the spring drive takes two-thirds of the work off the operator.

READ THIS. IT PROTECTS YOU →

Our published Guarantee binds us to give you fair treatment and honest value. We want to tell you why the TRIPLE "A" SPRING-DRIVEN FLOORSMOOTHER is the best purchase you can make. Let us explain every detail. We know you're not buying machines blindfold. That's why we want you to know the TRIPLE "A" through and through. Get our Circulars and Price. You can afford to buy the TRIPLE "A."

SEND NOW FOR COMPLETE DESCRIPTION

TRIPLE "A" MACHINE CO., Room 317, 300 W. Grand Ave., CHICAGO, ILL.

GUARANTEE

We guarantee the Triple "A" Floor-smoother outfit to be complete in every detail and to be the most perfect floor surfacing outfit on the market today, regardless of price. We also guarantee the machine against breakage from defective material or workmanship, and agree to duplicate, free of charge, any casting found to be defective any time within one year from date of purchase.

Satisfaction, or money back.

PHOENIX INSIDE SLIDING BLINDS

WILKES BARRE, PA.

The Phoenix Sliding Blind Co.

Enclosed find my check for blinds. I am pleased with them and sorry I did not have them put throughout the whole house.
C. W. BURT.

**Comfort!
Economy!
Convenience!**

The lately improved springs and corrugated steel rods put the "PHOENIX" far in lead of less improved styles. Write for Catalogue "C" and free samples, showing construction.

PHOENIX SLIDING BLIND CO.

BRIDGE & CANAL STS.

PHOENIX, N. Y.

WOOD



Made in three sizes:
8 x 16, 8 x 15 and 8 x 12 in. Flexible Roller.
Edge Roller easily adjusted to either side.

**FREE TRIAL
5,000 in use**

**RAPID, FLEXIBLE, SELF-
PROPELLING WHEN
RAISING HANDLE**

Send for our new
list and free trial
proposition.

M. L. Schlueter

107 N. Canal St.
Chicago, Ill.

C. E. JENNINGS & CO'S

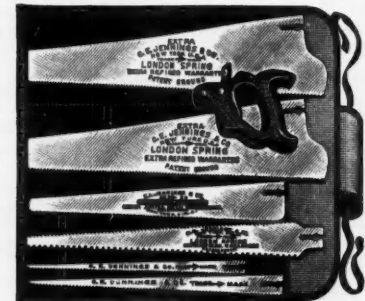
71-73 MURRAY ST., N. Y., U. S. A.

TRADE MARK.

COMBINATION SET OF SAWS No. 131

This set of saws is just what you need. Takes up very little room in the kit and is less expensive than if you bought all the saws separately.

Each blade is fully backed by our guarantee both as to quality and workmanship. The saws are hand-forged from extra refined spring steel, hand filed and set. Warranted to hold edge and set for longest possible time and to run smoothly and easily.



An adjustable lever in the handle operates the screw that holds the blade. Blades may be removed from the handle instantly and another blade substituted. Blade is held firmly and evenly.

Combination Set No. 131 consists of:

- 1—Garland Adjustable Handle
- 1—18-inch Hand or Panel Saw
- 1—18-inch Rip Saw
- 1—16-inch Double Edge Pruning Saw
- 1—15-inch Hack Saw
- 1—14-inch Compass Saw
- 1—12-inch Keyhole Saw

A Waterproof Canvas Case for this set with seven pockets—one for each blade and one for the handle, will be furnished at a slight extra cost.

Ask your hardware dealer to show you Set No. 131. It is so handy and the price so reasonable that you'll like it. Write us for descriptive Circular.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Carpenters and Contractors Try

The WEBER DOUBLE ACTING Floor Scraper

On Five Days' FREE Trial

Carpenters and contractors everywhere are pleased with the Weber Double Acting Floor Scraper—they realize its wonderful saving power, appreciate its smooth running qualities and superior work. Read this letter:

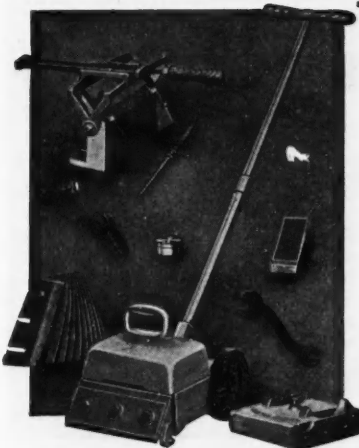
"Enclosed find check for floor scraper bought of you. I gave the machine a trial and found it absolutely O. K. It does all you claim for it. Thanking you for a square deal, I am
Yours respectfully, E. TURNER, Paintsville, Ky."

There are thousands of other similar cases. The "Weber" does the business—its guaranteed—it does quicker and better work. Write today for catalog-of labor-saving tools.

John F. Weber, Pres., WEBER MFG. CO., 670 71st Ave., West Allis, Wis.

FREE TRIAL OFFER

You pay no money down to get my Scraper. Order it—give it five days' trial and if satisfied pay me only a small amount five days after you are convinced it is the best, the balance in small monthly payments. No up-to-date carpenters or contractors can afford to lose this opportunity. Write today.



Makes Floor Scraping an Easy Job

The automatic action of the Acme Floor Scraper allows the operator to stand in an easy, upright position while working. No back-breaking positions to get into, and no lifting. Simplest and most effective floor-scraping machine on the market.

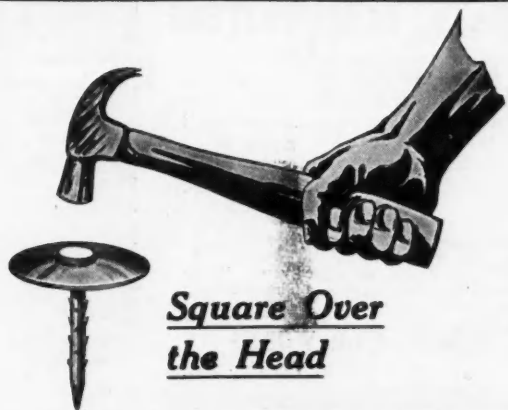
Let me prove this by having me send the complete

ACME FLOOR-SCRAPING OUTFIT

to you on a week's free trial basis at my expense.

Catalog and complete detailed information of my Free Trial Offer are yours for the asking.

JOSEPH MIOTKE, 247 Lake St., MILWAUKEE, WIS.



**Square Over
the Head**

SIMPLEX NAILS DRIVE STRAIGHT

The Shank extends THROUGH the Head. The hammer blow does not glance, as the blow falls directly on the head of the nail shank—not on the curved dome.

Trade **SIMPLEX** Mark
Reg. U. S. Pat. Office
ROOFING NAILS

Have four times the head area of so-called large headed wire nails; hence four times the holding power.
ONE PIECE—not two piece. Head cannot loosen.
Made in two sizes—1 inch and 1 1/2 inch.
Insist that your prepared roofing be furnished with **SIMPLEX NAILS**. Free sample on request.

H. B. SHERMAN MFG. CO.
BATTLE CREEK MICHIGAN

STANDARD CLAMP



**A Steel Screw and a
Wide, Strong Frame are**

the two features which give the Hargrave Standard Clamps the utmost resistance to wear and failure.

These Clamps are just as carefully made as all of the Hargrave Tools.

Catalogue ?

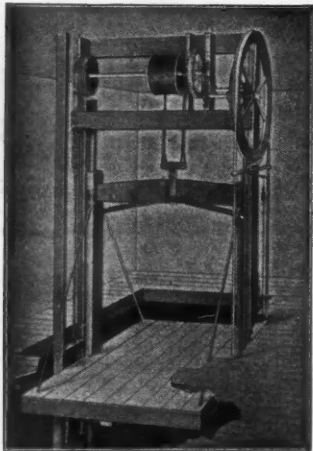
Dept. H

THE CINCINNATI TOOL CO.
Norwood, Cincinnati, Ohio

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

A Good Elevator

Is a Good Investment
Saves Time and Labor



Our product includes *Dumb-Waiters, Carriage, Auto and Store Elevators* — Hand and Power.

These machines are serviceable and will pay for themselves in a very short time. Being practically self-contained, they can be erected by any carpenter or "handyman" in a few hours' time. Plans for erecting furnished with each elevator.

The Reasonable Cost Will Interest You

Write to us today stating your requirements, giving style of machine wanted, size of platform and number of feet travel and we will name you a money-saving price on equipment made to serve you well.

SIDNEY ELEVATOR MFG. WORKS, SIDNEY, OHIO



Excelsior Dumb Waiters

The only Knock-Down Dumb-Waiter ever offered, shipped complete to a nail, with explicit directions for erecting, for **\$18.50**

Up-to-Date in Every Particular

Hardwood Car, Self Retaining Machine, Adjustable Weight, Guides, Ropes, Timbers and Hardware. Ropes joined by coupling. No Splicing. Will fit any ordinary opening up to 24" x 30"

Send for Printed Matter

R. M. RODGERS & CO.

74 Emerson Place - - Brooklyn, N. Y.

Hand Power Elevators AND DUMB WAITERS

Complete F. O. B. Cars Cincinnati, Ohio

FULL blue prints and instructions are furnished with each machine. The gearing is all set up complete and run before it is shipped to you, from our factory. This insures a good perfect running gearing and ready to set up when you receive it.

WRITE US FOR CATALOG AND PRICES

Electric Elevators for Passenger and Freight Service

THE WARNER ELEVATOR MFG. COMPANY

Cincinnati, Ohio



SANITARY AUTOMATIC DUMBWAITERS

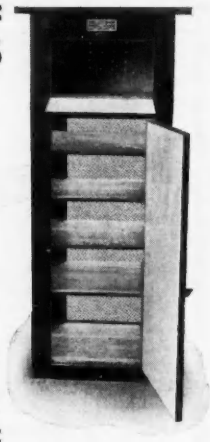
Save time, labor and money. Easy to install, cost nothing to operate and last a lifetime. Save all ice bills and are a practical necessity in localities where ice cannot be had. Do away with kitchen closets, wall partitions, contention with worn ropes. Save floor space; add to the house's convenience. Operate automatically by foot-pressure on floor button. Lie flush with floor when not in use.

CARPENTERS and BUILDERS!

The low price of these dumbwaiters will surprise you. Write for circulars and prices. We also want Agents. There is big money in this for you. Write today.

YORK AUTOMATIC DUMBWAITER WORKS

639 W. Market St. - - YORK, PA.



TRADE Sedgwick MARK ELEVATORS AND DUMB WAITERS

— HAND POWER —

Standard of Quality the World Over

SEDGWICK MACHINE WORKS

82 Carroll St.,
Poughkeepsie, N. Y.

New York Office,
132 Liberty St.

CHELSEA EXEMPLAR OF QUALITY

Send for our Elevator and Dumbwaiter catalog

CHELSEA ELEVATOR CO. 330 W. 26th St., N. Y.

HOISTS & ELEVATORS

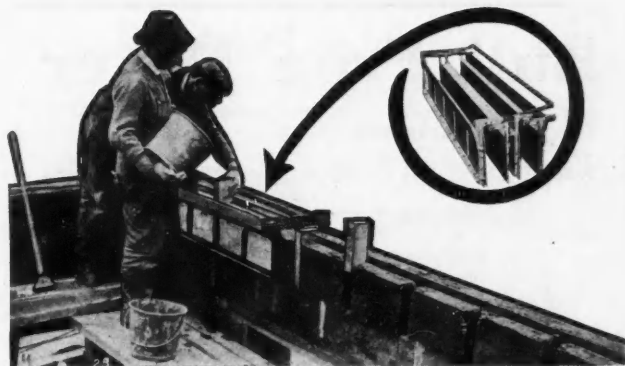
Columbia Dumb-Waiters
Pavement or Cellar Hoists
Jumper Disappearing Dumb-Waiters
Chain Blocks, Cranes and Trolleys

Send for Catalog

J. G. SPEIDEL Reading, Pa.



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



The Man Who Makes More Money and Bigger Profits

is the man who breaks away from time worn methods, adopts the best construction and lowers his costs with modern equipment. The VAN GUILDER HOLLOW WALL CONCRETE MACHINES lower costs by eliminating useless duplication of labor.

A general comparison of construction costs per square foot of wall is shown below.

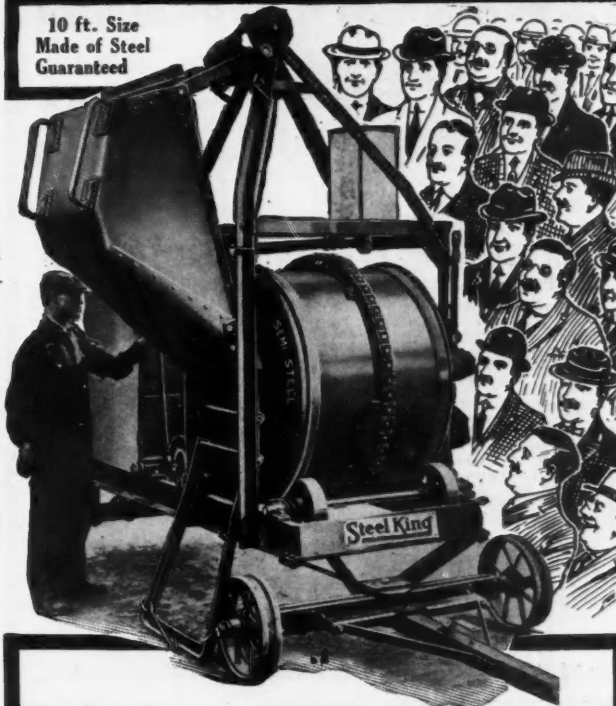
Van Guilder Walls @ 12c.	Brick Walls @ 22 to 33c.
(1c extra, reinforced.)	Tile Walls @ 19 to 24c.
Frame Walls @ 16c.	Block Walls @ 23 to 25c.

Our catalog and instruction book are packed with profit-getting information. We will send both free on request.

VAN GUILDER HOLLOW WALL CO.
720 Chamber of Commerce Bldg.
Rochester, N. Y.

Here's The Concrete Mixer You Have Been Looking For

10 ft. Size
Made of Steel
Guaranteed



Steel King

— 10-Foot Size —

All Steel Mixer—Just Right in Weight—
The Right Capacity—At the Right Price

Why pay MORE money for a heavy, cumbersome, cast-iron mixer that's expensive to operate and hard to move about?

You can get the Steel King at a lower price and have a better mixer.

It's built of steel and semi-steel. Weighs 1,000 lbs. less than cast-iron machines of some capacity. Six hundred pounds less drum dead weight on engine. Saves fuel. Saves pounding of engine.

Contractors who have investigated wonder how we can build a mixer so good to sell at such low price. The secret is: steel construction, cheap manufacturing power on account of Keokuk dam, and the fact that every part is standardized, thereby lowering construction cost. Investigate now.

Special Features of Steel King

The Steel King has five years more life than the average mixer.

Mixes and remixes 40 times in half a minute. Takes full sacks of cement. 140 yards a day capacity, with 12 barrows a minute discharge. Chain drive, with double grip clutch. Automatic water tank. Special drum, creating thorough criss-cross mixing action. Thoroughly cleans itself at every discharge. Side loader. Builder's hoist. A complete mixer at a price never before quoted.

**Little Boss
Mixer
Only
\$198⁰⁰**

A little smaller machine at a price every contractor can pay. Turns out 40 or more yards a day. Equals machines costing \$300 or more. Sold under guarantee.



WRITE FOR LITERATURE of money back if Little Boss fails to come up to claims.
THE AMERICAN CEMENT MACHINE CO. (Inc.)
1006 Johnson Street KEOKUK, IOWA

"Yankee" Bench Drills



with Automatic
Friction and
Ratchet Feeds

No. 1003—One Speed
Drills up to 1/4 in.

No. 1005—Two Speed
Drills up to 1/2 in.

With these new automatic feed features the "Yankee" is at once the quickest and most desirable Bench Drill made. A Baltimore Dealer writes—"We sold two Drills No. 1005, which you shipped on the 17th ult., as soon as we showed them up. Ship us two more."

Send for "YANKEE" Tool Book.

NORTH BROS. MFG. CO.
Dept. A PHILADELPHIA, PA.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



90 Cubic Yards Per Day

Saves 60 to 90 cents on every yard. Pays for itself several times each season. Gives you the edge on your competitors. So light that two men can carry it. Big savings in freight and handling. Can always be set to discharge direct into forms. Saves all wheeling from machine. This alone saves one-third the labor necessary to operate other mixers.

Not a Man-Killer
Has an enormous capacity
SIMPLE—COMPACT—HANDY—SUBSTANTIAL

New Principle—Quick Charging—Quick Action—Quick Discharge

Its mixing blades have a criss-cross, kneading, plowing, hoeing motion which press and fold the entire batch over upon itself many times every second. Insures a quick and thorough mix. You will be proud to say you have a Northfield Hand Batch Mixer, once you see its work.

The SLUSH mixer mixes 4 cu. ft. of finished concrete per batch. A batch per minute or 90 cu. yds. per day is easily possible under favorable conditions. 30 to 60 cu. yds. per day is a fair average on ordinary abutment, floor, wall or bridge work. Over 10 cu. yds. per hour have been averaged. When operated by power—one man alone can mix mortar fast enough for a crew of 20 brick layers.

The DRY or WET mixer is good for any kind of mixing—either Dry, Wet or Slush. Is extra fine for brick or block plants, core sand, plaster, brick mortar, chemicals, etc. Capacity—2 to 3 cu. ft. per batch—or 15 to 45 cu. yds. per day. Is just like the SLUSH mixer except a slight change in the drum heads and agitator. Is the best for an all-purpose mixer. The SLUSH mixer is best for big jobs and rapid contract work where slush mixtures are used.

Two men turn either machine easily and do not work as hard as the shovellers. A pump engine will run them. It is not necessary to have a big expensive power mixer to economically mix concrete. No job is too big or too small for the Northfield. No better mixer can be had, even at ten times its price.

Write direct to factory for catalogue, prices and terms.

NORTHFIELD IRON COMPANY
402 Water Street - Northfield, Minn., U. S. A.

Bull Frog Mixer

Why Buy A Giant
When The Bull Frog
Leaps—



—the obstacles and enables you to meet competition on a firmer basis. The price will stagger you. We make all sizes from \$27.50 to \$275.00. Our catalogue will show you the exceptionally good values we offer you at these prices. The Bull Frog will mix mortar as well as concrete. Use one machine for all kinds of work. The price of this machine is within reach of the smallest contractor, and will save money for the large one. Our catalogue is Free. Drop us a card for one today.

Farmers Supply Co.
JANESVILLE, IOWA

Supplies the Demand for a Small Perfect Mixer



McCracken Batch Mixer

Capacity
3 Cubic Feet
Per Batch

Weight
800 Lbs.

On Trucks
1000 Lbs.

On
Trucks
with
Engine
1400 Lbs.

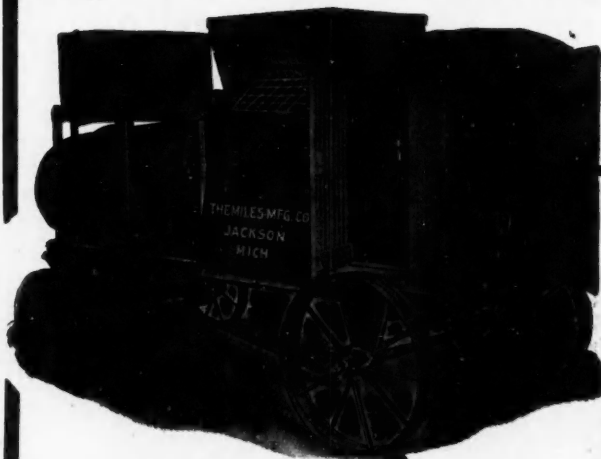
The McCracken Portable Batch Mixer

Is designed and built to meet the demand for a strong, simple, durable and practical mixer, that is large enough for all ordinary contract work, yet light enough to be profitable on the small job as well as on the large. Mounted on good steel trucks, EXTRA LARGE DRUM OF THE PROPER SHAPE, equipped with our own high-grade 2-HP. SIOUX engine, enclosed in a good steel housing (not a cheap box), also has friction clutch, so that drum can be started and stopped without stopping the engine. Capacity, twenty-five to thirty-five yards per day. Cost for power, twenty-five cents per day. The largest, best and most complete mixer on the market for the money. Write today for prices.

Write for Further Particulars

Sioux City Engine & Machinery Company
9th and Division Sts. SIOUX CITY, IOWA

Buy The SIMPLEX 1914 Model MIXER



Combining the good features of both batch and continuous mixers in the one machine.

The best feature of the Batch Mixers is the rolling of the materials. The greatest advantage of the Continuous Mixer is the automatic measuring and feeding of the materials.

Only one machine combines these two features—the SIMPLEX. It's the happy medium between the two types of mixers, giving the points of advantage claimed by each, and eliminating the faults of both.

Write for New Complete Catalog.

The Miles Mfg. Co.
309 E. Franklin St. JACKSON, MICH.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

“Find Out” Coupon

Send me details of WONDER Mixers and FREE TRIAL proposition for Builders; also, about Saw Rigs.

Name.....

P. O.

State.....

**You
CARPENTERS
and BUILDERS**

Should Find Out About This

Find out how, by a small investment in a WONDER Mixer, on easy terms, you can double your profits.

Find out how, by exclusive patents and improvements, this machine is far superior to all others in actual money-earning and money-saving features.

Find out how thousands of contractors mix mortar as well as concrete with this mixer, and how they're putting in their pockets the profits they used to "pass up" to others.

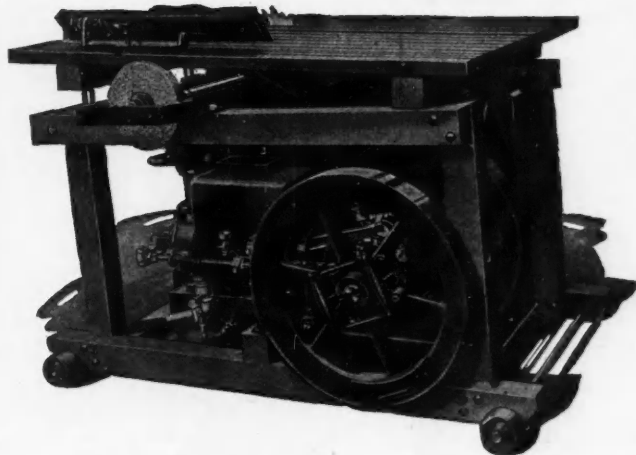
Ask us for testimonials from enthusiastic contractors in your own locality and go and see a LITTLE WONDER "FIVE" on the job—or write, wire or phone for our nearest-to-you service station—we have nearly a hundred of them.

**The Little Wonder
“FIVE”**

is simple, strong and durable, and mixes perfectly a batch a minute. It is all steel and iron, with I-beam section skids and I-beam steel axles; steel wheels, wide tires, standard tread. First-class gasoline engine. Capacity, 5 cu. ft. per batch—35 to 50 cu. yds. per day on about a gallon of gasoline. Side Loader doubles this at small extra cost. Automatic Water-Measuring Tank and Rotary Pump can also be added when Side Loader is used. The most complete mixing outfit in the world. The more closely you study values, the more positive will be your decision for WONDER Mixers—and, remember, on easy terms, with TEN DAYS' FREE TRIAL on your own work, which insures satisfaction before you buy, or we pay the freight.



Little Wonder
“Five” Concrete
Mixer.



Wonder Saw Rigs

With the WONDER PORTABLE SAW RIG you practically put your shop on the job—saw your own lumber—rid yourself of mill-order delays and put the profits in your pocket. Frame, table, skids, etc., built of best rock maple. Standards of clear maple 3½ in square, firmly bolted together. Table, 60x42 in. and 1½ in. thick. Gasoline engine, 5 HP.; absolutely reliable. Outfit includes two 14-in. and one 16-in. Disston rip saw; one 16-in. Disston crosscut saw; also 10-in. emery wheel, gauges, wrenches, etc.

Fill Out and Mail the “FIND OUT COUPON”—See top of this page.

Waterloo Cement Machinery Corporation

103 Vinton St. WATERLOO, IOWA

NEW YORK
11 Broadway

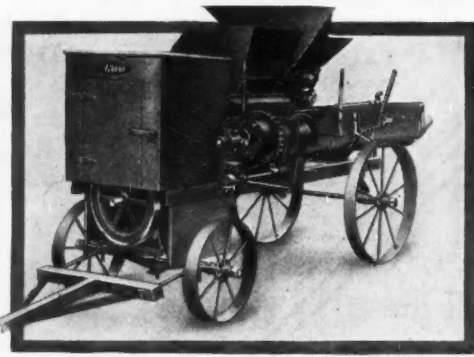
PHILADELPHIA
The Bourse

CHICAGO
9 S. La Salle St.

KANSAS CITY
Commerce Bldg.

SAKT LAKE CITY
301 W. So. Temple St.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



The BABY GRAND CONTINUOUS MIXER

combines all the good features of *mixer* and *hoist* at the price of *one* machine.

The BABY GRAND is a logical investment for the Carpenter and Contractor because both mixer and hoist are greatly used in modern construction. You can afford the Baby Grand. It is portable; capacity, 4 to 5 cu. yds. an hour. 2½ H. P. Gasoline Engine furnished with the machine.

The HOIST is mounted on the frame (see illustration). Operates with or independent of the mixer. Simple friction clutch for starting and hand brake for holding load. Capacity of hoist, 400 pounds. Lifts load 100 ft. per minute.

Our latest CATALOG gives a complete description. Send for it. We also make the HARTWICK TWO TROUGH MIXERS for heavy construction work.

HALL-HOLMES MFG. COMPANY
436 Oak Street Jackson, Mich.

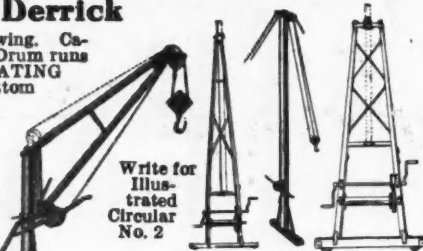
Introducing the New Sasgen Peerless Steel Derrick

with a full circle swing. Capacity 2,000 lbs. Drum runs in SELF-LUBRICATING BEARINGS. Bottom sills and mast can be folded together.

PRICE ONLY \$45.00

equipped complete for hand and power with 125 ft. crucible steel cable, swivel block and fasteners. \$2.00 less for hand power only.

"Peerless" CANADIAN OFFICE, 13 JARVIS STREET, TORONTO, ONT.



Write for Illustrated Circular No. 2

T. P. Setter Pole Regular Setter
Our motto — "Satisfaction or No Sale."

SASGEN DERRICK CO.
2053-57 N. Racine Ave.
CHICAGO, ILL.

THE WINNER MIXER

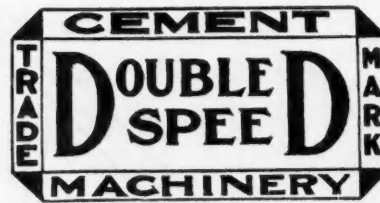


Will make money for you even if you don't have work enough to keep it running all the time. The cost is very small, and one gallon gasoline will run it a day.

Mixes 4 and 5 cubic feet per batch
Daily capacity, 30 to 40 cubic yards

Ask for our FREE Catalog

THE CEMENT TILE MACHINERY CO.
133 Rath Street Waterloo, Iowa



Cement Brick Machine

is automatic. Makes 16 brick at one time, delivering 8 brick at each side, with one operation of the lever. Produces the most beautiful designs on face of brick as the "Double Speed" is a face down machine.



Double Capacity—Double Output One-Half the Expense

These are the machines you need, Mr. Carpenter, Mr. Builder or Mr. Lumberman, to increase the output of your plant without any extra expense except for materials. They give twice the output of any other machine of their size. You can make 16 perfect brick or 2 blocks in one operation.

"Double Speed"

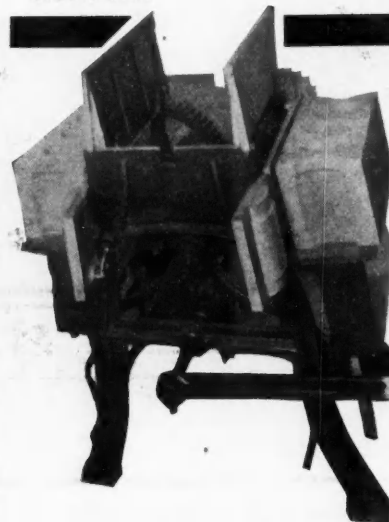
Cement Brick Machine

Cement Block Machine

will more than pay for themselves in two weeks. You can hold your own against competition, because your output is sufficient, your labor expense low and your product first class in every respect.

Let us Explain. Write for Complete Catalog and full information.

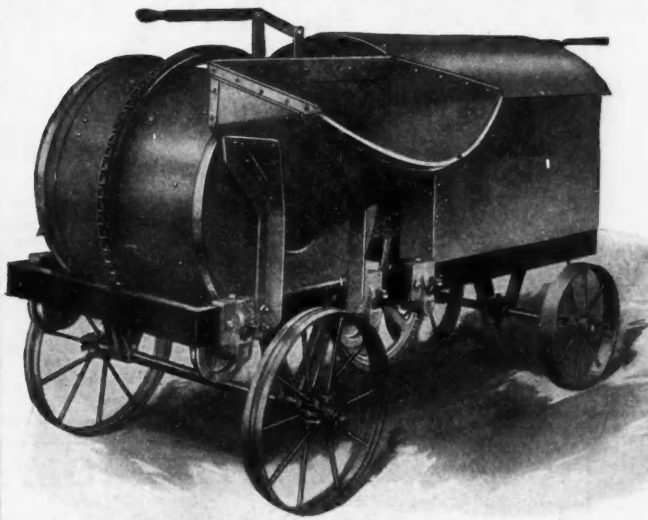
The Northwestern Distributing Company
SIOUX CITY IOWA



Cement Block Machine

is automatic. Makes two blocks or four building slabs at one time, delivering one block or two slabs at each side with one operation of the lever. Produces artistic designs as the "Double Speed" is a face down machine.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



Atlas

MIXERS

2 $\frac{1}{4}$ Cubic Feet
Every Minute

And the drum keeps right on mixing. Not an instant is lost. Every batch is so perfectly proportioned that you never need to look into the mixer—just carry away the deep rich load and keep on carrying to the tune of fifty yards a day. The

Low Charging Feature

of the Atlas is what first attracted attention; every man on the job wanted to work with the Atlas—it was easier. Then contractors observed its splendid construction, absolute portability, and above all, that it was "fool-proof." It is a mixer that is mechanically perfect, which will stand the hardest kind of usage and which sells at a remarkably low price. Write for descriptive literature—free upon request.

Atlas Engineering Company

Producers of high grade, low priced Concrete Mixers
780-30th ST., MILWAUKEE, WISCONSIN

The Corby Supply Company
815 Hempstead St.,
St. Louis, Mo.

W. E. Austin Machinery Co.
Southern Sales Managers
Atlanta, Ga.



The low charging feature

Cook & Koons, 702 Finance Bldg.
Kansas City, Mo.

Brooks-Ward Supply Co., 24 Commerce St., Baltimore, Md.

J. C. Campbell & Company, First National Bank Bldg., Chicago, Ill.

Henry J. McCoy Company
65 Dey St., New York, N. Y.

Lacy & Hursh, 40 N. Sixth Street,
Philadelphia, Pa.

The Buffalo Contractors' Equipment Co., Builder's Exchange,
Buffalo, N. Y.

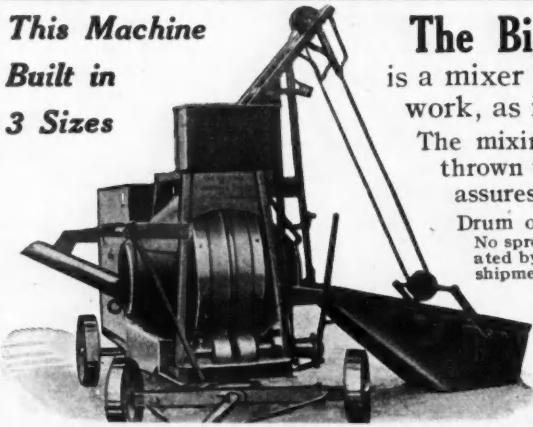
Kirk Supply Company, Jenkins' Arcade Bldg., Pittsburgh, Pa.



A good load in a few seconds

You will get **SPECIAL ATTENTION** if you tell Advertisers you read **American Carpenter and Builder**

**This Machine
Built in
3 Sizes**



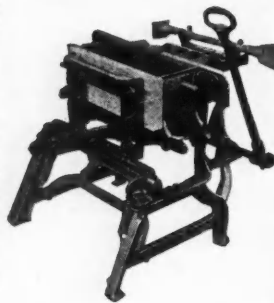
The Big Sioux Concrete and Mortar Mixer
is a mixer that is built for service and to suit any class of work, as it mixes dry as well as wet.

The mixing drum and paddles are shaped so the mixtures are thrown three ways and emptied from the center of drum, which assures an even mix at all times.

Drum operates with friction drive on roller bearings. No gears to rip — No sprockets to wear out. All levers for filling, emptying and water supply are operated by one man. Built of steel and cast iron throughout. Satisfaction and prompt shipment guaranteed. Write for circulars and prices and tell us your requirements.

The Iowa Foundry Company

West 2nd and Cook Sts., - SIOUX CITY, IOWA



**Miller's
"Block King"**

Makes the **BEST BLOCK** in the Shortest Time at the Lowest Cost

Unlimited range sizes and shapes. Shipped on trial anywhere. **DON'T** order until you get our catalogue. The low price will surprise you. Also Tile, Brick, Chimney, Moulds, Automatic Tampers, and Mixers.

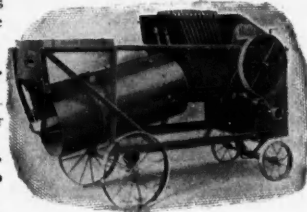
J. C. MILLER CO., Box A Jackson, Mich.

INVESTIGATE THE BOLTE

Thousands in use on all classes of Concrete Work throughout the U. S. and Foreign Countries.

Positively a Labor-Saver over hand or batch mixing, reducing mixing cost 50% over either method.

Sent subject to **Trial. Satisfaction Guaranteed or no Sale.** Price Low and terms Right.

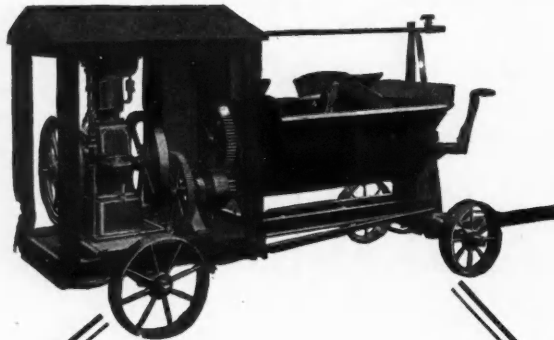


Write for Particulars

Address **The Bolte Mfg. Co.**

KEARNEY, NEBR.
West 2 1st Street

OR CINCINNATI, OHIO
420 E. 2nd Street



**We Can Save You Money
In Your Mortar Mixing**

Mr. G. Ed Berry, a Harrisburg, Ill., contractor, writes us that with the Blystone Mixer, "One man has slaked my lime and made mortar for eight and ten masons besides having time to spare for other work. I have saved the cost of at least one man's wages and a gain of ten per cent more mortar per barrel of lime over the old way of mixing."

Is YOUR mortar or plaster mixing a profit eater. Why not make it a profit producer? Our Blystone Batch Mixer is a mortar and plaster mixer as well as a concrete mixer. It can save you time, labor and material on every mortar or plastering job you do.

The Blystone Mixer operates very easily. It is filled while in motion and material is discharged while machine is in motion. It mixes material in full view, insuring an absolutely accurate mix. The reverse spiral paddle system of the Blystone mixes rapidly, turning material over forty times in ONE minute. Blystone Mixers are furnished with gasoline engine power equipment, or for belt driving. Mounted on skids or portable hand trucks.

BUILDERS—Get The Facts About The Blystone

Let us send you our catalogs and other matter explaining in detail just how the Blystone can save YOU money. Write us for this information right now—while you have it in mind. Asking us for details puts YOU under NO obligations.

THE BLYSTONE MACHINERY CO.
19 Carpenter St. : CAMBRIDGE SPRINGS, PA.

CLOVER LEAF MIXERS

Are different from all others in design, construction and mixing principle. There is no skimping in material to beat the price market. The Clover Leaf gives *Service*. Price is a secondary consideration.

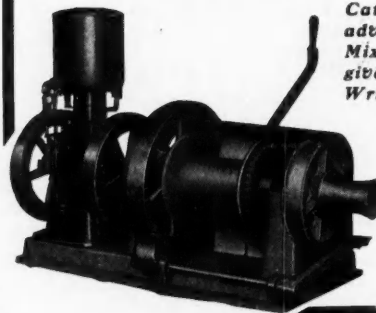


Take the Clover Leaf, put it to work and you'll never complain. It's the one machine that will stand rigid investigation. The more critical you are, the more our mixer will suit you. Investigate. The decision rests with you. Whatever your requirements, the Clover Leaf Mixer will meet them.

The CLOVER LEAF HOIST

Is a piece of equipment no Contractor should begrudge buying. It saves money. It does the work of many men in hoisting timber, brick, mortar, and other material wherever needed on the job.

Catalogs explain where advertisements can't. Our Mixer and Hoist Catalogs give information you want. Write us.



CLOVER LEAF MACHINE CO.

Sample St. Office
South Bend, Indiana

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.



—yes, where lies the most important factor of this job, or any job, the one piece of equipment that if it should break down would tie up the entire job. Why the Mixer, of course. That's why you should investigate the many advantages of

“THE STANDARD”

LOW CHARGING Concrete Mixer

“the mixer with the self-paying knack”
 Why “The STANDARD” will stand the “gaff”, the rough and tumble usage better than any other.

First: In place of a complicated sideloader, there is an attached portable low folding platform. Less machinery, to buy, to take care of, and no guides, cable, hoisting attachment to get out of order. Simple and compact in every way.

Second: The Discharge is of simple, Semi-Automatic type can be operated from either side of the drum and has no complicated tilting or other working parts to get out of order.

Third: The whole outfit will weigh less — take up less space than any machine of its capacity.

All these points of advantage stand for greater strength, greater length of life — less chance of breakdown — requirement of less labor and power and assurance of greater output and lower mixing cost.

This interests you and it pays to get in touch with—

The Standard Scale & Supply Co.

Manufacturers of High Grade Machinery for High Grade Work

CHICAGO PITTSBURGH PHILADELPHIA NEW YORK
 1345-47 Wabash Av. 243-245 Water St. 35 South Fourth St. 136 W. Broadway

“Tear off the Slip”

Why they Save YOU 1/3 on every Dollar

Send me “3 Saving Book” on “The Standard” No. 445

Name _____ P. O. _____ Town _____ State _____

Hour Pump Barrows Cans Demicks
 Gasoline Engine Equipment Distributing Tower
 Road Machinery

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

SIMPLICITY AND MECHANICAL PERFECTION

are two of the many desirable features
found in Ideal Concrete Machines

Contractors and Builders

It is not necessary to explain to the progressive builders, the advantages of concrete in its various forms. However these advantages (and ECONOMY is the chief one) are not to be had if inferior, roughly cast machines are used. Therefore study carefully the characteristics of IDEAL MACHINES.

Mechanical Perfection.
Are Durable and
Substantial.

Speed.
Interchangeable Parts.
and Attachments.

Portable and Convenient.
Produces Greatest Variety
of Blocks and Designs.

Sold Under a Positive Guarantee. Write for our Catalogs.

Makers of High Grade Concrete Machinery

Block Machines

Brick Machines

Dimension Stone and
Curb Stone Machines

Automatic Power Tampers

Conveyors and Feeders

Batch and Continuous
Mixers

Ornamental Molds, Sill and

Cap, Fence Post, Drain and

Sewer Pipe Molds, Tycrete
Waterproofing and Colors

Ideal Concrete Machinery Co.

London, Ont. Canada

1308 Monmouth Avenue, CINCINNATI, OHIO

PERFECT CONCRETE

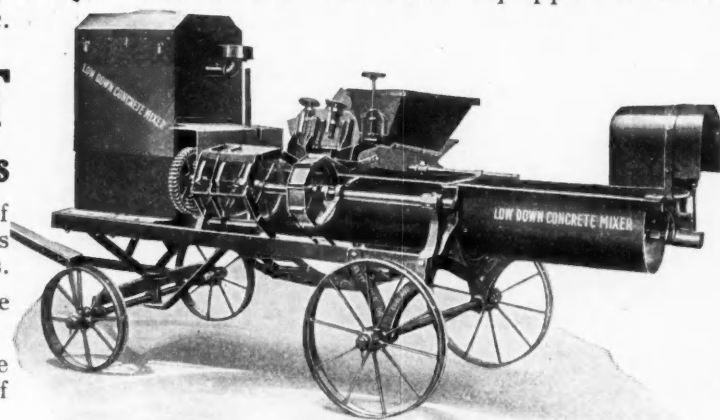
Of even texture without weak or lean spots is produced by the Low Down Continuous Concrete Mixer equipped with the new *Automatic Feeding and Proportioning Device*. In proportioning concrete by hand, it is the easiest thing in the world to get in a little too much or too little sand or stone, and the result is an imperfect batch that escapes notice until the job is finished. This is entirely overcome and the uncertainty of the human mind is eliminated by using the Low Down Concrete Mixer equipped with an automatic mechanical feeding device.

An INVESTMENT That Pays Large Dividends

Because the machine is constructed of malleable iron and steel which guarantees long life and exceptional wearing qualities.

Because the low down hoppers reduce the labor cost of finished concrete.

Because the mechanical feeding device gives absolutely accurate proportions of materials.



ELITE MANUFACTURING CO.

Ashland, Ohio

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

The Coltrin Mortar Mixer

RIGHT Now, before the opening of the busy season, investigate the Coltrin Mortar Mixer. For instance, take a mortar box, shovel in fourteen cubic feet of sand, dump seven sacks of cement and a hundred pounds of hydrated lime;

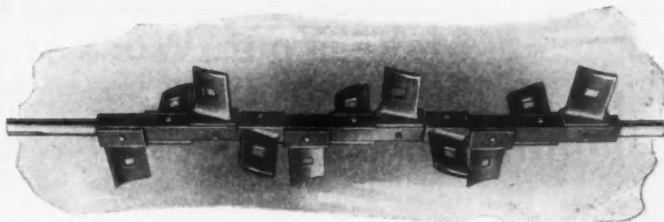


Hold your watch! It will take forty minutes for two good mortar men with hoes to mix this amount by hand. With a Coltrin, one man will do it in twenty minutes. The men with hoes will produce streaked mortar. With the man and the Coltrin, the mortar will be mixed right. Watch your masons tamp the hand-mixed mortar; note the difference when they have properly "Coltrin-mixed" mortar.

It's a dollars-and-cents question, Mr. Contractor. If you are alive, you cannot afford to mix mortar by hand. We can show an equal saving when using slacked lime putty and adding cement, producing the same superior mix.

Will you let us show you? With our No. 0 Coltrin Mortar Mixer, two men can mix mortar for 35 masons. It's our business to prove the claims we make.

The Coltrin Mortar Mixer has a 15-inch shell, 60 inches long, with a discharge door at the end that is controlled by a hand lever at the side of the machine. The **Shell** has a 25-inch clearance at the discharge end for wheelbarrows to receive mortar.



Paddles used in Coltrin Mortar Mixer

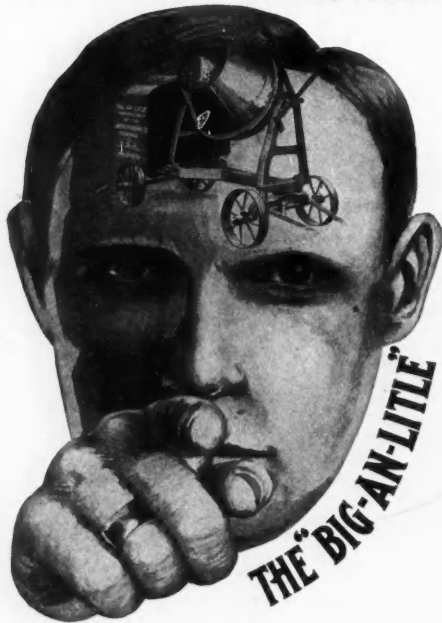
The **Mixing Paddles** are semi-steel and are attached to a 2-inch square shaft (see cut), are interchangeable, and each one is adjustable, entirely independent of the others.

Direct Gear Drive
Two Main Gears and Two Pinions
No Chains, Sprockets or Belts

The Knickerbocker Co. Jackson, Mich.

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.

GET THIS MIXER ON YOUR MIND



Because

It is the biggest and best small batch mixer on earth.
 It is built of the best iron and steel—by the best mechanics.
 It mixes all kinds of concrete, mortar, etc.
 It requires very little operating expense, and attention.
 It costs next to nothing for up-keep.
 It is always ready to do business every day.
 It is priced to you on a cash basis and sold at a low figure.
 It is furnished on skids without power, if you have your own engine, or it is mounted on trucks with engine, or mounted complete with Hoist, or mounted complete with Loader, Hoist, Mixer, or engine can be used indefinitely.
 A mixer and outfit built for YOUR particular purpose.
 Get our catalog and information and your "Big-an-Little" will come later—Increased profits—More contracts—Better QUALITY Work, all go Hand in Hand with the "Big-an-Little."

THE JAEGER MACHINE CO.

318 West Rich Street

COLUMBUS, OHIO

STOCK CARRIED BY

The E. B. Kelley Co., 50 Church St. N. Y.
 At Syracuse, Boston, New York and
 Trenton.
 Lee T. Ward Co.,
 The Bourse,
 Philadelphia, Pa.
 W. M. Pattison Supply Co.,
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 Salt Lake City, Utah.
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 331 W. 35th St., Chicago, Ill.
 Speaks Lime & Cement Co.,
 Superior, Wis.

Don't Consider an Imitation Look for the Patent Mark

Pat. Jan. 24, 1905.
 Pat. Feb. 14, 1905.
 Pat. Jan. 29, 1907.
 Other Patents Pending.



Make Your Work Show Profits

Use Sterling Machines—the greatest money makers ever built for up-to-date contractors.

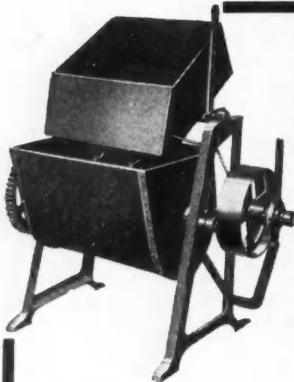
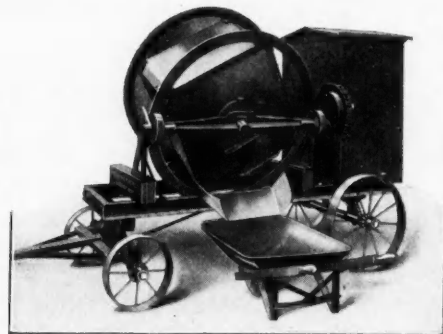
To prove this we are willing to let you try either machine 10 days before you agree to accept it.

Sterling combination brick and block machines are the speediest to operate, they work with wonderful ease and make most any size waterproof brick and blocks for building purposes. Our price means a large saving of money to you.

Sterling batch mixer produces a perfect concrete mixture in less time, less power and less expense. Simple in construction, no clumsy or complicated machinery.

It will pay you to send for our catalog now.

Sterling Machinery Co., 127E-So. 2nd St., LA CROSSE, WIS.



Think of It!

This HELPER mixer that will mix mortar and concrete, only \$35.00

It will mix two cubic feet at a time. The measuring box enables you to get another batch ready while one batch is being mixed. Requires 1½ h.p. engine to run it. Daily capacity 15 to 20 cubic yards.

Send us your order now, or ask for FREE catalog giving more information.

THE CEMENT TILE MACHINERY CO., 132 Rath St., Waterloo, Iowa

THE BEST CEMENT BLOCK IN THE WORLD

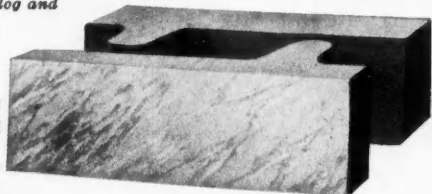
Continuous open air space; reinforced all around; staggered bearings. Makes strongest buildings and silos at least cost.

Block Machines, Automatic Tampers, and Continuous Mixers made by the

BRAGSTAD CONCRETE MACHY. CO. - CANTON, S. D.

Write for Catalog and Prices

See our Exhibit Space 4 Building Material Exhibit. Insurance Exchange Bldg. Chicago, Ill.



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



ON THE CONCRETE JOB WITH THE SMITH HAND MIXER

**CONCRETE
SIDEWALKS**

**BRIDGE
ABUTMENTS**

**FOUNDATIONS
CURB and
GUTTER WORK**

**BARN
APPROACHES**

**WELL CURBS
ETC.**

ANY small concrete job can be handled to advantage with a Smith Hand Mixer. Four men with one of these machines can mix twice as much concrete as by hand. With the machine they secure a uniform mix easily and without undergoing the back-breaking strains of shovel mixing.

Run a Smith Hand Mixer between your sidewalk forms and discharge the concrete directly into place without wheeling.

Tie a Smith behind your wagon and run out along the highways and put in your bridge abutments, culverts, etc. You'll find you can easily cut your cost in half.

Elevate this Hand Mixer over your foundation forms and chute the concrete directly into place. Cut out the extra expense of wheeling the mixed concrete from mixer to forms.

This machine is well adapted to curb and gutter work as it is light and very portable. Run it along as the work progresses and save the bother of moving a heavy mixing platform.

The Smith Hand Mixer might well be called the "Farmer's Friend" for it can be used on the farm in a dozen different ways, all of which will prove to be money savers. Build your barn approaches, floors, etc., pig-pens, hen-houses, wells, curbs, etc., with it. Make them sanitary and everlasting. You'll find it pays and pays well.

Write for our special booklet covering the Smith Hand Mixer and see just what this machine is. Send for it now—Booklet No. 17-W.

The T. L. Smith Co. 1138 32nd Street,
MILWAUKEE, WIS.

**MAIL THIS
COUPON
NOW**



Give "UNCLE SAM" One of Your
**SMITH HAND MIXER
FOLDERS No. 17-W**

For

City

State

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.

\$200 for this DUNN No. 1 Mixer on Trucks with 2½ H. P. Engine

Is an example of how you get

High Quality + Low Price

Here's real mixer economy—proved beyond a doubt. In thoroughness of construction, mixing principle, compactness and completeness, this Dunn No. 1 is positively without an equal. No claims—just plain statements that cannot be contradicted.

Has a capacity of 5 cubic feet of perfectly mixed concrete to the batch—and mixes *quick*. The drum is made of 12 gauge boiler plate and cast iron and is low enough to permit easy charging. The discharging is accomplished by *hand wheel*—not by lever; this is a big labor-saving feature.

The outfit includes a guaranteed 2½ h.p. water-cooled gasoline engine, and a big, strong truck, riding on wide steel wheels. The outfit is heavy and *strong*. Use it for your hardest work—take it over the *roughest roads*. Put it to the

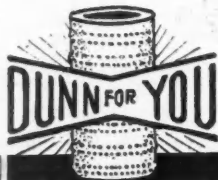


DUNN No. 1

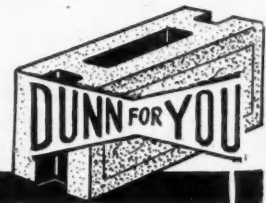
severest service you can think of. *Try it for 15 days at our expense before you obligate yourself to buy.* Write for mixer catalog and get posted on our complete line.

No. 0 Power Mixer, \$67.50

The DUNN No. 0 Mixer sells for \$67.50; this is on skids and without engine and is a serviceable mixer for building contractors. Has a capacity of 3½ cubic feet to a batch and the same heavy construction as our No. 1. Same mixer on trucks, with 1½ h.p. engine, \$150. Write for the catalog describing Dunn Tile Machines, Block Machines, Brick Machines, Pipe Molds, Ornamental Molds, etc.



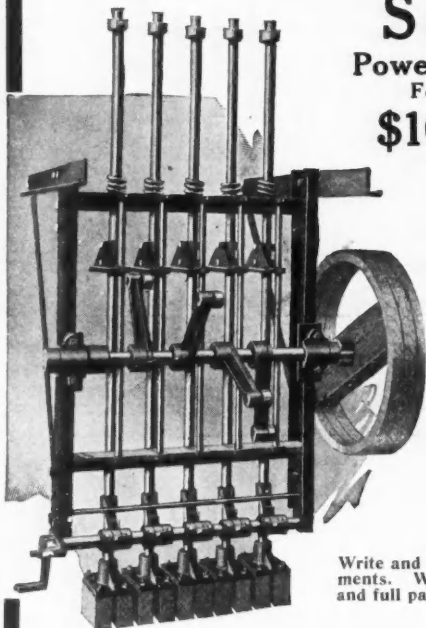
W. E. DUNN MFG. CO.
4132 Fillmore Street, Chicago



Don't Tamp By Hand

When You Can Buy an

S & S
Power Tamper
For Only
\$100.00



We make the most rapid tamper now on the market. Has a 19-inch drop and strikes a 50-lb. blow. This machine will work on any 16-inch or 24-inch block machine, or on any 10-brick machine.

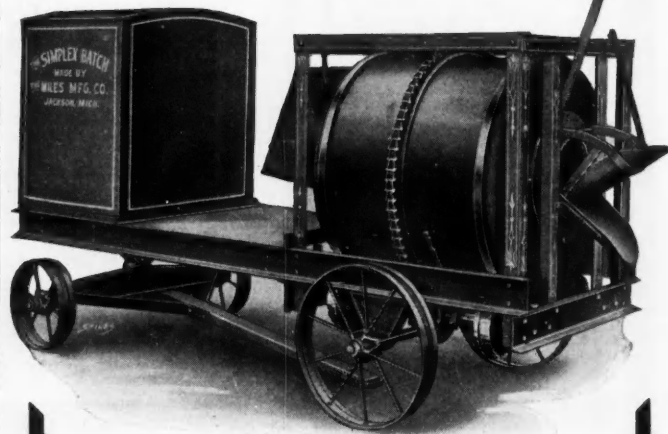
Write and tell us your requirements. We will quote prices and full particulars.

CEMENT TILE MACHINERY CO.

134 Rath Street, Waterloo, Iowa

BUY THE SIMPLEX BATCH MIXER

1914 Model



Note the heavy, substantial construction, Low Hopper, Heavy Cast Heads, Drum of No. 8 Steel, Concealed Gears, All-Steel Frame, Rear Discharge, also Side Discharge if desired. And best of all our attractive offer.

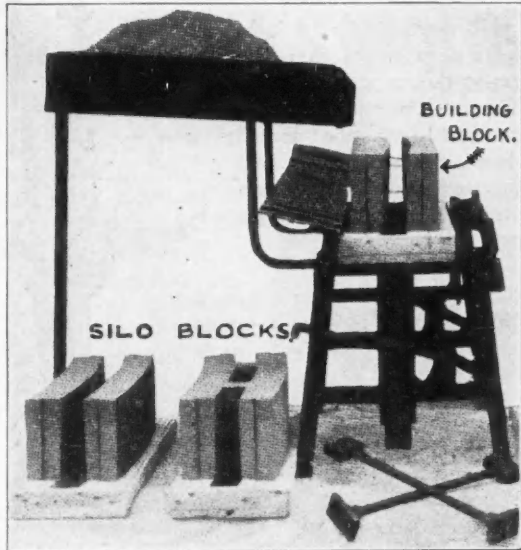
Write to-day for catalog.

THE MILES MFG. CO.

307 E. Franklin Street :-: Jackson, Mich.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

The Perfect Cement Block Machine



Makes hollow wall building blocks and silo blocks. Complete outfit for work on any kind of building. Simple and inexpensive. No experience necessary to run the Perfect. Blocks 8 in. high, 9 in. thick and 24 in. long, tongued and grooved. Four galvanized iron ties make blocks strong.

Write for More Particulars. The PERFECT Pays
J. J. COYNE, Manufacturer :: Fond du Lac, Wis.

BUY NOW. SAVE \$15.50

Special 30-Day Offer

In order to advertise the **Leader Cement Brick Machine**, we make this special sale price of **\$12.50**. The regular price is \$28.00. You save \$15.50 by placing your order now.



Sale Price \$12.50

STARCH BROS. CO., LA CROSSE, WIS.

The **Leader Cement Brick Machine** is guaranteed. Money back if you're not satisfied. Makes 5 cement brick in one operation. A man can make 1500 to 2000 brick in 10 hours. Built of cold rolled steel. Lasts a lifetime.

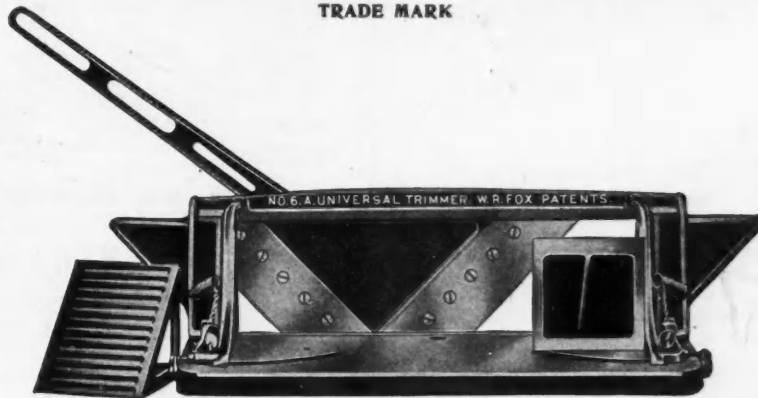
This is your chance to get this **GUARANTEED** machine with complete set of face plates and outfit at a very low price. Remember this offer is good for 30 days only. Send your order today. We will cheerfully refund your money if you are not satisfied.

Write us now for Full Particulars.

FOX "UNIVERSAL TRIMMER"

TRADE MARK

A Machine For Every Need



6A. FOX "UNIVERSAL TRIMMER"

A Need For Every Machine

You Will Never Know What Perfect Work is Until You Use a Fox "Universal"

The fitting of interior finish is greatly improved by using a Fox Universal.

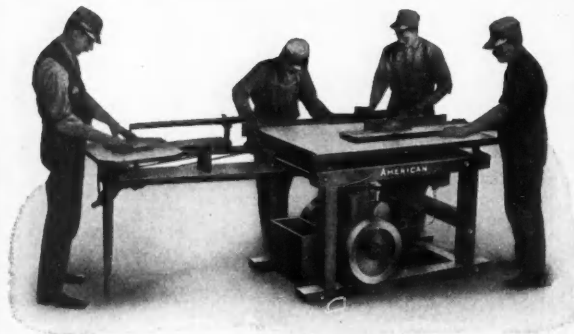
Write **TODAY** for Our New Catalog

FOX Machine Co.

22 FRONT AVENUE N. E.
GRAND RAPIDS, - - MICHIGAN

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.

"AMERICAN" Contractor's Portable Variety WOOD-WORKER



**Built for the Owner's
Profit**

That's one thing that distinguishes the "American" Wood-Worker from a lot of others built merely to sell at big profit to the manufacturers.

In making the "American" we've had your interests in mind, Mr. Contractor—we've made it to be a **steady money-maker for you**, and we stand back of it with our reputation.

The "American" is a machine you can depend upon to see you through. It isn't a "one season" machine—it's a year-after-year producer that stands up to business.

If you are looking for a real investment that will pay you dividends (in the shape of larger profits) from year to year, investigate the "American" Contractor's Portable Variety Wood-Worker.

Send for the "American" Pamphlet, No. 47.

**American Saw Mill
Machinery Co.**

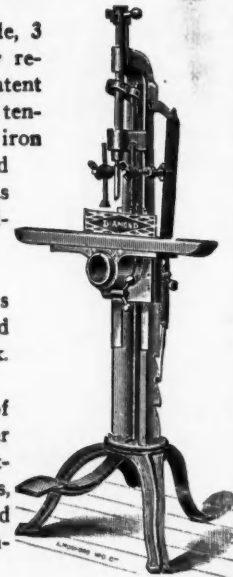
80 Main Street
HACKETTSTOWN
NEW JERSEY

1360 Hudson Terminal
NEW YORK CITY
NEW YORK

"Diamond" Mortiser

For Foot Power

Will mortise $\frac{1}{8}$ to 1 inch wide, 3 inches deep or 6 inches deep by reversing the work and with our patent adjustable tenoning tool will cut tenons $\frac{1}{8}$ to 1 inch wide. Has rigid iron column, powerful foot motion and accurate action. The table has horizontal, vertical and angle adjustments.



It takes up but little space, is light and can be easily moved about to accommodate your work.

We make a complete line of Foot, Hand and Light Power Wood Working Machinery suitable for Carpenters, Builders, Cabinet Workers, and other Wood Workers. It will pay you to investigate their merits.

Send for catalog "A."

The Seneca Falls Mfg. Co.

218 Water St., Seneca Falls, N. Y., U. S. A.
(299)



**COMPLETE
OUTFIT**
Hand and Foot-Power
MACHINERY

Our No. 3 Wood Turning Lathe can be speeded from 1,000 to 2,000 revolutions a minute with perfect ease. Stopped or reversed at will of operator.

Write for Particulars

W. F. & Jno. Barnes Co. 74 RUBY ST., Rockford, Ill.

Four
Machines
in One
\$152.50



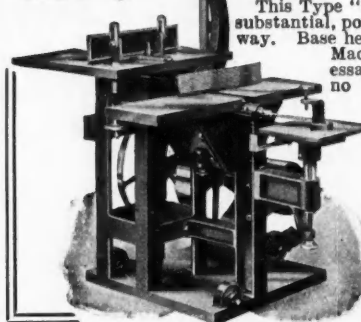
**EXTRA GOOD VALUE
In Woodworking Machines**

Band Saw, Saw Bench, 8" Jointer and Planer, and Hollow Chisel Mortiser—all for \$152.50.

This Type "C" Universal Woodworker is substantial, portable and complete in every way. Base heavy cast iron. Drop rollers. Machine is equipped with all necessary tools and belting. Requires no special skill to operate it. Costs fully two-thirds less than other woodworkers. Saves its cost in millwork on the first three jobs. **SOLD ON LIBERAL FREE TRIAL PLAN.**

Get our Catalog describing this machine. You can get your money's worth by buying from us. Write before you get too busy.

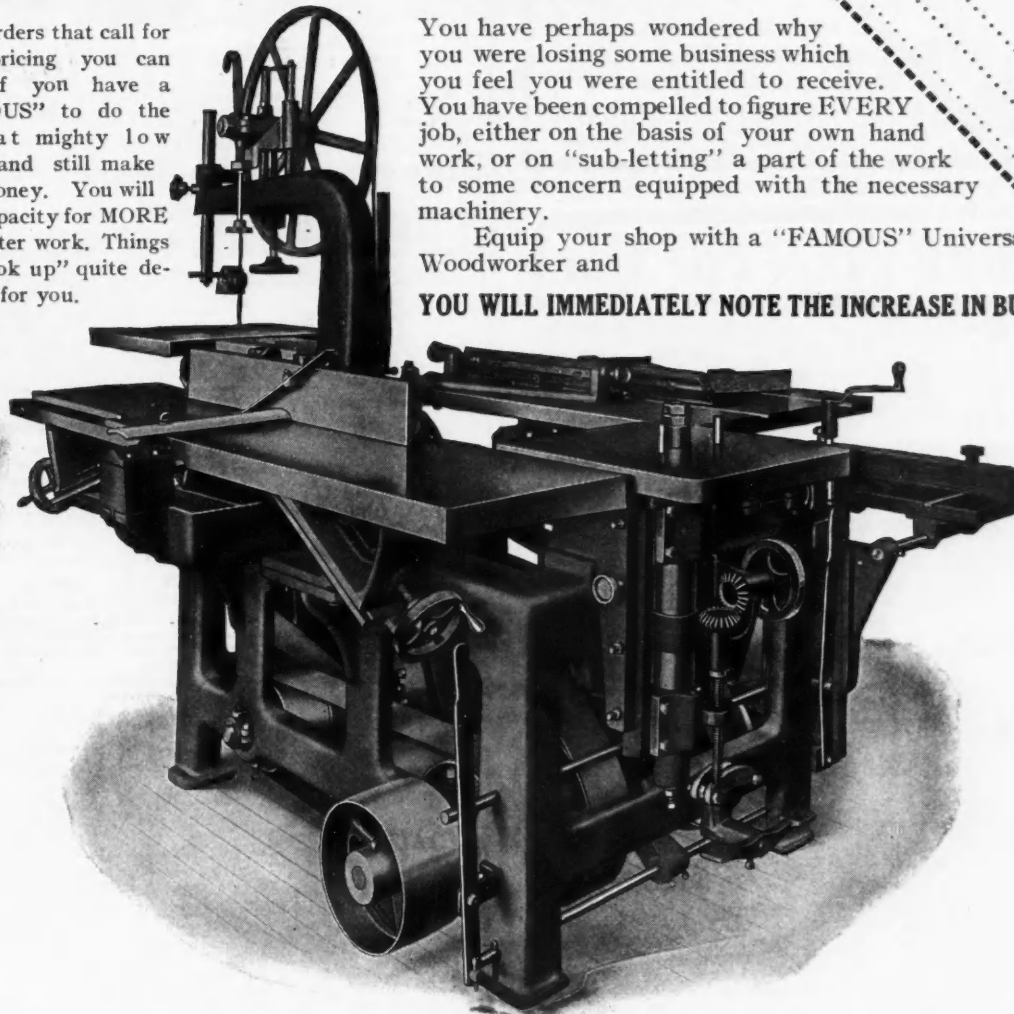
THE TANNEWITZ WORKS
815 N. Front Street
Grand Rapids Mich.



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Do you know why you lost that business?

Some orders that call for close pricing you can take (if you have a "FAMOUS" to do the work) at mighty low prices, and still make good money. You will have capacity for MORE and better work. Things will "look up" quite decidedly for you.



You have perhaps wondered why you were losing some business which you feel you were entitled to receive. You have been compelled to figure EVERY job, either on the basis of your own hand work, or on "sub-letting" a part of the work to some concern equipped with the necessary machinery.

Equip your shop with a "FAMOUS" Universal Woodworker and

YOU WILL IMMEDIATELY NOTE THE INCREASE IN BUSINESS

Sidney Tool
Co., Ohio
Gentlemen — Show me
where your "FAMOUS" Wood-
workers will HELP ME INCREASE
MY BUSINESS and I am interested.
Signed.....
Business.....
Address.....
Send Catalog No. 12.

Increase your business and handle it at a better profit

You can place a Sidney "Famous" Universal Woodworker in a small place on your floor. It will prove the best purchase in the way of a machine to help you get out work quicker and better than you've ever made. You will be able to put every spare moment to good advantage by turning out parts that you now buy from someone else (paying them a good profit, of course!)—you will be able to do the very best work, without overstraining your capacity, when you receive "rush" orders.

We do not know just which one of the "Famous" Woodworkers will prove best for you, but if you will tell us the nature of your work, we can point to just the machine you should have. Do this. Send the coupon for catalog. Look it through. *Then ask questions.* We will not sell you a woodworker until you ARE SATISFIED THAT IT WILL PAY YOU A HANDSOME SUM EVERY YEAR

SIDNEY TOOL CO.

SIDNEY, OHIO

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

WHITE'S IMPROVED LEVEL

SHIPPED ON APPROVAL

Our No. 2011 improved level, illustrated herewith, is especially designed for work where a general purpose level is required. Telescope is 12 inches long with magnifying power 25 diameters, and is capable of detecting an error of 1-16 inch in 300 feet. We ship this level out on approval, express prepaid, in order that you may try it out on your own work before deciding to keep it. Ask today for your circular X and special net price sheet. Ask today!



DAVID WHITE COMPANY
No. 2011 419 E. Water St. Dept. C Milwaukee, Wis.

CONTRACTOR CLEARS \$450 IN 10 DAYS

M. H. Ireland, Anamosa, Ia.
—Contractor—
cleared above by using **LITTLE WONDERS**—
What one man can do with Little Wonders you can do—Get next to this **LITTLE WONDER TRUCK**—It will triple your profits.



Here's the Little Wonder!

10 ROOM HOUSE 5 MILES IN 10 DAYS MOVED

Let us furnish your complete House Moving Equipment—everything from Little Wonder Trucks to rollers, jacks, etc. Get our catalog "B" right away. Don't delay. Just a post card brings it in a hurry.

HOUSE MOVERS SUPPLY COMPANY 620 Eastlark Court Cedar Rapids, Iowa

A FREE Book For You

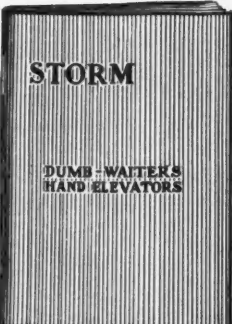
You should have this book because it completely illustrates and describes

STORM Elevators and Dumb-Waiters

We will help you estimate the cost of elevators or dumb-waiters for any of your buildings. Help you install them too. We can furnish any kind or size of elevator or lift you want.

Get Our Catalog.

Storm Manufacturing Co.
Harmon and Vesey Streets
NEWARK, N. J.



LEVEL WORK

Architects Builders Contractors



insure against mistakes in leveling by using our Architects' and Builders' Level. We make a specialty of this instrument. It will give positive, accurate service. Saves its cost in a short time.

We manufacture a complete line of surveying instruments in various sizes and at a wide range of prices. Our circular No. 27 will explain our instruments to you in detail. It will pay you to get it before deciding upon any surveying instruments.

KOLESCH & CO.
Surveying Instrument Makers. Established 1885.

138 Fulton St. NEW YORK

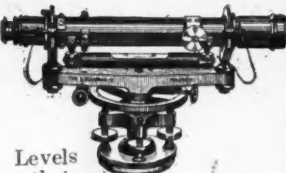
BECKMANN INSTRUMENTS Builders Levels

The leading contractors today equip themselves with the most accurate type of levels, believing that the speed, accuracy and all around efficiency, more than pays them.

Beckmann Transits and Levels are particularly designed for their purpose, both in accuracy and rigidity of construction.

Write today for our Builders Manual "Y"

The L. BECKMANN CO.
500 Adams St. TOLEDO, OHIO



Make the Test "Sterling" Surveying Instruments

We will ship on 10 days' approval any "Sterling" Transit or Level. Examine the construction. Test the accuracy. If you are not convinced that you are getting the best instrument obtainable at the price, return it.

A Fair Offer Don't You Think?

Send for Illustrated Catalog and details of trial offer, and this month's special prices on two new models now ready.

Warren-Knight Co.
136 N. 12th St. Philadelphia, U. S. A.
Successors to Izard-Warren Co.



Queen Architects' Level

For Architects and Builders

A precision Level with high grade telescope, 12 inches long with sensitive bubble. Capable of doing the most accurate work. Moderate price. Send for catalogue.



QUEEN-GRAY COMPANY, 616-618 Chestnut St., Philadelphia, Pa.

Parks Portable Shingle or Combination WOODWORKING OUTFITS

are the most practical—the most efficient—the most economical woodworking equipment you can buy

This machine is a combination of circular rip and cross cut saw. 6 or 12-inch jointer with tilting guide, boring attachment, jig saw with tilting table, sand disk, and gasoline engine, guaranteed to do the work.

Angle steel frame is the strongest structural material known. Machines are made in large quantities which allows us to sell at lowest prices and make prompt shipment. WRITE FOR CATALOG

PARK'S
Ball-Bearing Machine Co.
Fergus Street and C. H. & D. Ry., CINCINNATI, OHIO

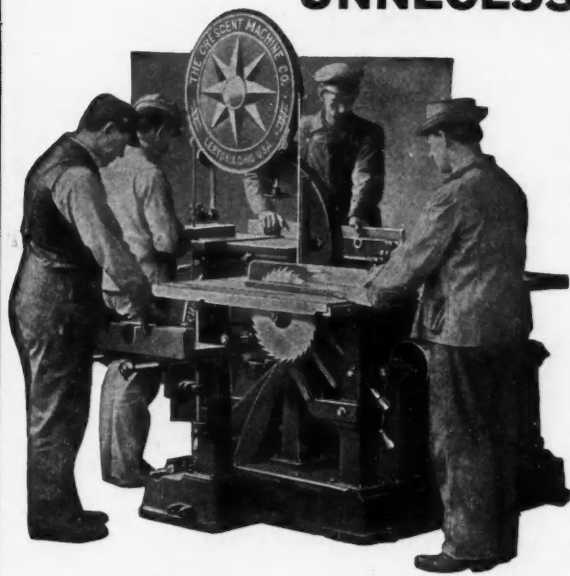


No. 256-T

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

The Crescent Universal Woodworker

"CUTS OUT" UNNECESSARY EXPENSE



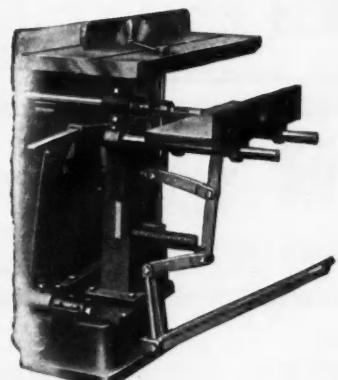
It places the small shop on an equal footing with large factories for getting out work quickly, economically and accurately. You simply cannot make mistakes with the Crescent. All wood workers are not alike. The one different from all others is the CRESCENT. Look over our proposition fairly and resolve that the 1914 building season will find you ready for any emergency. The CRESCENT UNIVERSAL WOOD WORKER is the machine for YOU.

A Complete Shop in Itself

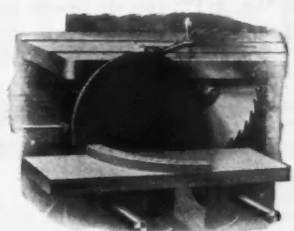
is what every user says of it. It is portable and can be moved from place to place or right out to the job. Any of your workmen can operate it successfully. No piece of work is too difficult for the Crescent. Then too there is the advantage of having

FOUR MEN WORK AT ONCE

They are never in each other's way. This means the highest point in co-operation and efficiency. There is no lost time—no wasted energy. With a Crescent Wood Worker, four men can do the work in less time than eight men could by any other means. Each part of the machine can be operated separately and started, run or stopped at will and independently of the other parts.



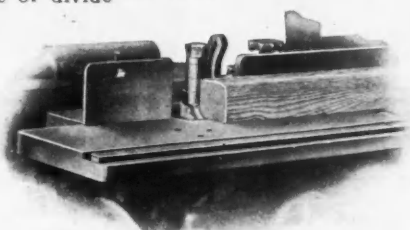
This attachment converts the borer into a hollow chisel mortiser, suitable for cutting mortises up to 3/4 inch square.



A good view of the disk grinder. The disk is 14 inches in diameter. Table can be raised and lowered to suit the work being done.

A Regular Planing Mill

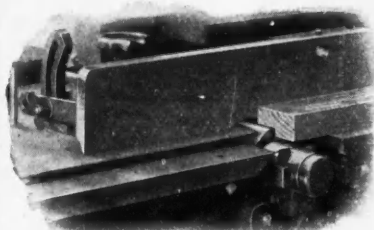
The Crescent can do the work of a fully equipped planing mill. You don't have to turn part of the work over to someone else or divide your profits. You do every bit of your work in your own shop. The Crescent is a machine that has five separate units—band saw, jointer, shaper, saw table and borer. Other attachments can be added for panel raising, tenoning, sanding, dadoing, etc.



Poles and shafts can easily be rounded on the shaper spindle. This feature will appeal to the wagon and carriage builder. All you need to do this work are the special knives.

Get Our Free Catalog

of 128 pages. It will interest you. You don't obligate yourself in any way by asking for it. Post up on the most modern and convenient wood working machine—the Crescent. Write for your catalog immediately.



This shows how to do rabbeting on the jointer. You can't do this on every jointer. How it is done on a CRESCENT is fully explained in our latest catalog.

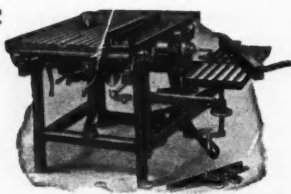


THE CRESCENT MACHINE CO.

224 Main Street Leetonia, Ohio

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BEACH Machines



Best for Many Jobs

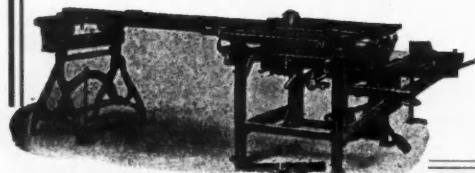
The BEACH DOUBLE ARBOR and CUT-OFF MACHINE is complete in every respect and is just what you need for getting out your dimension stuff quickly and at very small expense. The price of the BEACH will suit you.

Each machine includes counter shaft complete, rip saw, cut-off saw, cut-off gauge, ripping gauge, mitre gauge, etc. Can be furnished with Rolling Table that allows work on 18-foot lumber and locks instantly for ripping or beveling.

The BEACH is portable. It takes up very little room in the shop or on the job. Electric motor or gasoline engine furnishes power. Wood or Iron frame, whichever you want.

Our CATALOG gives complete details about the construction and equipment of this machine. Send for it.

BEACH MANUFACTURING CO.
MONTROSE, PENNSYLVANIA



The Carpenter and Builder's Money-Maker

It's a whole wood shop in itself—this new Variety Saw

**FAY-EGAN
"LIGHTNING"
No. 330**

All your hurry-up jobs can be turned out quickly and accurately.



Write for Bulletin R-12, Now

J. A. FAY & EGAN CO.

545-565 W. Front St.

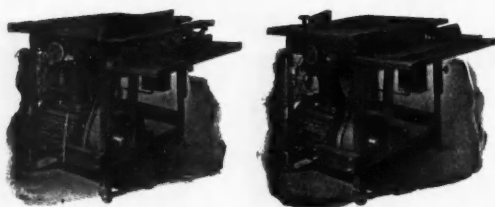
Cincinnati, Ohio

GENUINE BANGOR

Roofing Slate
Structural Slate
Blackboards

Large Facilities, Prompt Deliveries
EAST BANGOR CONSOLIDATED SLATE CO.

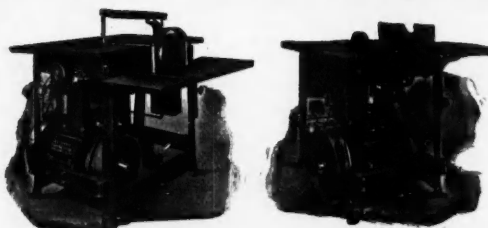
East Bangor, Pa.



Standard Portable
Combination
Woodworker

9 Machines in 1
6 H. P. ENGINE

SEND FOR CATALOG G
ATLANTIC ENGINE CO.
Meadville - Penna.



"OHIO EXTRA" AUGER BITS

are High Grade Single Twist Bits, carefully made from specially selected auger bit

steel. They are the **Most Rapid Cutting and Perfect Clearing Bits** on the market today and are fully warranted.

"OHIO" CHISELS, PLANES, ETC.

All "Ohio" Tools are made with the same painstaking care that has built up our present reputation for making only high grade tools. We use in our Edge Tools high grade steel, treated and tempered by the most improved process, which insures **Uniformity and Correctness of Temper, and a Keen, Tough and Lasting Cutting Edge.** If you appreciate Good Tools it will pay you to insist on having "Ohio" Tools from your Dealer.

Write for our special Carpenters' Catalogue of High Grade Tools and Benches

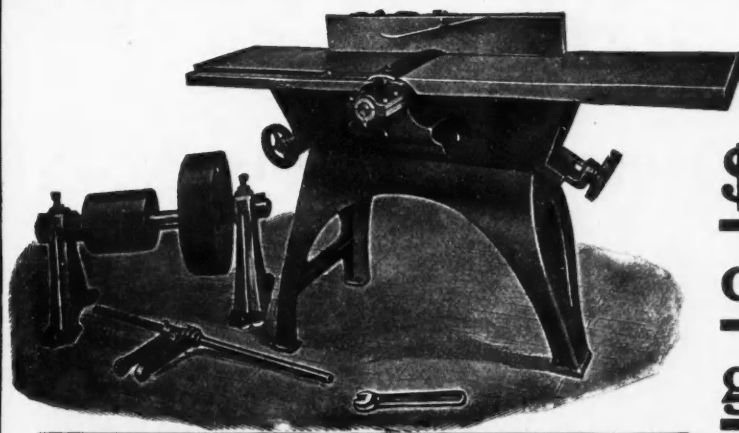
OHIO TOOL CO. (Dept. 15) Charleston, W. Va.



REGISTERED



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



Save
\$40.00
on a high
grade ¹² in. jointer

Coupon
Sidney Tool Co.
Sidney, Ohio
Gentlemen—Send me
complete Circular No. 12 on
the 150 CYCLONE Hand Jointer
\$75.00 each.

The \$75.00 price includes this equipment:

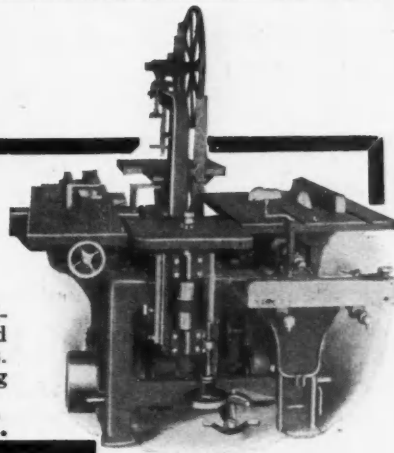
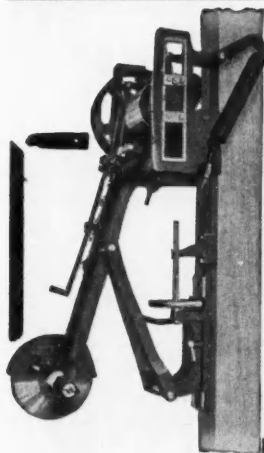
The machine is furnished with countershaft, adjustable bevel gauge, hold down spring and post, guard, one pair of straight jointer knives with bolts, two extra bolts with wrench. It is ready to set in motion. Ready to save you money. And when we clip a cool \$40.00 right off from the initial purchase price, it becomes a splendid investment. If you have to go to the bank and borrow the money—BUY ONE OF THIS SPECIAL LOT. You will be delighted with the machine, its operation, and what you save both NOW and from month to month as you operate the CYCLONE.

Fill out, sign and send the coupon for IMMEDIATE particulars—you'll have to be prompt if you are one of the 150.

THE Cyclone Hand Jointer or Buzz Planer covers all the practical demands made—and yet is offered at the exceedingly attractive price of \$75.00. You cannot fairly compare this jointer with any machine sold for less \$115.00—it has the well-known "SIDNEY" quality and workmanship in every fibre of its make-up. It is made for service and lasting satisfaction.

When you read the description and note the specifications you will find yourself wondering HOW we can give so much for the price. Never mind! WE KNOW THAT A MORE GENERAL USE OF THIS MACHINE WILL MEAN A BIG DEMAND. So we are building a special lot of 150 at this time. These will be sold at the heretofore unprecedented price of \$75.00. When these are sold the price may be advanced. It will not be lower.

SIDNEY TOOL CO., Sidney, Ohio



EXHIBITION

Complete line of Wood Working Machinery including Universal Combination Woodworkers for Contractors and Builders. Largest stock in New York. New and rebuilt.

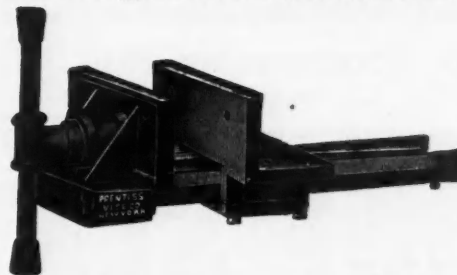
We are manufacturers of high-grade woodworking machinery. Sixty years in the business. Write us.

P. PRYBIL MACH. CO., 512-24 W. 41st St., New York, N. Y.

Straight-grained cedar that cuts like cheese; smooth, tough leads that make clean-cut, strong marks—that's the way Dixon's Carpenter Pencils are described. Send 16c for generous sample lot 183J.

JOSEPH DIXON CRUCIBLE CO.
JERSEY CITY, N. J.

BLAKE QUICK ACTING VISE



For Cabinet Makers and Wood Workers. Simplest—Strongest
—Cheapest—Best
Send for Catalogue of all kinds of Vises
PRENTISS VISE COMPANY, MAKERS
108-110 La Fayette St., New York, U. S. A.

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Starrett Tools

That Are Not Measuring Tools



Of course, the word "Starrett" makes everyone think of Precision Tools for fine measuring. However, in addition to our measuring tools, we have made, from time to time, certain special tools to meet the demand of mechanics who were dissatisfied with the tools then on sale.

Into these special tools we have put the same care, skill, and fine material that have made our fine tools so widely used, and we know that carpenters will get as good results from these as they now get from our fine tools, such as the combination square, special builder's tool, steel tapes, etc.

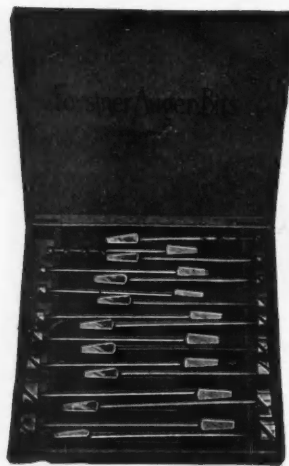
Our assorted sizes of nail sets are convenient to have in the shop or on the job. These nail sets are made of the finest steel, perfectly hardened at the ends so they will stand hard use without chipping or mushrooming. Your money is well invested when you buy Starrett Tools.

Set No. 116 \$1.15
Nail Holder and Set25

Ask for copy of our free 320-page catalog No. 206, showing styles and giving prices.

The L. S. Starrett Co.,
WORLD'S GREATEST TOOL MAKERS
Athol, Mass.

42-327



"A Bit of Utility"

Guided by its circular rim—instead of its centre—the Forstner Labor-Saving Auger Bit will bore any arc of a circle, and can be guided in any direction.

Doesn't matter how hard the wood is, no consequence whether it is full of knots, or the grain awkward to negotiate. The Forstner Bit works with equal smoothness under any condition and leaves a true polished surface on every job.

Unequaled for Delicate Work

Supercedes chisels, gauges, scroll-saws, or lath tools combined, for all kinds of delicate work. Cabinet and pattern makers and carpenters are enthusiastic because they do more work than other bits and cost no more.

We can offer something special in the matter of price on sets packed in a sensible box. Send today for particulars and catalog.

The Progressive Mfg. Co.
Torrington, Conn.



ROOF SLATES

STRUCTURAL SLATE BLACKBOARDS

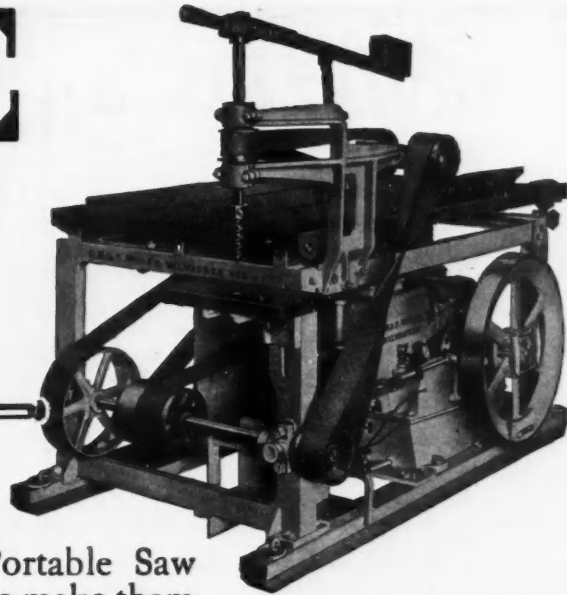
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E. J. JOHNSON
38 Park Row New York
Quarry Operator
BLACK, GREEN, PURPLE, RED

Booklet, Samples and Prices on Application

WRITE US

FOR OUR NEW
1914 CATALOG

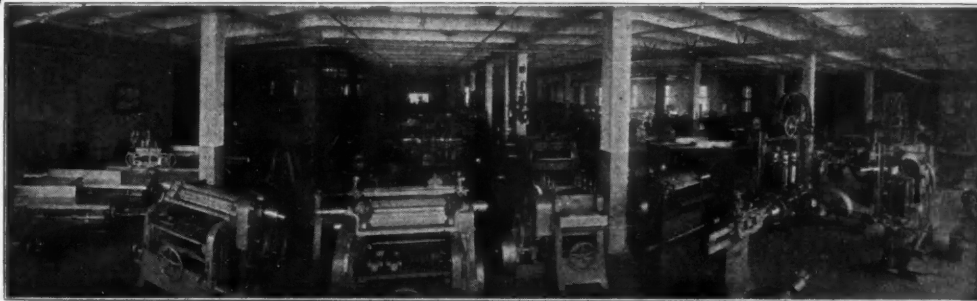


AS PIONEERS in the manufacture of PORTABLE SAW RIGS, we are entitled to claim that we manufacture the BEST Portable Saw Rigs on the market today; in fact, we make them complete in five different sizes to meet every requirement of the trade.

We also manufacture hoists, pumps, elevators, mortar mixers, concrete chutes, air compressors, gasoline engines, etc.

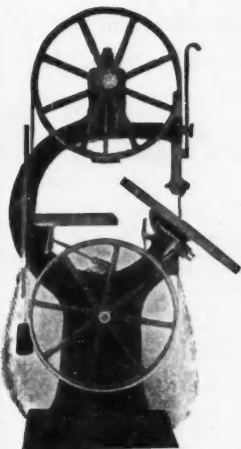
Write Us for our new 1914 attractive Catalog

C. H. & E. MANUFACTURING CO., Inc.
322 Mineral Street MILWAUKEE, WISC.

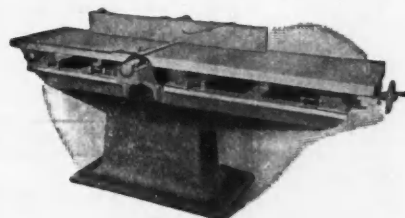


Section of Main Floor Exhibit and Salesrooms

Everything in wood working machinery and supplies for Contractors, Carpenters, Builders, Interior Finish, Sash and Door, Planing Mills, Furniture, etc.



Chicago Band Saws
27-32-36 inch wheels



Chicago Jointers
8-12-16 inch

*Write us Your Wants
and Get Our Special Price*



Chicago No. 9 Combination
Saw

Chicago Machinery Exchange

1215-1223 Washington Blvd. CHICAGO

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Goodell-Pratt's

**Automatic
Screw-Driver**

**No.
111**

This Screw Driver is made stronger and heavier than most tools of this character, so that it will drive large screws into hard wood. The slant angle of the spiral is 20°, giving more power than the ordinary tool of this type. It can be used as right or left hand, automatic or ratchet, or by moving the shifter to the star on the nickel-plated shell, it can be used as a plain screw driver.

*1500
Tools
Catalog Free*

**Goodell - Pratt
Company**

Toolsmiths

Greenfield, Mass., U.S.A.



DIAMOND EDGE TOOLS

Are Recognized as the Standard by all Mechanics



Diamond Edge Chisels are made of Highest Grade English Tool Steel, **HAND** Tempered and Hardened by an improved process which eliminates soft spots and insures a uniform temper. Honed and Sharpened by **HAND**—ready for use. Diamond Edge Solid Center Auger Bits, made from Best Grade Forged Crucible Tool Steel, Oil Tempered.

HAND Ground Double Cutter.

Their Quality, Construction and Guarantee have made them the Mechanic's Choice over all so-called Standard Brands. Ask your Hardware Dealer—He can supply you. If not, write us.

SHAPLEIGH HARDWARE COMPANY

Department W Established 1843 ST. LOUIS

"DIAMOND EDGE IS A QUALITY PLEDGE"



Ideal Fastenings

When attaching joists, beams, scantlings, fixtures or apparatus of any kind to hard substances such as brick, stone or concrete, use

SEBCO

Expansion Bolts or Screw Anchors

They insure a quick, neat and absolutely dependable job.

The **Bolts** are for heavy work.

The **Anchors**, for lighter work, are non-rusting, which especially adapts them for work in marble and tile.

Send for Samples and Catalog

Star Expansion Bolt Co.

147 Cedar St., New York City

120 West Lake St., Chicago



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IMPROVED MASTER SLIDE RULE (Two Rules in One)

A Carpenter's practical rule that will take inside or outside measurements accurately. Made of select boxwood trimmed with brass plated steel. Strong; rigid; convenient. Easily used. Made in all lengths 2 feet to 8 feet. Low-priced. Send 15 cents a lineal foot (in U. S. A.) if your dealer cannot supply you, and get one by mail. Circulars giving full description sent free.

DAHL MANUFACTURING CO.
51-G East 42nd St.
NEW YORK CITY

EVERLAST HYNALER HAMMER

THOUSANDS IN USE

With EASTMAN PATENT Hollow Steel Handle. Handle lasts as Long as the Head.

Manufacturers of High Grade Socket Joint Tools with Hollow Steel Handles Exclusively.

Our "Everlast" Brand represents the Highest Possible Standard of Tool Value.

Order the Everlast Hynaler Hammer from your dealer —or sent direct, prepaid parcelpost, for \$1.25.

HAWTHORNE SALES CORPORATION, Manufacturers
220 W. 42nd Street New York, N. Y.

If You Like It, Buy It

If You Don't Like It, Send It Back

Those are the only terms attached to our liberal

10-Day, Free Trial Offer

We want to convince you that it will save you time and money, and better the quality of your work if you have a

CHAMPION MORTISER

Perfectly designed and equipped with ball bearings, large gears and automatic stop. Cuts mortises in three minutes. Any size, any shape from a perfect round hole up to 6 1/4-in. slot. Price very reasonable.

TELL US YOU'D LIKE TO TRY THE CHAMPION FOR 10 DAYS FREE OF CHARGE.

Colgan Machinery & Supply Co.
616 New Hayden Bldg. COLUMBUS, OHIO

Hammer Insurance

SPECIAL

Our "VANDOR VANADIUM" Nail Hammers in two sizes, No. 22, 13 oz. Finishing; No. 21 1/2, 16 oz. Standard. We will send either size Parcel Post for your Dealer's name and \$1. This Hammer we insure for life. Made for hard work and lots of it. You can return it any time if it proves defective and get a new one.

This hammer is warranted to draw anything from a headless brad to a spike.

Drop Forged from the toughest Vanadium Steel. Second growth hand shaved Hickory Handle. Tempered in oil. Easy to work with. Get one to-day. Remember only \$1 and your dealer's name for either size, 13 oz. or 16 oz. Mail your order NOW.

Van Doren Manfg. Co., Inc. Chicago Heights, ILL.
(Vanadium Dept.)

1853 **BUCK** 1914 **BROS.**

Fine Beveled Edge Shank and Socket

Chisels

Tang and Socket

Butt Chisels

Plain and Beveled Edges

Send for illustrated Catalog

Buck Bros., Millbury, Mass.

THE MYERS GIANT

ADJUSTABLE TANDEM DOOR HANGER

for TUBULAR GIRDER TRACK is adjustable to and from the building, and up or down as necessary. Has flexible engine truck with steel rollers revolving on steel roller bearings. The adjustable features prevent trouble from weather conditions or sagging of building. Storms, sleet or ice do not affect it, owing to complete protection afforded by the tubular track. Track and Hanger are constructed to carry and operate heavy doors easily.

This and other styles of Tubular and "Stayon" Door Hangers are shown in our Door Hanger Booklet. Copy mailed on request.

F. E. MYERS & BRO.
ASHLAND, OHIO

"Last a Lifetime and Give Satisfaction To the End"

BUTT CHISEL

The celebrated Barton Planes and Edge Tools for carpenters and all other woodworkers are unequaled by any other made for keen, hard, smooth cutting edges. If your hardware dealer does not handle

THE CELEBRATED BARTON TOOLS

Send direct for catalogue and our free story book. True Stories. Be sure to specify "CARPENTER'S CATALOGUE."

MACK & COMPANY, 20 BROWN'S BACH ROCHESTER, N. Y.

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There are Two Kinds of Sharpening Stones THOSE THAT REALLY CUT AND THOSE THAT MERELY RUB Carborundum Sharpening Stones

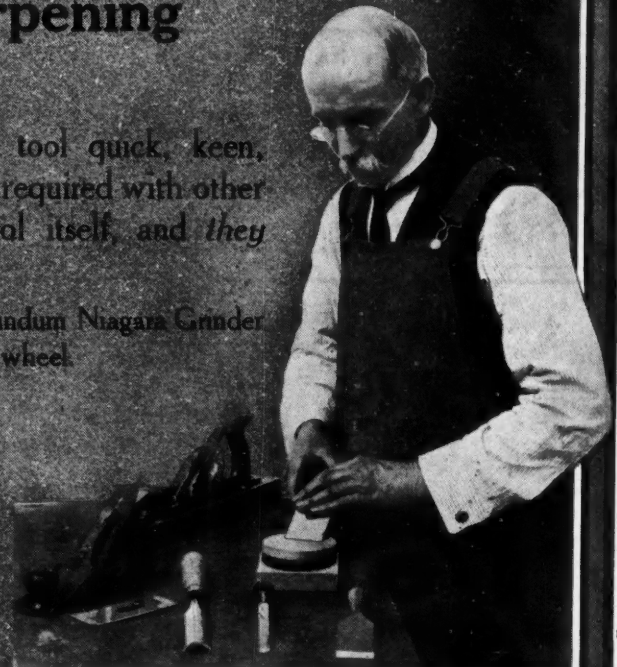
Really cut—they cut the edge on the tool quick, keen, smooth—they do the work in half the time required with other stones, and last almost as long as the tool itself, and *they hold their shape.*

When tools need grinding put them on a Carborundum Niagara Grinder—a great little machine fitted with a Carborundum wheel.



*From your hardware dealer
or direct.*

**The Carborundum
Company**
Niagara Falls, N. Y.



MONITOR SASH LOCKS



(PATENTED)

NEVER BREAK

BECAUSE THEY ARE MADE OF VERY HEAVY GAUGE METAL AND PERFECTLY CONSTRUCTED.

If the upper plate drops, the Monitor "Never Break" Sash Lock will pick it up from a lower point than any other, adjust the sashes perfectly, prevent all vibration and lock securely, so it cannot be opened from the outside.

MADE IN TWO SIZES AND ALL FURNISHED BY

The Champion Safety Lock Co.
Geneva, Ohio

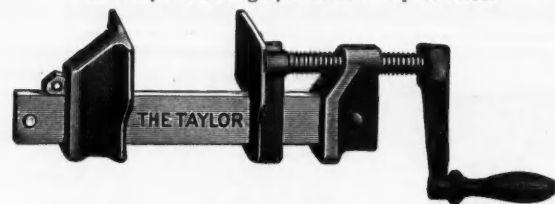
\$13.95

per doz. 4 footers
—if you send cash
with order.

Absolutely Safe; two of them will carry a ton, and they last a lifetime. Think of the time you save! One man alone can put them up and take them down easily and quickly.

No Side Swing if you purchase our new fixture at 60c extra per dozen brackets: these keep the brackets absolutely rigid.

Write for Catalog of Builders' Specialties!



About clamps—the sliding jaw on each of ours can be moved in an instant **DIRECTLY AGAINST** the work operated on, so that half a turn of the fine specially threaded screw will apply the power.

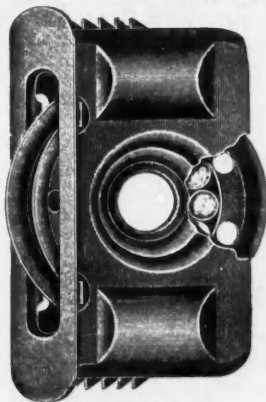
Think of the time this saves!

The grip is positive, and special grade of steel in the bar more than doubles the strength of the clamp.

Our No. 10 catalogue shows some very interesting price reductions on four of the most wanted styles. It will pay you to write for it at once.

James L. Taylor Mfg. Co.
Poughkeepsie, N. Y., U. S. A.

You will get **SPECIAL ATTENTION** if you tell Advertisers you read **American Carpenter and Builder**.



No. 10 Ball Bearing

"Grand Rapids"

**BALL BEARING
ALL STEEL**

Sash Pulleys

Fasten automatically.
No Nails. No Screws.
Just bore four holes.

The automatic saw tooth fastening feature and the simple and easily made mortise will save in labor enough to pay for the pulleys.

The Bearing contains eleven 1/4-inch Solid Steel Balls running in lubricant.

NOISELESS. EVERLASTING

Write for **FREE** Samples

Grand Rapids Hardware Co.
MANUFACTURERS

158 Eleventh St. :: Grand Rapids, Mich.



The shaft driven Luther Hummer Grinder sharpens tools quickly

Write today for free booklet telling all about the lightest running, most accurate foot power tool grinder made—the Luther Hummer. Has steel shafting like automobiles. Enclosed dust-proof bearings and gears. All metal frame. Perfect gravity feed lubrication. Patented tool rest gives proper bevel. **DIMO GRIT** artificial diamond wheels revolving 4000 times a minute put keen edge on all tools quickly. Thirty special attachments make this Hummer a whole workshop in itself. Get the book and learn why this is the best of all foot power grinders.

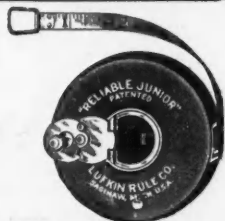
Luther Grinder Mfg. Co., 903 Point Street
MILWAUKEE, WIS.

Articles Every Carpenter Needs

**Boxwood
Folding
Rules**

**Spring Joint
Rules**

Steel Rules



**Steel
Tapes**

**Woven
Tapes**

**Pocket
Tapes**

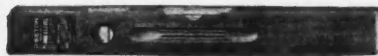
We guarantee to YOU absolute satisfaction
CATALOG ON REQUEST

When in need of these
say to the hardwareman

THE LUFKIN RULE CO.

LUFKIN

New York Saginaw, Mich.



Of What Value is A Guarantee Without A Guarantee?

Almost everybody guarantees their goods today. It is hard to make a sale unless you stand back of the goods.

But a guarantee is only as strong as the firm behind it. Its value is measured by the ability of the firm to make it good.

There is a wrong impression prevailing among most people as to the status of the guarantee. They look at it only as the promise of the manufacturer to replace defective articles. Under such a guarantee you can replace a poor tool innumerable times. You could keep it up for a lifetime (if the business lasted that long), but only at a constant loss to you through the trouble and delay occasioned by the replacement.

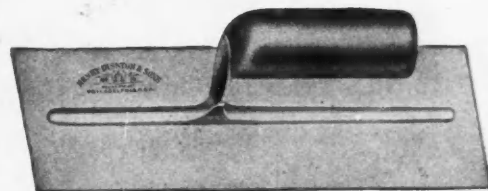
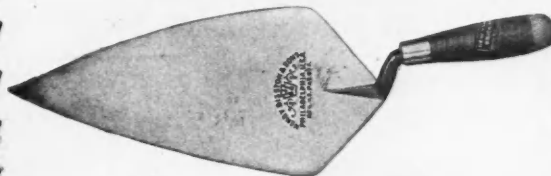
You should select a brand of goods where the guarantee is guaranteed.

DISSTON BRAND GOODS

have a strong guarantee of quality, but back of this guarantee is the long history of the House of Disston. The unequalled reputation which we have established for our products is itself in turn a guarantee—a guarantee that backs our guarantee.

Our reputation for making efficient and high grade saws, tools and files assures the buyer that there is little likelihood of his having to take advantage of our guarantee. That gives the guarantee its fullest meaning. *It is the GUARANTEE of a guarantee.*

HENRY DISSTON & SONS, Inc.
Keystone Saw, Tool, Steel and File Works
PHILADELPHIA, U.S.A.



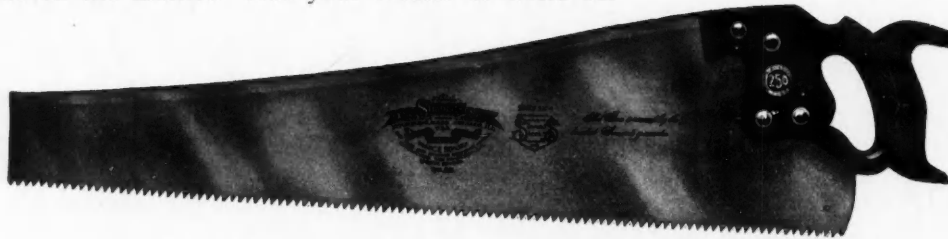
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Uncle Si Says:

"Saws are a lot like folks. Some are too cranky to have around, while others are always good-natured and willing and never get tight or balk when half through a job. What I said last suits a SIMONDS SAW to a T. You will be glad when you get one working for you. It's got as many good points as a porcupine."

The Simonds Blue Ribbon Hand Saw, 24 or 26-inch, Hand or Rip, sells for \$2.50. The best saw value on the market. Ask your Dealer or write us.



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Ave.
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LONDON, ENGLAND

SARGENT

Other Sargent Quality
Tools are described in the
Sargent Tool Book, a
handbook for me-
chanics sent on
application.

No. 53.

A light floor or veneer
Scraper with wood face to
lessen friction.

A useful and convenient
tool, low in price.

For full description of this
and other

SARGENT WARRANTED PLANES

SEND FOR SARGENT PLANE BOOKLET

SARGENT & COMPANY

Makers of Squares, Planes and Mechanics' Tools

1149 Leonard St. New York

You will get **SPECIAL ATTENTION** if you tell Advertisers you read **American Carpenter and Builder**.



Builders Show Interest in Painting and Decorating

MARCH AD PUZZLE CONTEST BRINGS TO LIGHT MANY VALUABLE POINTERS CONCERNING THE RELATION BETWEEN CARPENTER-BUILDERS AND CONTRACTORS AND THE PAINTING, VARNISHING AND DECORATING END OF THE BUILDING BUSINESS

QUITE the most instructive bunch of letters yet received on any of the ad puzzle questions reached us during the past six weeks. They showed from a hundred different angles how it is and why it is that carpenter-builders are concerned with good painting, decorating and varnishing.

The general opinion clearly is that most building work is judged as a whole, after all the work is completed, and that as the painting and decorating is the last part to be done, and the part which is on top, so to speak, the owner is apt to judge the quality of the entire work by the quality of the finish. The result is, of course, that in order to protect their reputation for craftsmanship and to be sure of pleasing their customers, the carpenter-builders have more and more taken over the responsibility for the painting, decorating and varnishing of all their buildings. While the builder does not actually do this part of the work himself, he is responsible for it and sees to it that the proper finishing materials are used and that they are applied in a workmanlike way.

Those of our readers who have not already done so should post up on these matters. The paint and var-

nish people have many instructive books they will gladly send free on request.

Prize Winners in the March Ad Puzzle Contest are the Following:

First Prize \$10.00 worth of goods selected from our ad pages.

R. C. RANDLE, Grayville, Ill.

Two Second Prizes, each consisting of \$5.00 of goods selected from our ad pages.

O. G. CARNER, Builder, Banning, Cal.

CHRIS. HENDERSON, Contractor and Builder, Xenia, Ill.

Ten Third Prizes, each consisting of \$1.00 of goods selected from our ad pages.

D. W. DENSMORE, Superintendent Industrial Dept., The Berry School, Mount Berry, Ga.

WM. H. WELCH, General Contractor and Builder, Corning, N. Y.

W. T. REDFORD, Georgetown, Tex.

W. B. HUBBARD, "Builds Bungalows," Eugene, Ore.

ARTHUR POLING, Sioux City, Ia.

L. U. WILSON, Manager Honea Path Lumber Co., Honea Path, S. C.

CLARENCE V. MARTIN, Architect, Ashtabula, Ohio.

H. W. STEINMEYER, Carpenter and Builder, Clatonia, Neb.

PETER HEDSTROM, Portland, Ore.

L. V. LOUIS, Assistant Manager Ithaca Sand and Supply Company, Ithaca, N. Y.

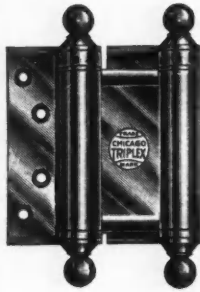
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CHICAGO SPRING BUTTS

A SUGGESTION

Do you specify a spring hinge with distinctive features which will appeal to your client and assure satisfaction to all concerned?



Chicago "Triplex" Spring Butts

offer this advantage to you. The appearance, durability and finish of this article are unsurpassed, and in consideration of prices that are conservative in respect to value, the up-to-date builder cannot afford to risk his reputation with goods that are unsatisfactory.

Send for Catalogue C 29. It illustrates and describes the most complete line of Spring Hinges manufactured.

Chicago Spring Butt Company,

CHICAGO



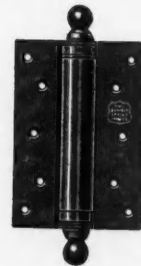
NEW YORK

Yes! the World does Move!

Facts are Stubborn Things



Don't Buy
SPRING HINGES
OF
OBSOLETE
CONSTRUCTION



ONLY

Bommer

DOUBLE ACTING

Spring Butt Hinges

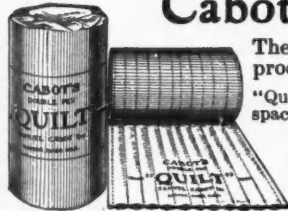
Carry the load on the true bearings

and look alike at both sides of the opening when both doors of a pair of doors are opened in or out. The carpenter can scribe for both doors of a pair from the same side, and avoid guesswork, as he can see what he is doing while fitting the doors.

YOUR HARDWARE MERCHANT CAN SUPPLY THEM

Bommer Bros., Manufacturers Brooklyn, N. Y.

Cabot's Sheathing and Deadening Quilt



The Cold-proof, Heat-proof, Sound-proof and Fire-retarding Lining "Quilt" is a matting filled with dead air spaces, and one layer is as warm as twenty-eight layers of common building paper. A house lined with it will always be warm and save coal. Floors and partitions lined with it will stop the passage of sound. Roofs lined with it will keep cool

in summer and prevent heat from escaping in winter. It will save coal enough to pay for itself every two winters as long as the house stands.

Send for a sample and catalog.

SAMUEL CABOT, Inc., Manufacturing Chemists, Boston
24 W. Kinzie St., Chicago - 1133 Broadway, N. Y.

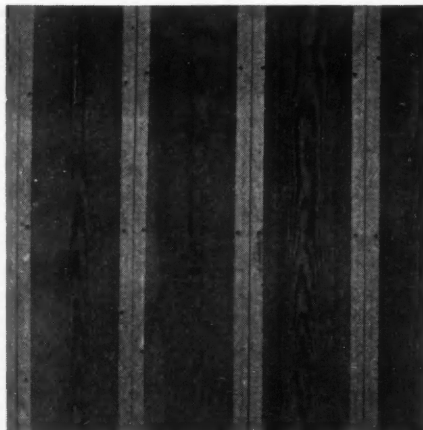
Cabot's Creosote Shingle Stains; Stucco and Brick Stains,
Conserve Wood Preservative.

No Guess Work with a MORRILL SAW SET

Simple and accurate. The only Saw Set a carpenter should use. Takes out the wrong set and puts in the right set at one operation.

The eccentrically beveled anvil is so indexed that you can see what you are doing. Gauge screw and locknut keeps work uniform. FREE "Saw Points" a valuable Booklet.

Chas. Morrill, 94 Lafayette Street NEW YORK



METALLIC BATTEN STRIPS

PRACTICAL—EVERLASTING—ECONOMICAL

These Batten Strips of Galvanized Metal will never warp, split, or draw away from the boards. Offer no obstruction to sliding doors. Allow for expansion and contraction of the siding. Made in 8-foot and 10-foot length with interlocking joint. Easily cut; no waste. Nailed directly to siding with small nails.



End view showing joint closed. A perfect fitting Batten at all times, in all weathers. Beautifies any building.

End view showing joint open. Provides for expansion or contraction of the siding so nails will not work loose.

Metallic Batten Strips make strong, neat joints. They make the building wind-proof, weather-proof and rat-proof. Also valuable for lining grain bins or wagon boxes.

Write for Free Sample and see for Yourself

METALLIC BATTEN COMPANY

Owensville, Indiana

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



The
**World's Greatest
Building Paper**

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The
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Here's to the Construction Boss!

THE very first step which a contractor must take in starting the execution of a job is selecting a general superintendent to handle the work. The type that is hired for a single job and discharged at its completion is not worth having, according to the opinion expressed by Leonard C. Wason, President of the Aberthaw Construction Co., in a paper read before the Boston Society of Civil Engineers. The really desirable superintendent is a development from experience—the one survival from many tried. When once obtained a firm cannot afford to lose him. Some building owners and engineers appreciate the value of his personality so that frequently they have given contracts under condition that a certain superintendent be put in charge.

Frederick W. Taylor specifies ten different qualifications which go to make up a well rounded man:—"Brains, education, special or technical knowledge, manual dexterity or strength, tact, energy, grit, honesty, judgment or common sense, and good health." He states that there are plenty of men to be found who embody three of these qualifications; four make a higher priced man. A man combining five is quite hard to get, and one combining six, seven or eight is almost impossible. At the same time, Mr. Wason specifies that the successful building superintendent

must combine at least seven of these qualities. He must have a personality which drives to activity several hundred originally unorganized men who are without special interest in the company or the result. He must have such tact and judgment as to weld these men into a harmonious working force, cheerful and self-respecting, with high morals, and ultimately with enthusiasm for the work in hand.

He carries a care so great that he builds in full size, with permanent materials, the intricacies of design which have troubled the engineer's drafting room to show clearly on paper. He has an honor so fine that the company is ready to leave in his hands its reputation and its funds. His special experience must be so trained that dangerous operations are carried on as a matter of routine without worry to himself or the company, yet with a constant oversight of the thousand chances for accident or perhaps death which may occur to the men in his charge. His forethought must be such that he sees ahead and provides for all the problems which are to come up, some of them months later—his temper so good that he never loses self-control under the most provoking circumstances, but is able to take with the best of grace changes in his plans, and to work in that close cooperation with the company which is so necessary to make it an effective contracting organization.

TURPENTINE of a good grade is one of the very essential raw materials in the manufacture and application of paints and varnishes. Its functions are so well known to the painter that mention of them here would be superfluous. It is our intention to give a brief, general description of the manufacture of this product, both from the gum of the live pine and from the heart and stump of the dead tree.

The production of turpentine in this country is confined almost entirely to the giant pine forests of the Southern States. A very small quantity of wood spirits comes from the spruce forests of the North. In the early days, the industry was confined largely to the Carolinas, with Charleston as the shipping point. With the increased production, and depletion of the forests in this section, the base of operations has shifted further South with Savannah as the present center. Jacksonville is an important storage and shipping point and shows rapidly increasing receipts and sales with each season's operations.

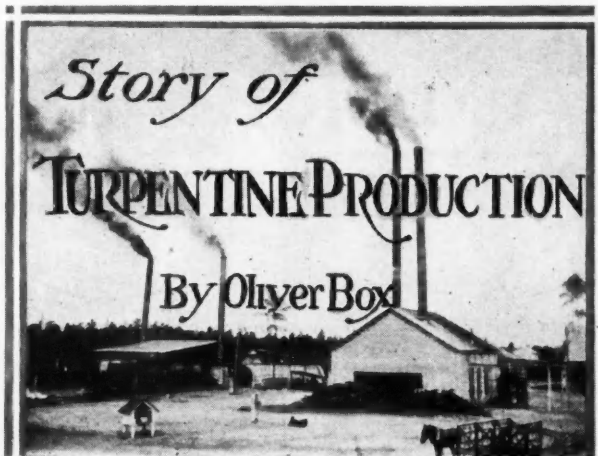
There are two distinct methods of producing turpentine; one the old well-known process of extracting the gum from live pine and the other, the comparatively new process of extracting wood spirits from stump and heart-wood of the dead tree. These processes will be treated in the following sections:

Gum Spirits—Gum spirits are usually produced in connection with the lumbering industry, either by the owner of the timber rights or some one to whom this owner has leased the privilege of turpentineing.

The operation begins with the boxing or cupping of the live pine-tree. Boxing is the older and more destructive method, and consists of cutting a box approximately one quart in capacity in the tree near the base. The more up-to-date producers use the cupping system, which consists of sawing a small slit in the tree a few inches above the ground, into which a metal apron with cup attached, is inserted. Above

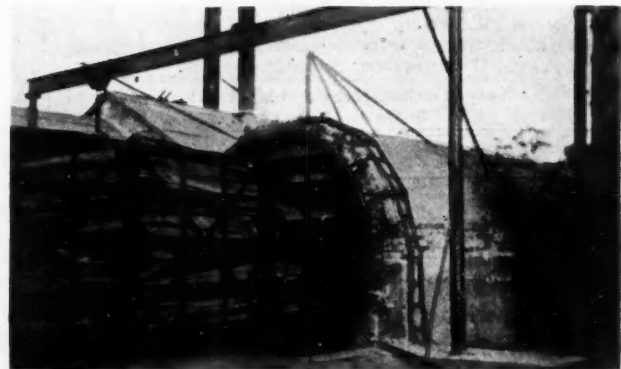


Steel Cars Loaded with "Light Wood" Ready for Treatment.



the box or cup the bark and part of the sap-wood is cut away about 20 inches. This is called facing and is necessary to start the flow of gum. This work is done in the Fall and early Winter months, after the sap is out of the tree, that there may be less danger to its life. The flow of gum begins with the rising of sap in the early Spring.

Following the first flow of gum, the face is chipped about three-fourth of an inch higher in order to renew the wound and insure a continuous flow. This operation is repeated every two weeks during the producing season. The facings after six or eight years, which is the producing life of the tree, reach a height of from eight to ten feet. On an average in virgin forests, forty boxes to the acre may be cut, and if the timber is good, the production should be forty barrels of turpentine and one hundred and twenty barrels of rosin per 10,000 boxes. This would mean



Charging Bath Retort.

eight gallons of turpentine and one-half barrel of rosin per year to the acre.

In modern practice much of the better timber is turpentineed for only two or three years, after which it is cut for lumber, thus giving it the value of round timber, while if turpentineed for its full producing life there would be considerable waste due to the lower part of the body having become flat where faced. Twenty to twenty-five years are required to grow a tree of sufficient size for turpentineing.

The next step after boxing or cupping is the dipping of the gum from the boxes or cups into barrels placed in the woods at convenient points and having a capacity of approximately 400 pounds. When full, the barrels of gum are hauled by ox-cart, to a central point for refining.

The refining is usually done in an ordinary cap-still where the gum is heated to temperature of from 156 to 165 degrees C (sometimes higher). At this

temperature the turpentine, having a lower boiling point, passes off, leaving the gum, which is strained and classified according to color and clearness. Both products are barreled and made ready for the market.

This process is comparatively simple, and aside from the timber rights, does not call for a very great outlay of capital.

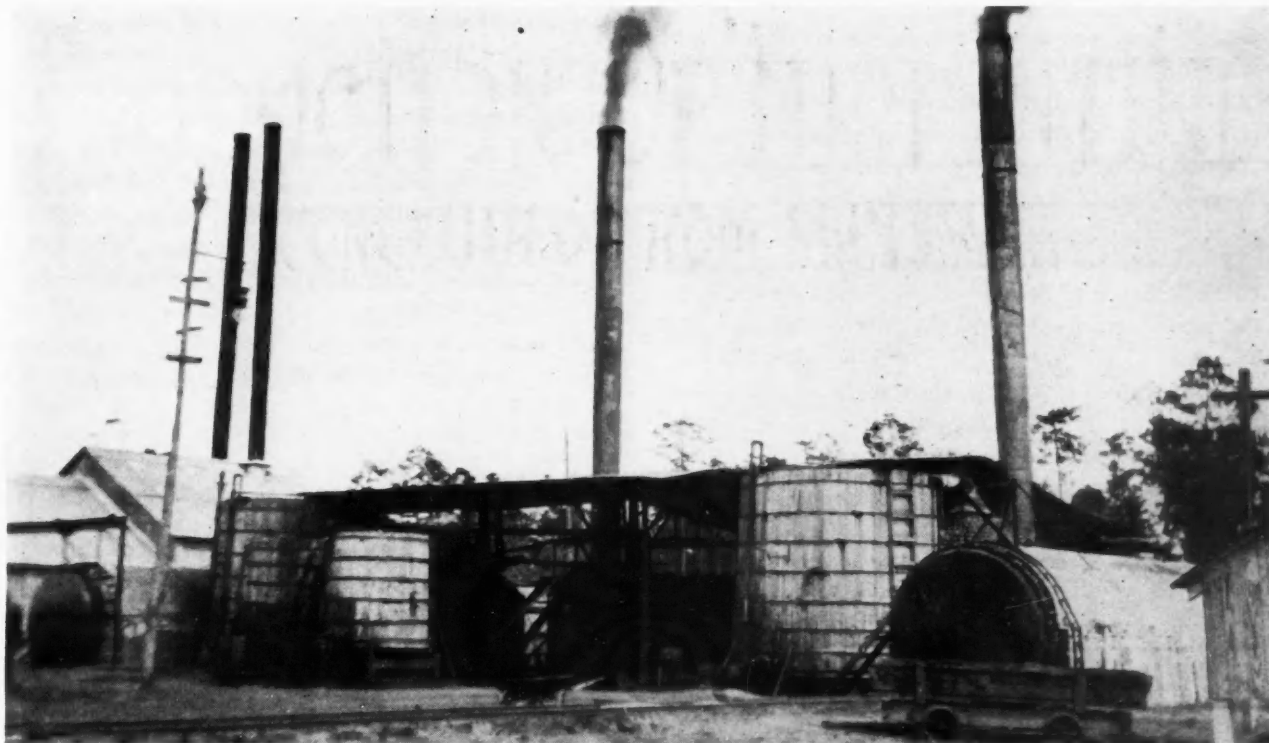
The laborers are chiefly negroes. A white man is generally chosen as distiller, occasionally, however, one of the more intelligent and reliable negroes may be selected for this work. The wages paid, average two to three cents per tree for boxing, five cents per tree for cupping, eighty-five cents per thousand trees for chipping, sixty cents per barrel for dipping, and for raking around trees to protect them from forest fires, thirty cents per thousand.

Wood Spirits—Wood spirits are made from the heart-wood of the long-leaf yellow pine, pine stumps and in some cases, box-faced slabs from sawmills. The heart of the long-leaf yellow pine is generally

satisfactory method for gathering and working the stumps has been found. The stumps are very much "fatter" than the heart-wood and evidently some method for economically treating them will be discovered as a reward for the very great effort being exerted in that direction. Box-faced slabs are the "fat" wood from sawmills and comprise the waste from trees which have been boxed for the production of gum spirits.

There are several processes for the production of wood spirits, which are worthy of attention, but in this article only the more important ones will be mentioned.

The method of gathering the wood for the various processes are very similar. Fallen trees, or standing dead trees, from which the sap-wood has fallen, are selected, chopped and split to pieces four feet in length and four or five inches in thickness and conveyed to the plant by wagon, steam-tram or railway. For direct wagon haul, three to five miles is considered



Bath Retorts—Wood Spirit Process.

known throughout the South as "lightwood," so named from its use in early days for torchlights, etc. The quantity of this wood that may be gathered vary widely in different localities, depending on how heavily the land may have been timbered and particularly, on whether there have been destructive storms to tear the forests down. In a storm-visited section the quantity would be very materially increased. On an average probably four cords to an acre is a fair estimate. There are approximately forty stumps to an acre on land which has been saw-logged, and these should add another four cords, but as yet no very

the maximum distance for economical operation; for tram, twenty to twenty-five miles, and for railway, seventy miles. From the tram or railway, there is always a wagon haul, which must not be over two or three miles, otherwise the cost of delivery would be prohibitive.

Steam Process—The older and perhaps simpler process is the extraction of turpentine by the use of ordinary steam heat. This process consists of taking the wood or stump after it is cut and split to the length and size above mentioned, and feeding it to a large machine, fitted with knives (called a "hog"),

where it is cut into small chips. After this, in the more modern plants, it is conveyed to a shredder which reduces the chips to fine particles, which in turn are carried to a storage-bin.

From the storage-bin the fine shreds are conveyed to cylindrical metal retorts of about one cord capacity. Here they are subjected to steam heat, under pressure, for from four to six hours. A crude turpentine



Making Up Shipping Barrels.

volatilizes and passes out through a condenser into storage-tanks.

This crude product is pumped to ordinary cap-stills, or in more modern practice, to a column or continuous still, for refining. In this still the treatment is much the same as that in the distillation of gum spirits, the boiling point, however, begins a little lower and continues slightly higher than in the latter process, and instead of rosin being left in the sills, a good grade of pine-oil is driven off after the turpentine.

The treated chips remaining have in the past, been of little value for anything but fuel for the power-plant, but considerable headway is now being made toward briquetting them and treating to destructive distillation, thus producing destructive spirits, light and heavy oils, tar-oils, pitch and charcoal.

The output of turpentine and pine-oil from this process is probably higher than that of any other method of wood distillation, but is offset by increased cost of production and loss in by-products.

The *Dry Heat Process* in the production of turpentine is a step in advance of the steam process in that it is not necessary to "hog" the wood. The pieces are placed in lengths, four feet by four to six inches, in large steel-ribbed cars of approximately one cord capacity. Ten such cars are pulled on tracks into a large horizontal cylindrical steel retort which is closed air-tight, and treated to 450 degrees Fahrenheit of dry heat. At this point the temperature is held for about twenty-four hours. The crude turpentine vaporizes and passes out through a condenser to storage-tanks. A good marketable grade of pitch is driven out through a lower channel.

The crude turpentine is pumped to refining-stills and treated in the same manner, leaving the same by-product as in the steam process, with the addition

of a small quantity of pitch which remains in the still after the turpentine and oil have passed off.

The treated wood may be sold for domestic purposes for very nearly as much as it costs to cut and deliver to the plant, or it may be treated to destructive distillation, as mentioned later in this article.

The *Bath Process* is still another step forward, as it permits treatment of the wood in cord-wood size, and in addition, makes a larger and less expensive extraction.

The process consists of loading the wood into steel-ribbed cars of the same size and design as for the dry-heat process; the number of cars that may be treated in one cylindrical steel retort is the same. The design of the retort is very simple and not so widely different from that used in the dry-heat process. The principal difference is in the special treatment.

After the wood has been placed in the retorts and the latter made air-tight by closing the swinging doors on each end, it is treated to a special patented circulating pitch bath at a uniform temperature of 380 degrees Fahrenheit, for a period of approximately ten hours. This treatment vaporizes the crude turpentine which passes out through a condenser into storage-tanks, and from these to the refining-stills.

The refining process is the same as for the other crude products except that after the turpentine and pine-oil have passed off there remains a quantity of pitch which is pumped back to the retort and joins the bath, thus making this part of the process very nearly self-perpetuating.

Destructive Distillation—Mention of this process will be in continuation of the dry-heat or bath process,



Refining Plant.

either of which may be, and one of them invariably is followed by destructive distillation.

After coming out of the retort the treated wood, in the same cars, is hauled on tracks to another retort of similar size and shape, but very different in working design. After sealing the retort by means of the swinging doors at either end, a small quantity of treated wood is ignited in a furnace beneath the retort and sufficient heat produced to start a flow of gas which is driven out of the wood in the retort. After

the flow of gas is started no other fuel is required for the treatment. The temperature gradually rises until it reaches 750 degrees Fahrenheit where it remains absolutely uniform until the treatment is nearing the finish when the supply of gas becomes gradually exhausted, with a consequent lowering of the temperature, until at the end of the treatment the fire has died out automatically and nothing remains but to open the doors and pull the cars into a cooling-chamber.

During the treatment there is driven out of each cord of wood approximately 150 gallons of crude distillate, three-fourths of a barrel of pitch and forty-five bushels of an excellent grade of charcoal.

The distillate after passing through a condenser, is pumped to settling-tanks where approximately 75 gallons of acid water settles to the bottom and is either used for making acetic acid, acetate of lime, or allowed to go to waste, depending on location with reference to market. The remaining part is pumped to the refining stills where there is driven off first about five to eight gallons of light oil, which may be, and generally is, used for making destructive spirits of turpentine. Following this eight to ten gallons of heavy oil is secured and there is left in the stills approximately forty-eight gallons of a fine grade of tar.

These products may be redistilled into other products, or by mixing, produce creosote or tar-oil, or they may be sold direct from the still.

Summing up the results of the dry-heat or bath process, when followed by destructive distillation, one cord good "lightwood" will produce approximately:

Wood Spirits.....	12 to 16 gallons
Pine-Oil	2 to 4 gallons
Light destructive oil	5 to 8 gallons
Heavy destructive oil	8 to 10 gallons
Pitch	$\frac{3}{4}$ to 1 barrel
Charcoal	45 to 50 bushels

The pine-oil may be refined into Australine Oil; the light destructive oil may be refined into destructive turpentine; the tar and heavy destructive oil may be mixed and made into tar-oil or creosote; other products may be produced by further mixing and refining.

All of the wood spirit processes require a large investment of capital and very high efficiency in operation, which must be directed by high-class specialists. The greatest care must be exercised in the color, specific gravity and flash point tests to insure the delivery of a perfect product to the consumer.

The labor of gathering the wood and the ordinary work around the plant is done by the Southern negro, who receives 75 cents per cord for chopping and splitting, and for work around the plant, 75 cents to \$1.25 per day. Generally the wages have been paid in advance by issuing orders on a local store (sometimes owned by the company), which allows the company 20 per cent commission on all transactions. Some of the plants manage so that the negro has some money

coming to him on pay day, and these always get the better help.

The United States Government, through the Forest Service Department, is taking an active interest in the production and refinement of turpentine and other pine products. Experts in this line are employed who devote their entire time and energy to experimental and research work along this line, and any manufacturer may have the benefit of this experience for the asking.



Built in Dangerous Place

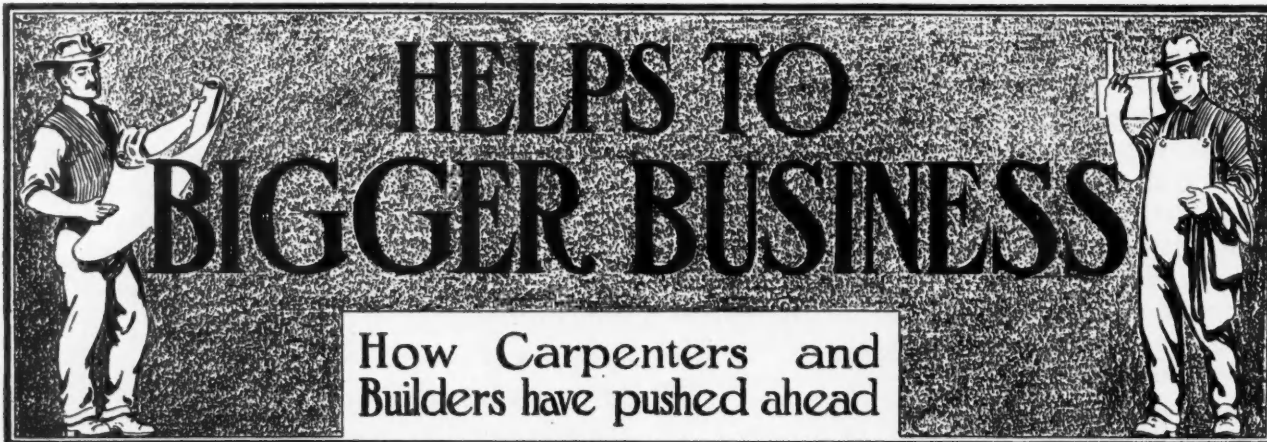
By C. L. Edholm

THE folly of building costly homes on insecure foundations was forcibly demonstrated this spring during the February floods in Los Angeles. A score of bungalows on the banks of the Arroyo Seco were washed out by the unusual high water; and these were not mere shacks, but homes costing about \$2,000 each. While the last previous storm occurred almost forty years ago, the evidence was so



What Happened when a "Dry Stream" Unexpectedly Broke Loose after Many Years of Quiet.

strong that high water had once covered the bank, that a thinking man would have hesitated to build a chicken coop on such a site, yet a whole street was laid out on this shifting sand and built up solid with substantial cottages. When the rains came the street work, houses, and real estate alike went whirling down stream, a total loss not covered by insurance. Watch your foundations!



A Simple Bookkeeping System for the Contractor and Builder

By H. J. Blacklidge

HERE is a bookkeeping system that is very simple and yet has always proven adequate in my business. You can figure the standing of any job in a few minutes. I think it entails as little work as any system that will give all the necessary information.

First, there is your book of original entry. This you must keep in your pocket at all times and enter each and every item of expense and profit at the time it is incurred. Make the data *complete*—though it need not be long. Then post up your books every evening and you will find that it will only take from a few minutes to an hour, depending on the amount of work (or, rather, the number of jobs) you are carrying on.

You will need a double column cash book (see Fig. A). We will take it for granted that everyone knows that all *receipts* are DEBITED or entered on the left-hand side, and that all *payments* are CREDITED or entered on the right-hand side. First you will enter on the left (debit) side the amount of your working capital. In the example given, we have taken \$500. Merely enter this as "Balance on hand." Next, on Jan. 2, we find that Smith has made us a payment of \$500. Enter this on the same side of the cash account. Jan. 6, we paid \$7.60 on the excavating of Smith's house. Enter this on the right side (credit) of the cash account (see Fig. A). Labor on the Jones job is entered the same. Now, here you may cut down a little if you wish. Instead of entering in the Cash Account that the payment was for excavating, merely enter Smith's name. This you *have* to do in order to transfer it to the proper account later. Then, in the future, if you happen to want to know what any particular payment or receipt is for, you can turn back to the same date in your pocket book and find it there. However, I prefer to use it as shown.

On Jan. 7 there are five entries of payments. On the 14th are three payments and one receipt. They are entered as the others were. Continue till the end of

the month, when you should foot up and see "where you are at." We find that the debit column totals \$1,879.50, and the credit column, \$452.70—showing a difference of \$1,426.80, which is the amount of cash on hand. Your check book should show this same balance. If it does not, you had better begin to hunt for some errors. By the way, always pay all bills by check! Then you have a receipt EVERY TIME. And that is a mighty big advantage.

Now you will place the balance at the foot of the

Fig. A.

CASH ACCOUNT	
Jan. 1 Balance on hand \$ 500.00	Jan. 6 Ex. Smith.....\$ 7.60
" 2 Smith 500.00	" 6 Jones, labor.... 16.40
" 14 Jones 800.00	" 7 Smith, cement... 18.00
" 22 Brown 79.50	" 7 Smith, labor.... 11.40
	" 7 Brown, cement... 3.50
	" 7 Jones, cement... 13.10
	" 7 Jones, labor.... 18.00
	" 14 Smith, labor.... 56.35
	" 14 Brown, labor.... 29.85
	" 14 Jones, labor.... 87.00
	" 15 Smith, milling... 1.75
	" 21 Smith, labor.... 67.20
	" 21 Brown, labor.... 23.40
	" 21 Brown, hardware 2.90
	" 21 Jones, labor.... 76.40
	" 23 Brown, lumber... 10.20
	" 23 Profit and loss.. 9.55
	" 31 Balance on hand 1,426.80
\$1,879.50	\$1,879.50
Feb. 1 Balance\$1,426.80	Feb. 1 Smith, hardware\$ 29.80
" 6 Jones 250.00	" 3 Jones, lumber... 450.00
" 10 Jones 150.00	" 5 Jones, labor.... 91.00
" 15 Smith, 2nd pay't 500.00	" 6 Jones, profit.... 75.00
" 20 Jones 300.00	" 9 Jones, lumber... 100.00
	" 14 Smith, plumbing 40.00
	" 14 Smith, lumber... 100.00
	" 14 Smith, labor.... 110.35
	" 16 Smith, lumber... 375.00
	" 17 Smith, prof.&loss 40.00
	" 20 Jones, plaster... 240.80
	" 21 Smith, labor.... 107.10
	" 25 Smith, plumbing 135.00
	" 25 Smith, plaster... 206.00
	" 26 Jones, labor.... 87.90
	" 26 Jones, hardware. 34.00
	" 28 Profit and loss.. 194.45
	" 28 Balance on hand. 210.40
	" 13 Jones, lumber... 350.00
	" 15 Jones, plumbing 213.20
	" 15 Jones, painting.. 112.00
	" 15 Jones, lumber... 348.70
	" 15 Jones, profit.... 153.30
\$2,626.80	\$2,626.80
Mar. 1 Balance on hand \$ 210.40	Mar. 6 Jones, labor...\$ 117.50
" 1 Smith, 3d pay't. 500.00	" 10 Jones, drayage.. 11.80
" 8 Jones 600.00	" 10 Jones, milling... 7.90
" 15 Jones 600.00	" 13 Jones, labor.... 96.00

Fig. B.

SMITH			
Bid \$1,500.00.			
Jan. 6 Excavating	\$ 7.00	Jan. 2 First payment..	\$ 500.00
" 7 Cement	18.00	Feb. 15 Second payment	500.00
" 7 Labor	11.40	Mar. 1 Third payment..	500.00
" 14 Labor	56.35		
" 15 Milling	1.75		
" 21 Labor	67.20		
Feb. 1 Hardware	29.80		
" 14 Plumbing	40.00		
" 14 Lumber	100.00		
" 14 Labor	110.35		
" 16 Lumber	375.00		
" 17 Profit	40.00		
" 21 Labor	107.10		
" 25 Plumbing	135.00		
" 25 Plaster	206.00		
" 28 Profit	194.45		
	<u>\$1,500.00</u>		<u>\$1,500.00</u>

Fig. C.

JONES			
Bid \$2,700.00.			
Jan. 6 Labor	\$ 16.40	Jan. 14 Cash	\$ 800.00
" 7 Cement	13.10	Feb. 6 Cash	250.00
" 7 Labor	18.00	" 10 Cash	150.00
" 14 Labor	87.00	" 20 Cash	300.00
" 21 Labor	76.40		
Feb. 3 Lumber	450.00		
" 5 Labor	91.00		
" 6 Profit	75.00		
" 9 Lumber	100.00		
" 20 Plastering	240.80		
" 26 Labor	87.90	Total	\$1,500.00
" 26 Hardware	34.00		<u>1,289.60</u>
Total	<u>\$1,289.60</u>	Mar. 1 Balance on hand..	\$ 210.40
Mar. 1 Total expenses..	\$1,289.60	Mar. 1 Total received..	\$1,500.00
" 6 Labor	117.50	" 8 Cash	600.00
" 10 Drayage	11.80	" 15 Cash	600.00
" 10 Mill work	7.90		
" 13 Labor	96.00		
" 13 Lumber	350.00		
" 15 Plumbing	213.20		
" 15 Painting	112.00		
" 15 Balance, lumber..	348.70		
" 15 Profit	153.30		
	<u>\$2,700.00</u>		<u>\$2,700.00</u>

Fig. D.

BROWN			
Bid. \$79.50.			
Jan. 7 Cement	\$ 3.60	Jan. 22 Payment in full..	\$79.50
" 14 Labor	29.85		
" 21 Labor	23.40		<u>\$79.50</u>
" 21 Hardware	2.90		
" 23 Lumber	10.20		
" 23 Profit	9.55		
	<u>\$79.50</u>		

credit column and add it up to check it. If correct, it will total \$1,879.50. Next carry this balance to the left-hand column, as your balance on hand for Feb. 1. This is exactly the same as was your "Working capital" for Jan. 1. Then go on with the February entries the same as for January. Feb. 1, paid for hardware for Smith, \$29.80 (see Fig. A, Feb. 1). I think the cash book or account has now been made clear.

Let us consider the individual accounts next. "Personal Accounts" is the proper "business college name" for them. Going back to the first entry in the cash account, "Jan. 2, Smith, \$500." Now turn to Smith's account, or rather, turn to a blank page and write Smith's name at the top (see Fig. B). Now, do not get yourself "mixed up" right here. Enter this transaction on the right or CREDIT side of Smith's account. Why? Well, because SMITH IS PAYING OUT THIS AMOUNT. See? "Credit payments and debit receipts" again. Next, on Jan. 6, you paid \$7.60 for excavating on Smith's job. Enter this on the debit

side of Smith's account, because he is (or, rather, *his job is*) receiving this amount. See Smith's account, Fig. B. Next, on the same date, is labor for Jones, \$16.40. Open Jones' account, Fig. C, and make the entry exactly the same. And then keep right on doing it. Also, Brown's account, Fig. D.

The figures at the top of the personal accounts are merely a note of the bid or contract price. This system will work in the same manner on percentage jobs or day-work jobs, where the contractor has to buy some of the material and pay the labor.

Should you wish to know how you stand on the Smith job on Feb. 14, you can total up the two columns, marking the amounts in small figures in pencil under the last entry. You will find that payments have amounted to \$438.50, while receipts are only \$500 (the first payment). Better see Smith and tell him you would like another payment in a few days—before Saturday noon! In the same manner you can tell at any time just how you stand on any job.

In placing a bid, I always keep a memorandum of the estimates for the different items—plumbing, plastering, painting, labor, and so on. Then, in paying the lumber dealer, for instance, you will know how much of your payment to charge to each account.

I have shown Jones' account balanced up on March 1. This can be balanced exactly the same as the Cash Account, or as I have done it here. It is merely a matter of making the figures on a scrap of paper in the first-named method, or making all figures right in the account, as done in the second. The debit column foots \$1,286.90. Foot the credit column and place the amount lines above the debit footing. On the next line place the amount of the debit column. Subtract, and you have the balance on hand. But remember, that in this method you do NOT carry forward the balance! Instead, you bring down the *totals*. Of course, you CAN carry forward the balance, but every time you want to know your standing you will have to go back to each balancing and get the totals. Whereas, done as I have suggested, you are carrying the full amount of your deal all the time—which you will admit, is an advantage not to be overlooked. Work it out for yourself. Balance up this account on March 10. Bring down the balance on March 1, instead of the totals. Then find out how you stand with Jones on March 10. It will take but a few minutes and will readily show the relative merits of both ways.

Now, to those of you unfamiliar with bookkeeping I would advise that you take the original entries of this set, which has been given as an example or model, and work out the Cash Account and the Personal Accounts from them. You will then be in a position to go ahead with your own books.

Now, for those entries of "Profit" or "Profit and Loss" that occur in the Cash Account occasionally. On Feb. 6 there is this entry, "Drew \$75 for myself." Remember that the Cash Account represents, not YOU,

but YOUR BUSINESS! Therefore, when this money is drawn for yourself, it must be credited to Cash (paid out). I chose "Profit" as a word suitable and suggestive. Orthodox bookkeeping demands the use of the words "Profit and Loss." Let's hope that we will not need any loss accounts, though! You would naturally charge this amount to that account which shows the largest balance, although there are times when you would not do so. But it is your business to know which account you wish to charge it to. In this case, it is Jones'. Therefore, it is entered in Jones' account as a debit—because he has received value for that money in services rendered.

But now, on Jan. 23 is an entry that will not come under this rule. In this instance you have finished the Brown job and gotten your money. After adding up all the expenditures you find there is a balance of \$9.55. This represents your actual profit on the job. Now, this (and all other expenses) have been debited in the Cash Account in the entry, "Jan. 22, Brown, \$79.50." Therefore, this "profit item" must appear on the opposite side of the account or it will not balance. So, as soon as you have balanced up Brown's account, and found what your profit is, you will carry the amount of profit back to the Credit side of Cash.

If you have a good many entries, it is best to balance up once a week, instead of once a month, as here shown.

Following are the entries as made in my pocket note-book at the moment the transaction occurred. Right here it pays to remember the motto, "Do It Now!" Make a note of the whole transaction while

it is fresh in your memory. Remember, this is your book of original entry, the only one that would be considered in court. And, therefore, you cannot take too much pains about making all entries complete.

Pocket Book of Original Entries for BOOKKEEPING FOR THE CARPENTER AND CONTRACTOR

Jan. 1, 1912. My working capital, to start out with, is \$500.00.	Feb. 10. Received from Jones, \$150.00.
Jan. 2. Received first payment on Smith's house, \$500.00.	Feb. 14. Paid on Smith job, plumbing (advanced), \$40.00; lumber, \$100.00; labor, \$110.35.
Jan. 6. Excavating on Smith job, paid \$7.60.	Feb. 15. Received from Smith, second payment, \$500.00.
Jan. 7. Labor on Jones job (clearing off lot), \$16.40.	Feb. 16. Paid on lumber for Smith, \$375.00.
Jan. 7. Bought cement for three jobs, as follows: Smith, \$18.00; Brown, \$3.60; Jones, \$13.10.	Feb. 17. Drew \$40.00 for myself.
Jan. 14. Labor paid, Smith, \$11.40; Jones, \$18.00.	Feb. 20. Received from Jones, cash, \$300.00.
Jan. 14. Received from Jones, cash, \$500.00.	Feb. 21. Paid on Jones job, plastering, \$240.80.
Jan. 15. Paid labor, Smith, \$56.35; Brown, \$29.85; Jones, \$87.00.	Feb. 21. Labor, Smith, \$107.10.
Jan. 15. Paid for some mill work for Smith job, \$1.75.	Feb. 25. Smith job, plumbing, \$135.00; Plastering, \$206.00.
Jan. 21. Paid labor, Smith, \$67.20; Brown, \$23.40; Jones, \$76.40.	Feb. 23. Labor, Jones, \$87.90; hardware, same, \$34.00.
Jan. 22. Received from Brown, payment in full to date, \$79.50.	March 1. Received Smith's third payment, \$500.00.
Jan. 23. Lumber for Brown job, \$10.20.	March 6. Paid for labor on Jones job, \$117.50.
Feb. 1. Paid for hardware for Smith job, \$29.80.	March 8. Received from Jones, cash, \$600.00.
Feb. 3. Paid on lumber account, for Jones, \$450.00.	March 10. Paid, Jones job, drayage, \$11.80; milling, \$7.90.
Feb. 5. Paid Jones job, labor, \$91.00.	March 13. Jones, labor, \$96.00; lumber, \$350.00.
Feb. 6. Received from Jones, \$250.00.	March 15. Received \$600.00 from Jones, which pays in full.
Feb. 9. Drew \$75.00 for my own use.	Feb. 9. Paid for Jones job, plumbing, \$213.20; painting, \$112.00; lumber, \$348.70.
Feb. 9. Paid on lumber for Jones, \$100.00.	

Panorama of Panama-Pacific International Exposition

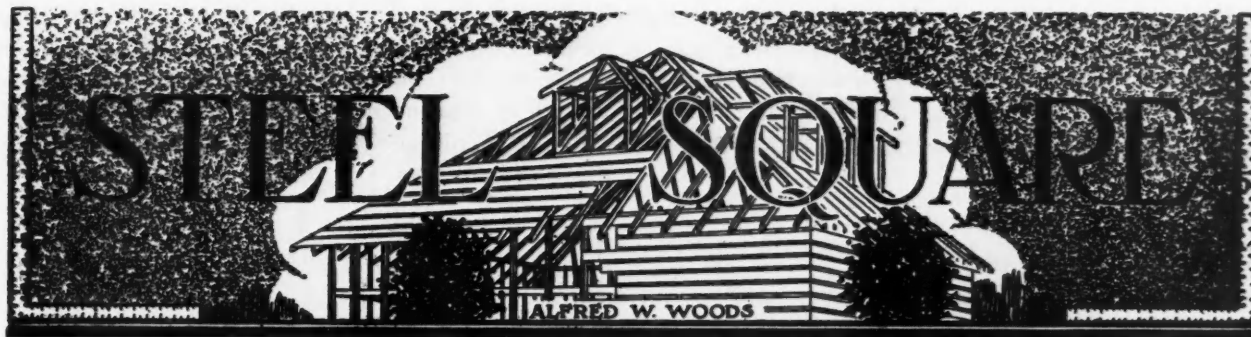
WITH four of the main great exhibit palaces more than 75 per cent completed and four others past the 50 per cent mark, the progress made to date in the erection of the buildings of the Panama-Pacific International Exposition establishes a world's record for all expositions. This great panorama shows the great exhibit palaces in their degrees of construction, but in the attempt to portray the beauties of the site of the exposition the details of the structures themselves are lost. Only a close study of the panorama will enable the observer to note the enormous size of the palaces, one of which, the Palace of Machinery, to the extreme right of the picture, is the

largest frame structure in the world. This building is already completed and ready for the interior finish.

The site may be seen to extend along the bay shore and the waters of the famed Golden Gate for a distance of two and one-half miles, reaching from the Presidio military reservation on the left to Fort Mason on the right. Across the straits rise the Marin hills, overtopped by Mount Tamalpais in the background. In the bay is seen Alcatraz Island with its white army buildings. To the left is the Aviation Field, which, in May, 1915, will be the scene of the great international aviation meet and the start of the Panama-Pacific International Exposition globe-girdling aviation race.



Photo Showing the Present State of Progress of the San Francisco International Fair



Framing a Square Hip Roof

ILLUSTRATING ROOF FRAMING BY A SIMPLE LINE DRAWING, SHOWING WHAT DETERMINES THE PARTS TO TAKE ON THE STEEL SQUARE FOR OBTAINING THE CUTS

By A. W. Woods

WE have been asked by a reader to give a simple line drawing, illustrating all of the cuts contained in a common square hip roof building and illustrated on the steel square.

Now, this caused a smile to come in dangerous proximity to our ears, for this is just what we have been trying to do for the last nine years; but then, this man says he is comparatively a new beginner—a youngster, as it were. And then it occurred to us, that there are others, and, like the fond parent in the bringing up of his flock in the way they should go, it is necessary that he go over and over again, and then some more, that they sure hit the right track; and to do this successfully, it is necessary to illustrate in different ways to show up the same object, because all cannot see alike; what may seem plain to one may prove a bug-bear to another.

So we are going to try a new illustration this time, but the results are the same and the principle back of it all is as old as the hills.

In Fig. 1 is shown a line drawing of all of the parts that enter into the cutting of the rafters, roof boards, plancier, purlin, etc., not only for the common hip roof

for a square corner, but the same principle applied to any other shaped corner will give the correct results.

The illustration shows the figures for a 16-inch rise, but it could be any other rise just as well. It is necessary for illustrating purposes that it be something, and so we have chosen 16, meaning that the common rafter has a rise of 16 inches to the foot run; and so the illustration is based on that proportion and the different parts are named, as well as having their lengths given. Note the illustration is made up of

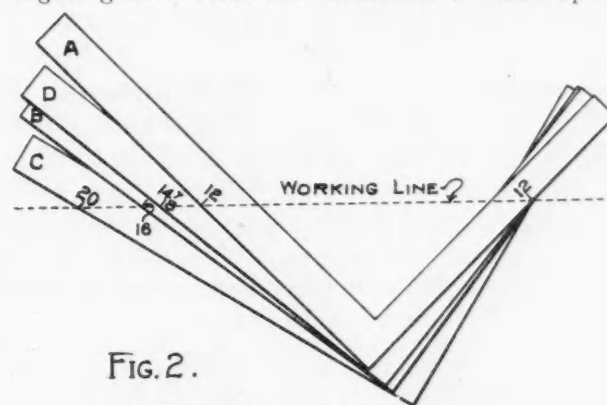


FIG. 2.

A, B, C, D Order for Using Steel Square.

single lines with their respective name and dimension given, and by taking these parts on the steel square, will give the angles for the cuts that enter into the roof.

Passing to Fig. 2, is shown the application of the steel square to the timber for the different cuts in A, B, C order, as follows:

Square "A" will give the miter for a square corner; either side of the square giving the angle. Square "B" will give the angle for the seat and plumb cut of the common rafter; the tongue giving the former, and the blade the latter. Square "C" will give the angle for the side cut of the jack and also for the angle across the face of the roof board to fit in the valley or over the hip (provided the adjoining pitches are the same); the blade giving the angle in the former, and the tongue in the latter. Square "D" will give the miter or hopper cut for the roof boards; the tongue giving the angle.

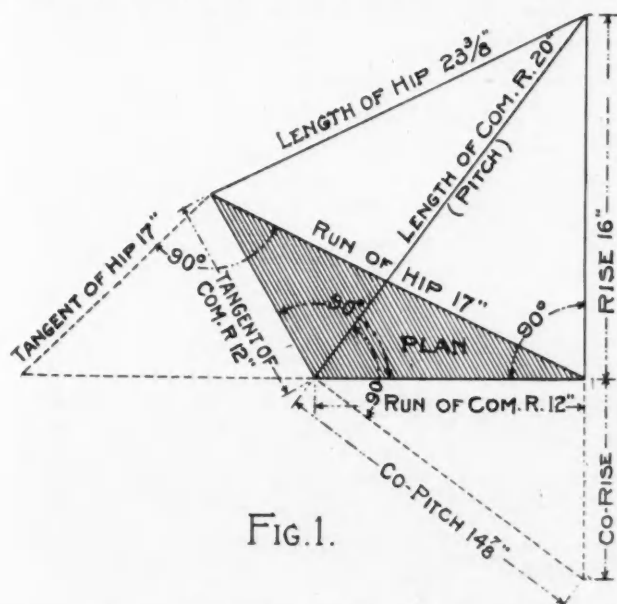


FIG. 1.

Every point in Hip Roof Framing is Contained in this Diagram.

Passing on to Fig. 3, is shown the application of the steel square for the hip cuts, as follows:

Square "E" will give the angle for the seat and plumb cut; the tongue giving it in the former, and the

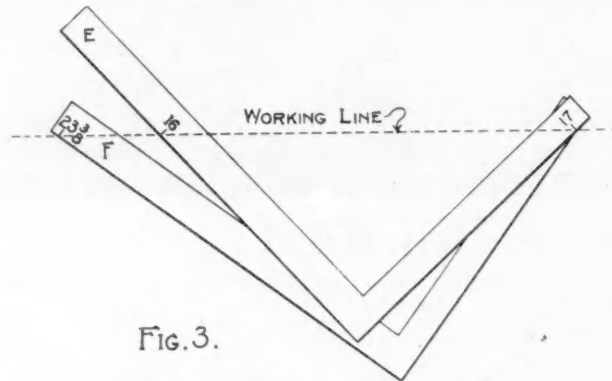


FIG. 3.

Application of Steel Square for Hip Cut

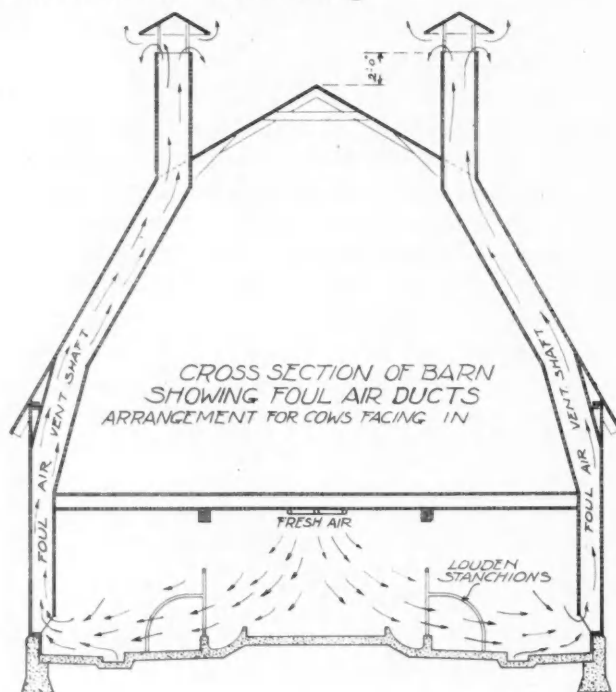
blade in the latter. Square "F" will give the side cut of the hip; the blade giving the angle.

Thus, in the foregoing, we have all of the principal cuts contained in the $\frac{2}{3}$ pitch, or 16-inch rise to the foot run, and, by referring back to Fig. 1, will show what the parts are and at the same time illustrate why they are taken on the steel square to obtain the various cuts contained in the roof.



System of Dairy Barn Ventilation

The modern builder would as soon think of building a barn without a roof as to build one without a cupola ventilator. Farmers realize as never before that practically all farm buildings require ventilation; and, if it is a stock barn, especially where dairy cows are kept, the ventilation is perhaps the most important feature of the entire building.



Sections Thru Modern Dairy Barn Showing Foul Air and Fresh Air Ducts

A good deal of study has been given this barn ventilation problem. Several good systems have been worked out. The accompanying diagrams show the system recommended by the Louden Machinery Company. According to them, the essential points required for perfect results with this system of ventilation are as follows:

The room must be as near air tight as is practical to make it. Walls and ceilings should be insulated from outside temperature by lining with heavy building paper, matched lumber or other non-conducting material. The foul air vent shafts must start near the floor and run up at least 2 feet above highest point of roof. Should be smooth on the inside. Can be changed from oblong to square or round, but area must remain the same the entire length. It should be as near vertical as possible and avoid all sharp bends and horizontal runs. It should be air tight and insulated from outside temperature. Should have rain-proof top, and intakes should be located behind cows, so that all foul air will be drawn away from the cow's head.

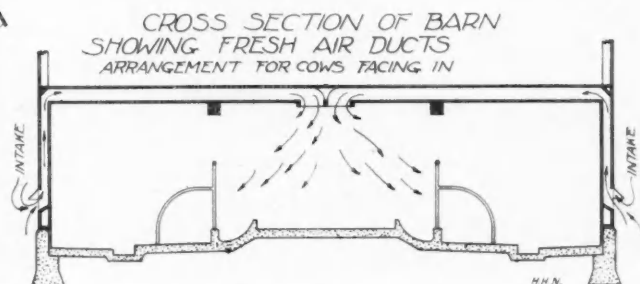
Fresh air ducts should also be insulated, smooth inside, of about equal area the entire length and outside air intakes should be as far below the outlet at ceiling as is practical, for reason that if intake was level with outlet in the ceiling, the warm air near ceiling would escape, reversing the flow of air and exhausting the heat in place of letting in fresh air.

Fresh air should always enter the room near the ceiling, and entrance of air should always be located in front of cows, so the air will flow towards the cow and form a current, passing beyond the cow, towards the foul air shaft, absorbing all impurities in its path.

Fresh air ducts should be well and equally distributed along the ceiling of feeding alley. A number of small ducts are better than one large duct of equal area.

Foul air vents can be made larger and less in number.

Foul air vent ducts take up least amount of room and are cheapest to build, if built into the outside walls, as shown in this sketch, and fresh air ducts can be run to center of ceiling (between joist), as well as not. For these reasons we recommend cows be stanchioned, facing in.



H. H. N.



How to Frame and Hang a Double Sliding Door

By E. J. G. Phillips

A RECENT letter of inquiry raises a question of quite general interest to carpenters and builders:

"Will you explain how to put in a double sliding door in a house, from setting the studs to the finished job?"

The following paragraphs are intended to answer this question in a general way by giving a description of a typical sliding parlor door installation. Though a partition may be looked upon primarily as a dividing wall, it must often perform other functions in a building, but it is not within the scope of this article to discuss the requirements to meet these conditions nor the different constructions necessary for the various types of door hangers. Partitions for single doors also require a somewhat different treatment and will not be considered here.

The Partition

The illustration, Fig. 1, shows the partition ready

for plastering while Figs. 2 and 3 are vertical and horizontal cross sections of the partition after the finish has been applied, taken through the points designated. The same letters are applied to the same parts in the different illustrations.

The sliding door partition really consists of two parallel partitions with a space between about $3\frac{3}{4}$ wide, called a pocket. The opening or doorway in each partition is formed in with a double stud, A, on each side and a 2-inch x 4-inch trimmer above. Special care in selecting good straight stock, free from twist or wind, and even a little extra time spent in dressing up these members true and square, will save a good deal of trouble when applying the trim. Line up the double studs in the two sides of the partition with a square, allowing $3\frac{3}{4}$ inches between and be careful to set them plumb.

The width of framed opening or distance C equals

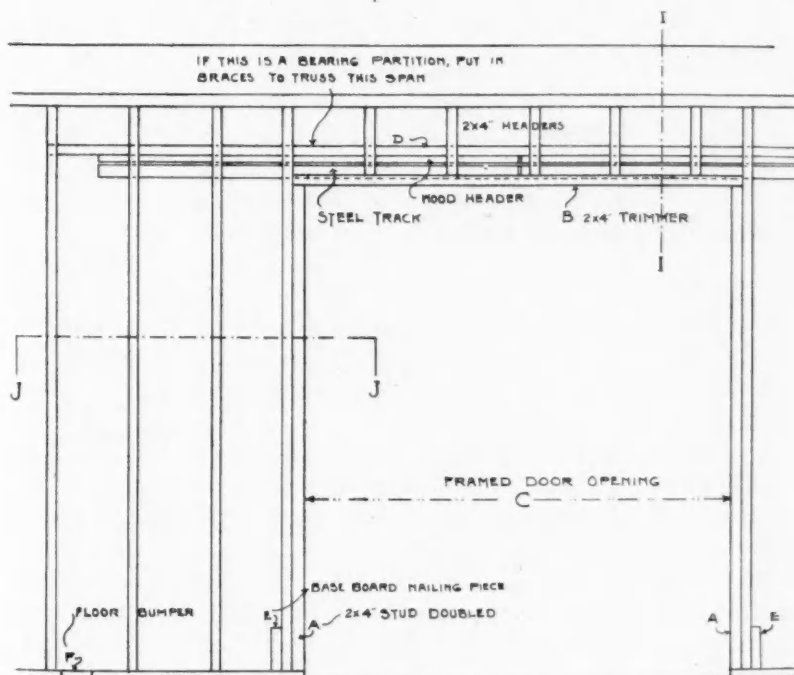


FIG 1

General Layout and Header Detail of Ordinary Double Sliding Parlor Doors.

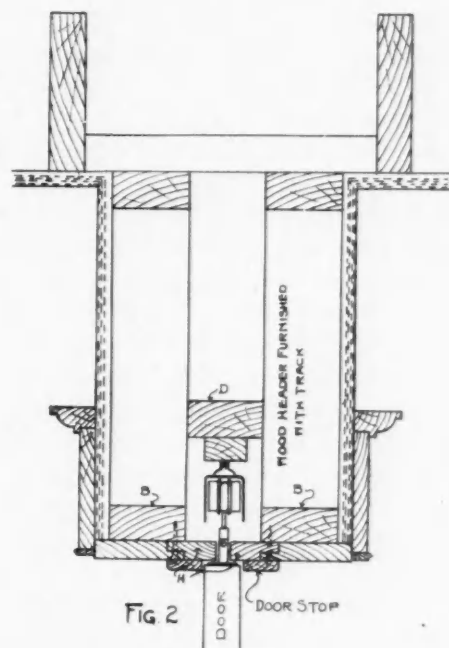


FIG 2
VERTICAL CROSS SECTION ON I-I

the width of both doors plus the thickness of two jambs. From the finished floor to trimmer B equals the height of the door plus the thickness of the soffit plus $\frac{5}{8}$ inch. When double floors are to be used, be sure to figure from the finished floor.

Some builders prefer to set the studs the narrow way, rather than as shown in order to gain about 4 inches additional space in the rooms and this is probably satisfactory when the partitions do not support the floors above.

Attaching the Track

Only the construction for door hanger track of the trolley type for overhead attachment will be considered. These tracks are made with a wood header from which the track can be removed. Three screws which

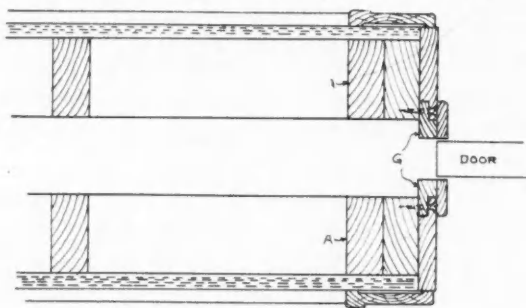


FIG. 3.
HORIZONTAL CROSS SECTION ON J-J
Detail of Sliding Door Pocket.

provide vertical adjustment, are used to attach the track to the header. The track is adjusted to cause the doors to slide parallel with the floor, while the adjustment in the hanger controls the distance between the floor and the bottom of the door. Two pieces of track are required for double doors.

Nail a 2x4-inch heading timber between the two lines of studding at the proper height to accommodate the particular door hanger which is to be used. Builders of course have preferential methods of attaching this timber, some nailing it directly to the studding (this is especially convenient when studs are set the narrow way) and others nail it to cross pieces which are in turn nailed to the studs. Any substantial method is satisfactory. Be sure to have it level.

Remove the wood header from the track and tack lightly to the heading timber exactly midway between the studding and with the end to which the slotted plate is attached, extending back into the pocket. The opposite end should come exactly to the center line of the opening. Mark through the bolt holes; remove track header and bore holes through heading timber to provide clearance for the adjusting screws and then nail track header securely to the heading timber.

Insert the hangers in the track (side of hanger which has the adjusting screw should be toward the edge of the door) and re-assemble the track to the header. Track adjusting screws are operated by inserting a screw driver through the opening in the bottom of the track.

Short strips to which the ends of the base board are to be nailed are shown at E.

Nail 2 by 4-inch bumper pieces, F, to the floor in the pocket for the doors to strike against when opened. These should be set back a distance equal to the width of the door less the thickness of the jamb and the door-stop. After providing the usual grounds for plastering the framing is complete.

Hangng the Doors

After squaring up and sizing the doors, plough a groove $\frac{3}{8}$ inch wide by $\frac{1}{2}$ inch deep in the bottom of the door, for the floor guide.

Remove the door plates from the hangers and screw to the top of the door. The plates should be exactly in the center of the door, considering the width, and the end of the plate should be in line with the edge of the door. Place the doors in position under the track and attach door plates to hangers, adjusting the doors to slide freely and so the edges of the two doors will meet properly at the center.

The jambs and soffits are then ready to install as detailed in Figs. 2 and 3. These members, it will be observed, are all made in two pieces, the removable sections or pocket covers, G-H, which are attached with screws, are provided to permit the removal of the track at any time after the walls are finished. The joints are so located as to be covered by the doorstops.

Screw the floor guides in place flush with the doorstops and set the center stop into the soffit at the center of the opening, being careful to fit it into the wood tightly so the shock will not come on the screws.

Apply the casing and head trim in the usual manner.
Aurora, Illinois.



Fast Porch Roof Work

By I. P. Hicks

IN framing up a hip porch roof with a level cornice, where there are lookouts, etc., there is a way to get at it quickly and save quite a bit of labor, over the way some do the job. A good many cut the rafters to set on top of the lookouts; and this makes a long cut on the bottom end of the porch rafter. On the hip, of course, it is necessary to set the rafter on top of the lookout, otherwise it would be thrown out of line. On the common rafters and jacks cut them long enough to spike on the sides of the lookouts and you can do it just about twice as quick and it is just as good (see Fig. 1). First, set the hips, then stretch a line and bring all the others up to the line, lookouts and rafters, then you will get a nice, straight job of it. Then cut in a 1 by 6 or a 1 by 4 from the rafter down to the porch beam. This will prevent the weight of the rafters and roof from ever causing a sag in the cornice, as is often the case where the rafters have no bearing other than way out to the end of the lookouts.

This is a quick and good way to do this work

Use 2 by 8's or 2 by 10's for the porch beam, with a 2 by 4 filler in between to give sufficient width to the beam, and make splices come on a post if possible, and do not splice both 2 by 8's or 2 by 10's in the same place.

How to Put a Neat Curve in the Roof of a Square Hip Roof House and Do it Quickly

There are many hip-roof houses with the rafters curved at the cornice line. To get a neat curve that will not show the break where the curve joins the straight part of the rafter is a job that is more or less difficult for those who do not know just how to pro-

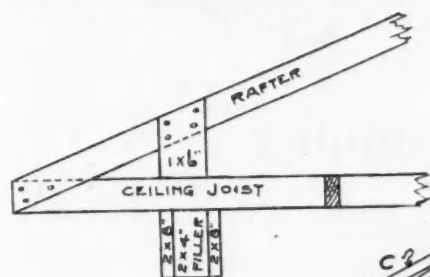


FIG. 1.

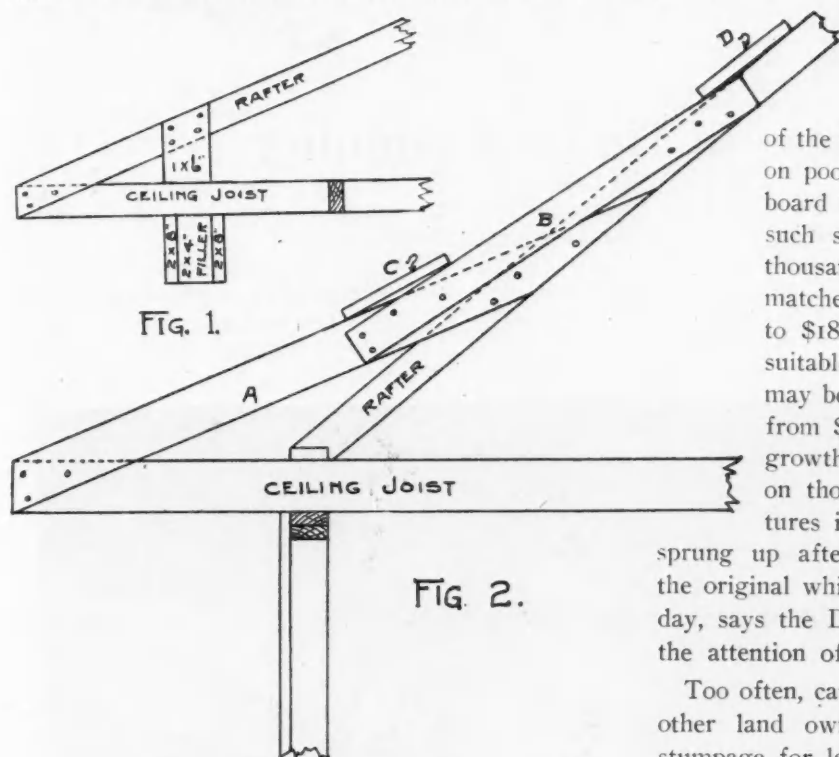


FIG. 2.

Details of Quickly Made Cornices.

ceed with the work. This can be accomplished easily and quickly if you go at it right.

Frame up and raise the rafters in the usual way (see Fig. 2). Then spike on a set of short rafters to the lookouts and ceiling joists and main rafters. These can be 2 by 4 or 1 by 6, as shown at A. Next, nail on another set from these short rafters farther up on the main rafter, shown at B. These short pieces can be cut and nailed on quite fast, for there need be nothing but square cuts made. However, set the pieces all to a uniform height so that the roof lines will all be uniform. When you sheath the roof, be sure to have the sheathing boards come half way over the breaks, as shown at C and D, then when you finish sheathing and shingling the roof you will have the finest curve in the roof that you ever saw, and all this without consuming very much time, for it has been an easy job all the way through.

I. P. HICKS.

White Pine Growing is Profitable

THE growing of white pine, says the Department of Agriculture in a bulletin recently issued on the subject, is a profitable undertaking at 6 per cent compound interest. To bring in these returns, the trees may be cut when not more than 35 to 70 years old.

The original white pine forests are approaching exhaustion, according to the Department, and with the growing scarcity of large-sized, high-grade white pine lumber, lower grades now find a ready market. Besides this, the tree grows rapidly, has a heavy yield, and is easy to manage.

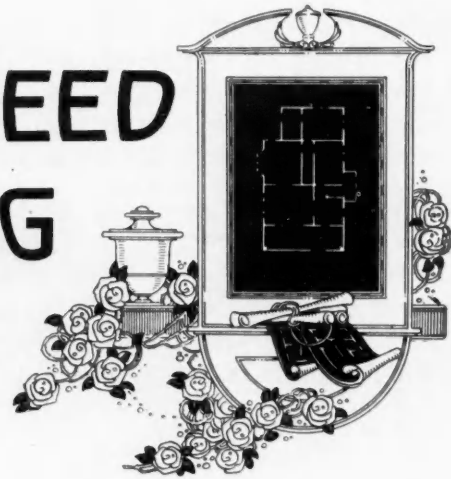
Second-growth white pine, 50 years old, on good soil, may yield as much as 49,000 feet of lumber per acre. On medium soil, stands of the same age, 36,000 board feet, and even on poor soil, 24,000 feet. White pine box-board lumber, one of the chief products of such stands, sells for from \$12 to \$18 a thousand board feet. Material for making matches, another product, sells for from \$17 to \$18 a thousand. Even larger material, suitable for sashes and blinds, some of which may be cut from a 50-year-old stand, brings from \$30 to \$35 a thousand feet. Second-growth white pine, the kind that is found on thousands of abandoned fields and pastures in New England, and that which has sprung up after lumbering in many places where the original white pine forests stood, has a value today, says the Department, that makes it well worth the attention of the owner.

Too often, caution the forest officers, the farmer or other land owner sells second-growth white pine stumpage for less than it is worth, because he does not know how much lumber the stand is actually capable of yielding, or else is ignorant of the price the lumber and other products will bring. Too often, also, the foresters say, the owner of second-growth fails to realize that perhaps by holding his pine trees for a few years longer, or by thinning it properly at the right time, he can obtain a great deal more and better timber, and consequently a much larger relative return in money, than if he allows it to be cut clear when the first opportunity offers.

The best second-growth white pine, 45 years old, will yield about 42,000 board feet per acre, but the same stand, when 55 years old, will yield 55,000 feet, an increase of 13,000 feet per acre in 10 years. And this is not all, for along with the increase in quantity comes an increase in quality. Not only more, but better timber is to be had. Counting in this factor of quality, the lumber from an acre of best white pine, 55 years old, is worth about \$1,000 against a value of \$750 when the stand is 45 years old.



GUARANTEED BUILDING PLANS



Unique Ideas in Home Designing

WITH all eyes now turned toward Mexico, we may fully expect to see, before long, some Mexican ideas in residence design throughout the United States.

Already the *patio*, that central fact in Mexican house planning, has penetrated

up into California and elsewhere in the Southwest. It helps to make an interesting home structure and has much to recommend it.

The *patio* arrangement is not necessarily exclusively for the tropics, either. The rooms are arranged in the form of a hollow square, and the interior forms

a court yard or inside garden. The roof is usually a skylight arranged with ample ventilators.

For summer cottages, this idea works out well; and those who are extra keen to have "something different," make use of the *patio* bungalow style with telling effect.



Many of the Larger Homes are Built in the Spanish Style Around a *Patio* or Inner Court—a Delightfully Cool and Restful Spot Paved and with Central Fountain.

Six-Room Bungalow with Special Features

Occasionally one sees a first rate bungalow plan that requires a building lot of only moderate width. Such a design is by far the most practical; for in the majority of places ground comes so high that the prospective home builder has to be satisfied with, at the most, about 50 feet.

Here is a very well arranged bungalow measuring 34 feet in width by 43 feet 6 inches along the depth of the lot. The rooms are of good size, too,—the living room measuring 20 feet 6 inches across the width and extending back 14 feet.

The arrangement of rooms in this bungalow has been worked out just about as well as is possible. The three problems of planning where *all rooms are on one floor* are satisfactorily handled. They are first, that the sleeping rooms should be quiet and private; that is, separated from the rest of the house and accessible without having to pass through the general living room or other important room in order to get to them. Second, the kitchen and maid's room should be away by themselves. And third, the living room-dining room combination must be large, well-lighted, commodious apartments and should be placed on the sunny side of the building.

It is no easy task to plan out a dwell-

ing of moderate size and cost and take care of all three of these factors in good shape.

This present design seems an unusually happy solution of the problem. Notice how the two principle bed rooms are placed with reference to the bath room, living room, clothes closet space, etc. The rear bed room even has a

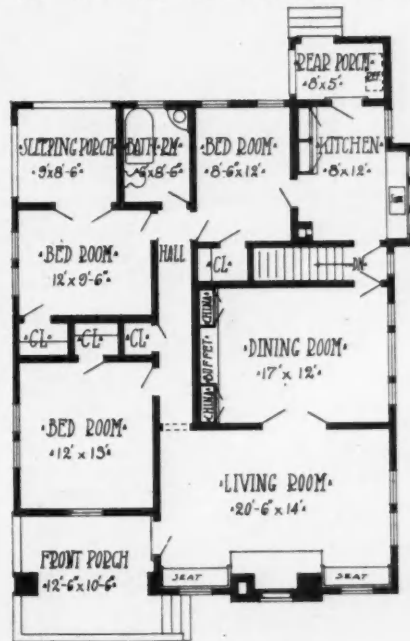
large sleeping porch in connection with it. Notice, too, the placing of the kitchen. It is a sunny, cheerful work room, convenient to the dining room, yet separated from it by two doors and the cellar stairway hall, which keep the kitchen clatter and cooking smells from the rest of the house.

Double doors, glazed their full length, are used to shut off the dining room from the front room, when desired. The living room has a big open fireplace with built-in seat at each side. The fireplace chimney comes out in the front wall and makes one of the striking features of the outside appearance of this bungalow. This chimney is laid up in dark brown, rough face brick. Quite a novelty is the small square window that pierces the chimney breast just above the fireplace mantel.

The outside of this bungalow is covered with wide boards from grade up to the window sills. From there up narrow siding is used.

The exterior design is simple, and yet very attractive. It is a design that lends itself well to landscape gardening attention—a few shrubs and vines, a border of bright flowers along the walk, some well-kept sod.

It is easy to care for some houses—they seem to invite attention by their own attractive neatness. This little home place is of that sort. It is orderly.



Floor Plan of Bungalow
Size 34 by 43 feet 6 inches.



Cozy six-room bungalow of artistic design. Size, 34 feet by 43 feet 6 inches. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$8.00 per set. Blue-prints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6565.



Neat gambrel roof frame dwelling of seven rooms. A very stylish design. Size, 24 feet by 30 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$10.00 per set. Blue-prints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6588.

Attractive Gambrel Roof Residence of Seven Rooms

There is always something substantial and stylish looking about a gambrel roof residence. If the roof slopes are correctly proportioned, there is nothing finer.

In this design illustrated, the attractive effect is strengthened by the large gambrel dormer on one side. This serves a double purpose. It improves the outside appearance and also accommodates a second-story projection of about 3 feet, which allows the bath

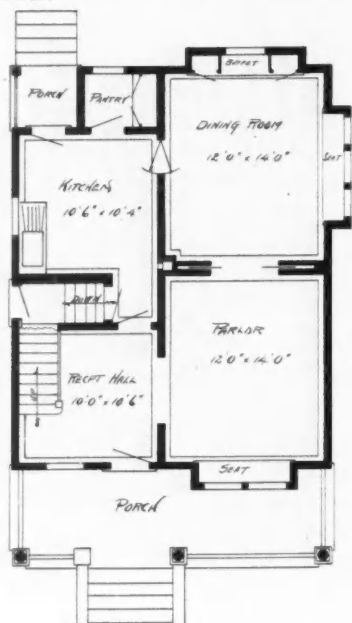
room to be placed to good advantage on this side of the second floor plan.

This is a thoroughly good design and interior arrangement for a medium-sized house. The rooms are all large enough for comfort and their arrangement is more than ordinarily good. All the rooms are well-lighted. On the first floor are reception hall, parlor and dining room, opening together with double sliding doors into kitchen and pantry. On the second floor are four bedrooms, five clothes closets and a built-in linen closet. The bath room also is on this floor. One of these bedrooms is extra large.

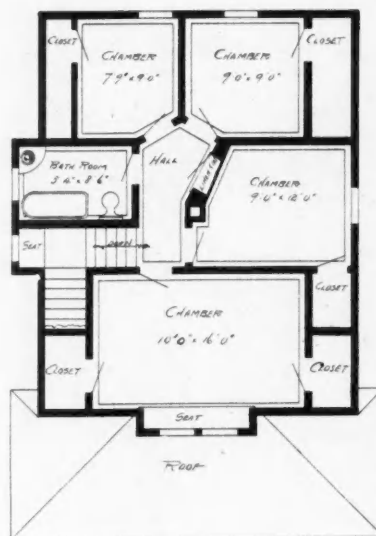
A very beautiful and comfortable porch extends clear across the front of the house. The porch columns are turned stave columns of classical design.

There is a grade entrance door at the side of the house, with stairs going both down to the basement and up to the kitchen hallway. No other cellar stairs than this are required.

The basement is cement floored and contains laundry, heating plant with coal bin, vegetable cellar, etc. The foundation wall extends well above grade, which permits good sized cellar windows for light and ventilation.



First Floor Plan.



Second Floor Plan.

Arrangement of seven-room house, size 24 by 30 feet.

Comfortable Six-Room Dwelling for Narrow Lot

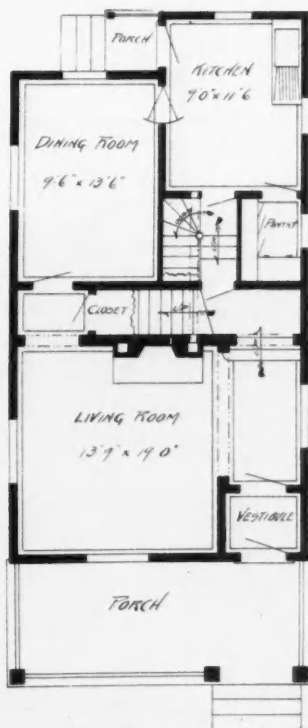
One seldom sees a better arrangement than this for a narrow house. The rooms are of good size and the arrangement is in every way convenient, and yet the total width of the building is only 20 feet.

Notice the way the front door opens into a vestibule, and then into an alcove reception hall. The first three steps of the stairway are directly opposite the door. A ceiling beam is all that indicates a separation between this reception hall and the rest of the living room.

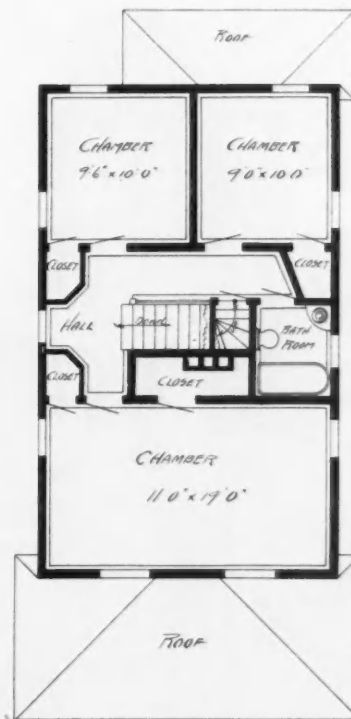
Three steps come up from the kitchen door to the stair landing so that the one flight of stairs serves as both front and back stairs.

The first floor also has nicely arranged dining room, kitchen and pantry. On the second floor are three bedrooms; one of them extra large. There are also four clothes closets and bath room on this floor. A stairway goes up from the second story hall to the third floor attic.

This is one of the popular square-type, hip roof designs.



First Floor Plan.



Second Floor Plan



A narrow-lot, six-room house conveniently arranged. Size, 20 feet by 32 feet 6 inches. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$8.00 per set. Blue-prints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6569.



Substantial eight-room brick residence of modern design. Size, 36 feet 6 inches by 30 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$12.00 per set. Blue-prints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6549.

Eight-Room Modern Brick House

A thoroughly modern home design, expressing the very best ideas of residence planning is presented herewith. This is a square-type, hip roof, brick house. Not an inch of space is wasted and nothing has been put on for sake of appearance or just for show. The

beauty of the building depends on the correct proportioning of the essential parts of the building, themselves.

This is in line with the modern tendency in architecture. Everything is simple and strong, and is present in the design because it is really needed; nothing is "tacked on," as they used to do twenty years ago.

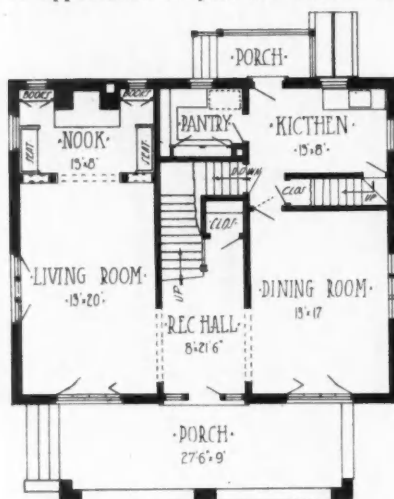
Several elements in the design of the exterior are prominent. The grouping

together of three casement windows in a single window frame is attractive from without and also lights the room extra well. The broad, hip roof porch, extending clear across the front, makes the front attractive; both the porch and the hip roof dormer above break up the severe plainness of the face of the building. A moderate amount of dressed stone is used effectively for trimming. The second story window sills take the form of a continuous course of stone around the building.

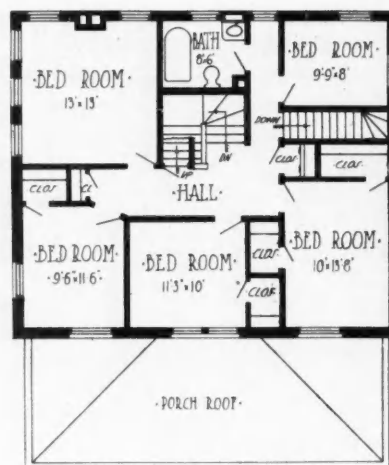
In its interior arrangement this house is what is called the center-hall type. Reception and stair hall occupy the center with broad cased openings on each side into living room and dining room. The living room, with its fireplace nook, occupies all of one side, an apartment 13 by 28 feet in size. The corresponding space at the other side of the house is given over to dining room and kitchen. The pantry occupies the space just back of the main stairway.

On the second floor are five bedrooms, six clothes closets and the bath room.

The stairway to the third story attic goes up out of hall on the second floor. There is space here for finishing off at least one chamber or playroom, and there will be plenty of storage space.



First Floor Plan.



Second Floor Plan.

Arrangement of Eight-Room House. Size, 36 feet 6 inches by 30 feet.

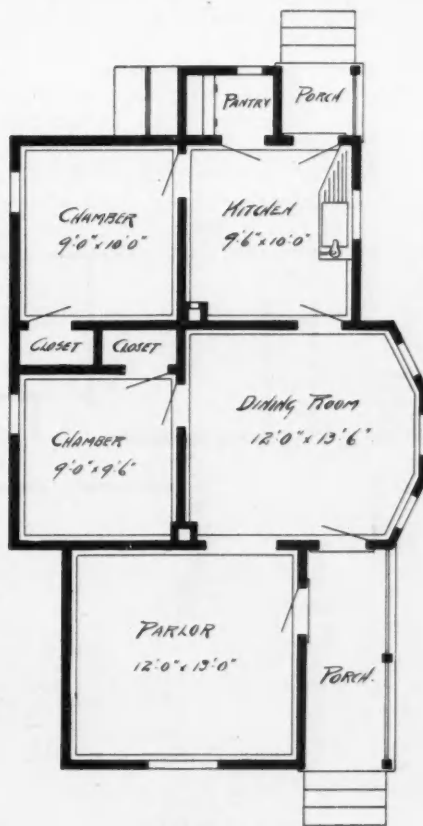
Low Price Frame Cottage

A simple little home-like cottage that contains untold possibilities for comfort is illustrated here. Everything that is really important in a modest home has been worked into this design.

While the main idea has been to make it substantial and commodious and economical, some attention has also been given to the matter of appearance. The result is a very neat, attractive looking little place.

From the front porch, a door opens directly into the front room or parlor, and another door opens directly into the dining room. This dining room is one of the pleasantest rooms in the house. One side is arranged as a large octagon bay containing three windows. A wide cased opening joins this room with the parlor. The kitchen is on the other side at the back of the house. One bed room opens off the dining room and one bed room off the kitchen. Each of these has a good, large clothes closet.

The kitchen is just the right size for a house of this kind, to handle the cooking easily. The housewife can get up a meal and use only half as many steps as in the old-fashioned kitchen of huge dimensions. Notice the way the pantry is placed. It has a big, built-in cup-



Floor Plan
Size 22 by 36 feet.

board and set of shelves, and there is space for a work-table or broad shelf in front of the window.

Being a small-sized, low-cost dwelling, many will want to heat this with stoves. Accordingly, two chimney flues are placed so that every room can be so heated. These chimneys, of course, go down to a solid footing in the basement, and so the whole house can be heated easily from a small basement furnace, if desired. Anyone building this house will find it worth while to look into the question of a small basement heating plant and compare its cost with that of stoves.

This house goes on a narrow village or city lot very nicely. As the house measures 22 by 36 feet, a 25-foot lot is big enough.

This design works out very nicely for a village or suburban cottage. It is a style that one very often sees; yet it is always attractive, especially when kept nicely painted and the yard around it given some attention.

It is really surprising what a little fresh paint and a general slicking up around a place will do. A well-cared for house and grounds easily brings four or five hundred dollars extra when the time comes to sell.



Inexpensive five-room cottage. Size, 22 feet by 36 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$5.00 per set. Blue-prints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6570.

Interesting Six-Room Bungalow

Habit has a good deal to do with the way we build our homes in any particular locality. Contractors keep duplicating themselves over and over again with only minor variations.

The majority of home builders are fairly well satisfied, too, to have it this way. Each new house, as it goes up, is about as near like its neighbors as two beans in the pod; and the only real satisfaction there is in moving into a new home of this sort is that it is *new* and spic and span.

Then there come the man and his wife who want something *different*. They are not afraid to break away from local custom. They want a few of the innovations for themselves that they read about from other parts of the country.

A bungalow style dwelling is suggested. Instead of arranging the six rooms in a square box—three on the first floor and three above, upstairs—why not have all on the main floor? Do away with the running up and down stairs. Enjoy the con-

veniences that dwellers in city flats are having.

If one has a good sized lot—a building site 75 or 100 feet wide by 100 or more feet in depth, such an arrangement works out very well. While the cost is slightly more, there are undoubtedly advantages that make the bungalow decidedly worth while. Many plans for

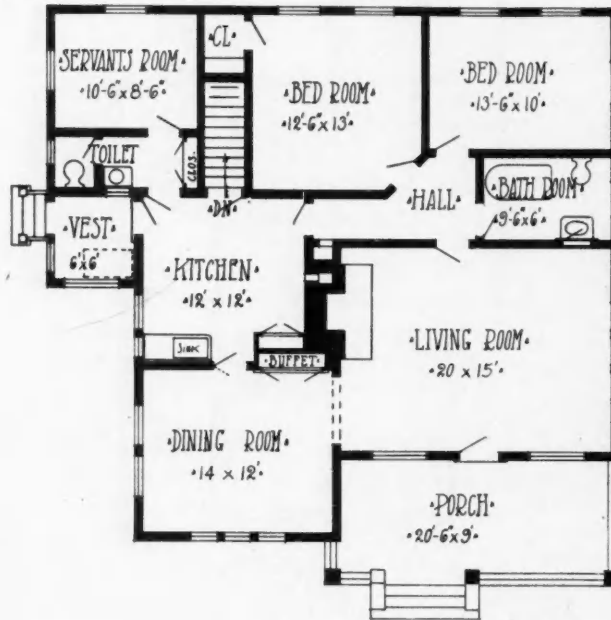
the grouping of rooms can be worked out to suit individual preferences.

Take, for instance, this very attractive six-room bungalow design illustrated. Here we have the front of the house given over to the two important rooms—living room and dining room. Two good sized bed rooms and bath are grouped to one side at the back of the house. The kitchen is very conveniently placed and the servant's room is entirely separated from the rest of the house.

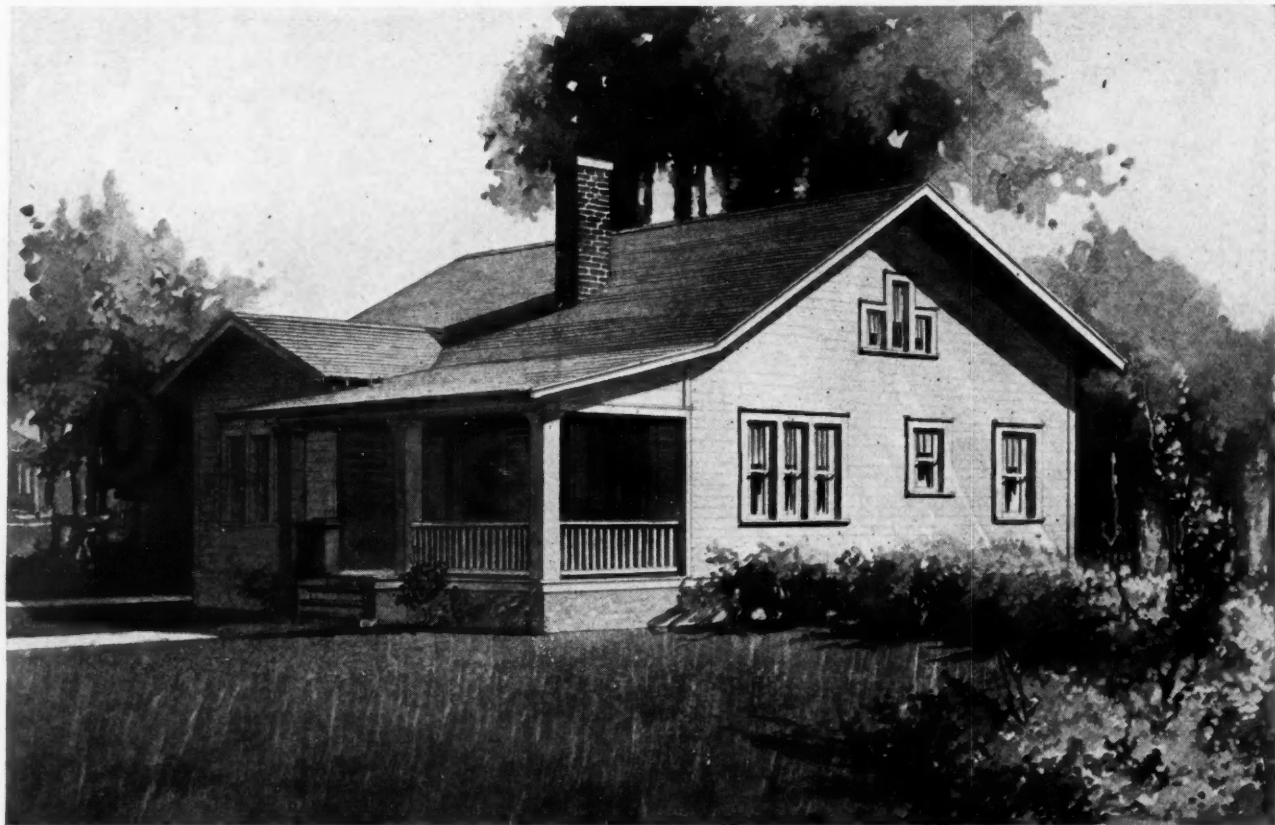
There is infinite comfort, satisfaction, convenience, in living in a house like this. The outside appearance is strikingly home-like. The arrangement within is a model of bungalow planning.

The front porch is large enough for use as an outdoor living room; and since it is so well sheltered is especially well adapted for screening in summer and for glazing in cold weather.

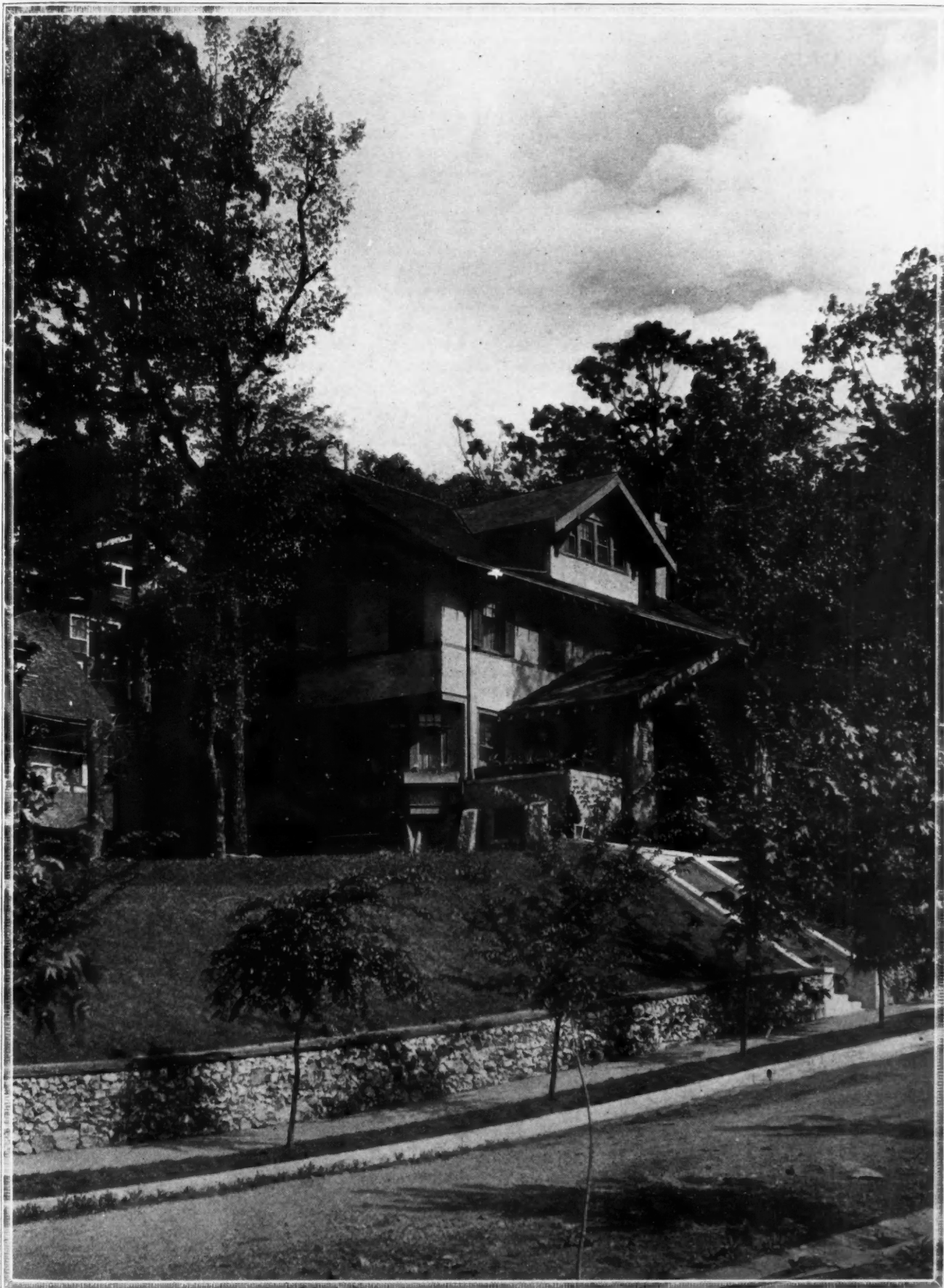
Notice, too, the little side porch or vestibule outside the kitchen door. This is a kitchen extension that will be much appreciated in hot weather.



Floor Plan of Bungalow. Size 42 by 39 feet.



Western bungalow containing six rooms. A very popular design. Size, 42 feet by 39 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$8.00 per set. Blue-prints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6566.



A residence of unusual beauty at Birmingham, Alabama. All of the natural trees on the building site have been preserved. It takes years to grow trees like these. If it can in any way be avoided, never cut one down to make room for the house,

New Home to Cut Down Housekeeping Labor

Some Unique Conveniences Worked Into Model Residence

By C. O. Sprenger

PROBABLY the most perfect house ever built is located at Los Cerritos, a suburb of Long Beach, California. Up to this date, nowhere in the United States, so far as we know, has there been constructed a residence so completely perfected for efficiency and the reduction of labor in the house as the one just completed for Mr. Louis Purcell, secretary of the Long Beach Improvement Company.

This home is not large nor pretentious in size, but for the installation of devices and new ideas which go to

make the house more efficient and to decrease labor, nothing like it can be found in Southern California at least. It is of pretty design, combining some ideas derived from the old Mission structure with Grecian style of architecture. The lines are severely simple, but the very simplicity in itself constitutes an attraction which grows upon the observer.

The fact that the walls, the partitions, floors, roof have all been constructed of concrete is one point for efficiency. Concrete being a non-conductor, the house is cool in summer and warm in winter.

The floors are laid in colored cement, of different colors in the different rooms, giving a beautiful finish, at the same time increasing the efficiency, for the cement floor will outwear any floor that might be laid. The color effect produced is very effective.

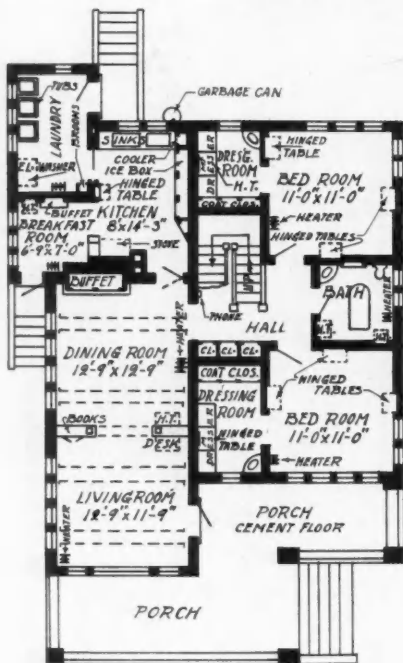
Another point of efficiency is that all the finish work—door casings, window frames, cabinets and the like—are set flush with the walls and the base corners are curved, thus precluding the lodgment of dust or dirt.

Dressing Rooms Instead of Closets

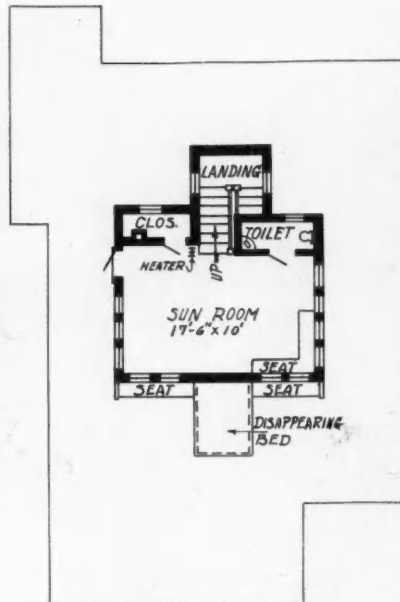
There are no closets in this house. Instead, adjoining each bedroom there is a dressing-room, which is a perfect model, lighted by a full-sized window. It has a built-in clothes closet, or wardrobe, with sliding glass doors; built-in receptacles for hats and shoes; built-in dresser with full-length mirror, also additional side mirrors set in the doors of the cabinets on either side, a hinged dressing-table, extra sliding tables under the cabinets and drawers beneath these. This idea of having dressing-rooms and thus equipped, instead of closets, both increases the efficiency and decreases the labor.

In one of the bedrooms is installed a divan, instead of a bed. This divan will be heated by electricity to body temperature, and this heat so controlled that no additional bed clothing other than the usual slumber robe will be necessary to burden one.

The living-room and dining-room are



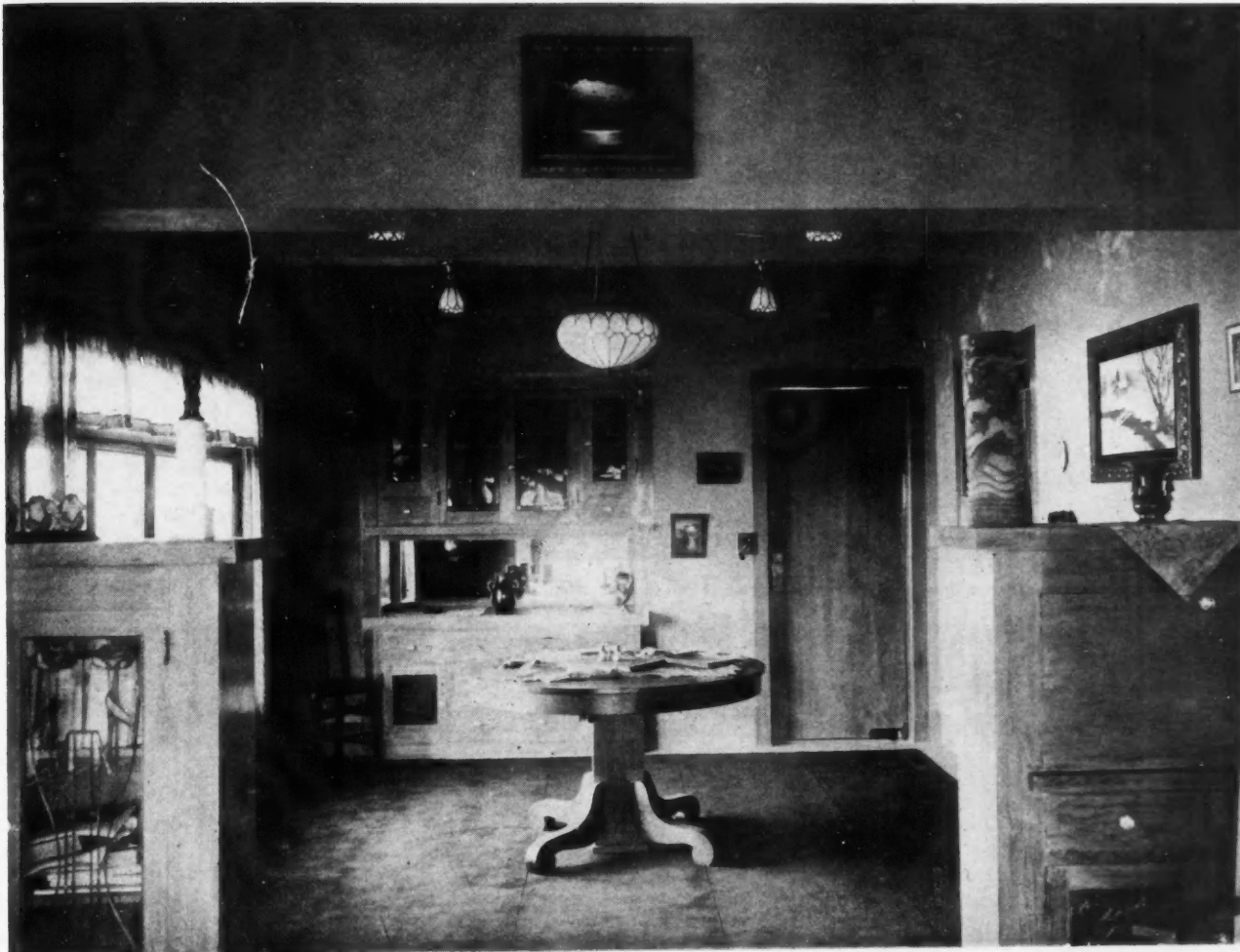
First Floor Plan.



Second Floor Plan.



Home of Louis Purcell, of Long Beach, Cal., built at Los Cerritos, a suburb of that city. Built of reinforced concrete throughout.



Dining Room, looking from Living Room. Note how separation between Rooms is worked by Means of Shoulder-Height Cabinets.

practically one, the line of separation being marked by a wide opening flanked with a low built-in bookcase on one side and a writing desk on the other.

A handsome built-in and glazed buf-

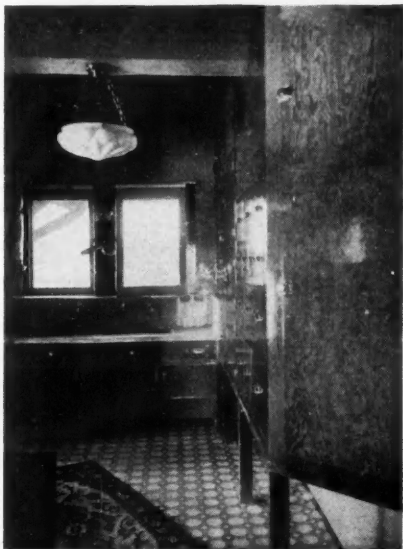
fet ornaments the dining-room, and a hinged serving table is provided on this side of the writing desk.

Labor Saving in the Kitchen

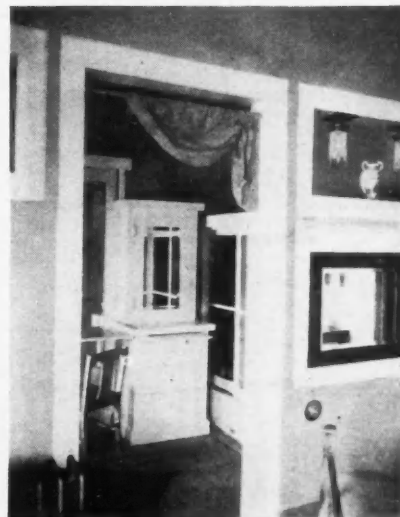
The kitchen is replete with devices which both increase efficiency and decrease labor. It has a perfect system of food cabinets, a commodious refrigerator with a three-partition cooling surface in the center of these cabinets and a drain which leads out through the wall to the exterior. Nothing goes to the floor line in this kitchen. Sliding tables are provided beneath the food cabinets and there is a drop table hinged to the wall. In this kitchen there is a two-compartment sink; one in which the dishes are washed in wire trays with steaming hot water and in the other they are dried with hot water and hot air without the necessity of wiping them. The new appliance for this service is suspended over the center of the sink. This sink is also equipped with a garbage flue, at the right hand side, which leads to a sealed can outside, thus providing against the fly nuisance—increased efficiency. A woodstone drainboard, which has wearing qualities equal to cement, completes

the sink. The cooking is done by electricity, a modern range being installed for this purpose.

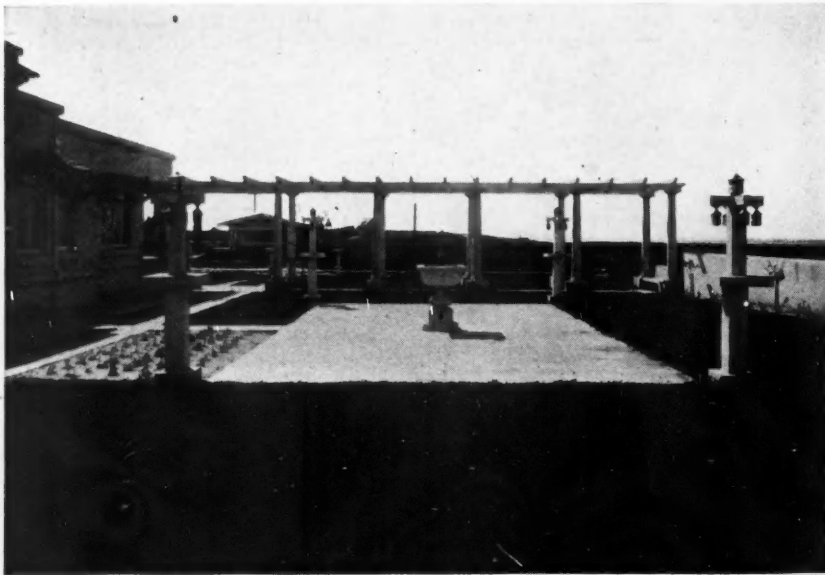
The laundry-room, off the kitchen, is equipped with a three-compartment tub and electric washing machine; the tubs



Kitchen. On the right the built-in Cupboards, Refrigerator, Bins, etc., with Sliding Tables beneath; water heater on extreme left over Sink; Washing and Drying Appliance in center of wall; Garbage Chute in lower right corner.



Dressing Room off the Bed Room, showing built-up Dresser with full length mirror, additional mirrors in cabinet doors, drop-table in position for use, and the glass-doored wardrobe. The mirror in the Bed Room and to the right of the Dressing Room door is the Writing Desk lid.

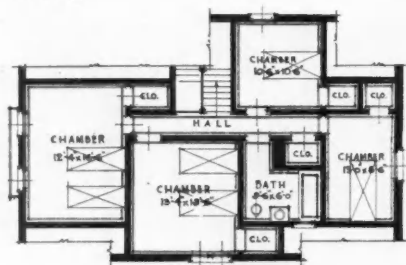


Entertainment Court—View looking toward the Ocean.

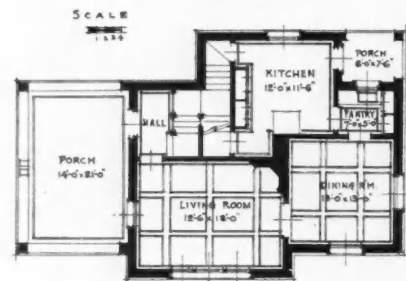
used respectively for soaking, bluing and rinsing. Folding tables, folding racks for light pieces, disappearing ironing-board, special receptacle for electric irons, woodstone drain board at ends of tubs, cement floors and concrete walls complete this room.

The second floor gives double service as a sun parlor and sleeping room, being provided with a disappearing bed. From this room egress is made to the roof over the first floor. This is entirely floored with cement and provides an extensive roof garden.

A distinctively unique feature of this home is a concrete entertainment floor located in the courtyard and surrounding the fountain. This floor has been constructed for entertainment purposes, afternoon and evening parties and for dancing.



SECOND FLOOR PLAN



FIRST FLOOR PLAN

Stylish Seven-Room Dwelling Built of Half Timbered Stucco and Rough Textured Brick—Costing Approximately \$5,000

By E. C. Redstone

THIS attractive little dwelling is designed for the accommodation of a family of six persons. The exterior dimensions are 47 by 29 feet, with the cellar portion under the kitchen and dining room. This contains the heating plant, cold and store rooms. Stairs in the kitchen give easy access to the cellar and the main hall without going through the dining room and pantry.

The first story exterior is built of rough texture brick in a varying color

effect of golden buff. The brick are laid in cream-colored mortar, rough finish, mortar joints about 1/2-inch thick. This color scheme harmonizes very well with the cream-colored stucco, gray-brown half-timber work, and natural finished cedar shingles on the upper story.

The foundation walls are to be of local stone to the grade, 16 inches thick. Above this the first-story wall is to be 12 inches thick, veneered on the outside with 4 inches of rough texture brick. Second-story walls are to be about 8 inches thick, built on studs, metal lathed and plastered with stucco—pebble dashed. Stucco on the first floor continues around the house, stopping at the right-hand exterior angle of the kitchen. All exterior woodwork to be cypress, stained a gray-brown.

The fireplace in the living room is built of the same brick as used in the exterior selected for the purpose. Floors in the living and dining rooms are to be maple, the remainder pine. All interior woodwork to be cypress, stained to match the color of the walls as nearly as possible. No wall papers are to be used, the walls being tinted and stenciled in monotone of a proper depth of color. The plumbing fixtures should be of the open type vitrified ware. A hot-water heating system warms the house, and the building is to be piped for gas and wired for electricity.

This house contains approximately 25,000 cubic feet and could be built in almost any locality for approximately \$5,000.



A Very Interesting Seven-Room Brick and Stucco Design by E. C. Redstone, Architect, Boston.

The Dining Room as it Should Be

IT is a well known fact that the dining-room, more than any other apartment, must be bright and cheerful, for it is the family meeting-place three times a day. Perfect harmony here makes not only for happiness, but for good digestion.

Many a dyspeptic owes his disease to a dismal, heavily furnished dining-room, for, like poorly cooked food, surroundings affect appetite. The room where we eat should sound good cheer as soon as one enters its door.

The situation helps in this respect, and, if possible, the room should have both east and west exposure, so that the sun will lie in it all day long. If this arrangement cannot be easily brought about, there is no reason why the defi-

that they will give cross draughts to provide for comfort in the summer months, when a cool atmosphere is desirable.

If the room is small, a low ceiling is preferable, as it gives a more satisfying effect; but if large, the high ceiling is more in keeping, allowing for plenty of air and a chance for more scope in the way of picture hanging and wall decorations. Be careful to have a pantry or space between the kitchen and the dining-room, and prevent the disagreeable odors of cooking from penetrating into other parts of the house. Much can be done to help this by proper ventilation.

Much can be done to brighten a dark

considered other than the four bare walls, among them the size and situation.

If the apartment stands in a northern exposure, it must be lightened by artificial effects; red, yellow and orange are all good for this line of treatment, as they catch the light and heighten it. In the case where the room faces the south, an entirely different treatment must be carried out, for here sunlight needs to be subdued, and for a color scheme, blue, green, and violet are the best to choose.

With many, little thought has been given to this matter of wall treatment, and they fail to realize that light grows stronger as it ascends, a fact that emphasizes the importance of having the



Mahogany Furniture Contrasts Strikingly with White Enamel Trim in Dining Room of Mr. Louis K. Hopkins, Manchester, Mass.

ciency cannot be remedied to an extent in these days when art and science have produced charming papers and low-priced furniture of artistic lines.

Plenty of windows are essential, and if the room lacks these, they can be easily let in, and, if possible, should include a long, narrow bay at one side. This will serve a double purpose, the lightening of the room and the allowing of window boxes in the winter season,—a good feature in any apartment. Try and have the windows so arranged

room by a careful selection of lighter tones for furnishings. By this is meant the papers and draperies; for, of course, the furniture cannot be changed to help this defect.

There is probably no question that perplexes the housekeeper more than how to treat the walls of her dining-room. These have to be most carefully handled, as they furnish the background for pictures and furniture, and so must be harmoniously treated to avoid the intrusion of any disturbing element. There are many things to be

lighter shades at the top, near the ceiling, while the darker tones should be near the floor. It is this little careful attention to details that counts, making or marring a perfect whole.

There are no more attractive dining rooms than those of colonial designs, and for this reason architects of today are using the modified colonial models in twentieth century homes. The low ceiling and square walls of this type lend themselves to most effective treatment, and it requires but little thought

to make such a room attractive, for it has a cosy look in its very construction.

In rooms such as this, there is no question as to the color of the wood-work, for it is invariably white, while the walls are always in soft tones, either tinted or covered with small patterned paper. Often the question is raised as to which is the most economical mode of treatment. This depends to a great extent upon circumstances. Wall papers in pretty and artistic patterns can be purchased as low as ten cents a roll, and while, to be sure, these are not the best, they are good enough for ordinary wear. The tinting of walls has the advantage of lasting powers, being able to be cleaned indefinitely without harm, or without having to be treated to another coat of paint, and then, too, if at any time one tires of this flat tone, it can be easily changed for paper.

Built-in furniture should be employed wherever it can be introduced. Window-seats give comfortable lounging spots, while the built-in cupboard allows needed space for other furnishings, particularly if the room is small.

One of the most convenient additions to house furnishing is the let-in sideboard, which has become so popular within the last few years. This has many good points and is in favor in many of the new smaller houses. Besides saving space, they are ornamental and afford excellent accommodation for napery, etc., and for handsome china and glassware. If built with the house, it is certainly not expensive, for the cost, in addition to building, is so slight it can readily be afforded. Let-in sideboards are used not only in dining-rooms in small houses and camps, but also, sometimes, of more elaborate styles, in larger and more elegant apartments.

Generally speaking, the expensive dining-room is large enough to allow a handsome sideboard which, in case like this, is much more desirable on account of its adding to the ornamental finish of the room. In rooms such as these, the corner cupboards, a replica of the Colonial idea, is never out of place, and when used for old silver and china, becomes distinctive. It is always one in white, often enamelled to give it a polished surface.

Colonial furniture is the thing that must be used for good taste in both Colonial and modified Colonial homes. It strikes the dignified note that is needed to make the room distinctive. What is more beautiful than a room of this sort with its white trim, its soft-hued paper and rich old mahogany, much of it, perchance, ancestral!

For large dining-rooms the best idea is mahogany, in trim and furnishings,

while in the small, inexpensive home, where good taste has been carefully thought out either white or dark wood stain is suitable. Dark walnut stain is most fashionable today, and it harmonizes especially well with furniture of the Mission type.

Old mahogany, walnut, or oak should be used, according to the size and elaboration of the dining-room. There should always be six small chairs, two arm chairs, a table, a sideboard and serving table, all of which vary in price according to their make and finish. In addition to this, odd dressers can be used of either oak, maple, or mahogany. These have a clear, beveled glass mirror, and are supported by scroll standards.

The keynote of a successful room lies in its definite planning before it is built, arranging for each detail of decoration and furnishing, and even though it may not be always possible to carry out each and every detail at the start, the matter can be kept in mind and gradually worked out as desired. In planning this room, the adjoining rooms should also be taken into consideration so that the whole may be harmonious. Otherwise, it is impossible to accomplish good results.

Much of the charm of the room lies in the hangings, and these, while fol-

lowing the coloring of the wall surface and trim, yet should have a distinct individuality of their own. For the entrance door, a rich portiere of silk or velour, or even cretonne is effective. The window hangings can, of course, vary with the setting of the room. There are today so many pretty and inexpensive muslins, scrims, and heavier draperies that it is a comparatively easy matter to provide for them.

For summer use, nothing is prettier than cretonne or muslin, of which there is an almost endless variety. Madras, 35 inches wide, in white and colors, comes from 29 cents per yard; ruffled Swiss muslin curtains, dotted or plain, from 98 cents a pair upwards, while hand-blocked, light weight muslin curtains come at \$1.24 per pair.

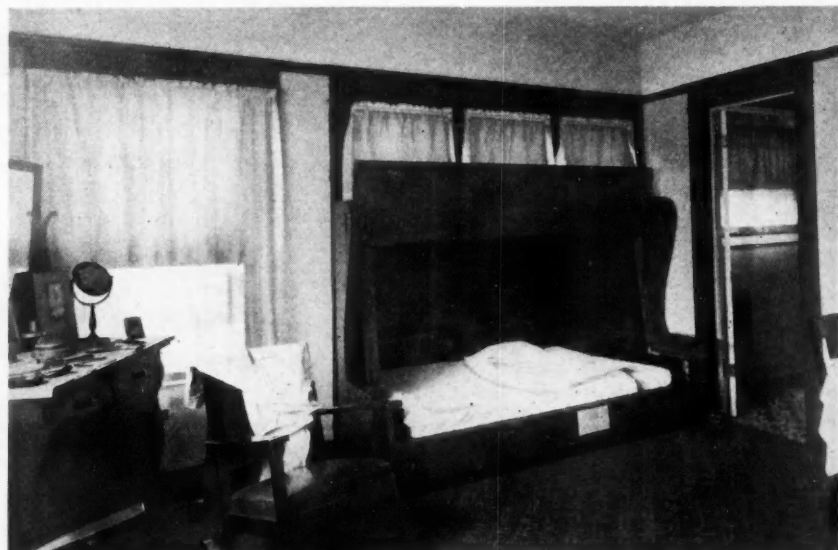
In the portiere, the prices run for almost any amount that one cares to pay, and in selecting these, they can be like the window draperies or not, as one chooses. Take time and plenty of it to go and study room decorations before you commence your task, and do not get discouraged if it takes years before the room is exactly as you had planned. It may be a fortunate coincidence that you are able to purchase the right things at once, but if not, do not hurry in the least, for you owe it to yourself to make this room the most attractive in your house.

An Indoor-Outdoor Bed

By C. L. Edholm

A BED that can be opened to the outside air in mild weather, and closed against the rain or wind in bad weather has been devised by a Californian and is installed in a number of homes and apartment houses in Los Angeles. The essential feature is a

swinging canopy or dome over the couch which, during the day, is on the outside of the room, while at night it is swung over the bed and into the apartment, leaving the bed exposed to the weather. A screen to keep out insects and a curtain which may be drawn



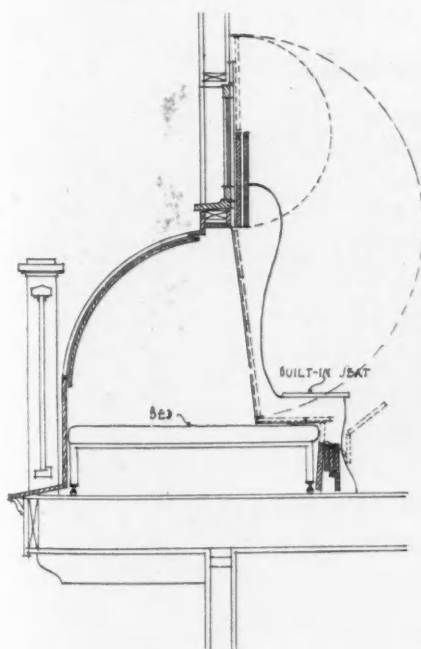
The Bed Ready for Use—Canopy is Let Down Outside.



Los Angeles Apartment House, Showing Balconies Upon Which the Outdoor Beds are Built.

to shield the occupant from prying eyes in the morning is also provided.

This built-in bed occupies a small alcove which is built upon a small balcony opening from the bed-chamber. It requires only a couple of feet of space outside the exterior wall, and the same space within the room. The latter is used by various kinds of built-in furniture, such as a divan or large, comfortable seat. It folds up to a very small compass when the bed is made up for the night and requires very little time or effort.



Section Thru House Wall and Balcony

The bed is on rollers so that it can be swung clear inside the room when desired, and this is a convenience when making the bed. The design of the swinging canopy is such that a very slight pressure will move it to any desired position. Thus, it may be left over the couch, giving a through draft between the bed and the outside, which is desirable in extremely hot weather. Or by swinging the canopy clear into the room, the bed is left out-doors, so that the delights of camping out may be indulged in while in town. Or, if the weather is disagreeable, the bed may be used with the canopy swung outside, shutting out the rain and wind entirely.

The canopy is waterproof of course, being of metal with a wood veneer, and this, as well as the fixtures, may be of any desired color or grain, to harmonize with the general design of the room.

An attractive addition is an electric light within the bed, an idea similar to the reading lamps supplied in the berths of modern Pullman cars.

The great advantage to the apartment house builder is the great saving of space which, in a congested city, is a valuable asset, while to the home-builder it gives an extra bed-room which is always available as a living room.

Of course the greatest advantage of all is the opportunity to sleep outdoors, which is sought by many as a matter of health and comfort.

This type of canopy bed can be readily built into old houses, and of course in constructing a new one it is easily allowed for in the plans.

A New Temperature Controller

HO! for a dachshund, when the winds of winter loudly roar. He stretches out, a yard or so, across the kitchen door. He's better than a weather-strip, tho his upkeep bill is more.

No Use for One

I would like to show you our new vacuum cleaner,' began the agent, when the door opened. "We ain't got no vacuums to clean," snapped the hard faced woman as she slammed the door.

Punctured

The attorney for the gas company was making a popular address.

"Think of the good the gas company has done!" he cried. "If I were permitted a pun, I would say, in the words of the immortal poet, 'Honor the Light Brigade.'"

Voice of a consumer from the audience: "Oh, what a charge they made!"
—*Youth's Companion*.

"Well, little boy, do you want to buy some candy?"

"Sure I do, but I gotta buy soap."
—*Life*.



The Bed is Concealed Under the Seat and Projects Out Upon the Balcony

"Freddie has a fortune in politics. He knows the ropes," declared the admiring friend.

"Yes, I judged that from the campaign cigar he gave me."—*St. Louis Republic*.

Mistress—"Mary, there's a month's dust in the library."

Maid—"Well, you can't blame me for that, ma'am. I've only been here ten days."—*Judge*.



A Refined Home Interior which Demonstrates the Beauty and Effectiveness of White Enamel Trim, Combined with Mahogany Finished Doors, Window Sills and Mahogany Furniture. Such Quiet, Rich, Well-balanced Effects are Worth Striving For. Wall Paper of Plain Effect or Walls Tinted with Cold Water Paint or with Oil Paints, Harmonize Well with this Style of Finish.



Noon Hour Talks by the Boss Carpenter

Talk No 22—Timber Trusses

THE BOSS TELLS ABOUT THE PARTS OF A ROOF TRUSS AND SHOWS COMMON TYPES OF TIMBER TRUSSES

“TODAY,” said the Boss, “I am going to start a talk on roof trusses which will take several days to finish. In these talks we will consider the make-up of a truss, the common types of timber and steel roof trusses, the principles upon which truss design is based, the method of finding the amount of stress in the various parts, how to tell whether the parts of a truss are in tension or compression, and how to find the size of the different parts of a given truss.

“First, it may be well to tell what a truss is so that we will get that point straight. A truss is commonly considered to mean a framework built up of pieces which are joined in such a manner that the framework as a whole cannot change its shape without pulling apart or crushing one of these various parts. This framework is supposed to be supported only at its ends in the ordinary roof truss, and presses vertically downward on the supporting walls. Cantilever trusses like cantilever beams may be supported by a single wall or support, generally located near the center of the truss. From the discussions which follow, it will be seen that the true strength of a truss does not depend upon the rigidity of the connections between the different parts, but does depend upon the strength of the pieces themselves and the strength of the connections to resist pulling or pushing of the various parts.

“Roof trusses are trusses designed to carry the weight of a roof and the loads which come upon this roof, as well as other loads which may be suspended from the truss, such as ceilings, shafting, balconies,

or possibly a floor. Care must be taken to support these loads at proper places on the truss if an economical design of truss is to result.

“Trusses are commonly built up of timber, steel or iron, or a combination of the two. Timber will resist crushing stresses to a good advantage, but proves difficult to fasten to other parts where pulling stresses are to be resisted on account of the weakness of the material in shear along the grain. The wood will often pull out in front of a bolt or spike, leaving the main body of the tension piece in a perfect condition. For this reason steel or iron rods are commonly used for the tension pieces where an advantage may be gained by a simple method of fastening the ends of these pieces to the rest of the framework.

“In this work we will have need to refer to the different parts of a truss in detail, thus making it necessary to give these parts a definite name. For instance, we say that the framework or *truss* is made up of pieces which we will call *members*. These members meet and are held together at the *joints* of the truss. The members which form the top part of the truss are referred to as a whole as the *upper chord*, while those which form the bottom part are referred to as the *lower chord* of the truss. Members which are in tension, or are subjected to a pull, are called *ties*, while members subjected to compression or a pushing tendency are called *struts*. A *panel* of a truss is ordinarily the space between two vertical rods, or between the end of a truss and the first vertical rod.

“Figs. 1 to 7 show some of the common types of

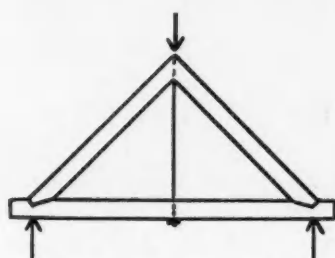


Fig. 1. A Simple Form of Truss.

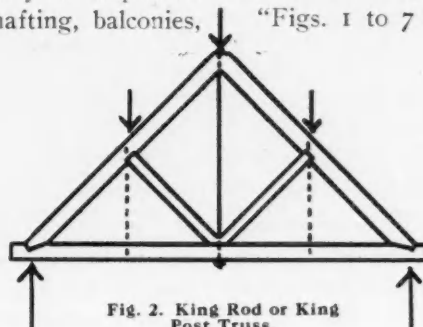


Fig. 2. King Rod or King Post Truss.

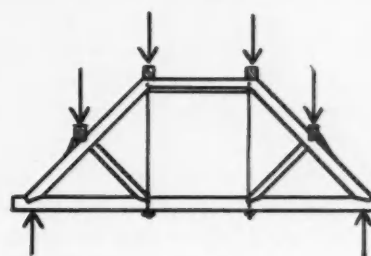


Fig. 3. Queen Rod Truss.

timber roof trusses used in practice. Although referred to as timber trusses, they have steel or iron rods for a part of their tension members.

"The simplest kind of a truss is like Fig. 1 with the center rod omitted. This type would consist of two slanting struts and a horizontal tie. If this horizontal tie supported a ceiling or any other load so as to subject it to a direct bending action in addition to the tension resulting from its position in the truss, and due to other loads on the truss, it would be referred to as a *tie beam*.

"Fig. 1 with a vertical tie as shown is used where a load is to be supported from the horizontal tie on trusses of about 20 feet between walls. For trusses over 20 feet in span, it is advisable to brace the struts at the center as shown in Fig. 2, on account of the great length of slanting strut. This makes what is commonly called a *'king-rod'* or *'king-post'* truss. King-rod trusses are used for spans up to 35 or 36 feet

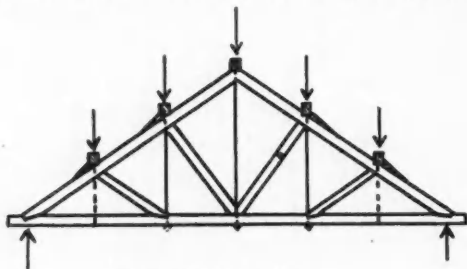


Fig. 5. Queen Truss.

between walls. The dotted vertical members need be used only when there is a load supported by the lower chord, or tie beam.

"Fig. 3 shows a truss similar to Fig. 2, except that it has two verticals at the center instead of one. This type is called a *'queen-rod'* truss, and is used where the end supports are from 30 to 45 feet apart. This truss will stand as it is if it is loaded uniformly on both sides at all times, but if there is a likelihood of one side receiving more load than the other at any time,

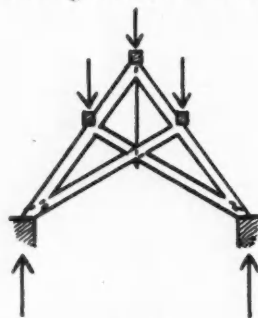


Fig. 6. Scissors Truss.

timber braces should be used in the center panel. For spans from 40 to 50 feet the horizontal members in the center panel would be so long that it is common to use a center vertical rod and one or more pairs of slanting braces as shown in Fig. 4. The braces shown by full lines should always be used if the center vertical is used, while the dotted braces take care of an uneven distribution of load.

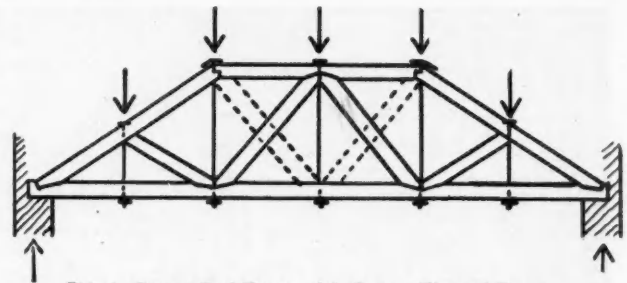


Fig. 4. Queen Rod Truss with Center Tie and Braces.

"Fig. 5 shows an extension of the principles of Figs. 1 and 2 in a type of truss commonly called a *'queen'* truss. This truss is constructed with different numbers of panels depending upon the distance between walls, but is seldom used for spans over 65 or 70 feet.

"In all of these trusses having a slanting upper chord, a 1-3 pitch roof is considered to be the most economical, but the slant should be at least equal to that of a $\frac{1}{4}$ pitch roof. The angle of the slanting braces with the horizontal should lie between 35 and 60 degrees, 45 degrees being a very common angle.

"Fig. 6 shows a type of timber truss very commonly used in roofs where the walls are not over 48 feet apart and where the pitch is $\frac{1}{2}$ or over. This truss is called a *'scissors truss'* on account of its shape.

"The *'Howe truss'* shown in Fig. 7 is used for supporting flat roofs, deck roofs, deck and mansard roofs, and for similar work where a flat or partly flat surface is to be supported. These trusses may be used up to 150 feet in length, but are not economical in lengths of over 100 feet. The number of panels to be used in any given case will vary with the length of the truss. The height of truss measured from center of upper chord to center of lower chord is generally about 1-6 of the span, but should not be less than 1-9 for trusses up to 40 feet in length nor less than 1-10 for lengths between 40 and 80 feet. As in the other trusses shown, the braces should slope at an angle between 35 to 60 degrees. The slope of these braces and the lo-

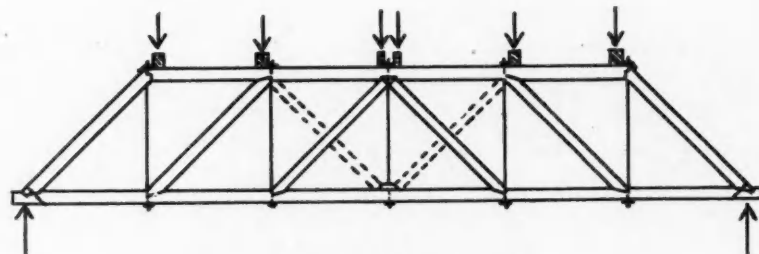
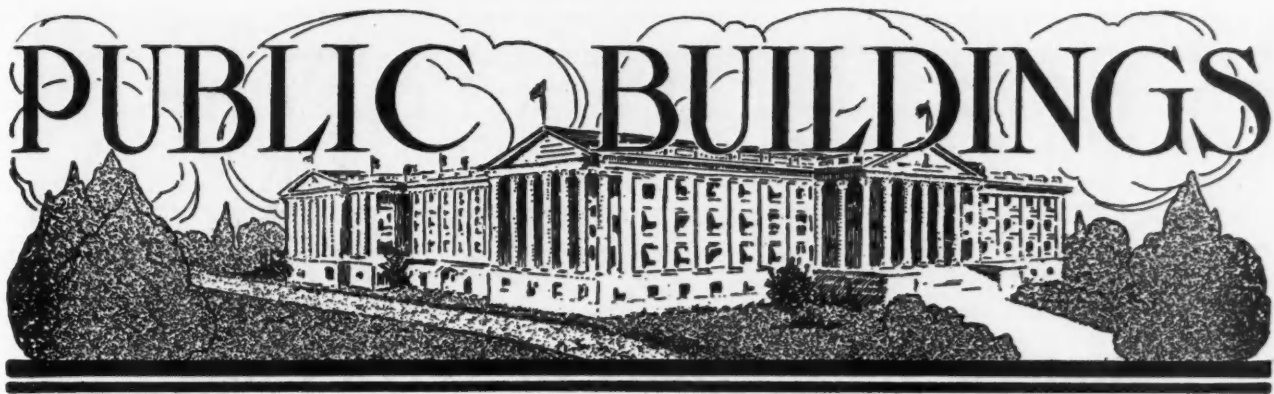


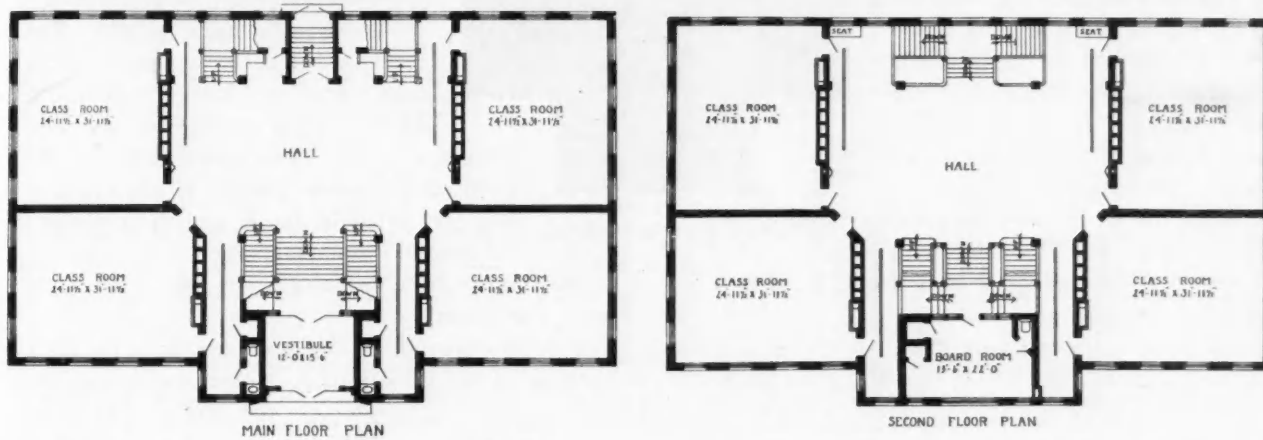
Fig. 7. Howe Roof Truss.

cation of loads on the truss will determine the number of panels.

"Next time," said the Boss, "I will tell you about the mechanical principles upon which the design of trusses is based and show you how these principles are applied to the simpler forms of trusses. Later we will see some of the common types of steel trusses and apply these same principles to them."



Modern Eight-Room Public School Building



The Whittier School at Harvey, Ill., Designed by G. W. Ashby, Architect, Chicago, Ill. This is an Eight-Room School Building, thoroughly Modern Both in its Interior Arrangement and in the Handling of the Exterior.



Modern Store Fronts of Terra Cotta

WORKING DETAIL DRAWINGS PRESENTED SHOWING MANY ATTRACTIVE AND DECORATIVE SCHEMES FOR BUSINESS GETTING STORE FRONTS

TO plan and build a neat, attractive store building is one of the easiest propositions the builder has put up to him these days. That is, if the builder is onto the ropes and will use the right materials and will take advantage of the help that is his for the asking, the planning and building of a store building with a neat and nifty business-bringing store front, is as easy as laying up a brick wall.

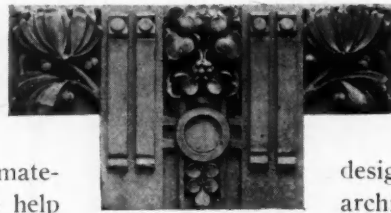
Stock terra cotta turns the trick—stock terra cotta combined with a broad sheet of plate glass, properly set and held in place by one of the modern window bars.

The up-to-date merchant wants just three things of a store front. First, a big show window, where he can display his goods—the show window is the merchant's best advertisement; second, an entrance doorway that lets people in *easily*—this is essential; third, a clean-appearing, durable, eye-catching frame for his store front—the base and two sides are quite narrow, the spandrel above is broader and ornamental—this frame is the distinguishing part of the store front, and it is in this frame that the store keeper has his chance to raise his place of business out of the common place, and it is here the builder can easily produce something neat and novel that will make his customer glad, and bring other merchants to him to fix up their stores the same way.

For this work the builder uses enamel terra cotta; and the best part of it is that when other store keepers ask for "something the same for my store," the builder has such a choice of ornamental pieces to choose from and to combine in different ways that he doesn't have to repeat himself once.

Every terra cotta store front can have its own distinctive appearance, and yet all have the same clean and bright look.

This individuality of



Over-Panel or Pier Cap.

appearance doesn't mean specially designed terra cotta, either. The expense and delay for special terra cotta are no longer necessary. Such a great variety of the best designs are now carried in stock that the architect or builder has no trouble in getting just what he needs and in combining the several ornamental pieces together; and the effect is entirely different from any other store front in the locality.

The detail drawings on the next two pages illustrate something of the variety of combinations and artistic effects secured by combining the stock terra cotta pieces in different ways, and by working in face brick in connection with the terra cotta. All of these details are for modern store fronts. It makes really no difference whether a store building is one story high or two stories or more high. The suggestions in these details will work just as well for all.

Notice the details of construction indicated in these drawings. These methods are all according to the best standard practice for such work. Notice that the broad span across the show window is carried by a steel I-beam or by two steel channels bolted together to make a box girder. A steel plate, width of the wall, is riveted to the lower flange of I-beam or channels to support the masonry.

Notice how the projecting terra cotta members are tied into the masonry backing or to the steel work by means of galvanized iron hooks. Terra cotta is just as easy to use as ordinary brick, once you have noted some of these little details. Comparing the terra cotta with ornamental bricks which have to be cut and fitted, the saving in labor and worry is a hundred fold.

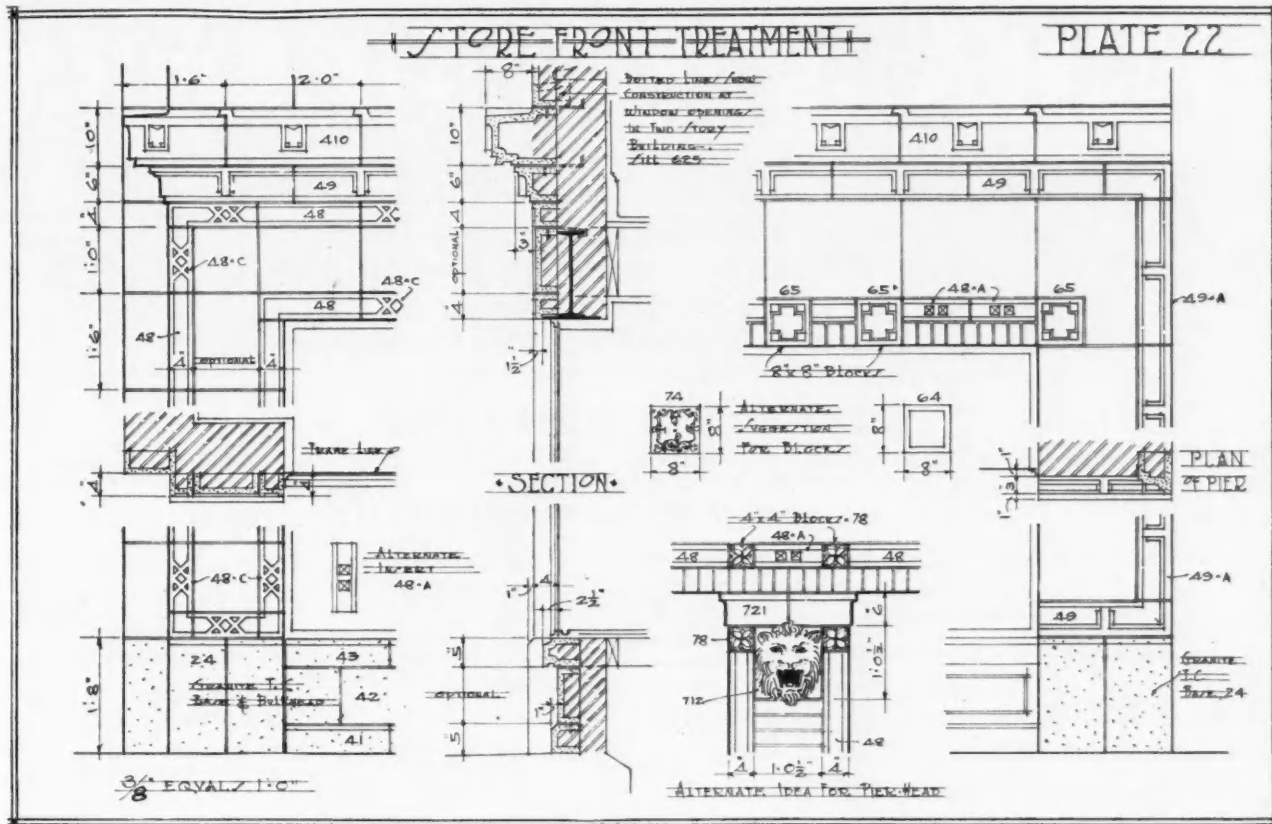
Everything points to a big year for terra cotta building throughout this country generally. The smaller towns and cities want it.



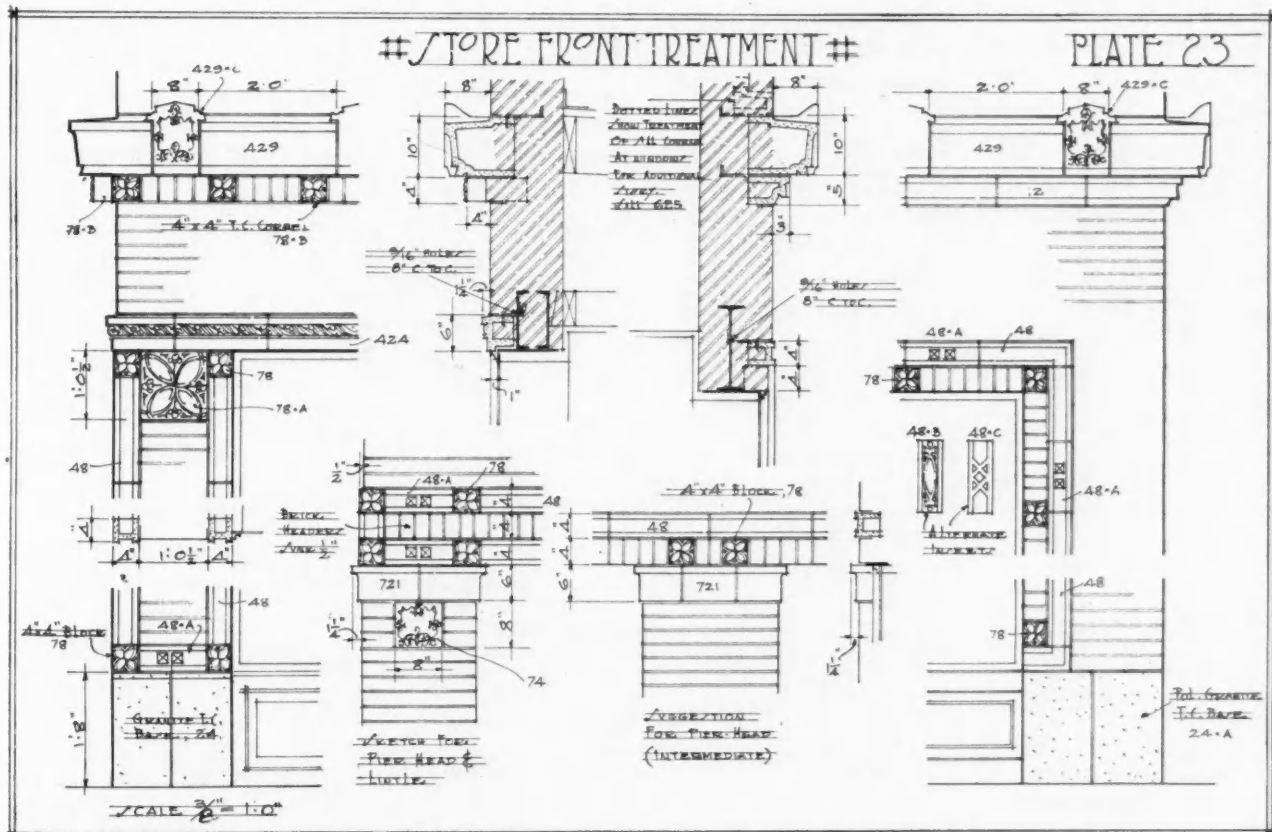
Panel Inserts for which 100 Uses Can Be Suggested.



Arched Spandrel for Curved Openings.

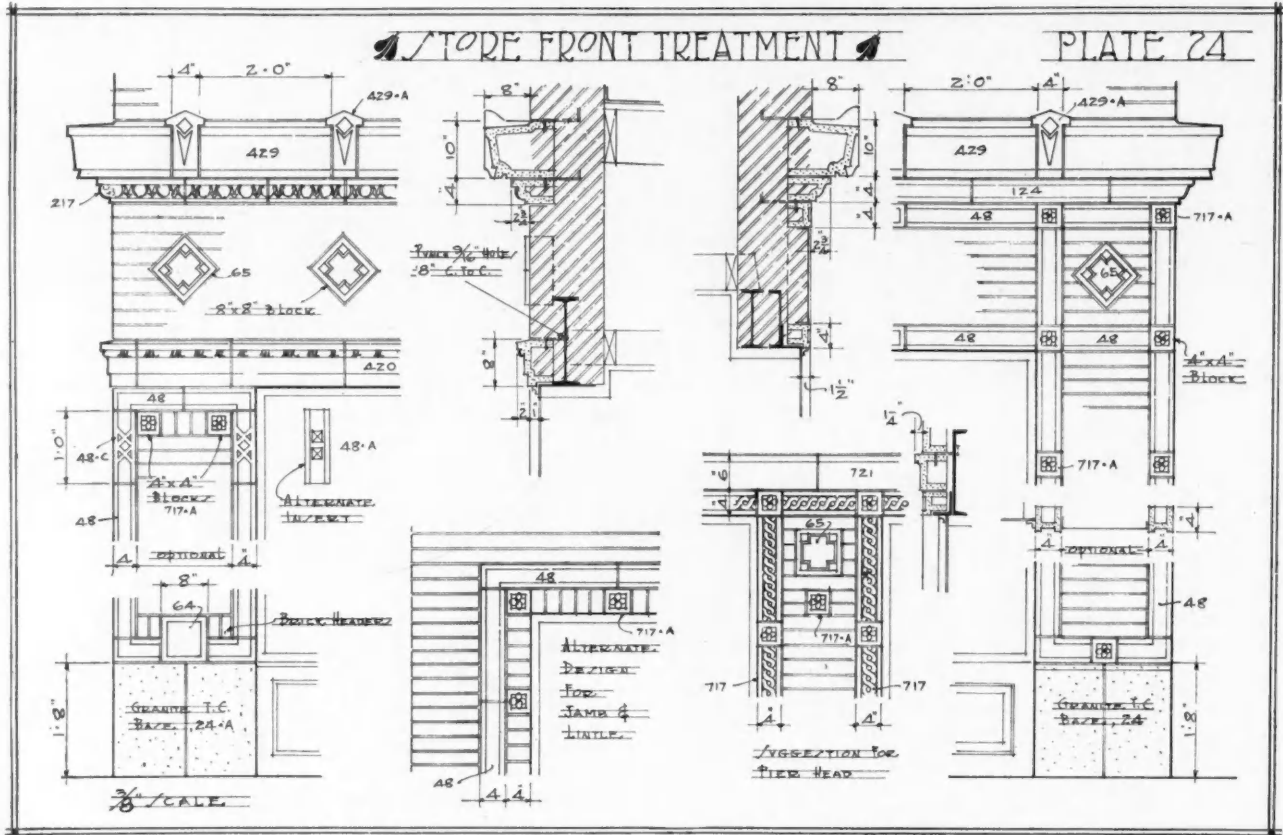


Three-eighths Inch Scale Details of Modern Store Front Treatment made up of Stock Terra Cotta Pieces. Notice How the Design is Varied by Changing and Re-arranging the Ornamental Pieces.

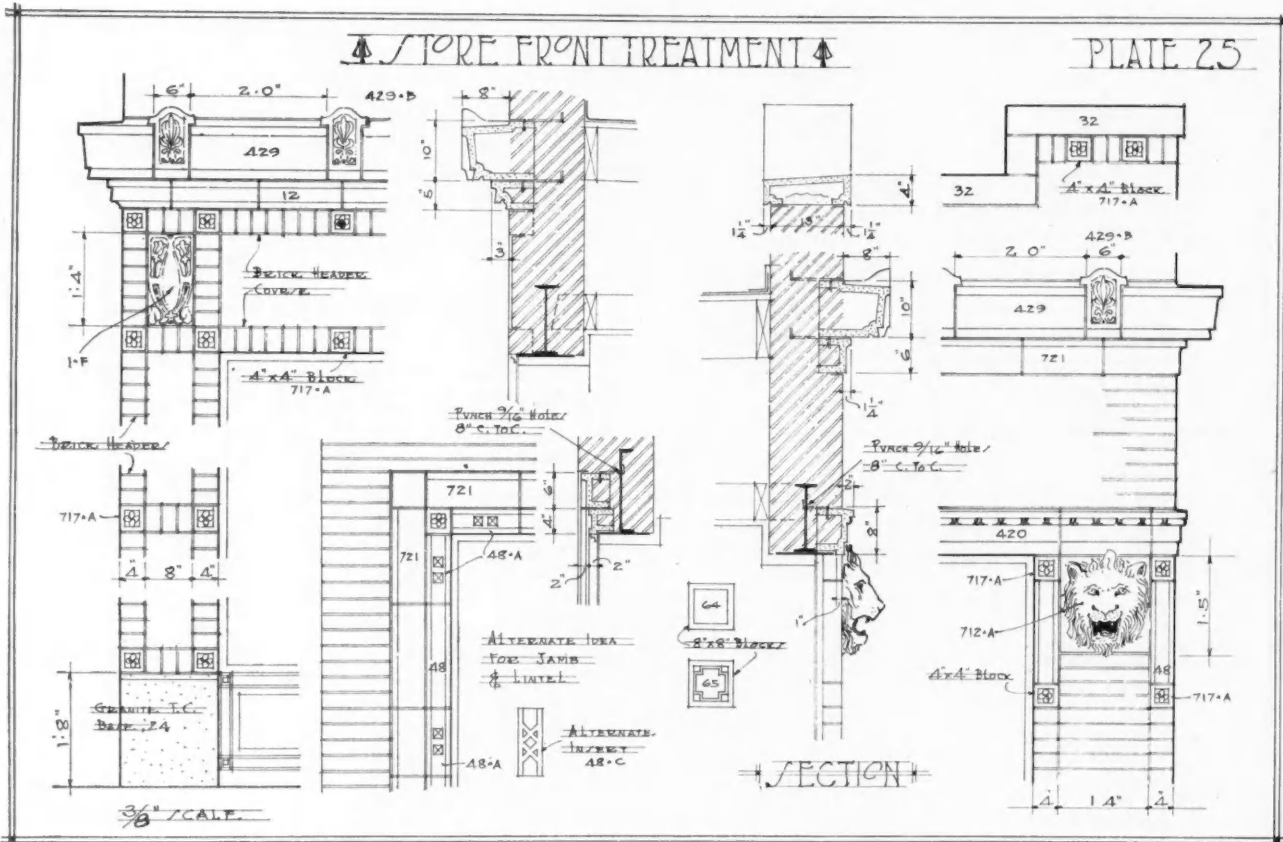


Details by Courtesy of Midland Terra Cotta Co.

Three-eighths Inch Scale Details of Modern Store Front Treatment. Ornamental Terra Cotta Pieces are Combined with Face Brick To Make a Bright, Effective Setting or Frame for the Plate Glass.



Three-eighths Inch Scale Details of Modern Store Front Treatment, Combining Stock Terra Cotta Pieces and Brick Work. Note Details of Construction—Especially Use of Structural Iron for Supporting Window Spans.



Details by Courtesy of Midland Terra Cotta Co. Three-eighths Inch Scale Details Showing Store Front Treatment, Combining Stock Ornamental Terra Cotta and Brick Work. These Details Work Equally Well for One Story or Higher Buildings.



**Builders Experiences in
Handling Warm Air Furnace
Work and Installing Steam
and Hot Water Systems**

Selecting a Furnace

ESSENTIAL POINTS OF FURNACE DESIGN AND CONSTRUCTION POINTED OUT—WHAT TO LOOK FOR
IN CHOOSING A HEATING PLANT

By Cecil F. Herington

BEFORE the Old Builder settled himself for his talk the other evening, he gave careful consideration to his subject in order to discuss it, as far as practical, in an impartial manner and at the same time protect the building fraternity from errors made in the selection of furnaces.

"You will remember," started in the Old Builder, "that in one of my previous talks I went pretty thoroughly into the matter of sizing furnace pipes and the diameter of fire pot required in an ordinarily efficient furnace to meet the usual conditions of residence work. But at that time I said nothing much about furnace construction or how you can tell a good furnace from a poor one.

"By this time most of my listeners are doubtless familiar with the fact that a furnace is only a large stove enclosed in a casing (which may be either iron or brick) with an inlet for cold air provided at the bottom and an outlet for heated air at the top.

Fig. 1 gives a general idea of the ordinary furnace arrangement, "A" being the cold air inlet at the bottom and "B" the hot air pipes leading off from the top. With almost all furnaces a water pan is placed inside of the casing into which water is poured, this water evaporating as the air is drawn across it and furnishing enough moisture or "humidity" to the air to make it agreeable.

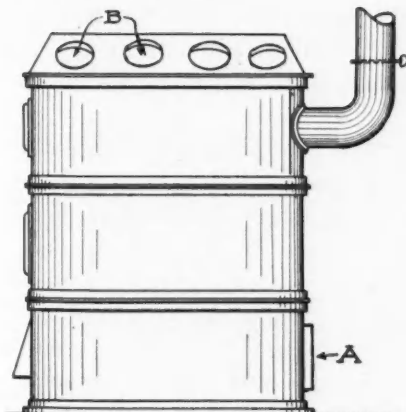


Fig. 1. A Typical Warm Air Furnace.

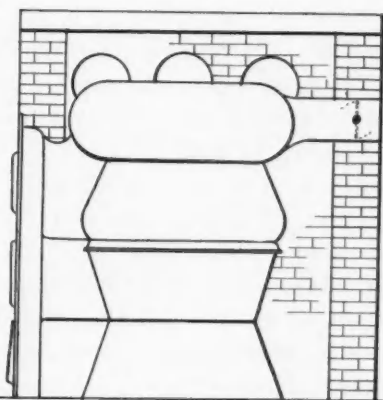


Fig. 2. Direct Draft Furnace with Brick Casing.

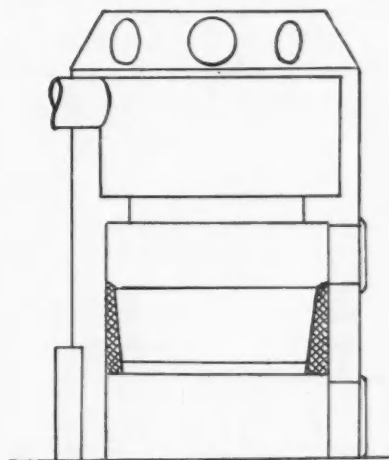


Fig. 3. Direct Draft Furnace with Iron Casing.

Direct Draft Furnaces

"In general furnaces may be divided into two types 'direct-draft' and 'indirect-draft.' In Fig. 2 is shown a common type of direct-draft furnace erected in a brick setting; the best class of these furnaces have a radiator at the top through which the gases pass on the way to the smoke pipe. The cheaper types, however, are not usually equipped with these radiators and are therefore undesirable, owing to the fact that the hot gases from the fire pass so rapidly into the chimney that they carry much of their heat away with them thus wasting it. The use of a radiator not only reduces the velocity of the gases but gives an increase in iron surface which radiates the heat much more rapidly and therefore cools these gases to a much greater degree than without its use.

"Another type of direct-draft furnace is shown in Fig. 3 and is built largely on the same lines as the brick-set furnace, except that this type has a galvanized iron casing; also the radiator is not of cast iron but is constructed of sheet steel plates riveted together. It is a debatable question if the sheet steel which is exposed to the gases from the fire possesses the permanency of construction that a cast iron radiator has; on the other hand the difference is not great

and there is no question but that the steel plate can be made much thinner and will therefore transmit the heat much more readily than any heavily constructed casting.

Indirect Draft Furnaces

"The second type of furnace known as the 'indirect-draft,' is simply the result of an endeavor to extract more heat from the smoke and gases of combustion before they enter the smoke pipe. Fig. 4 indicates a typical furnace of this design; in this case there is a direct connection into the smoke pipe at "S" governed by a damper "D" which may be opened when coal is put on or when starting a fire so as to bypass the indirect portion and to give all the advantages of a direct-draft furnace during these periods. At other times this damper is shut and the gases are drawn down through the pipe "P" into the radiator "R" which in this case is located near the bottom and then up through the connection "P1" into the smoke pipe. This gives of course an increased travel for the hot gases and therefore a greater time in which they may impart their heat to the incoming cold air. The radiator being located at the point where the temperature of the air is lowest also has a slightly greater efficiency than one placed at the top of the furnace.

"It should be realized," went on the Old Builder, "that while indirect-draft furnace is theoretically much superior to the direct-draft a great deal depends in either case on keeping the flues cleaned out. A collection of soot in the indirect-draft furnace will materially reduce its efficiency whereas the direct-draft has comparatively little surface on which it may collect and it therefore is affected by such neglect to a much less degree.

Fire Pots and Radiators

"Furnace fire pots are usually made of cast iron or of steel plate lined with fire brick having a depth varying from 12 to 18 inches. The best class of furnaces have very heavy fire pots which insure durability and are less liable to overheat. The heating surface of the fire pot is often increased by the use of corrugations or pins which increase the radiation. The fire brick lining mentioned in connection with the wrought iron or steel fire pots is for the purpose of protecting the thin shell from the intense heat; owing to the fact that brick-lined fire pots will not transmit heat as readily as cast iron it is usually found that furnaces so made have a greatly increased dome and radiator capacity, since almost the entire heating efficiency must be concentrated at these points. Therefore, when looking over a brick-lined fire pot furnace, make sure that the dome and radiator are of considerably greater size than the ordinary cast-iron fire-pot furnace of equal

capacity, but do not make the mistake of considering the brick-lined furnace as necessarily superior to the cast-iron one *simply and only* because it has a *larger* radiator.

"Radiators are provided to act as a sort of reservoir in which the heat from the gases is kept in contact with the air passing through the furnace. The effectiveness of a radiator is dependent on three things, its form, its amount of surface and the difference in temperature between the gases within and the surrounding air. The accumulation of soot on all horizontal surfaces soon operates so as to make the bottom surface practically worthless, therefore in considering radiator surface it may be taken as a safe rule that only the top surface and vertical sides should be considered.

"The heating surface of any furnace consists of the fire-pot surface, the surfaces acted upon by the direct rays of heat and the gas or smoke heated surfaces. These surfaces are so unlike both in character and location in different types of furnaces, that it is a practical impossibility to make comparison by this means, unless the kind, form, location and area of each is positively known and suitable allowances made for the same. In some furnaces apparently having an unusually large amount of sur-

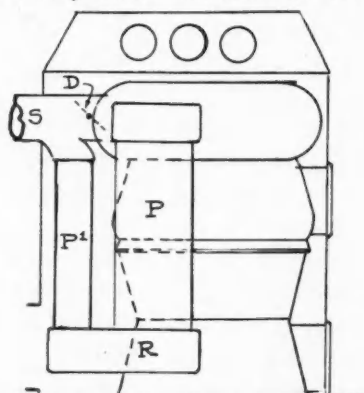


Fig. 4. Indirect Draft Furnace

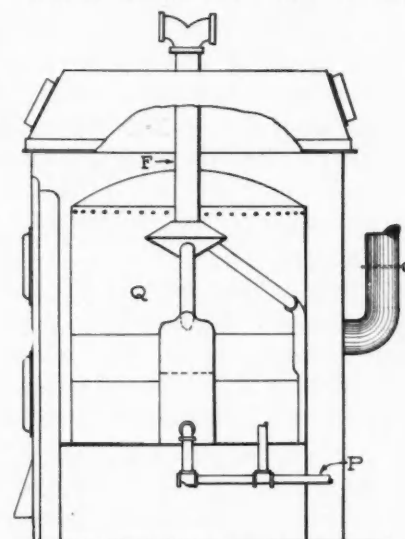


Fig. 5. Furnace Combined with Hot Water Heater

face, close inspection will disclose the fact that a large part would soon become worthless on account of soot deposits. In others a large portion may be lined with fire brick and in still others the surfaces may be located so that the cold air currents are not likely to be thrown forcibly against them and therefore they are unlikely to perform their portion of work.

"The ratio of grate surface to heating surface varies considerably in various makes, although in general it is around 1 to 15 in the larger sizes and as high as 1 to 25 in the smaller sizes. Having the heat loss of any building in B. T. U., it is easy to find the amount of air necessary to furnish sufficient heat to maintain a temperature of 70 degrees and also the number of B. T. U. necessary to raise this required amount of air from zero to 120 degrees. Then by assuming 8,000

B. T. U. obtained from every pound of coal burned and an average combustion of 5 lbs. of coal per square foot of grate per hour we see that each square foot of grate will supply about 40,000 B. T. U. and dividing our total amount of B. T. U. required to heat the air to 120 degrees by 40,000 will give the number of square feet of grate surface necessary. This, then, on the smaller sizes of furnaces should be about 1-25 of the heating surface and on the larger sizes as low as 1-15 of the heating surface. Also see that the cold-air inlet is not less than three-quarters of the combined areas of all the hot-air outlets.

Furnace Combined with Water Heater

"Still another type of furnace which may cause the builder some thought is what is known as the combination type which consists of heating hot air combined with hot water. A furnace of this type is shown in Fig. 5, the water coming in through the pipe "P," being heated in the fire pot "Q," and passing out through the flow pipe "F." It should be remembered in regard to a furnace of this kind that regardless of what the heating salesman may tell you, double the work cannot be accomplished by the use of two systems; that is to say the fire generates a certain amount of heat per pound of coal burned—this amount of heat is neither greater nor less, whether it is utilized to heat air or water. The amount of heat absorbed by the water is *not* available to heat the air passing through the furnace. One portion of this system therefore operates at the expense of the other and no gain is made except that in the cases of isolated or exposed rooms, where furnace heat would not be practicable, it is possible to carry hot water to them so as to heat them properly.

"You must remember the fact that in a plant of this kind the fire must be kept up so as to supply enough heat to keep both systems operating at a satisfactory temperature. Now this is a very hard thing to accomplish owing to the fact that if a trifle more load is put on the hot water than on the hot air the degree of intensity of heat required to keep the water hot enough to properly warm its radiators may be, and probably will be, too intense for the air-heated rooms, resulting in overheating all the rooms except those supplied with hot water. It is only in systems where air and water mediums are exactly balanced that they give satisfaction."

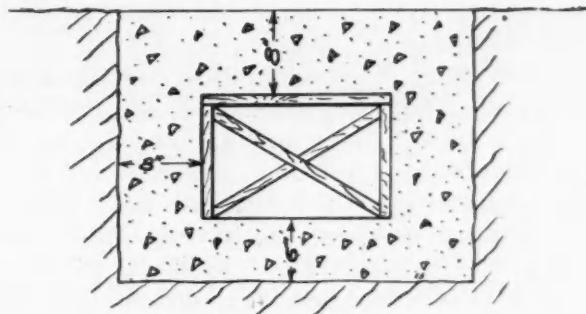


Simple Methods of Constructing Concrete Culverts

Concrete culverts are built several ways. The purpose here is not to consider the more complicated and expensive types, but culverts of the most economical construction, such as will not only take care of water, but serve as little bridges over ditches or depressions in a road or driveway.

For example, having determined the required size of the culvert and having made the proper excava-

tion, place in the latter 6 inches of concrete, consisting of 1 part Portland cement, 2 parts sand and 4 parts stone, the stone graded from $\frac{1}{4}$ inch to 1 inch in size. If crushed stone is not available, use 1 part Portland cement and 5 parts of gravel, if the gravel is clean and well graded. After placing a 6-inch bed of concrete in the bottom of the excavation, erect board forms as shown in the accompanying drawing, bracing them at each end as indicated. The width and depth of the excavation should be such as to allow an 8-inch concrete covering at the top and sides of the form. After the concrete has hardened, the inside braces are knocked away, and the side forms allowed to collapse, which will also release the upper or top board. This will give a flat concrete arch of great strength and the method of constructing it is as simple and economical as could well be devised. Where a very small drain is required and the farmer happens to have some old terra cotta pipe on hand, he could resort to the same



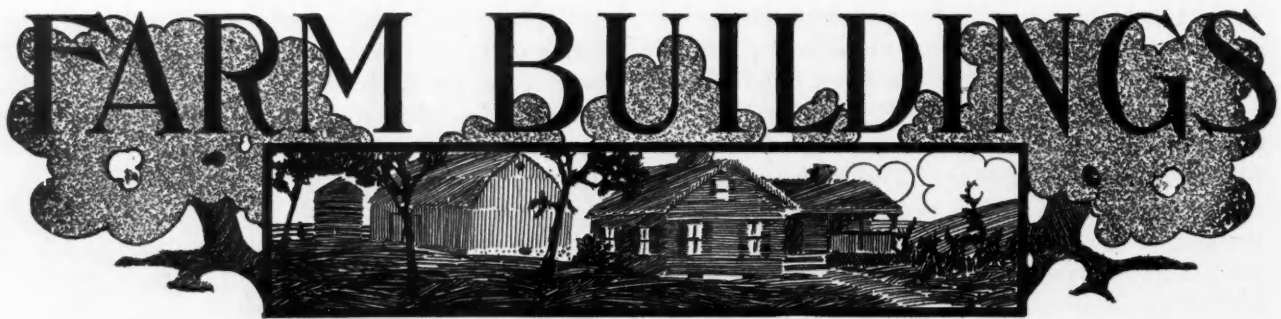
Cross Section Thru Small Concrete Culvert

method of building a culvert with a round, instead of square or rectangular opening, allowing the pipe to remain.

In the case of the culvert first described, old lumber free from knot-holes or other openings would answer for forms. Construction of this type would be especially convenient for the short drains often required in the vicinity of the house or barn.

By remembering that a barrel of cement will make about 25 cubic feet of concrete of the proportions given above, it will be easy to calculate approximately the amount of cement required for a culvert of given dimensions. In building culverts of this character the farmer should be careful to have clean sand and well-graded aggregates and be patient enough to allow the concrete to harden thoroughly before using the culvert, say, for a period of two weeks. More failures are caused by the use of dirty sand, unsuitable aggregates, and undue haste in the removal of forms and premature use of construction than are caused by defective cement.

One of the greatest virtues of cement is that it can be employed in just such simple and inexpensive ways as are described above. If the farmer would exercise his ingenuity and inventive talent, he could use concrete for many other improvements of like simplicity and low cost.



Model 30 by 72 Foot General Barn

INTERESTING CONSTRUCTION AND ARRANGEMENT OF AVERAGE FARM BARN, BUILT NEAR GARDAR, NORTH DAKOTA

THE new barn recently built by one of our subscribers, G. H. Olgeirson, Builder and Contractor, of Edinburg, North Dakota, for Hon. John Johnson, owner and proprietor of the Woodlawn Farm near Gardar, North Dakota, shows many points of interest. This barn is built throughout of Washington fir, resting on a stone foundation. The floor is concrete. The builder claims it will stand up against the severest North Dakota blizzard; and it looks as though it would. The girders are 6 by 6 inches and studding 2 by 6, 24 inches on centers, all well braced between studdings. The ceiling joists are 2 by 10.

This barn is designed along modern, sanitary principles. It is well lighted and ventilated, and is provided with both feed and litter carriers. The stanchions are of the sanitary type, made of tubular steel.

While this barn was planned to meet the requirements of Mr. Johnson, it will, with some slight varia-

tions, suit a good many progressive farmers. After using this building for some time, the owner states that there is nothing about it he would change in any way to improve it.

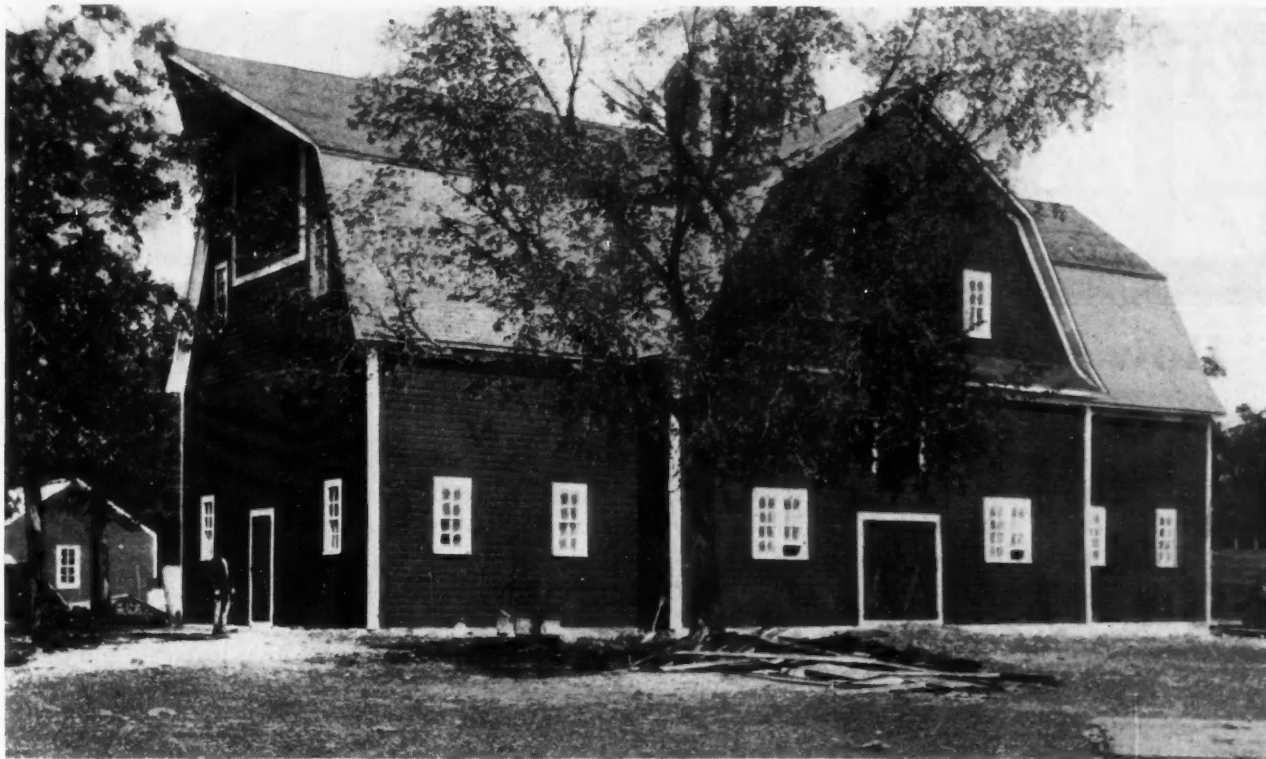
A glance at the floor plan will show how the main floor of this barn is laid out. Stalls for twenty cows are arranged along one side, and the other is given over to horse stable, bull and calf pen, feed room, etc. A number of sliding doors and sliding gates are provided, which is a great convenience in handling stock.

The overhead track for litter carrier makes almost a complete circuit of the barn, passing behind all the animals. The arrangement for feeding stock is convenient, a feeding floor through the center of the barn reaching all the animals. Two hay chutes from the haymow above discharge directly onto the feeding floor.

The position of the silo, to be built later, is indi-



View of Barn During Construction—Note Right-Angle Gambrel Roof Framing.



Barn to House Twenty Cows and Ten Horses on Ground Floor; Hay Storage Above.

cated. This is a central and convenient location for a silo for a barn of this style. The dimensions, 30 by 72 feet, make a barn of average size, just about right for the ordinary thrifty farmer.

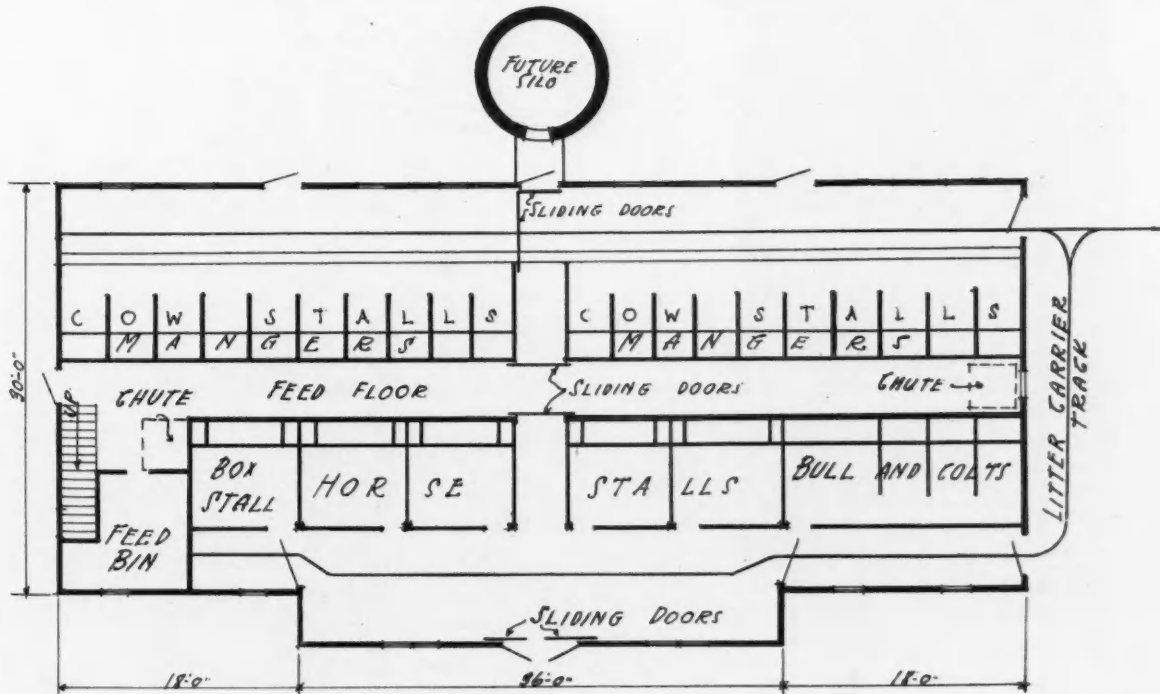


Lightning on Metal Roofing

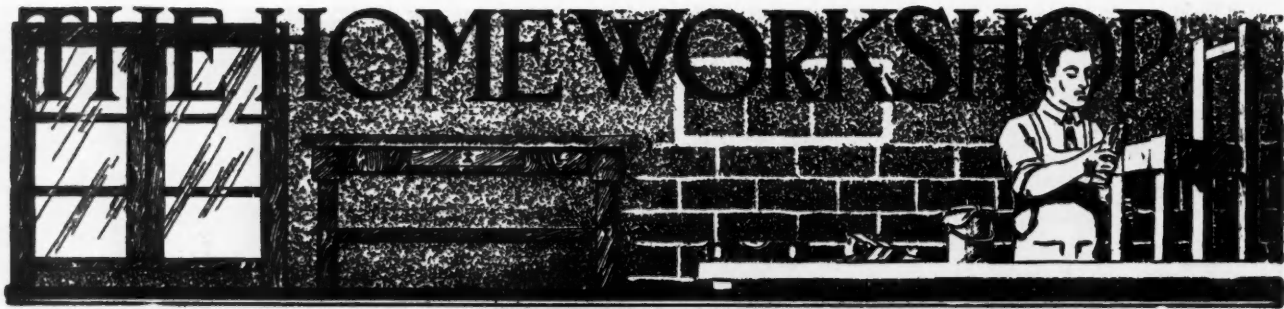
To the Editor: Hicksville, Ohio.
 In reply to J. H. Class, who asked, "Do metal-covered buildings attract lightning?" I say: No; metal roofs may

dissipate the electricity that gets on the roof to some extent. I know of one barn with metal roof which was struck and not damaged, and another struck and burned in this vicinity. It is the electricity that bunches on the building that is the attraction, not the building. If there was no electricity on building or any other object, it would not be struck—not if it was all metal or copper. Lightning rods conduct electricity, but do not attract it. A building properly rodded with copper rods is immune from lightning.

JOHN DEARDORFF,
 Contractor and Builder.



Ground Floor Plan of Barn Built by G. H. Olgeirson of Edinburg, N. Dak., on "Woodlawn Farm" near Gardar, N. Dak.



How to Make a Phonograph Record Cabinet

By F. A. Shilling

THE construction of the cabinet is such that it can be made in any home work shop. The material can be obtained in any mill, or may be bought in the rough and dressed to size with ordinary carpenter tools, though it is better to have it milled to proper size.

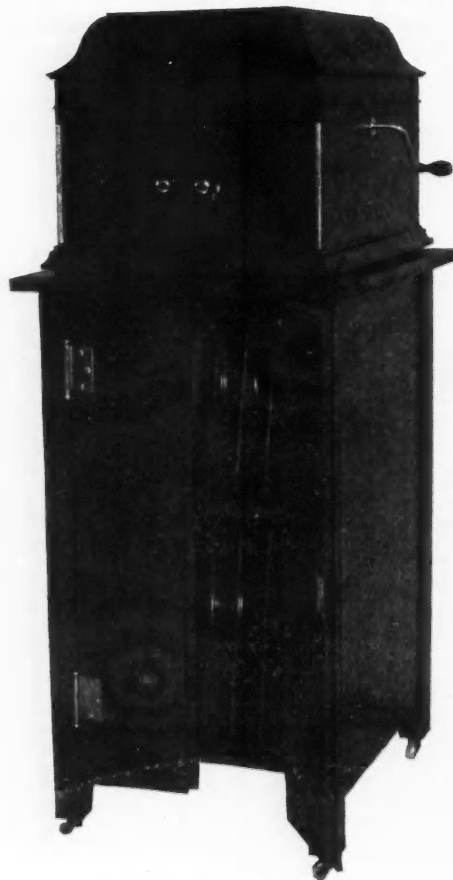
First, remove all mill marks and square up the posts. Select best sides of the material for the outside. Sides and back should next be jointed together, using dowels, at least three to the joint. While they are in the clamps, drill dowel holes in the posts and lay out the mortise in the posts to receive the sides and back. Great care must be exercised in laying out mortises and dowels, so they will fit properly when put together. After sides and back have set, square them up and dress off the surplus glue and cut mor-

tises in them to receive the shelves. One-quarter inch mortises will be sufficient for the shelves, also for the posts. The object in mortising the sides and posts together is to avoid light showing through the joints should they become loose later on. In laying out the mortises, use a marking gage.

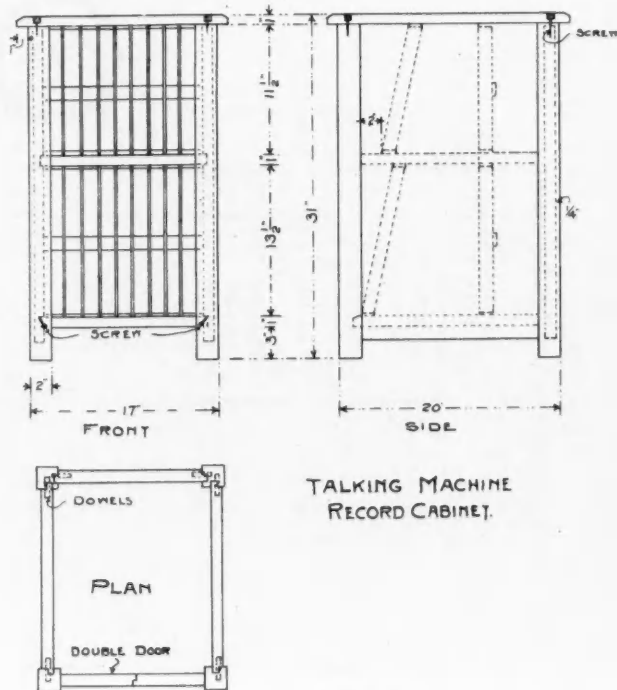
Next, get the shelves ready, joint together, and then cut to size to fit mortises and posts. The back and

BILL OF MATERIAL FOR RECORD CABINET.

- Posts, 4 pieces, 2 by 2 by 30 inches, S-4-S.
- Sides, 4 pieces, 1 by 8 $\frac{1}{4}$ by 28 inches, S-4-S.
- Backs, 2 pieces, 1 by 6 $\frac{3}{4}$ by 28 inches, S-4-S.
- Doors, 2 pieces, 1 by 7 by 28 inches, S-4-S (rabbetted).
- Top, 1 piece, 1 by 10 by 19 inches, S-4-S.
- Top, 1 piece, 1 by 12 by 19 inches, S-4-S.
- Top shelf, 1 piece, 1 by 8 by 15 inches, S-4-S.
- Top shelf, 1 piece, 1 by 9 by 15 inches, S-4-S.
- Bottom shelf, 1 by 8 by 15 inches, S-4-S.
- Bottom, 1 piece, 1 by 9 $\frac{1}{2}$ by 15 inches, S-4-S.
- Partitions, 16 pieces, $\frac{3}{16}$ by 2 by 12 inches, S-4-S.
- Partitions, 16 pieces, $\frac{3}{16}$ by 2 by 14 inches, S-4-S.
- Partitions, 8 pieces, $\frac{1}{4}$ by 2 by 14 $\frac{1}{2}$ inches, S-4-S.
- Stops, 2 pieces, $\frac{3}{16}$ by 2 by 14 $\frac{1}{2}$ inches, S-4-S.
- Dowels, 40 pieces, $\frac{3}{8}$ by 3 inches.



The Cabinet Finished.



TALKING MACHINE RECORD CABINET.

Working Drawings of Cabinet.

shelves must be put in at the same time. It is not necessary to dowel the shelves into the sides, as the back will hold them in place, as will also the top. After the cabinet has set, the top should be put on, using 2½ or 3-inch screws countersunk into the top, doweling the hole. While the cabinet is in the clamps, get the partitions ready. The interior of the cabinet must be stained before the partitions are put in, and the partitions also must be stained before they are put in place. The bottom and top rails are to be put in—the back ones first—and the partitions cut to proper length. Be sure and put in the back stops first, this to prevent records from going too far back. Partitions should be set with brads and glue. Put a screw through bottom shelves into side of cabinet to keep it from spreading; also use glue blocks liberally.

The cabinet should now be scraped and sandpapered and all marks and traces of glue removed. Then fit and clean the doors. The four edges of the top should now be chamfered, after all sandpapering has been done, to make a nice clean-cut corner. The hardware should be selected to match the trimmings on the talking machine. Cabinet is now ready to be finished.

Select the finish to suit the finish of the talking machine. If it is to be waxed, get the proper shade

of art and crafts stain and stain it. All to dry the proper length of time, and then give two coats of good, prepared wax, colored same shade as stain, and allow 24 hours between coats and polish between each coat.

If the cabinet is to have a varnish finish, stain as desired and give a coat of orange shellac. All to dry 24 hours and sand lightly with 00 sandpaper. Next, give a coat of filler, colored to match, and when this has dried to proper length of time, rub down, being sure to rub across the grain of the wood. Then give the cabinet at least three coats of good cabinet or rubbing varnish, being sure to keep each coat thin. Allow to dry 24 hours between coats; also rub or cut each coat with 00 steel wool. Allow the last coat to dry four days and rub down with powdered pumice stone and raw linseed oil.

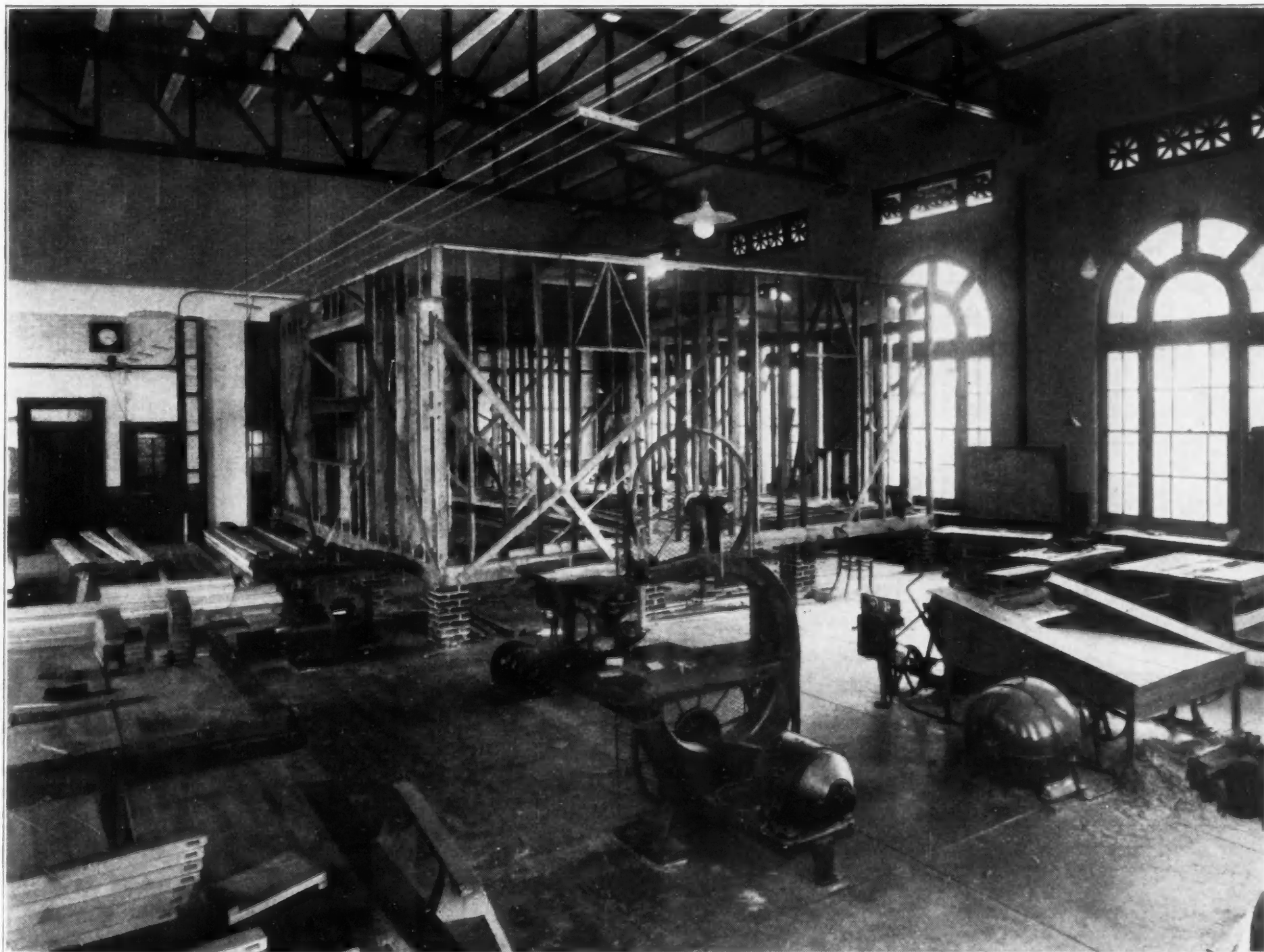
NOTE.—If desired, the partitions may be made of one piece of material instead of two narrow pieces.



Building Courses at Carnegie Institute

By M. K. Zimmerman

THE youth of today seem to have a great dislike for entering a vocation where his hands may be soiled. This aversion undoubtedly has been fostered by our antique methods of education. While there are no statistics on the subject, some of the most



Carpentry Shop at School of Applied Industries of the Carnegie Institute of Technology, Pittsburgh, Pa.

accurate observers believe that this clean-collar superstition has reached its zenith. It is believed that the great army of young men that marches of its own free will into overcrowded, overworked and underpaid callings, lured by the attractions of white linen, is diminishing. Some daubs of grease or mortar, combined with some pay and prospects are surely preferable to the unsoiled hand that is probably empty the day after pay-day.

To any one who gives the matter any serious thought, the condition of the carpenter or bricklayer is a great deal better than the man who stands behind the counter of a dry goods store or who sits all day behind a ledger. Not only is his financial condition better, but his muscles are better developed, his eye more clear, and his brain less fagged.

For a man to be successful at his trade, he must be trained for it. To develop craftsmen, proficient in the building and machinery trades; to train men, not only to use their heads, but also their hands, are the purposes of the School of Applied Industries of the Carnegie Institute of Technology.

The buildings are located in Schenley Park, three miles from the business center of Pittsburgh. In the School of Applied Industries there are offered three years' industrial courses for those young men who desire a broad industrial education, equipping them

to become foremen, inspectors, assistant master-mechanics, assistant superintendents, etc., in various manufacturing and building trade industries. There are also offered night trade courses for men already engaged in their trades, but who desire a better training than can be secured in their daily work, and who wish to combine up-to-date practice with theory, thus increasing efficiency and earning power.

The course in building construction has been planned with a view to giving instruction in the general and technical knowledge needed by those engaged in building operations. The course includes mathematics through trigonometry, physics, chemistry and English. In addition to these, instruction is given in architectural drafting, structural drafting, carpentry, bricklaying and masonry, plumbing, sheet metal and cornice work, and in electric wiring. The subject of strength of materials receives considerable attention, both in theory and experiment.

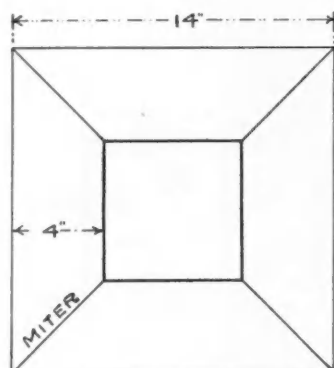
To show that the instruction is given in a practical manner, an accompanying illustration shows a bungalow framed complete in the carpentry shop. The building comprises three rooms and a bath, with a porch extending across the entire front. After serving its purpose for instruction, the bungalow was taken down and built permanently at Camp Louise Carnegie, Pittsburgh, Pa.

More Shop Kinks

HELPFUL IDEAS AND SUGGESTIONS FOR CARPENTERS, CABINET MAKERS AND MACHINE WORKERS

By Wm. C. Jasbury

SQUARE COLONIAL COLUMN CAPS. Not long since, I had some square Colonial column caps to repair; they were made by a regular concern, that seem to throw the trees into an immense hopper and come out Colonial column caps and bases, complete. or at least that is the way it looked. I saw a new trick that was sure worth the price. The

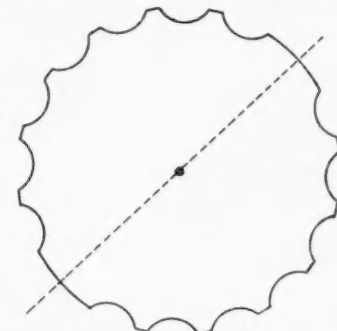


Economy in Cutting Column Base Stuff.

square caps were mitered together at the corners. Now then, here comes the catchy part of my song. When these were being mitered on a saw, the section of the cap material, $1\frac{3}{4}$ by 4 inches, if made as shown at B, would waste a piece every cut, as at X. The small piece, X, would be lost and where these things are made by the mile, and cut off as they are wanted, it would

be "some" item. So the man on the spot had them run on the molder, as shown in section C. So every time he made a cut to a length gauge, on his saw, he had a real live useful piece by turning it over.

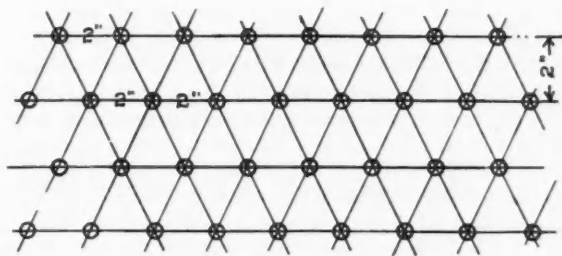
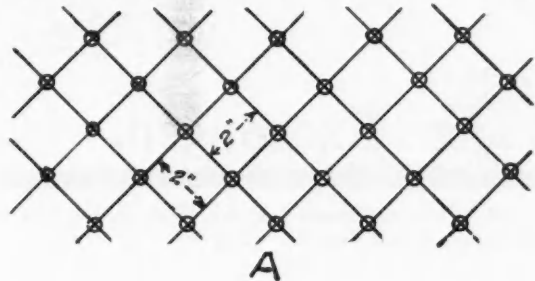
SPEAKING ABOUT FLUTED COLUMNS. I find the higher orders have a number divisible by four, say, 16, 20, 24; this not only brings a flute facing each way, front, side, back, etc., but makes it better, if some of the columns are ripped in two, as used for pilasters, because it gives the man who is doing the fluting, the opportunity of leaving out two opposite flutes, thus bringing the rip cut through the center of a fillet and not a flute, making a better job against the place where said half column, or pilaster is to go.



Fluted Column to be Halved.

SOME HOLES. Sometime ago I had a water filtering box to build. This box was to be used at the flow of an artesian well, the bottom of which was to be bored with some eighteen hundred holes, $\frac{1}{4}$ inch diameter; length of box was 15 feet 6 inches;

width, 6 feet, and depth, 6 inches. The idea, or reason of such a box, was for the local water works to purify, or aerate the water, or at least that was the way the water man (which is a water boy grown up) put it; he said when the water was spilled, spewed, flopped or dumped—whichever word he



Both Have Holes "2 inches on Centers".

used—into the box it formed so many million bubbles, then run through the holes in the bottom—that aerated the water.

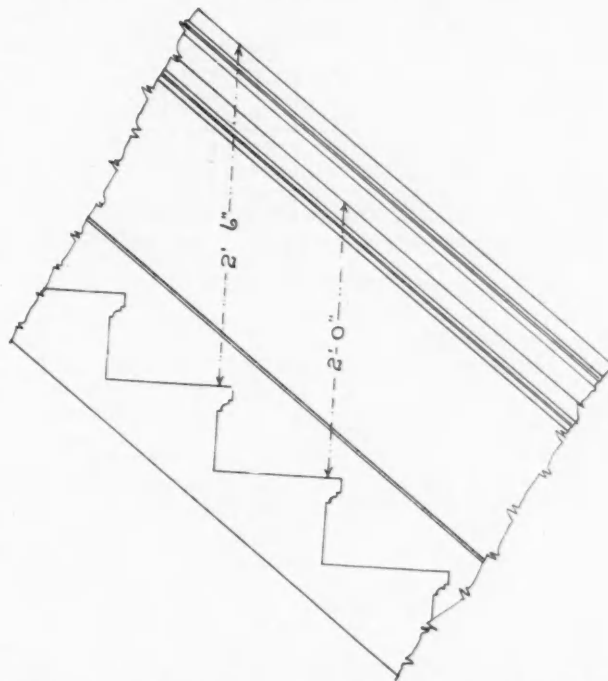
Some dope (the idea, not the man, I mean).

Well, anyway, he left the order that the holes were to be $\frac{1}{4}$ inch diameter and spaced 2 inches apart on centers. One of the boys laid them out, as shown at A, or across the board at 45-degree angle, or bringing the angles 90 degrees, as they cross each other, making them 2 inches apart on centers, if you measure diagonally across the board or on the line. The water man said this was not right (after boring 1,800 holes, mind you). He said 2 inches on centers means the lines should be parallel with the sides of the box. After some "chewing the worn fabric," the box was shipped out.

The odd part of the affair was, this box was not to be built strictly water tight, because to leak water was the intention, and as for the number of holes in the bottom, what would it matter how they were spaced, 2 inches diagonally or 2 inches square? The difference is so slight in such a trifling matter, but my friend put up such a yell, one would think he had a stomach full of Comanche Indians, holding a snake dance. It only goes to show that a mill man, taking an order for a piece of work that is off the ordinary mill routine should be open for minute explanation, even though he has to assume the air of a novice, because it is better to be safe than sorry. Think of it, a mill to have one of these critters of a box left on its hands. We could not possibly use it; it would not make a good sieve, it would not do for a mortar bed; in fact, it would not make

good fire wood, as the flames would have nothing to burn but holes surrounded by wood. I hope that man has his holy box working by this time. I still claim that I never took much to the water, even washing or drinking, and what with the fright of having this gigantic pepper-box affair left on my hands for such a trifling cause, I am farther than ever from the water question, although he took water in the argument.

THE JERSEY LAW ON HANDRAILS. I am now going to tell you of a school house stairs, I had something to do with once. The stairs proper were of the fire proof brand, slate risers and treads, and iron strings. The hand rail, which was of the wall variety, was of wood. In all cases, the stairs had double rails, that is, one above the other, one for adults and one for children. This would be termed by some tax payers, a case of too much expense, or money put out without being accompanied by a conscience. The concern that got out, and the man who put up the said rail, would not make any such comment. I might add to the above there were no newels on these stairs; the rails were continuous from basement to third floor, the rail being returned to the wall by a quarter turn. (Now a New Jersey Law). There was a panic in a certain school in this state, where a boy during the rapid and excited exit



Double Hand Rail for School Buildings. One set 2 ft. 6 in. High, the other 2 feet for the little tots.

of the children, got his clothing caught on the end of a round wall rail and was injured seriously; hence, the new law. The enforcement of such a law seems to be a mighty good thing, not only to the parents of school-attending children, but to men in the hand-rail business, as the saving goes, "It's an ill wind that does nobody good."

CORRESPONDENCE



Questions Answered and Ideas Exchanged.

Our Readers are Requested and Urged to Make Free Use of These Columns for the Discussion of all Questions of Interest to Carpenters and Builders.

Unusual Garage Door Scheme

To the Editor:

Patchogue, N. Y.

I have read with interest, in past issues, the articles by E. J. G. Phillips, concerning the garage door problem. In connection with this subject, I enclose a drawing of a building where this was worked out in a somewhat unusual manner.

The object was to arrange the doors so that any one, or

all three of the cars could be taken out of the garage at the same time, without interfering with each other, this being planned out so as to get the building as small as practicable. The outside sliding door scheme was rejected because of the crude appearance. Multiple tracks were undesirable because of the difficulty of making the doors weather-proof. Our scheme worked out nicely and the owner has had no trouble with the doors since the completion of the building, a matter of two years past.

We hung two doors, each door consisting of three sections. Each door is hung on two "Coburn" hangers, fastened to center section; the narrow side sections are hung on center section and hinged to swing in. The center sections are made about 1 inch wider than the combined width of the two side flaps and meeting stiles are rabbeted. There is a bolt at top and bottom of each flap, which, when shut, slides into door track at both top and bottom, so that each triple section may be used as a single sliding door. On the other hand, when entering the garage, not thinking of removing a car, one uses only a hinged flap and need not slide a great heavy door.

CLAUDE C. CONKLIN, Architect.



Says It Is Not Fair

To the Editor:

Viriden, Man., Can.

Commenting on the remarks of Bro. Blacklidge in the April issue of *our* magazine (if you will allow me to use the plural term), I consider that he has touched on the right subject for discussion. He says, "Is it fair?" I think he might have gone farther and said, "Is it right?"

It is a sore point with the good mechanics on this part of the globe, to see the number of dough-heads that are carrying a hammer and saw and getting the (fill-in jobs, I call them, because often times they will keep a man employed until something bigger turns up). And good men walking around, often watching them botch the work, and yet unable to help themselves or make it impossible for them to get the work. I say it is a bad state of affairs.

As Bro. Blacklidge says, "Usually one job finishes them." When the work is done, we hear something like this: "I know it is not a first-class job, but a coat of paint will cover it," or "It is out of sight," or "We are going to put a carpet or linoleum down," and a thousand and one other excuses why the owner did not pay a first-class man for a first-class job. At the same time, it is an eye-sore to them and would cost double to put right than the original job was worth. (O, that the employers of labor could see this.)

P. H. LOBB.



A Mill Man Comes Back at Bro. Wenger

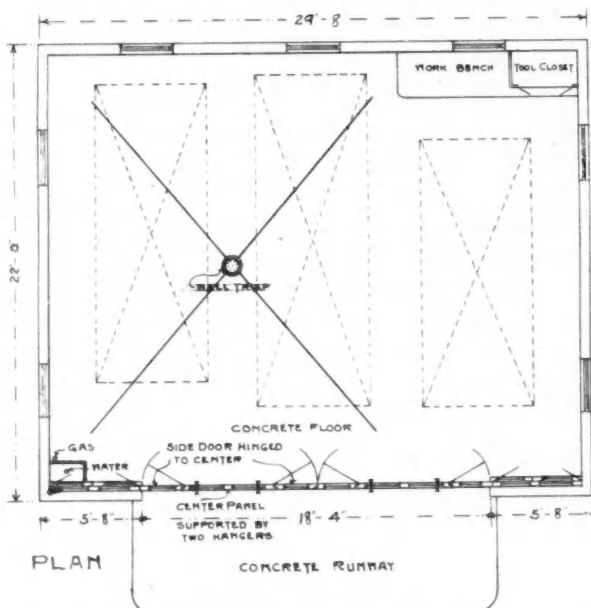
To the Editor:

Saco, Maine.

This is my first experience in writing for a magazine, but



FRONT ELEVATION



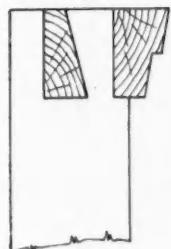
Eighteen-Foot Doorway can be Cleared by Using this Combination of Sliding and Folding Door Panels.

being a mill man, I want to answer Bro. Wenger. (Page 104, April issue.)

In the first place, sash are made to fit frames, not frames to fit sash. As 1 3/8-inch sash is supposed to be made from 1 3/4-inch stock, therefore when finished, should be a little less than 1 3/8 inches thick.

In regard to width, stock sash are made 3 5/8 inches wider than the glass (at least in the East). If they are thicker than this, or wider, it is the fault of the sash maker, as these are the standard rules and the frames are made by them. If the frames were made larger, the sash would be liable to rattle during a wind storm.

As for the check rail, if Mr. Wenger will caliper the thickness of a few sash, he will find they will vary in thickness, and if the check rail be made as he suggests, he would find a bad joint between the check rail and face of stile. The check rail in the East, is made as illustrated, and I believe it is the right way, as by making it this way, it gives a much tighter joint between the top and bottom sash when closed and the dove-tail joint prevents it from pulling apart.



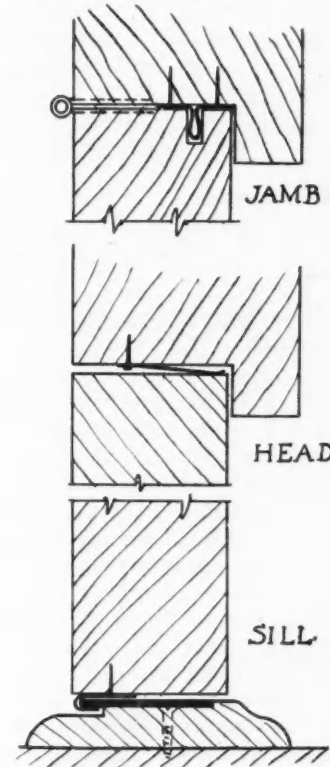
Section thru Window Check Rail.

S. R. LAWRENCE.

Metal Weather Strip for Leaky Threshold

To the Editor: York, Pa.

We have been reading with much interest the articles on thresholds to keep out rain which beats against the door.



Metal Weather Strips for Exposed Doors.

We have a method which, in our estimation, will remedy the trouble of Jack Leg, and are enclosing herewith a blueprint which illustrates our method of weather stripping a door. You will notice on bottom of door that brass hook interlocks with the brass sill attached to threshold, which will keep out rain, cold air and dust. On the lock side and head we use a special spring bronze, which is nailed to the jamb and which springs against the door with considerable pressure. This also excludes cold air and dust. On the hinged side we groove the door and install our regular Pullman beaded strip. This feature is also shown on the enclosed blueprint and makes a

storm-proof bond at this portion.

This method has been used by us for a great many years and we have yet to find a case in which it has not proven satisfactory. THE PULLMAN WEATHER STRIP CO.,

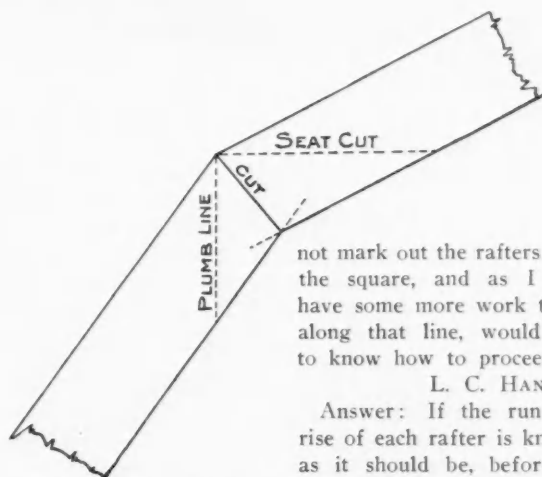
Per JOHN M. CROMLEY.

Lengths and Cuts of Gambrel Rafters

To the Editor: Clarkson, Neb.

I would like to know how to get the lengths and cuts of rafters with the square, for a gambrel roof.

I have just built a barn with a gambrel roof, but could



Gambrel Rafters Joint.

not mark out the rafters with the square, and as I will have some more work to do along that line, would like to know how to proceed.

L. C. HANEL.

Answer: If the run and rise of each rafter is known, as it should be, before attempting the work, there is no reason why the length and

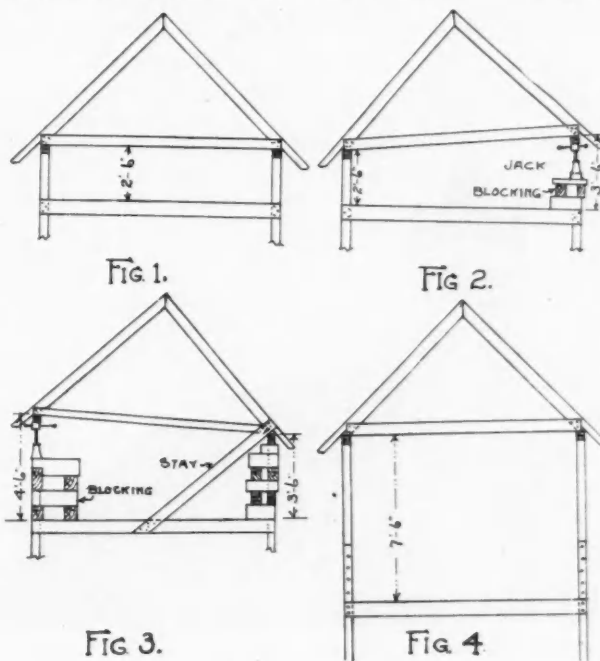
cuts should not be found as readily as in the case of finding same for a single common rafter. The only question is how to place the square to get the cut at the joining of the two rafters or at the knuckle. This is quite a study in itself and would require quite a lengthy explanation and after all is said and done, it could not be considered practical, because it is too far beyond the average workman; besides it is much easier to lay out a diagram of the two pitches, as shown, and bisect the angle for the joining of the two rafters.

A. W. WOODS.

Raising Roof with Two Jacks

To the Editor: Middletown, N. Y.

In regard to Mr. Brunner raising a roof, I would say for him to first spike the ceiling beams all in, as in Fig. 1; cut the plate from the studding; and raise the plate with the roof.



Keep the one side stayed fast and raise the other side one foot, as shown in Fig. 2. Now, block that up and stay it fast. Then take the jacks on the other side and raise this side 2 feet, then you will have it not more than 1 foot out of level at any time, always keeping your jacks close to the plate as shown in Fig. 3. When you get it the right height, plumb the plate over the sill and stud it up, as in No. 4.

I have raised a number of roofs, some of them slate, and never had any trouble with them. GEORGE A. SKIDMORE.

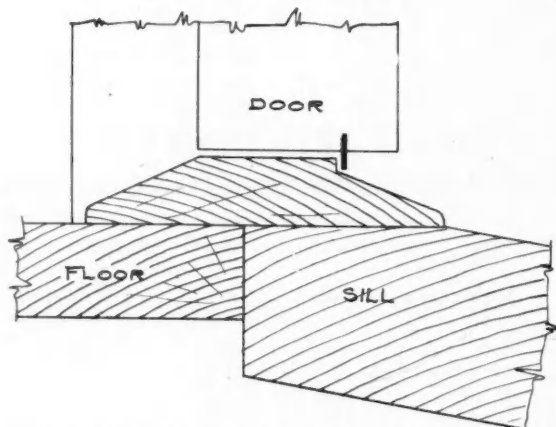
No-Leak Threshold

To the Editor:

Iowa City, Ia.

Am very much interested in the different details of "No Leak Thresholds," shown in December and January issues of the AMERICAN CARPENTER AND BUILDER.

With reference to E. J. S. of December issue, with his



Cross Section through threshold of outward opening door, showing galvanized iron weather strip.

permission would like to make a small addition, which I think would make it much better. Take a back saw and saw a groove $\frac{3}{8}$ -inch deep just outside of the break in threshold into the bottom of door. Insert into this groove a 1-inch piece of galvanized iron bent double, allowing it to project below the bottom of door $\frac{3}{6}$ -inch. This will form a drip and also keep any water from blowing under, allowing door to work freely.

This is, of course, for public entrance doors swinging *outward*; it would not do for inward swinging doors.

J. H. HUNZINGER,
General Building Contractor.



Contractor John F. Bujnoch and his crew just after completing fine Church job.

A Southern Church

To the Editor:

Wallis Station, Tex.

I am sending you a photo of a new Catholic church which I built here last fall, and I would like to see it in AMERICAN CARPENTER AND BUILDER.

The plan was prepared by Mr. Leo M. J. Dielmann, architect, of San Antonio, Tex.

JOHN F. BUJNOCH,
Contractor and Builder.

For Left-Handed Carpenters

To the Editor:

Waldo, Kan.

In reply to the request of "Awkward" in the April number of your paper, will say I have for the past ten years used for a rabbet plane a Stanley No. 45, with the fence set on the right side, and find it as convenient as it would be in the hands of a right-handed man with the fence on the left side.

M. S. LUDLOW.



Encouragement for "Awkward"

To the Editor:

Manheim, Pa.

In answer to the letter of the left-handed man, I will say that I was in the same position as he is at one time. I stood left-handed at my bench when I was an apprentice, but a mechanic had a bench right next to mine, and he used to watch his chance and give me a kick for it and tell me to stand at my bench like an American, not like a Chinaman. After that I was afraid to turn my back to him, as I was only fifteen years old and he was fifty, and a very good mechanic. Through him I learned the trade and to use a plane right-handed. At this time it would seem as awkward for me to be left-handed at the bench as it would be for "Awkward" to be right-handed. I can work any plane that is made for a right-handed man, although I use the saw and hatchet with the left hand. I have never seen a left-handed rabbet plane. The only way to get one is to make one; I made several right-handed ones, but no left-handed ones. You would have to reverse the angle of the cutter.

The better way is to practice the use of the right-handed plane—I had no trouble to do so. The left-handed man comes in handy many times in roofing and ceiling cornices. I always get my share of it. Don't get discouraged—there is plenty of good work for you to do, but practice the use of the right-hand plane.

Hoping you are successful, I remain,

Your friend in the trade.

M. K. LEHN.



Better Mechanics, Not More Inspectors Needed

To the Editor:

Clyde, Ohio.

In the March issue of the AMERICAN CARPENTER AND BUILDER I see an article from Mr. I. P. Hicks in answer to my article in the January issue, and later, articles on licensing builders, which I feel I would like to answer—so here goes.

In answering his letter, as you read it, will say that licensing may have a tendency to put some mechanics out of the business, but the kind that the license would put out are just the kind that ought to go out until they have proved they were capable of staying in. It seems Mr. Hicks does not fully understand me. I do not mean to cut out man from learning a trade, not by any means; but I do mean that he ought to learn it sufficiently to receive a license before going out for himself, and try to make the public believe he can do something when he cannot. Besides, think of the danger to life and property, as in wrong chimney building.

A good mechanic—like most every one else—is looking for honor as well as money and a license would be an incentive to work for. Again, if a license will not protect the public against dishonest work, what is the use of compelling doctors, dentists, etc., to have a license (diploma) to protect the public against quacks? I agree with Mr. Hicks to some extent in regard to inspectors. We want them in many cases, as boat inspectors, engineers, etc., but stop and think what it would mean to do away with a captain's or engineer's examination and papers and depend on inspectors to look after the management! How many of us would travel

with inexperienced engineers, which we surely would have without licenses? We would be afraid of our lives.

Yet, in the October issue of the *AMERICAN CARPENTER AND BUILDER*, you find, according to article on page 47, that more fires were started from defective flues than any other cause, and the public think very little about it.

Again, it seems to me that the experience Mr. Hicks speaks of with inspectors, ought to be enough in itself to show that some other methods must be tried. The country now is taxed to its limit with inspectors. Why not interest the mechanics in doing good work without having an inspector standing over them all the time?

Again, what would be the result if you had to stand over a boat captain with a club to make him steer his boat right? Also what would be the expense of inspectors to look after every job in the rural districts; say, 10 miles distance? How many inspectors would a good, prosperous building community need? I believe it speaks for itself.

I don't want any one to think I do not believe in inspectors, but let every mechanic be an inspector himself, in a sense, and be afraid of loosing his papers if any one should discover dishonest and dangerous work; and pay a small examination fee instead of a big tax to keep up the big salaries of extra smart men for inspectors, as they would have to be well up in building construction to look after the entire and miscellaneous construction of a community, while the mechanics may be only qualified to be a carpenter or brick mason and not be required to specialize on all construction unless he should be a general superintendent. I have many of Mr. Hicks' building plans and articles on building in my library of which I think much, but cannot side in with him in this.

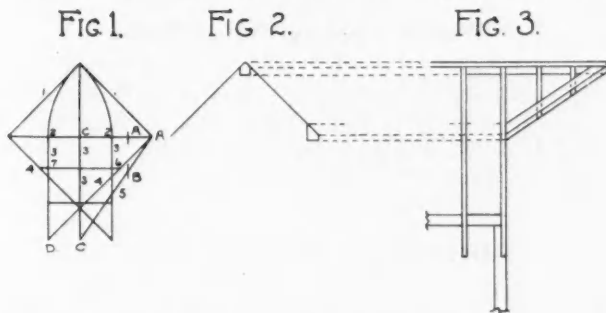
I am just the fellow that would be glad to shake hands with Mr. Roberts of Adrian, Mo., who also has an article on the subject in the March issue. BAYARD S. GRAVES.



To Frame Hood Rafters

To the Editor: Loveland, Colo.

I am sending you an easy way of framing the much mooted hood rafter. Just take any pitch and any width of gable; drop your common rafters down, as shown in Fig. 1, to 1 and 2; square down the length of ridge 3, any length as 6 to 6; draw hood rafters, 4; run of hood from A to G; measure in 1 foot from A to A; square down from A to B to find the run of hood rafter. In this case it would be 20 inches. 20 and 12 will give the plumb cut at the top and also at the bottom; cut on the 12-inch side for both cuts. The lengths of cripple rafters are from 6 to 7, the side cut at 6,



the plumb cut same as common rafter. To get the backing of ridge and hood rafters, are shown in Fig. 2. Fig. 3 shows them in place. The cut to fit hood rafters to common rafter and ridge would be from A to 2 and from 2 to D; cut on A. To fit against building, cut on D. To fit ridge, just mark the pitch of roof on bottom of hood rafter, will give the line for backing.

While Mr. Woods is all right, he puts lots of ginger in his steel square; just what we want. J. S. NOBLE.

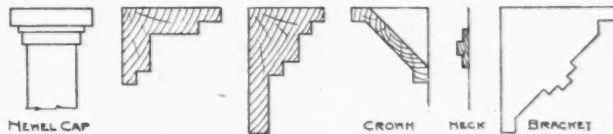
He Jasburys About Architects

To the Editor: Asbury Park, N. J.

Ordinarily the *AMERICAN CARPENTER AND BUILDER* edition gets into the hands of the practical man and not the theorist; by that, I mean, the architects go in more for architectural specialties; therefore I will say a few words to the practical carpenter and have no mud slinging intentions towards our higher enlightened brothers—the architects. The New Jersey State law, that requires present-day architects to have a registered license is only of recent origin; I say recent—about six years, I believe. I know men that got in over the dead line, or were in that line of business before said law went into effect. They are no more qualified for such a calling than I am, and I am as unlike one as a Texas razor-back hog is like a Stewart speedometer. I have come in contact with architects that had no more idea of moulding formation than a school girl; others would dwell for hours on the contour of a measley dresser bracket, and in the meantime, not have a fireplace in the building that would not smoke.

I recently found a set of plans for an English, half-timbered effect house. He had the second story one foot shorter than the first. When told of this by the foreman, he got mad and said: "You must not mind a trifle of that sort." Later he censured said foreman for not having a quarter-round on an attic window stop, instead of an O. G.

I know an architect who is so stiff, so wrapped up in himself, he would not change an error on his part, even if it cost the owner a ton of eggs at the present price. I know of carpenters where they have saved architects many embar-



"Shadow Mould" in Several Forms.

rassing blushes. I once worked under an architect (not in the office), who had a most peculiar style of his own; he used it on all parts of a building and called it shadow mould system. The contour of some of them were as shown in illustration. These were seen from the foundation to the chimney.

Another point I would like to cover along this line, is that it is often possible to tell who the architect is by merely looking at the style; that is, if you have worked from many of his drawings. There have been cases where the foreman or contractor had a better idea of what was wanted than the architect who drew the plans, then the two came together. The architect, of course, had his fling, but the poor owner was the guy that got the hook. I know of an architect who can make a detail without the aid of the regular cargo of paraphernalia in less time than I can split a sausage. This man has a gift from nature and another from providence combined; his ideas are so different from the stereotype architect, he is at least a fortnight ahead in the race. I know of another Mr. Architect who draws the queerest mouldings yet; some of them are so complicated they look like the crosses in a hay stack; but they are always original, and that is what counts with a designer.

What I cannot figure out, is, if a draughtsman is good on structural iron work and concrete, and not on designing scrolls and carving, why does he mess up one noble part of the work by slushing the other? Others are so slick at the chirography, perspective, rendering, etc., they could not tell whether an I-beam would sustain Gibraltar or a piece of cheese. Many times I have heard men on a building roast the architect for some slight oversight or error; think how

a man has to study to dope out, to become a modern architect, then be black-jacked by some gothic-shaped, cistern full of bonne-klobber in overalls. I hate to hear an architect get torn out, and I hate to see a carpenter that is worn out. Let us strive to keep Mr. Carpenter and Mr. Architect on good terms. Ofttimes each is a square plug in a round hole, but that is fate. We are obliged to keep at it until the whistle (Gabriel) blows, then quit and forget all our stings and tribulations of the job.

WM C. JASBURY.



Wants Power Woodworking Pointers

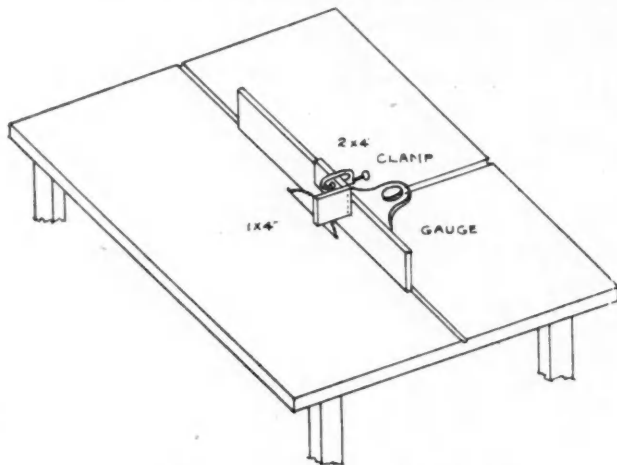
To the Editor: Gonzales, Texas.

I am a charter member of your valuable paper and have read every number from the first with pleasure and profit.

The Correspondence Department, with its suggestions, questions and answers, discussions, and sometimes a little fault-finding, has been especially interesting to me.

I want to refer to that suggestion in the January number in regard to bookkeeping for the carpenter and builder. "We want something simple but accurate."

Now, I would like to make a suggestion myself, as so many portable saw rigs with gasoline engines have been put on the market and a great many builders are buying them and many of those who want a mill have had no experience either in the running of the engine or the saw, that an article on this subject would be timely. I have been running one for some months and I should have appreciated something of that kind to begin with. I found the saw threw sawdust in my eyes when standing behind it, so made me a gauge out of a piece of 2 by 4 inch about 6 inches long and a piece of 1 by 4 inch



Rig to Keep Sawdust from Bothering.

about the same length nailed on the end of it and clamped to the saw gauge over the saw in such a manner as to stop the saw dust from being thrown back. Will enclose a rough pencil sketch that will show what I mean.

JAMES S. SPEAR.

Answer: This is a fine suggestion about power woodworker pointers. We wish every reader who has a power rig would send in some items about how he uses his machine, and some photos showing it in action. Let's go to this.

EDITOR.



Filtering Cisterns

To the Editor: Bucyrus, Ohio.

I wish you would give a description of a way to make best filtered cisterns. There are various ways of doing this, but I would like the best I can get. Would like to hear from those who have had experience.

G. H. ORTHWEIN.

Size of Coal Bins

To the Editor:

Keyport, N. J.

Will you please publish a table of the size of bins to hold from 1 to 10 tons of coal? I often have customers who ask me to build a coal box to hold 1 ton, 1½ tons, 2 tons, etc., and I have a great deal of trouble to figure the size.

B. R. B.

Answer: The problem of determining the size of a coal bin to hold a given quantity of coal consists in determining of cubic contents or volume. We know that one ton of anthracite coal occupies about 43 cubic feet of space, and that a ton of bituminous coal occupies about 48 cubic feet. This means that a bin for 1 ton of bituminous, or soft coal should have over 48 cubic feet of volume. Or, in other words, the product of the three inside dimensions of the bin should be greater than 48. The same principle applies for 1½ tons, 2 tons, or any number of tons of coal.

For instance, a bin to hold 3 tons of bituminous coal should contain at least 3 times 48 or 144 cubic feet of volume. This volume may be obtained by several different combinations of dimensions as shown in the following:

$$\begin{aligned} 6 \text{ by } 6 \text{ by } 4 &= 144 \\ 6 \text{ by } 8 \text{ by } 3 &= 144 \\ 8 \text{ by } 8 \text{ by } 2\frac{1}{4} &= 144, \text{ etc.} \end{aligned}$$

In actual construction, it would be well to make one of these dimensions larger than those given above in order to allow a little extra space.

Bins for other quantities of coal could be calculated in the same manner. Multiply the number of tons of coal by 43 for anthracite, and by 48 for bituminous; then divide this number into three dimensions in the manner shown above. The following table will give the necessary volumes to just hold from 1 to 10 tons of coal. Make bin a little larger in practice.

Number of tons of coal	Volume of Bin Necessary, in Cubic Feet.	
	Anthracite	Bituminous
1	43	48
1-½	65	72
2	86	96
2-½	108	120
3	129	144
3-½	151	168
4	172	192
5	215	240
6	258	288
7	301	336
8	344	384
9	387	432
10	430	480



Wants Freeze-Proof Roof

To the Editor:

Alturas, Cal.

Would like some kind reader to give me an idea of a roof over a stone cellar, 12 by 20, that will not allow the contents of same to freeze in a climate that gets down to 30 degrees below zero.

A. H. COOK.



Left-Handed Rabbet Plane

To the Editor:

Protivin, Iowa.

I will now try to help "Awkward" (as signed) as I am also a left-handed unfortunate. I would advise him to try a Stanley plane No. 45 to remedy his rabbeting troubles. The fences on this plane are reversible and supplied with eleven plow and dado bits, seven beading tools, a sash tool, and a tonguing tool. If a larger variety of work is to be done, there is another Stanley plane to do the work, which is supplied with fifty-two cutlers. These planes can be used either with right or left hand.

LEWIS F. NOVAK.

Some Carpenter Kinks

To the Editor:

Highland, Mich.

Valley Tins—There are several houses in this vicinity that have corner gables on the porches; and there is one that has an octagon tower on one corner, the roof of which has a gable on each alternate side, as shown in Fig. 1. Well, the valley tin on all of these houses has been put in the same as though the roof intersected at right angles. Anyone who has built such a roof knows that one side of the valley is shingled with the butts of the shingles and that the water runs against and under them, causing a leak in the valley.

Now I will try to explain how to make a water-tight and good looking job. I use tins about 6 to 10 inches, bending them lengthwise $2\frac{1}{2}$ inches from one side. One corner of the narrow part I turn under, using a shingle that has been

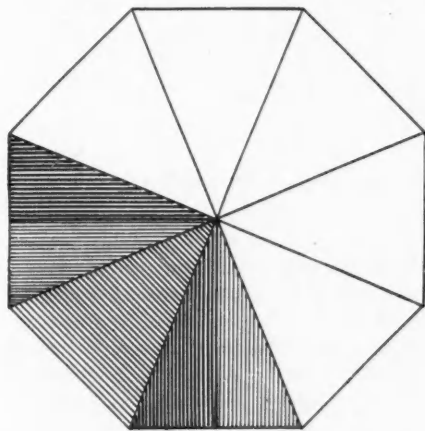


Fig. 1.

Octagon Tower Roof.

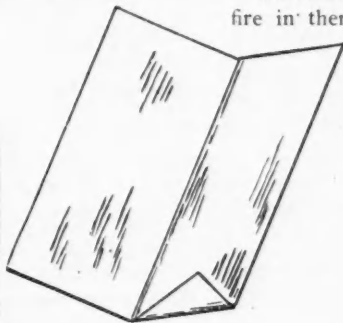


FIG. 2.

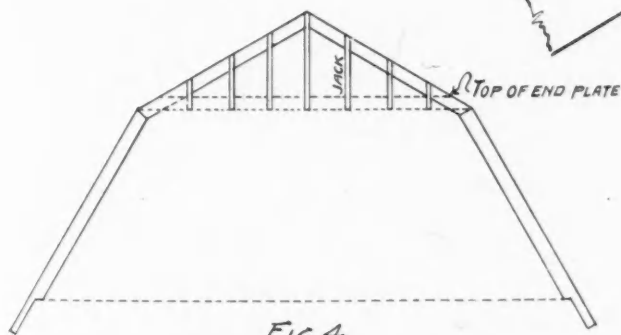


FIG. 4.

Gambrel End with Top Hipped Back.

cut to conform with courses of shingles and run of the valley to bend them, as shown in Fig. 2. These tin flashings are placed one on top of each valley shingle on main roof, the turned under corner passing under the butt, while the wide part extends on to roof boards of gable and is covered.

I use this same method in flashing a roof that comes diagonally against the side of the house.

Hip Rafters—Now, about that hip rafter. I never back them; do not think it necessary, and can frame them without. About the easiest way to get the right rise above the plate is to frame them one inch short and cut one inch off the corner of plate, giving the same rise from plate to top of hip, as common rafter. This, of course, is for $1\frac{3}{4}$ -inch stuff, and works all right.

I have framed several roofs similar to the one shown in sketch by J. Notman in May AMERICAN CARPENTER AND BUILDER and find there are several features about framing them that would puzzle one who has not had experience with them.

Framing Hipped Gable—Fig. 3 shows how I frame the end rafters and plate for hipped gable. The top end of rafter extends above the plate and mitered back one-half the thickness of hip rafter so that center of hip rafter comes directly over the end of plate. The side of hip next to this mitre should have the same rise above plate as the face of the mitre. The jack rafters should have same rise above plate, as side of hip next to them.

A gambrel roof with top hipped back should have an end plate raised so that the ends of jack rafter tails would be on a level with the intersection of upper and lower main rafters, as shown in Fig. 4.

ALBERT GONNE.



Brick Chimney Questions

To the Editor:

Paul Smiths, N. Y.

We find chimneys go to pieces quickly if they never have a fire in them. What is the reason that chimneys with flue linings seem to disintegrate faster than those made of brick only. Should one use lime mortar or cement mortar or lime and cement mortar mixed for best results in chimney construction?

Would a chimney be longer lived and as equally fire-proof if the flue lining came up, say, a foot or 18 inches above the roof? Should mortar made of slacked lime to be used in chimneys be slacked long before use in same? Does chimney cap of cement add to the service of same?

W. E. McCASLAND.

Answer—We know no reason why a chimney with a flue lining should disintegrate faster than one without a lining.

A brick chimney may be laid up in either lime or cement mortar, but cement mortar should always be used in laying up the bricks above the roof line. It is good design to allow the flue lining in a chimney to come above the top of the chimney for a short distance and project through some type of cap, either iron or cement, which will prevent moisture from passing inside of the chimney or from running down on the outside of the chimney. All chimneys should be varnished where they pass through the roof.

Where lime mortar is used for laying up brickwork, the lime should be thoroughly slacked before used in the work.

EDITOR.



Wants to Rig Up a Saw

To the Editor:

Pierron, Ill.

I have a portable woodworker and would like to rig up a bandsaw or a jig saw to be attached to it. Maybe some reader can give me some information on how to make one cheaply.

M. L. SCHILLY, Contractor and Builder.



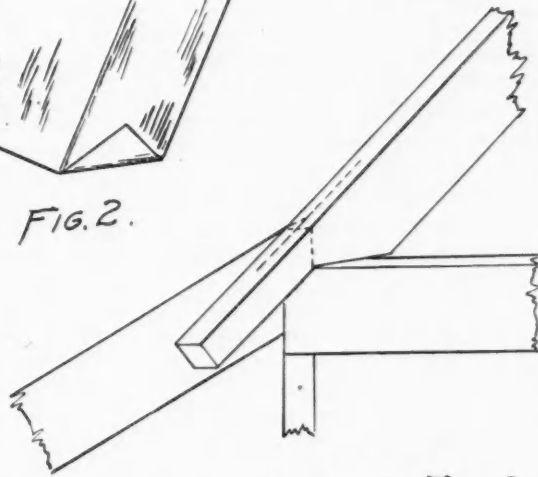
Wants Kitchen Cabinet Design

To the Editor:

Hilham, Tenn.

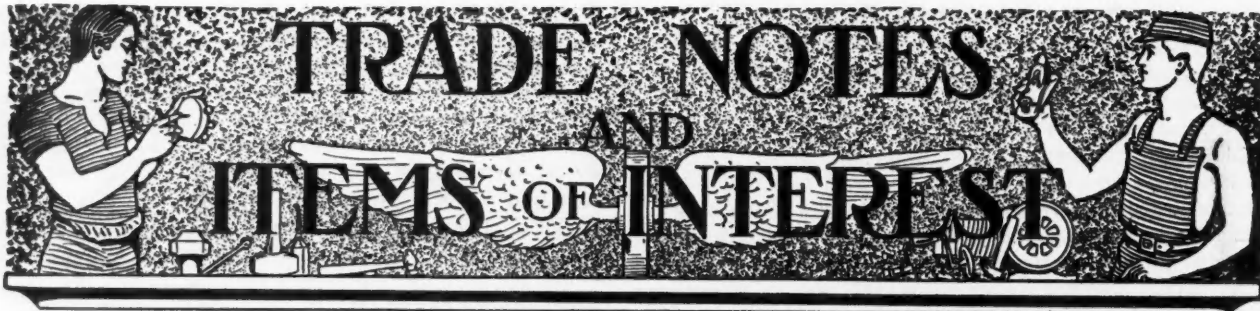
Would like to have you publish a neat design for a kitchen cabinet having two tilting flour bins in the base and a small china closet above base, with glass doors. Now, if the Editor or some of the brothers will help me out I will appreciate it very much.

JOE MASTERS.



Hipped Gable Detail.

FIG. 3.



Through this department the editors aim to keep builders, contractors, carpenters and architects in touch with what their friends, the manufacturers, are doing for them in new or improved tools and machinery, methods and materials—pertaining to building. Items for these columns must have real news value; they are offered here as interesting information for our readers; they are not advertising. No matter will be printed here simply because some advertiser wishes it. Likewise, no matter will be excluded simply because the article described is not advertised in this magazine. Suggestions for the betterment of this department are requested of our readers.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC.,

of American Carpenter and Builder, published monthly at Chicago, Ill., required by the Act of August 24, 1912. Editor—Wm. A. Radford, 5341 East End Ave., Chicago, Ill. Managing Editor—Bernard L. Johnson,

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E. L. HATFIELD, General Manager.

Sworn to and subscribed before me this 25th day of March, 1914. Jeannette A. Nicholl,
Notary Public.
[Seal]

(My commission expires July 6, 1915.)

Founder of Glidden Varnish Co. Retires

At the last annual meeting of the Glidden Varnish Company, Mr. Francis H. Glidden, its founder, and who for thirty-one consecutive years had filled the office of president, sprung a surprise on the board of directors by tendering his resignation.

In so doing and in words of deep feeling, Mr. Glidden expressed his gratitude to those present for the many years he had been honored with their confidence in the management of the company's business. He made it clear that the prosperity of the Glidden Varnish Company was due more to the able assistance and co-operation of the competent young men and his four sons, who had given so faithfully the many years of their best services in the upbuilding of the company.

Mr. Glidden, who is now past eighty years of age, but still active and enjoying good health, said it was time to give way to the merits of the younger element and declined to be re-elected president. The board of directors, in appreciation of the long service rendered by Mr. Glidden, created the new office of "Chairman of the Board of Directors," to which office he was unanimously elected. The following officers were then elected, namely:

Mr. Fred A. Glidden, president.

Mr. F. K. Glidden, vice-president.

Mr. W. J. Glidden, treasurer.

Mr. R. S. Leonard, secretary.

The new president is not only popular with all his associates in the business, but also with the trade he has so

vigorously helped to build up, and it is assumed that with his thorough knowledge of the details of the extensive business, that the Glidden Varnish Company will continue indefinitely its march of progress.



Book on Tool Grinding

The Luther Grinder Manufacturing Company, 903 Point Street, Milwaukee, Wis., have issued a new catalog, "Luther's Tool Grinders." This tells all about the many styles of Luther grinders now obtainable, and also all about how different kinds of tools should be sharpened.

This book will be sent free of charge to all of our readers who will write for it.



E-Z-ON Hinges

Since the E-Z-On Hinge was announced last month, there has been a surprising show of interest among AMERICAN CARPENTER AND BUILDER readers, and the building public in general. The manufacturers of this new hinge have been kept busy answering inquiries and sending out sample trial orders. They tell us the demand ranges all over the country, from Maine to California, showing that the public is ready, and has been waiting for a thoroughly high-grade, detachable hinge for screens and storm doors.

A good many of our readers are going right after this detachable-hinge business and have secured the agency for E-Z-On Hinges, and are easily placing them with their building customers and others, in connection with their regular work.

Now that the hot weather is coming on, and screen doors are being put up, is just the time to get busy with E-Z-On Hinges. There are very few people who will not pay a dollar



extra to have a screen door hung with E-Z-On Hinges, for once they are on, all future bother of screwing and unscrewing, and sending out for a man to take down the doors or put them on again, is done away with. That price allows 100 per cent profit and more—besides creating a nice line of work.

The E-Z-On Hinge is a handsome hinge, made of steel, and nicely finished. It has an extra large wide bearing on the door and door post which absolutely prevents the door from sagging. The E-Z-On is a quick detachable hinge; when once the plates are on, anyone can take off a door in 30 seconds; no tools required. The door can be hung again in the same length of time.

This is a good opportunity for wide awake carpenters and builders in every town where the company is not already represented. Those who are interested should write at once to the Racine Detachable Hinge Company, Racine, Wis.

Vacuum Cleaning in the Modern Home

By F. J. Bryant

The day is rapidly approaching in which a home without a stationary cleaning system will be as unprofitable an investment as a home without stationary heating or plumbing. Yet the science of vacuum cleaning is of exceedingly recent development. Only a few years ago those great hotels and public buildings which were equipped with pneumatic cleaning systems were written up in the newspapers and magazines of the country and described as marvels of scientific achievement; now no important building and no private residence which makes any pretensions as being up-to-date, is regarded as ready for occupancy until the vacuum cleaning system is in operating order.

It has only been within recent years, almost within recent months, that the cost of installing a first-class stationary cleaning system has been within the means of the average home owner. Before this time, the demand for stationary cleaners was limited, the production relatively small, and the cost correspondingly high, but within the last two or three years there has been an enormous increase in the demand for stationary cleaners suitable to the home of moderate means. Contractors and builders in all parts of the country report that their clients insist on having their houses equipped for stationary cleaning.

Many old buildings are being modernized and made desirable by means of stationary cleaners. Owners of real estate and those who are engaged in the construction and selling of dwelling houses on a large scale are rapidly coming to the realization of the value of a stationary cleaner as a means of insuring quick sales and satisfactory profits. Investors, whose money is represented in apartment houses and flats are especially interested in the stationary cleaner, because it simplifies the problem of service, not only for the landlord, but for the various tenants, adding to the rental values out of all proportion to the increase on the investment.

The contractor owes it to his clients, as well as to himself, to be prepared to include a modern and efficient stationary cleaning system in every house, no matter whether it be in the \$3,000 or the \$30,000 class. It is as short-sighted to ignore the importance of a stationary cleaner as it would be to ignore the importance of a furnace. In no way can the builder demonstrate his intelligent foresight better than by advising his clients to have the new house piped for stationary cleaning before the plastering is done, even though the cleaner itself may not be installed until a later date. This will not only secure the installation of piping and wiring at the minimum outlay, but it will also avoid the necessity of tearing up the house or leaving the pipes exposed, when in the course of time the cleaning machine is installed.

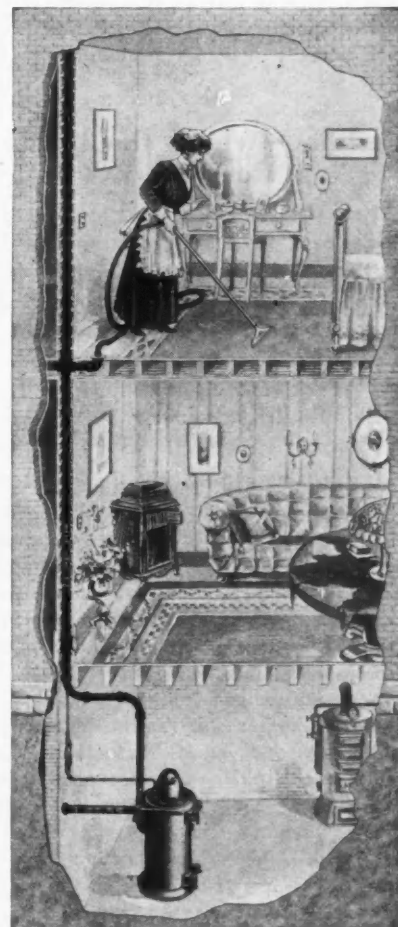
It is not always wise to recommend the home owner to include all the desirable modern improvements in his first expenditure, although this should always be given careful consideration in the original plan. In other words the mortgage must not be made so burdensome as to tax the family income too severely, therefore, in such cases, it is prudent to have the house so planned as to leave ample opportunity for the addition of various refinements from time to time as the original indebtedness of the home owner is reduced. It is far better and more economical in the long run to pipe the house properly for a cleaning system and to delay the installation of a cleaning machine until such time as the purchasing of one would not be a burden, than to compromise on a system that is not highly efficient and economical.

The future success of vacuum cleaning depends upon the adequate use of proper size pipe. In nearly all cases, even in residences, such articles as hair pins, tooth picks, matches and cigar stubs are frequently encountered. Piping should

be of such proportion as to allow the free passage of all such articles. If a pipe should become clogged, it requires considerable time and effort to eliminate this trouble, and it is frequently necessary to tear the pipe out. To insure against this condition, pipes should be of not less than 2½ inches inside diameter, as this size pipe admits the passage of all articles admitted by the vacuum tool. Large pipe offers less resistance to the flow of air than does the small. Resistance in the pipe must be met with in the vacuum cleaning machine, and increased friction means increased power to overcome it, making the cost of operation excessively high when small pipes are installed.

In any cleaning machine, simplicity is one of the prime requisites. A machine is required for residences, apartment houses, and the like, that requires but a minimum of attention. Complexity of a system means much attention, and to neglect it, means a ruined machine. The housewife or the janitor should not be called upon to take care of a machine that should require the services of an engineer. You would not call on the woman of the house or the janitor to run an air compressor usually found in shops, and yet, a large number of machines on the market are practically air compressing in design and require equally as much attention. Wherever one meets complexity of design there is always mechanical friction, reciprocating parts and sliding contacts, all of which require the best of attention, and all of which offer resistance, meaning additional expenditure in power to overcome them. Wherever there is metallic contact in moving parts there is wear on these parts, which means that the complex vacuum cleaning machine is not only an expense to operate, requiring much attention and care, but is necessarily short-lived.

Extreme care should be exercised in purchasing your system. The machine with the least parts, with the largest air displacement, is an economical one to purchase. It not only requires but little attention, but is cheaper in oper-



Detail of "Tuec" Stationary Cleaner and Typical Installation; made by United Electric Co., 30 Hurford St., Canton, Ohio.

ation and maintenance. In choosing a machine capable of displacing large quantities of air, it not only serves as the best possible cleaner agent, but it acts in the capacity of a ventilator, as it takes out of the room all the dust-laden, impure air. Large air quantities permit of the use of large-sized tools, resulting in more speedy and thorough cleaning, the picking up of larger articles, doing away with the hardship of pushing a smaller tool many times over a surface to be cleaned.

In selecting a stationary cleaner, the builder will do well to investigate carefully the standing of the manufacturer. There has been innumerable disappointments due to assembled cleaning machines. Many manufacturers endeavor to buy their motors from one factory, various parts from others, assembling them and marketing them as their own brands. The trouble with these systems has been that the motors were not properly designed for the work they were called upon to do, often being entirely inadequate, breaking down under the strain of service. To be satisfactory, stationary cleaning machines should be built according to a definite engineering principle, with particular reference to the fitness of every part for the work it will be called upon to do.

Architects and engineers give a marked preference to the single impeller centrifugal fan-type machine, because if properly installed and connected with all parts of the building by pipes of ample diameter, the largest possible volume of air is displaced, and as the engineering principle involved permits of extreme simplicity, which is the greatest of engineering virtues, it is best adapted for all around cleaning purposes.

The home owner, as well as the builder, should have little difficulty in securing the expert engineering service of the manufacturer of a high-grade and thoroughly reliable cleaning system, and this service should always be availed of before actually making installation.



Cadillac—Where the Hardest Maple Grows

The Cadillac district, in northern Michigan is noted for the hardness and toughness of its maple. It must be something about the climate; perhaps it is the severity of the winters that produces timber of such compact fiber—anyway, Cadillac maple has become famous all over the country. As a flooring material, it is preferred.

It has been said that the Cadillac district supplies the very best maple in the world. As maple flooring, this wood is supreme. Superior manufacturing methods and careful grading have made the most of the inborn excellencies of the wood itself. Durability, even under heavy wear, and beauty of appearance have made the maple flooring from the Cadillac district the choice of leading architects and builders for schools, churches, hospitals, factories and store buildings. In every modern residence also, considerable maple flooring is being used. Those who know, insist on maple flooring from the Cadillac district for all this work.

There are several dependable brands of flooring produced by the best lumber

manufacturers at Cadillac, Mich. Prominent among these is the "Cummer" brand of maple flooring, produced by Cummer-Diggins Company; "Electric" hard-wood flooring, produced by Cobbs and Mitchell, Inc.; and "Rockhard" maple flooring, produced by Mitchell Brothers Company.

Write to any one or all of these reliable concerns and ask about maple flooring. They have some interesting and valuable booklets on this subject.

In addition to carrying the above maple flooring brands, each of these lumber concerns produces beech and birch flooring and finishing lumber. For many uses these woods are to be preferred, and it is highly worth while for carpenters and builders to get better acquainted with them.



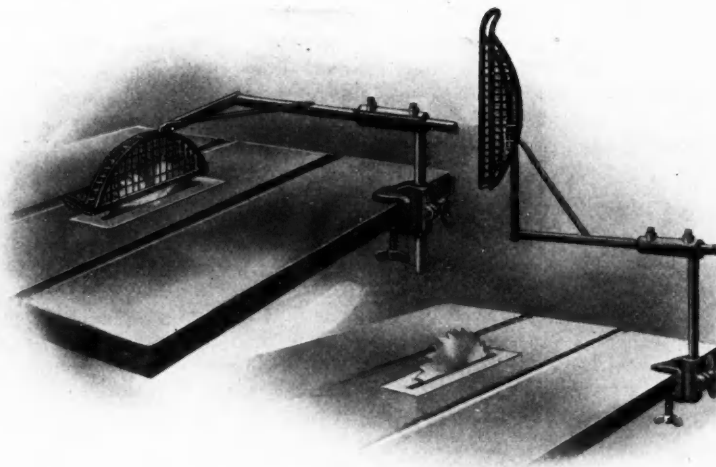
Saw Guards

"An ounce of prevention" is a pretty good investment. This is especially true in connection with the saw table; even the best operators having such accidents as "kick backs" and now and then a finger lost.

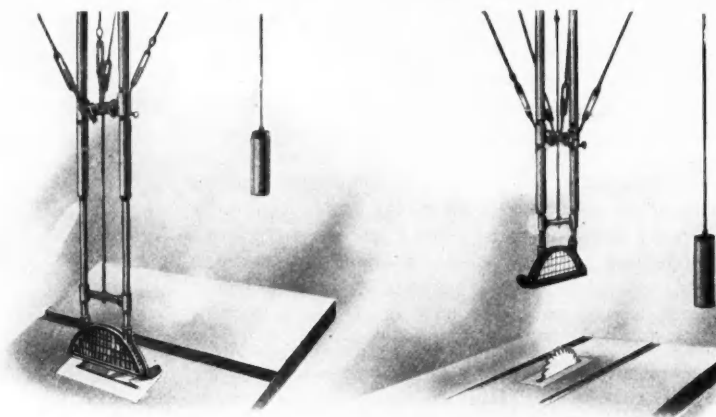
Huther Bros. Saw Mfg. Co., Rochester, N. Y., have a line of saw guards that meet all the requirements of a perfect safety device, and at the same time can be easily swung out of the way when so desired.

There are two styles—table attached and ceiling suspended, as shown in cut.

A line to Huther Bros., Rochester, N. Y., will bring full particulars and their latest illustrated catalog.



Huther Table-Attached Saw Guard.



Huther Ceiling-Attached Saw Guard.

Beauty of Northern Woods Demonstrated

An object lesson in desirability of birch, beech, maple, elm, bass, tamarack, etc., for building use is on display at the Forest Products Exposition (Chicago, Coliseum, April 30 to May 9). You will have an opportunity to see Cadillac Quality interior finish and floors in the Michigan-Wisconsin Bungalow.

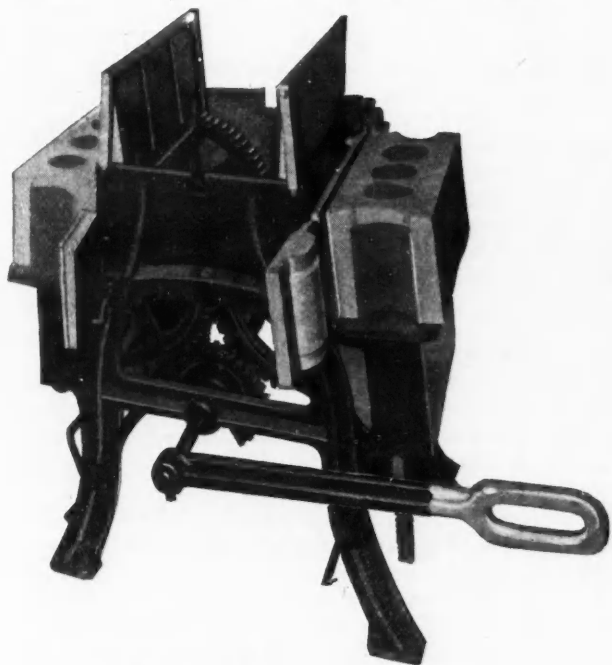
The Northern Hemlock and Wood Manufacturers' Association and the Michigan Hardwood Manufacturers' Association have combined their exhibit and have a bungalow trimmed with bass wood siding, and northern white cedar shingles; the living room finished in Cadillac grey elm, stained early English, with red clear beech flooring; the dining room in birch with red birch floor; the bedroom, white maple, natural finish, with bird's-eye flooring; bathroom in white birch, with white maple flooring; Cadillac grey elm, natural color, in kitchen, with unselected maple floor, and the porch floor and ceiling of tamarack.



Double Speed Cement Machinery

A machine that makes two blocks grow where only one block grew before—that is, that turns out two concrete blocks where other machines of the same size turn out only one—has been perfected by the Northwestern Distributing Company, Sioux City, Iowa. The principal on which the machine works is so simple that you wonder why nobody ever thought of it before.

Study the illustration and you will see how the two blocks, perfect in form, are delivered at each side of the machine. This shows the machine open and ready to deliver the blocks.



This Machine Makes Two Blocks at One Operation.

In its closed position, the molds for the two blocks are right together and it is just about as easy to fill them with the concrete and tamp them as it is to fill and tamp a single mold in a one-block machine.

In addition to this "Double Speed" block machine, the Northwestern Distributing Company have also a brick machine designed along the same lines. It produces sixteen bricks at one operation. One throw of the lever delivers eight perfect bricks on each side of the machine.

These "Double Speed" machines are about the newest development in the concrete mold field. They were on exhibition

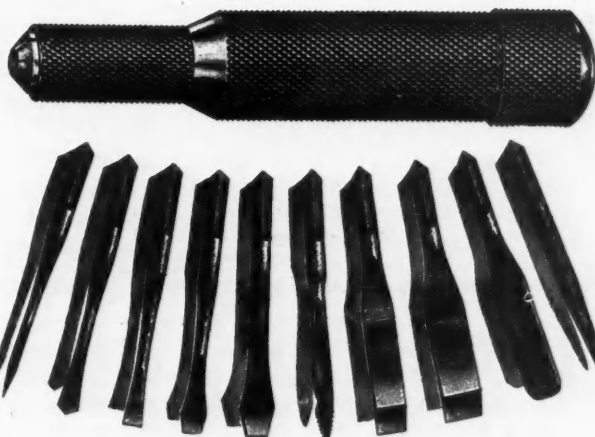
for the first time at the Chicago Cement Show and won the immediate approval of block men.

The Northwestern Distributing Company, Sioux City, Iowa, request builders and lumber dealers to send for their descriptive literature and special proposition.



New Millers Falls Tool Holder

The illustration shows tool holder No. 600, which is one of the new products of the Millers Falls Company, 28 Warren Street, New York City. It is a nickeled, all steel handle,



Holder and Ten Tools Offered by the Millers Falls Co.

with hollow receptacle holding ten tools, as shown. The chuck has hardened steel jaws which clamp with vise-like grip upon the tool shanks.

This is a very practical and useful pocket tool. Length of handle, 5 inches. Length of tools, 2¼ inches. The tools are made of best steel carefully tempered.



Motor Trucks Win Out for Contractors

The extent to which motor trucks are being purchased by general contractors, building supply companies and material dealers is shown in the sale of twelve White trucks to five well known Cleveland concerns. Ten of the twelve trucks are built with power dumping bodies, a fact which is regarded as recognition of the efficiency of the dump truck in these lines of business.

The purchasers were Andrew Dall & Son, general contractors, who bought a 5-ton platform dump truck; the Cuyahoga Builders' Supply Company, who bought a 5-ton truck, with standard body; C. C. Parsons, who bought two 5-ton trucks to haul material for the Euclid Brick and Supply Company; the Cleveland Motor Trucking Company, who bought four 5-ton dump trucks for contract hauling; and the Brooks-Norton Motor Sales Company, who bought four 5-ton trucks for hauling and dumping brick for the Farr Brick Company.

The simultaneous purchase of twelve trucks by five companies in one city, closely following the installation of nine identical trucks by the Brooklyn Alcatraz Asphalt Company two weeks before, not only endorses White construction, but forecasts a steady adoption of dump trucks in these three great lines of business, now that the efficiency of the trucks has been proved in legitimate service.

Actual experience has worn away all reticence and the evidence of good results cannot be controverted. Contractors and material dealers were among the first to use motor trucks successfully and they have learned to appreciate that economies in hauling are quite as vital as economies in any other branch of their business. As in many other kinds of hauling, it has been proved that economies run up as idle

minutes are kept down, the result being that nearly all owners of motor trucks have tried to eliminate the principal losses in time by developing their loading facilities to the most efficient point. The perfection of the power dump truck, with its almost limitless capacity for work, has led to greater use of mechanical devices for loading, and when dump trucks are not delayed at loading points, every minute of their service is productive.

As an illustration of what has been done, Ralph Blass, a San Francisco contractor, built an inclined driveway to a stage two stories above street level in order that his trucks could run up on the stays and dump right into a mixer. The Cleveland Macadam Company, who have operated a White dump truck for over two years, made an actual profit of \$500 per month during a period of four and one-half months, when it was possible to load entirely from a chute and keep the truck operating to the limit of its capacity.

The Akron Brick and Tile Company operates a White dump truck which actually earned \$250 per month during the active months of the clay products industry, and when the earnings were compared with team rates, the truck showed a net profit of \$475 to \$500 per month.

An example of unusual work with dump trucks is furnished by the Warren Brothers Company, of Boston, who operate six White dump trucks. This company hauls bitulithic road surfacing material composed of crushed stone, gravel and fluid asphalt. This mixture is loaded at a temperature of 300 degrees, hauled to the job and dumped before it has had a chance to cool and harden. Reliability in dumping is, therefore, particularly vital. Their trucks reduced hauling expenses by 33½ per cent the first year. Their horses were sold and their wagons were adapted to the use of trailers.

Where yard delays have been eliminated by the use of cranes, hoppers, clams, chutes, etc., the owners of White power dump trucks have saved substantial sums, to say nothing of their extended radius of hauling.



Ventilate the Attic

Builders will be interested in the accompanying illustration, which shows six 14-inch "Royal" ventilators on the roofs of as many houses in Overbrook, a suburb of Philadelphia, Pa. By the use of these ventilators the attics of these homes are kept cool in summer and the investment has paid for itself many times over. The attic has always been recognized as a hot, stuffy place in summer, simply because proper ventilation has not been provided.



Suburban Homes Ventilated with "Royal" Ventilators.

Royal ventilators are guaranteed by their makers to exhaust more air per minute than any other; in other words, the manufacturers claim that a less number of Royal ventilators are required to accomplish the same results than any other make. They are made by the Royal Ventilator Company, 417 Locust Street, Philadelphia, Pa. Write them for their new catalog.

Barn Implement Makers Present a "How" Book—A Help for Contractors

Something new for contractors and architects—a "HOW" Book.

This is the rather suggestive title of a neat vest-pocket volume just presented the trade by Hunt, Helm, Ferris & Co., barn equipment manufacturers of Harvard, Ill.

This book has a twofold purpose; first, to render a real service to contractors and architects; secondly, to more thoroughly acquaint these two most influential classes with the various products of the manufacturers. Incidentally it vividly illustrates the intensity of modern merchandising methods and the eagerness with which aggressive manufacturers are seeking new angles of approach.

The volume is a book of handy ready reference and is divided into two distinct parts, each of which is carefully classified and indexed.

The first part is devoted exclusively to the problems of the contractor and architect, constituting a memory-jogger on time-saving short cuts in computation, that may have been forgotten. It contains a large amount of reference data including estimates, tables, etc., much of which was compiled from the latest records of the Radford Architectural Company, Chicago, a leading authority on such subjects.

The second part of the "HOW" Book is essentially a catalogue of Star goods, though so boiled down and condensed as to appeal to the man who has little time to read catalogs. This section describes briefly the exclusive features of the Star line and sets forth salient reasons why contractors and architects should become identified with, and wherever possible, specify modern sanitary barn equipment like that bearing the Star trademark. This section includes in the back the blue print floor plan of a modern barn.

One of the most pleasing features of the "HOW" Book is the spirit of helpfulness that seems to dominate it. "If we give you the service, our sales will take care of themselves" is the unwritten sentiment that prevails throughout.

Aside from its many valuable suggestions on modern barn building, the "HOW" Book as a reference book alone, is said to be well worth having.

The manufacturers are glad to send a copy to any contractor or architect in exchange for the names of farmers who are going to build new barns or remodel old ones.



Disston Athletic Association

The organization of an athletic association connected with the works of Henry Disston & Sons, which has been contemplated for some time, now seems to be an assured fact. At a meeting of representatives of the firm and a committee of the employees held recently, it was decided to push the plans forward as rapidly as possible, so that athletic teams representing the firm may be organized in time to take part in the field sports of the coming summer season.

The idea is to have an organization similar to those connected with other large corporations; its object being to encourage increased interest in sports, and give the employees an opportunity for recreation, as well as to establish a better feeling between employer and employee.

During the coming base ball season, teams representing the several departments of the works will be organized, and inter-department games will be played during the week. From these teams will be picked the best players to form a team to represent Henry Disston & Sons in the sporting world, who will meet all comers in Saturday games.

In addition to baseball, other sports will be encouraged, such as foot ball, basket ball, running, jumping, etc. All employees of the firm, both male and female, will be eligible for membership. A junior branch will also be organized for the boys.



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Just figure that over; a *hundred thousand* delighted customers, some in every state and county, testify to money saved and satisfaction given by Gordon-Van Tine. This has been going on for years. All selling is done by mail, 2c stamps take the place of high-priced men. Figure it over and then write for the wonderful catalog of 5,000 bargains in building material, hardware, paints, roofings, lumber.

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Storg Window Screen53
Barn Paint, per gal. . .	.75
House Paint, per gal. . .	1.17
Floor Paint, per gal. . .	1.09
Floor Varnish, per gal. . .	1.50

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¼-Round, pr. 100 ft. . .	\$.30
Door Stops, "33
Window Casing " . . .	1.80
Oak Flooring "80
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Good Lock Set23
Elect. Bell Sets, complete95
Hay Carrier, Best . . .	3.65

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Judge a Machine by Its Engine

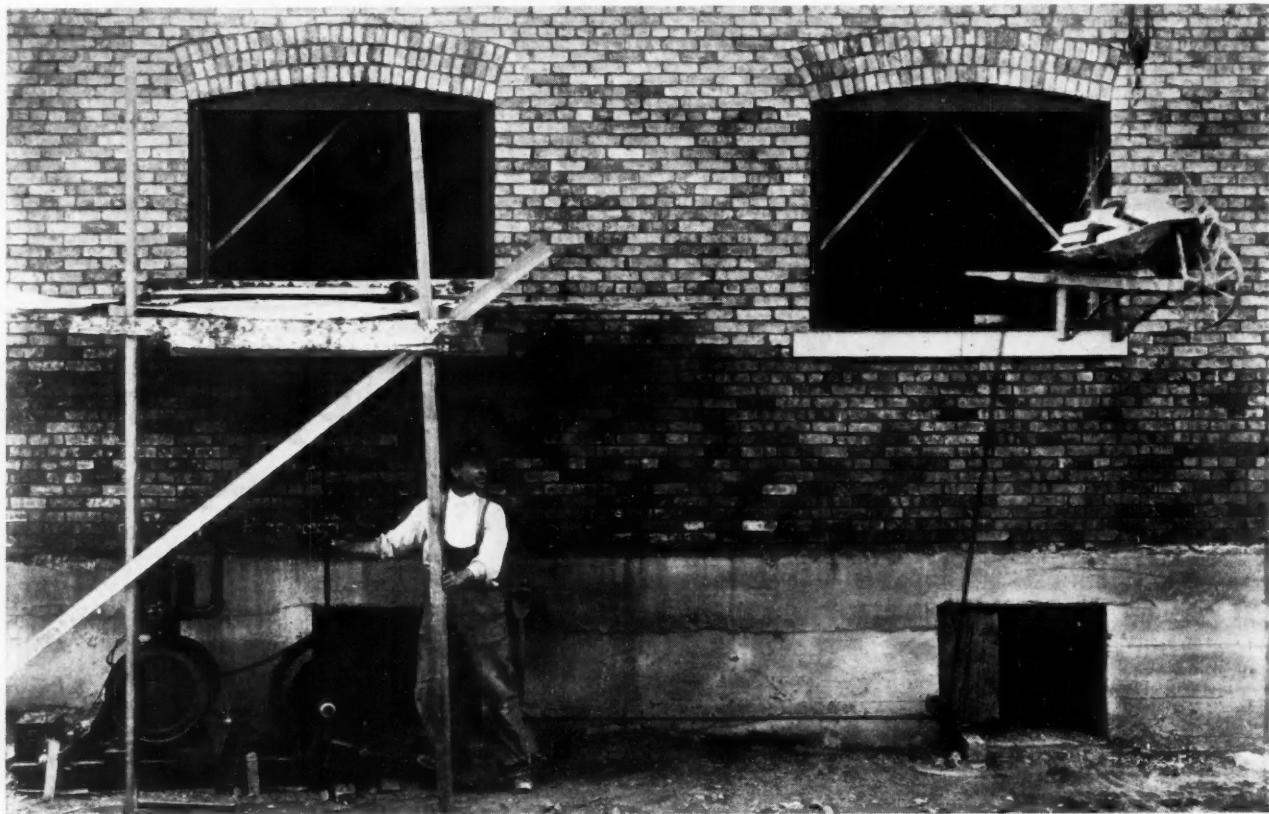
Experience shows that a contractor should investigate very carefully the power factor in the machine he buys. A concrete mixer or any other piece of power equipment is a combination machine. The combination consists of the gasoline engine and the concrete mixer, or the gasoline engine and hoisting apparatus or gasoline engine and woodworking machine.

Like a chain that is no stronger than its weakest link, this machinery is no better than the power furnished. If the engine is of poor design, made from cheap material, by cheap help, it will be a constant source of annoyance and expense and the contractor will be the loser.

There are cheap gasoline engines on the market and there is a temptation in one's effort to hold down the cost of a machine to think one of these cheap engines is good enough. This is absolutely wrong—a short-sighted way to figure. One may have a mixer or a good saw table; yet, if his engine fails him, he might as well have no machine at all.

For this reason we cannot urge our readers too strongly to be very critical of the power of any equipment they are considering. Invest a little more, if necessary, but by all means get a reliable engine designed and built for the work it will have to do.

The Original Gas Engine Company have prepared a little folder, entitled "Ideal Power," that will interest every one



Small Ideal Engine Mounted on Skids with Hoisting Drum, Working Improvised Material Hoist on a Brick Flat Building Job at Lansing, Michigan. The Variety of Uses to which a Builder Can Put a Gasoline Engine is Numberless.

We honestly believe that in the past contractors have lost more money through buying machinery equipped with poor gasoline engines than because of poorly designed or constructed mixing apparatus or woodworker.

These points were emphasized recently by Mr. C. S. Smith, sales manager of the Original Gas Engine Company, 630 Kalamazoo Street, East Lansing, Mich. He brought out the fact that their Improved Ideal engine has been designed especially to stand the drubbing that contractors' equipment is sure to get. This engine is being supplied to some of the leading manufacturers of concrete mixers and it is easy now for contractors to have machines provided with this power.

Those who have watched the developments in concrete mixers during the past six or seven years know of the wonderful improvements that have been made. Looking at the mixers on exhibition at this year's Cement Show, for instance, and comparing them with what was exhibited in 1907, one has to give the mixer people credit for what they have done to improve their machines. The point made by Mr. Smith is that a contractor can feel confident of getting a good mixer, provided he sees to it that the power is right.

who is thinking of buying an engine or any form of power equipment.



Government Test Proves Cut Nails Best

The building public has long realized that the old-fashioned cut nail is the best for durability, strength and holding power; and there has been a decided movement on the part of carpenters and builders to return again to the iron cut nails. An interesting test of the holding power of cut and wire nails was made some time ago by U. S. Army Engineers at the U. S. Arsenal, Watertown, Mass. Major J. W. Riley, Ordnance Department of the U. S. Army, was the commanding officer in charge, and the results were computed and arranged by Prof Wm. H. Burr, C. E., and reported by him as follows:

Number of nails tested, cut and wire, equal weights and lengths	1,160
Number of sizes of nails tested.....	40
Lengths of nails tested.....	1 $\frac{1}{8}$ to 6 inches
Styles of nails tested.....	Common, finishing, box and flooring

Safe Lighting System for Country Homes



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description of my*

Private Lighting Plants that are guaranteed **ABSOLUTELY SAFE and ECONOMICAL**

for country homes, churches, school houses, and villages. It is the safest, most convenient, most reliable, most lasting and cheapest system on the market today. Our engineering department of fourteen years' experience and our expert mechanics are at your service.

No home is complete without first-class lights. Investigation makes you big money and it costs you nothing to investigate. Add an extra profit to every building you erect. Install my Private Lighting Plant. The home owner has confidence in you. Once you investigate this **big success**, you will see how easy it is to get the contract and land the profits.

Easy to Sell. Easy to Install.
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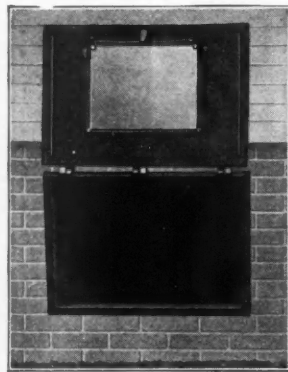
Number of series of tests, 20 nails in each series.....58
 Number of series in which cut nails excelled.....58
 Number of series in which wire nails excelled.....None
 Average superiority of cut nails in spruce wood.....60.50%
 Average superiority of cut nails in pine wood.....99.93%
 General average superiority of cut nails over wire nails, 72.74%

These tests show that if you do a job with wire nails, you should drive 172 wire nails where you would use 100 cut nails.

When you go to the hardware store and ask for *nails*, they give you steel wire nails. Judging from the results of the above test, it will pay you to be more particular, and instead of asking for *nails*, ask for *iron cut nails*. The "Anchor Brand" of cut nails, both black and galvanized, are made by the E. & G. Brooke Iron Company, Birdsboro, Pa. Write them for interesting information about nails.

The Waterloo Coal Chute

The Waterloo coal chute is designed to be placed in the foundation wall to protect the foundation and side of the house when coal is being delivered. The door of this chute locks automatically. It can only be opened from the inside, and so is absolutely burglar proof. The door is made with or without glass, as desired. When glass is used, it is extra heavy with wire center.



Coal Chute, Open.

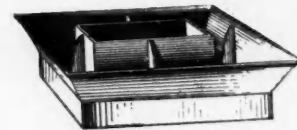
The special feature of this chute is that the door is made with an oval beaded edge, which, when closed, extends

past the opening of the frame and makes a tight joint; thus keeping the inside of the chute perfectly dry.

The illustration shows the chute open. The door protects the side of the house and a heavy piece of steel, which automatically swings down over the glass, keeps it from being broken. When the chute door is closed, this steel protector falls out of the way and lets light into the cellar.

This chute is manufactured by the Waterloo Register Company, 114 Rath Street, Waterloo, Iowa. Write them for full particulars of this and other cast-iron building specialties.

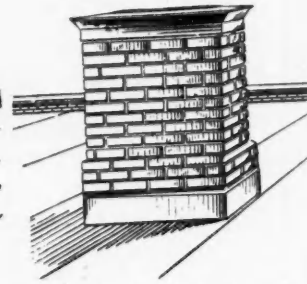
One of the interesting cast-iron building specialties which these people offer, is the cast-iron chimney top protector. This is placed on top of the chimney and is filled in level with cement mortar. It makes a dressy finish, a sure protection for the chimney, and the cost is reasonable.



Cast Iron Chimney Top Protector



The Ordinary Chimney's Fate



Chimney Complete - It Won't Fall Down.

Chimney Top Protector—Why and How It Is Used.

Quality Is Economy

*Murphy Q and E Enamel
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- It is perfectly adapted to plaster and wood and metal.
- It is completely reliable on inside and outside work.
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- It has the hardness which *retains* an elegant finish.
- It has the elasticity which makes it durable and crackproof.
- It *flows* and *spreads itself* like a fine finishing varnish.
- It has big, extra covering power.

Q and E Enamel Undercoating is very firm and hard and smooth: does not show brush marks; does not discolor.

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Begin doubling YOUR profits on your Spring jobs

Are you going to pass by the chance to get better lumber at a big saving, or are you going to give us a chance to prove it's true?

For two years, we've told American Carpenter and Builder readers the way to bigger profits and satisfied customers. Many have given us a chance to prove it, and have made a lot of extra money. We've sold 15 carloads this Spring to Herman Eynck of Freeport, Minn.; 9 carloads to Charles Nelson of Windsor, N. D., and hundreds of cars to other contractors. We told you last month how we saved Andrew Espey of Ismay, Mont., \$700.00 on materials for a 7-room house. We can do the same for you.

Send material list today, for delivered, freight-paid price—quick service

Our estimating force doubled We've doubled, yes trebled, our estimating force for the Spring demand. Every man on this force knows the contracting business. All work is checked three times. There will be no mistakes, nothing forgotten. Our price will cover everything. We'll telegraph it... our expense if you ask.

Quality lumber—We guarantee it We'll sell you old-growth yellow fir, the wood that's so strong that railroads have used it to build 3000 miles of trestle bridges, so beautiful that big hotels use it for interior trim, and red cedar, the everlasting covering for any house.

Quick shipment Speedy delivery Our mills have been preparing, for months, for the Spring demand. We have ready a tremendous stock of fine, new lumber—clean as a hound's tooth, accurately manufactured, and sold absolutely true to grade. We're ready to fill orders for any sort of millwork, and you've never seen anywhere such fine millwork as this. We'll load your shipment

in double-quick time, and while it's on the road, have our expert railroad man crowd it to your destination.

Send ten cents for Plan Book

Here's a book of practical plans for folks who work for their money. The kind of houses you can sell. Complete blue prints of any plan for \$2. Send 10 cents for this book, today.

Send four cents for Barn Folder

If you want to know the latest ideas in sensible barns, for modern farmers, get this book. Every barn planned by a real farmer. Complete blue prints for \$2. Send 4 cents for folder, today.

Make money selling silos

Every farmer wants a silo—thousands are being sold. Get Hewitt-Lea-Funck Company's special silo proposition for contractors. Make money selling the silo, and more money putting it up.

Seattle Silos

have patented hinge-doors that are so rigged that door bars and bars connecting ends of hoops form a strong ladder from which hoops are tightened. Silo is made of one-piece fir staves. Prices very low. We tell you all about it in our special silo literature for contractors.

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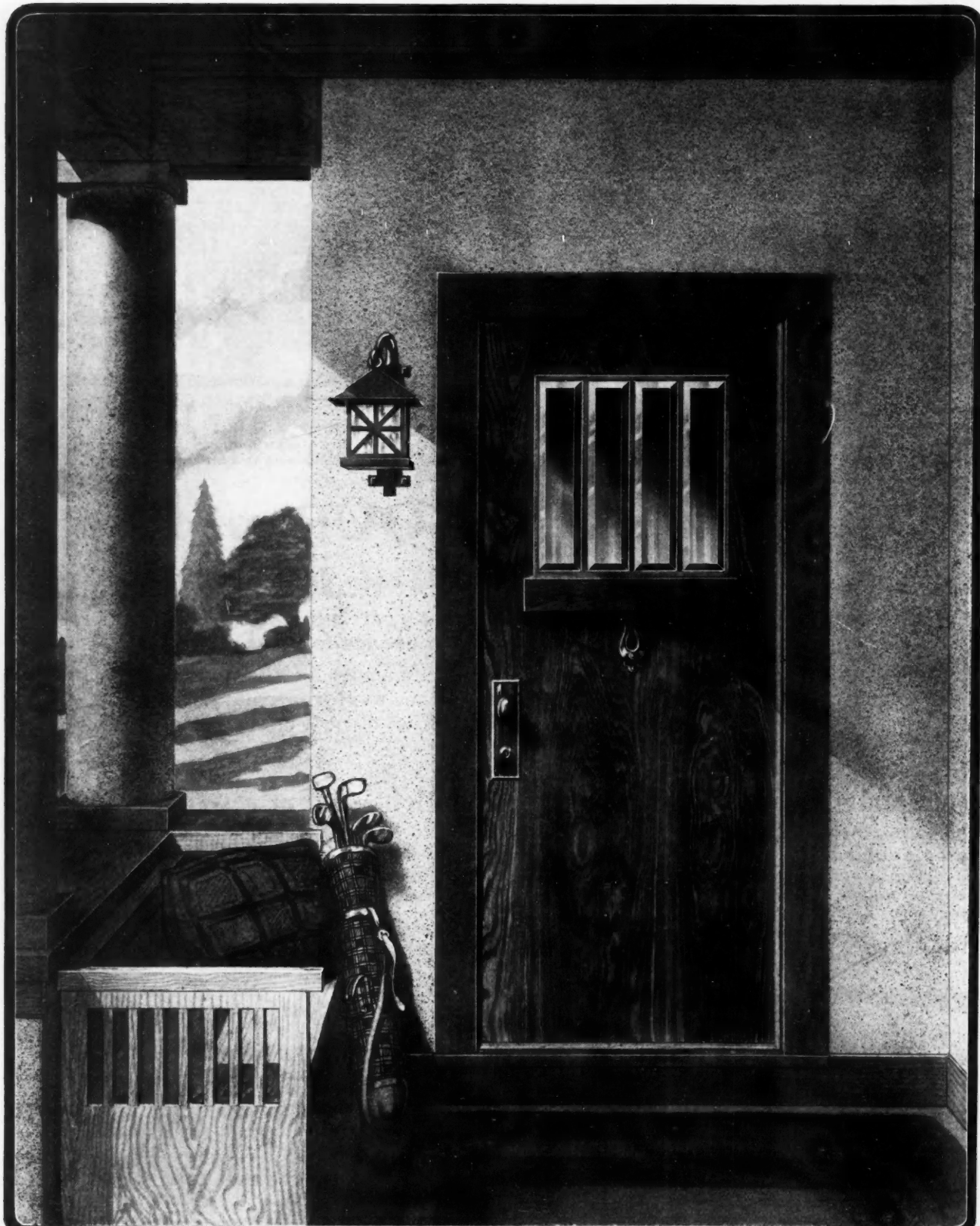
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MORGAN

Our book "The Door Beautiful" will supply you with all the information about Morgan Doors. Write us for a free copy today. Architects see Sweet's Index, Pages 972 and 973.

FACTORY:
Morgan Company, Oshkosh, Wis.

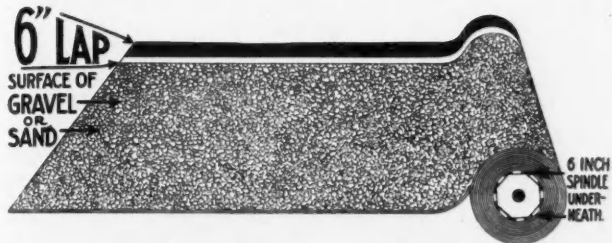
MORGAN SASH & DOOR COMPANY
Dept. C-28 - CHICAGO, U. S. A.

DISTRIBUTED:
Morgan Millwork Co., Baltimore, Md.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder

"Protection Brand" Asphalt Roofing

The Asphalt Ready Roofing Company, 9 Church Street, New York City, have developed a very high grade asphalt roll roofing which is laid without a single nail-head exposed to the weather. Their patented 6-inch lap makes every joint absolutely tight. Each roll of this roofing has an underlap



"Protection Brand" Showing Patented "Side Lap."

of 6 inches, which runs the full length of the roll on one side and the full width on one end. This lap is tapered gradually from a considerable thickness, where the section is strongly re-enforced for nailing purposes down to one layer of asphalt felt. In laying, all nails are driven through this 6-inch under-lap, while the overlapping edge of the next roll, instead of being nailed, is firmly welded down with their asphalt cement which is furnished with the roofing material.

There is no chance for water to get through the joints of the roofing. The directions packed with each roll are simple and easily understood.

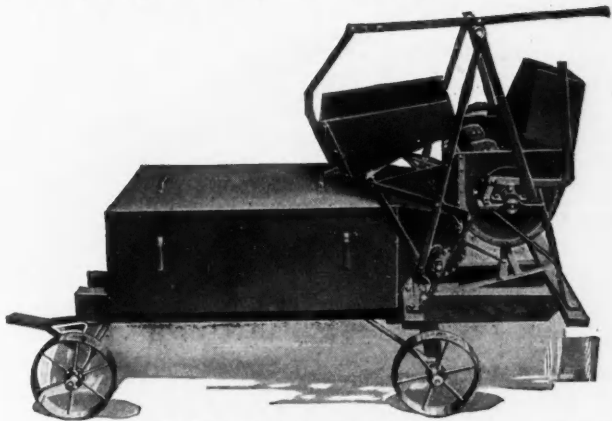
This "Protection Brand" roofing comes in two finishes or coatings—sand or gravel surface. Either makes a very attractive looking roof.

It has been the aim of the Asphalt Ready Roofing Company to make "Protection Brand" the leading roofing of today. They have just issued a very instructive little 32-page illustrated booklet concerning this, entitled "A Tight Roof." They will gladly send copies of this book, together with samples of "Protection Brand" roofing, illustrating this unusually effective joint, to any one of our readers who will write them.



"Bull Frog" Mixer

The Farmers Supply Company, Janesville, Iowa, are offering the small portable concrete mixer illustrated. They call it the "Bull Frog." It is equipped with 1¾ H. P. water cooled engine. Has a friction clutch drive. The engine and all gearing are entirely under cover. The Farmers Supply



Handy Size Mixer for Builders.

Company back up their machines with an absolute guarantee of satisfaction or money refunded. Their mixers seem to be strong, well-built machines that will give honest value. They are furnished on trucks as in the illustration, and also on skids. Write for complete description and price.

You will get **SPECIAL ATTENTION** if you tell Advertisers you read **American Carpenter and Builder**.

Birch Bungalows

BIRCH is the Dependable Wood for all interior work, because it is hard, durable and wear-resistant, does not make trouble by warping and shrinking. has a beautiful figure and takes every shade of stain or white enamel easily and permanently. Combined with all these desirable qualities, **Birch** is so reasonable in price that to specify it, is true economy.

A full-sized, four-room Bungalow of Michigan and Wisconsin woods will be a prominent exhibit at The Forest Products Exposition (Space B-10) at the

Coliseum in Chicago

April 30—May 9

and the

Grand Central Palace in New York
May 21—30

A careful study of the beautiful effects obtained with these woods will repay every architect, builder, or home owner, while of especial value will be the opportunity to see Birch Trim, Paneling and Flooring Displayed in harmonious combination.

You can't afford to miss this. If you can arrange to visit the Exposition, write at once for an admission ticket (paid for by us), stating whether you want it for the New York or Chicago Show, and, if possible, what day you wish to attend.

The Northern Hemlock & Hardwood Manufacturers Association

Dept. C WAUSAU, WISCONSIN

P. S.—Our illustrated Birch Book, "C," and Stained Birch Panels will interest you. Send for them to-day.

Poetry Season Opens

To the Editor: Minneapolis, Minn.
 We enclose several verses written by Mr. Geo. W. Christie, Long Prairie, Minn., who some time ago purchased our heat regulator. He has entitled them the "Ode to the Thermostat." We believe they will be of interest to some of your readers.
 ANDREWS HEATING COMPANY.

ODE TO THE THERMOSTAT.

*What frees my mind from heating cares?
 What saves me needless trips downstairs
 To see how my old furnace fares?
 The Andrews Thermostat.*

*What saves me on the yearly toll
 That I am forced to pay for coal,
 A goodly portion of my roll?
 The Andrews Thermostat.*

*What without a nod or beck,
 Pulls up the draft, lets down the check,
 Lest I get chilly round the neck?
 The Andrews Thermostat.*

*And when too hot the breezes waft
 What servant with discerning craft
 Pulls up the check, lets down the draft?
 The Andrews Thermostat.*

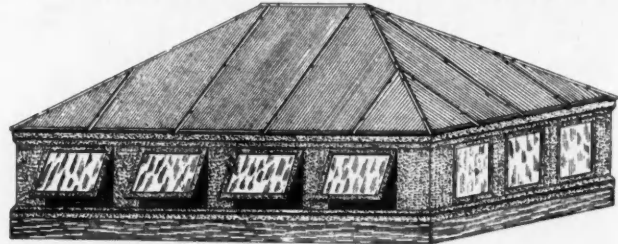
*Though worn by this world's bitter strife
 What's added years unto my life?
 I love it as I love my wife.
 The Andrews Thermostat.*

—George W. Christie, Long Prairie, Minn.

Hipped Turret, with Swinging Sash

A ventilator hipped skylight of very satisfactory design is illustrated. It is part of the big line of skylights offered by the Galesburg Sheet Metal Works, Galesburg, Ill. The sides are 24 inches high and all the windows on each side are made to open together by one operation. The operating device securely locks them open or closed. The roof panels are filled with either 3-16-inch ribbed glass or ¼-inch ribbed wire glass, as preferred.

The Galesburg Sheet Metal Works people have perfected a combination of ingenious joints that enables them to construct skylights on a "knocked down" principle, the advantage of which is obvious to any one who has anything to do



with the transportation of skylights. While their skylights are shipped in parts, these parts are so constructed that no particular skill is required to erect them and no special tools or soldering is needed. The glass is all cut to size and packed separately.

This hipped turret skylight is also furnished with stationary louvres instead of swinging sash. Other popular forms of skylights which the Galesburg Sheet Metal Works ship in the "knock down" are: Hipped with round ventilator; cone with center ventilator; double pitch skylight, both with and without end louvre ventilators; single pitch; plain hipped, etc. All of these come in sizes ranging from 2x2 feet to 6x14 feet.

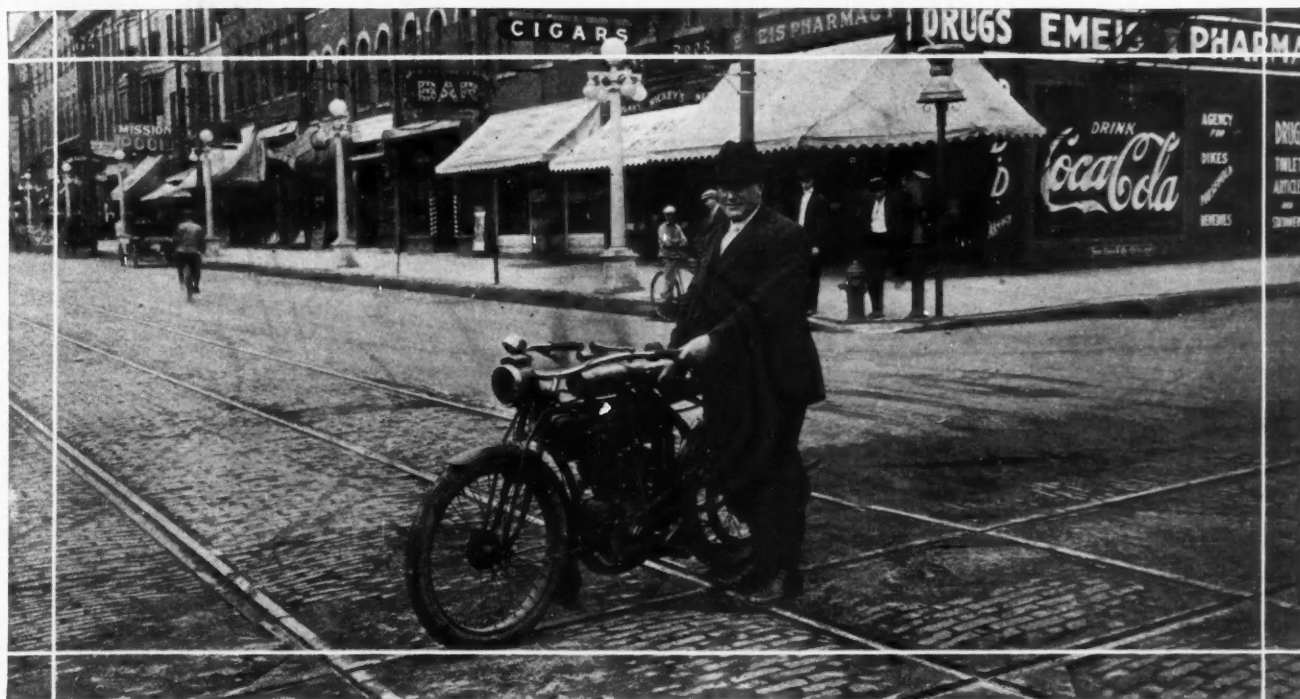


Trim and Base of Ivory white
 full enameled Terra Cotta
 made and set by the : : :

MIDLAND
 TERRA COTTA
 COMPANY

Lodge Hall and Store
 Building at Chicago, Ill.
 A. L. LEVY, ARCH'T

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



This Busy Contractor Smiles

Why? Because he has just returned from a trip 12 miles out in the country. Inside his pocket is a contract to build a new barn for Hen Weatherby, out on the Wayne Pike. Hen's barn burned down yesterday, and early this morning he telephoned in town to five contractors, because he had to have that barn finished in double-quick time.

Jones—the motorcycle contractor—realized the urgency of the occasion. He hopped on his Flying Merkel Motorcycle, and in less than 20 minutes he was out at Weatherby's, talking over the details. Did Jones get the contract? You can bet he did, and was busy preparing plans for the new barn before the other four contractors got started toward Weatherby's.

Here is Our Proposition

There are hundreds of ways you can use a Flying Merkel Motorcycle with immense profit to yourself in a business way. Think of the time saved—the extra territory you can cover in the pursuit of new business. Why, you can even handle five or six jobs at one time and still be able to supervise each one personally several times a day, even though they are a considerable distance apart.

The Flying Merkel is the logical machine for you to buy, because it is so well made in every detail that the upkeep cost amounts to nothing at all. This is fully explained in our latest catalog, sent free on request. If we have not an agent in your vicinity, ask us to explain our plan which will enable you to ride a Flying Merkel Motorcycle and double your present income by representing us.

The Miami Cycle & Manufacturing Co.

760 Hanover Street

--

MIDDLETOWN, OHIO

You will get **SPECIAL ATTENTION** if you tell Advertisers you read **American Carpenter and Builder**.

"Picka Pike"

No other Oilstone you ever saw will cut as fast or last as long as the famous



This is the Pike India Combination Oilstone (coarse and fine), proved to cut faster and last longer than any other.



PIKE INDIA OILSTONE

This has been proved by scientific tests in the Norton laboratory at Worcester, Mass.

But long-lasting and fast-cutting are not the only qualities that make Pike India the best oilstone any mechanic can carry in his kit. The sharp, diamond-like crystals of a Pike India Stone cut clean. In addition to this, think of the way a Pike India holds its shape year after year without grooving, making it possible for you always to get an even rubbing surface. That means square edged chisels and plane bits.

A Pike India is Almost Indestructible

Even dropping one won't break it, and if you keep it properly oiled, a Pike India will never glaze. Why buy slower, less desirable stones?

There is a Pike Stone for every sharpening purpose. To be sure of getting the very best stone for your use, insist on seeing the Pike trade mark. Pike Sharpening Stones are for sale by hardware and tool dealers everywhere. "PICK A PIKE."

A Sample Pike India Stone Free

Send 4c to cover packing and mailing and get a handy Pike India Vest Pocket Stone FREE. Just the thing for penknives, etc. Mention dealer's name and we'll also send you "How to Sharpen," best book ever written on the subject. Clears up many sharpening problems and tells how to select and care for oilstones. You'll be pleased. Write today.

Pike Peerless Tool Grinders

Hours of labor with a grindstone can be reduced to minutes by the use of this handy, easy-running, fast-cutting Pike Grinder. The Pike patented Bevel Guide enables anyone to grind a straight, true edge every time. Guaranteed forever against mechanical defects. Pike Peerless Junior (5-in. wheel), \$5; Senior (6-in. wheel), \$7; Foot Power, \$1.50 extra.

PIKE MANUFACTURING CO.

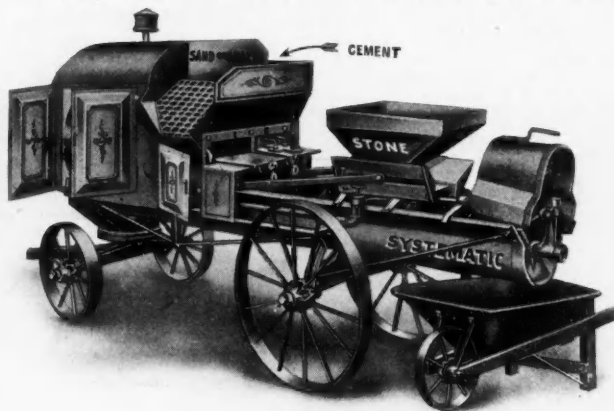
66 Main Street

Pike, New Hampshire

Brazilian Government Engineers Chose "Systematic"

The Cement Machinery Company, Jackson, Mich., have recently booked an order from the Brazilian government for one style "AAA" Systematic concrete mixer for immediate delivery for fort construction work at Rio de Janeiro, South America. We are informed that this is the fifth order within four years for concrete mixers that this company have received from the Brazilian government.

The Systematic concrete mixer is well-known to many



Cement Machinery Co. Mixer.

contractors here at home, the Cement Machinery Company being one of the pioneer manufacturers of concreting equipment. The illustration shows very clearly the arrangement and working parts of the "AAA" outfit. It has two hoppers; one for sand or gravel and the other for cement, and also a third hopper on the mixing barrel, for crushed stone. The proportioning device is said to be very accurate and never gives trouble.

The Systematic is a continuous mixer. The company also manufacture a full line of batch mixers. In fact, they make everything in concrete machinery and will gladly send their illustrated catalog, giving full specifications of their various machines to any of our readers interested. Address the Cement Machinery Company, Jackson, Mich.

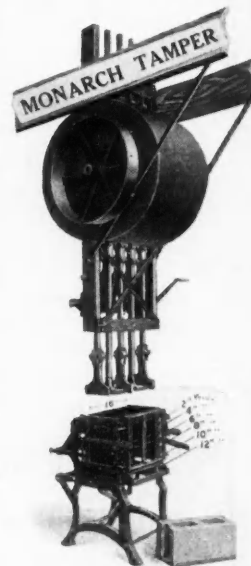


The Monarch Block Tamper

A block a minute is the normal capacity of the Monarch tamper, according to the statement of the Cement Machinery Company, Jackson, Mich., the manufacturers of this improved tamper. It can be fitted to any block or brick machine. It is very substantially built and is reasonable in price. The Monarch tamper makes use of a double cam and a double roller to lift each tamper evenly and let it down the same way.

This tamper outfit attracted a good deal of attention at the Chicago Cement Show. Its demonstration there showed that six to eight hundred blocks a day can be produced if the machine is run right along to its full capacity.

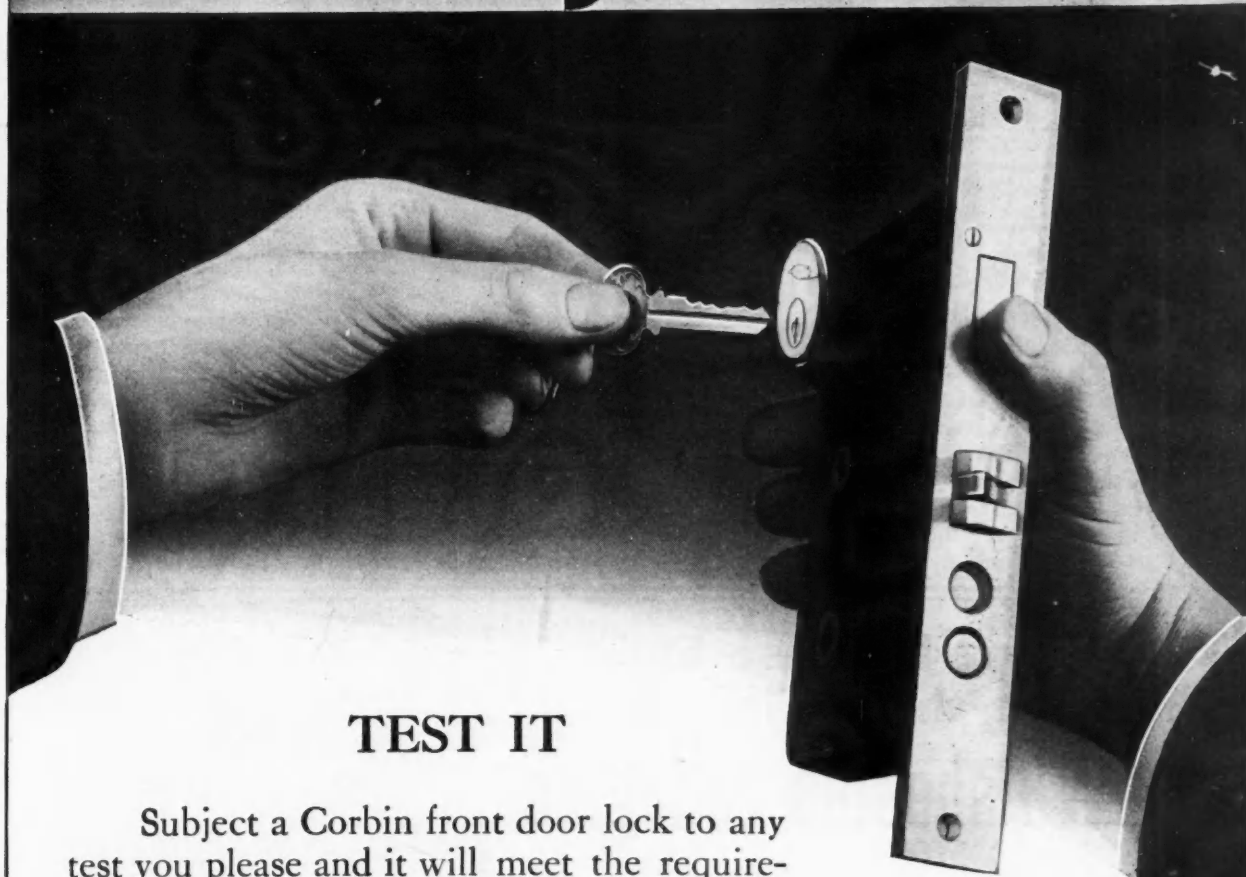
The block machine illustrated is the well-known Monarch face-down outfit, also made and sold by the Cement Machinery Company. Write for their interesting catalog of cement machinery.



Cement Machinery Co. Tamper and Block Machine.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Safety First



TEST IT

Subject a Corbin front door lock to any test you please and it will meet the requirements. The general strength and solidity; the easy latch bolt action; the quick, snappy response to the turning of the knob or key, and the little muscular effort required to operate; the small resistance in the use of the key, and the absence of sticking or binding; the sinuous key way and its safety against picking tools—all recommend the Corbin lock to architects and contractors who study their clients' interests. Any Corbin dealer will give you full details—or write us.

P. & F. CORBIN

The American Hardware Corporation Successor

NEW BRITAIN, CONNECTICUT

CHICAGO

NEW YORK

PHILADELPHIA

Anchors and Iron Shields

The U. S. Expansion Bolt Company, New York, Chicago and Boston, are bringing out a new line of one-piece composition anchors and two-part malleable iron shields, for use with wood screws from 1/8 inch to 1 1/2 inches in diameter. Two



Improved Lag Expansion Shield.

styles here illustrated, say the makers, "have gained universal favor amongst all those having fastenings to make to brick, stone, concrete and other masonry. They are simple of construction, quick and easy of application and long and strong



Improved Screw Anchor.

on holding power." The U. S. Company are rapidly extending their operations and expect shortly to open branch offices in all of the more important distributing points throughout the country. Their New York City office is at No. 48 Dey Street.



Choosing Your Tools

Good tools are the first thing necessary to good work and quick work. Tools with a reputation for quality and service will help build up your reputation of being a good mechanic.

The temper of a tool cannot be judged by simply looking at a tool. You must have some guarantee that the material is all it should be. It all shows up under the test of hard usage—when doing the tough and mean jobs. Take bits, for instance. Not only must they be tempered to cut the tough-

est materials, but they must be breakage proof. And a bit in the strong hands of the average mechanic is subjected to no little strain. If you are a bit-user, doubtless you have had many a bit snap off where the shank joins the twist. That's where some bits are weak. But there is said to be one brand of bits that will stand the severest tests—the Irwin bits.

These bits were the pioneers in the solid-center bit field, and since the days when Charley Irwin, a cross-roads blacksmith, turned them out, they have had great popularity and many imitators. If you want a bit you can absolutely rely upon, look for the word "Irwin" that's stamped on the shank of every genuine Irwin bit, and insist on getting that bit. That's your guarantee of "a bit of good stuff."



Builder's Convertible Level on Easy Terms

The A. S. Aloe Company, 513 Olive Street, St. Louis, Mo., are making a rather unusual offer on their architect's and Builder's convertible level. They say: "Rent this level ten months—then it's yours." In other words, the instrument is sold on easy monthly payments, which are practically the same as the rent usually charged for such an instrument.

This convertible level is a new improved model with all accessories included. It permits a much larger range of work than can be done with the ordinary architect's level. The construction is such that sights above and below the horizontal can be taken.

For taking vertical sights, the instrument is provided with standards which can be rigidly attached to the cross-bar with a large screw. The telescope, which is fitted with a permanent axis, rests on the top of the standards, and owing to its special construction, the instrument can be used for leveling while in this position, if desired.

The A. S. Aloe Company have been makers of high-grade

Roofing Expense Ends with the Laying of

J-M Asbestos Shingles

J-M Asbestos Shingles are absolutely fireproof. Fire can't even crack or warp them, because they are literally stone shingles—made of Asbestos Fibres and Portland cement, moulded under tremendous hydraulic pressure. J-M Asbestos Shingles never cost a cent for repairs. They last as long as the stone foundation of a building and never need paint or other protection. There isn't any climate under the sun that can have any destructive effect on them. Severe weather only hardens and toughens these shingles. J-M Asbestos Shingles make the most durable, attractive and economical roof that can be put on any building, from a cottage or bungalow to a princely mansion.

J-M Shingles are furnished in two styles—1/8 inch thick, with smooth edges, in colors of gray, Indian red, mottled brown and slate; and 1/4 inch thick with rough edges, in gray, mottled brown and Indian red.

Write our nearest Branch for Samples and Booklet.

H. W. JOHNS-MANVILLE CO.

Manufacturers of Ready Roofings; Shingles; Stucco; Pipe Coverings; Spark Plugs; Dry Batteries; Fire Extinguishers; Brake Lining; Fireproof Paint; Cold Water Paint and Sprayers, Etc.



Albany
Baltimore
Boston

Buffalo
Chicago
Cincinnati

Cleveland
Dallas
Detroit

Indianapolis
Kansas City
Los Angeles

Louisville
Milwaukee
Minneapolis

New Orleans
New York
Omaha

Philadelphia
Pittsburgh
San Francisco

Seattle
St. Louis
Syracuse

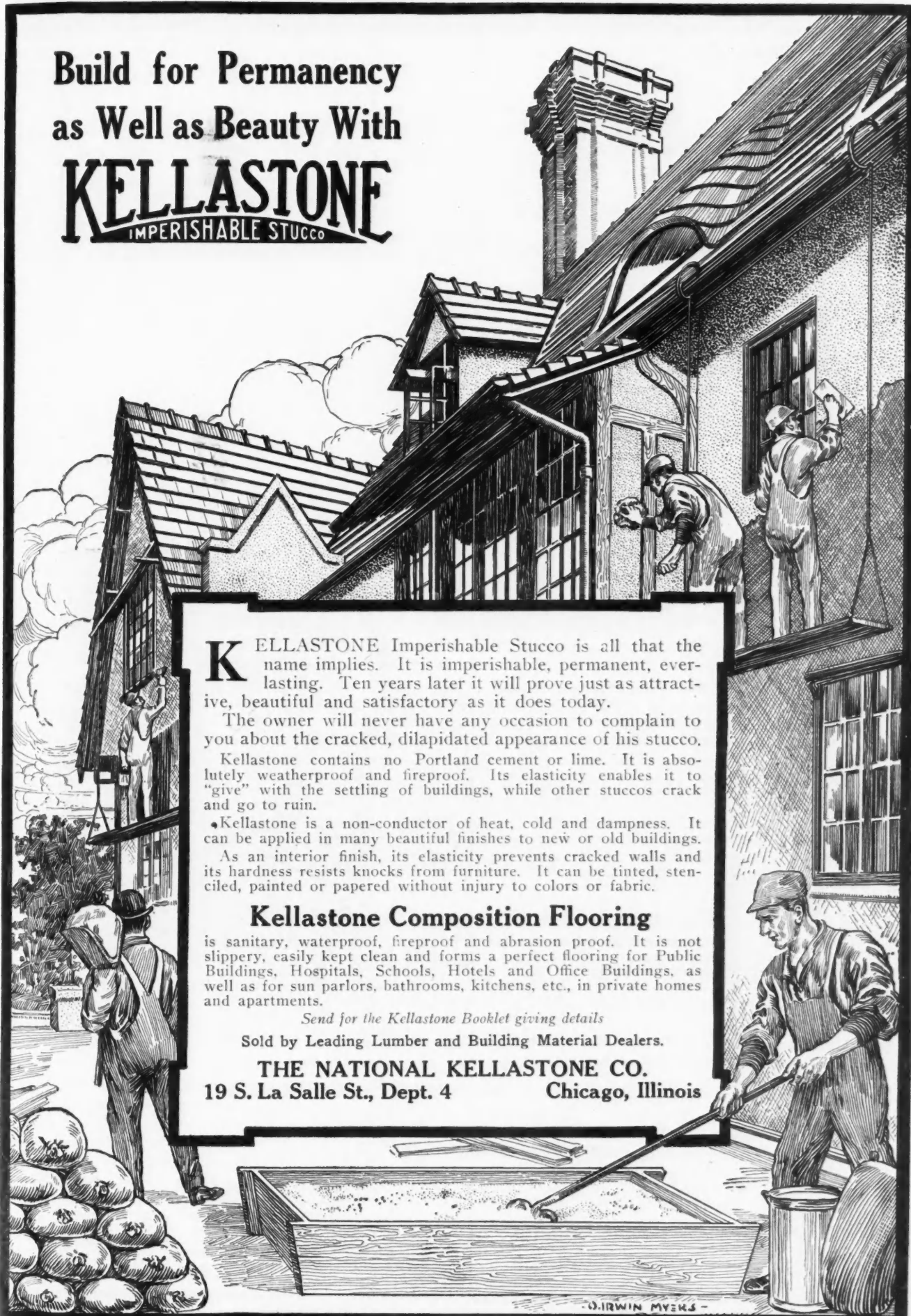
THE CANADIAN H. W. JOHNS-MANVILLE CO., Toronto, Montreal, Winnipeg, Vancouver. 1780



Residence of Mrs. Clara F. Taylor, De Land, Florida
Roofed with J-M Transite Asbestos Shingles.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Build for Permanency
as Well as Beauty With
KELLASTONE
IMPERISHABLE STUCCO



KELLASTONE Imperishable Stucco is all that the name implies. It is imperishable, permanent, everlasting. Ten years later it will prove just as attractive, beautiful and satisfactory as it does today.

The owner will never have any occasion to complain to you about the cracked, dilapidated appearance of his stucco.

Kellastone contains no Portland cement or lime. It is absolutely weatherproof and fireproof. Its elasticity enables it to "give" with the settling of buildings, while other stuccos crack and go to ruin.

•Kellastone is a non-conductor of heat, cold and dampness. It can be applied in many beautiful finishes to new or old buildings.

As an interior finish, its elasticity prevents cracked walls and its hardness resists knocks from furniture. It can be tinted, stenciled, painted or papered without injury to colors or fabric.

Kellastone Composition Flooring

is sanitary, waterproof, fireproof and abrasion proof. It is not slippery, easily kept clean and forms a perfect flooring for Public Buildings, Hospitals, Schools, Hotels and Office Buildings, as well as for sun parlors, bathrooms, kitchens, etc., in private homes and apartments.

Send for the Kellastone Booklet giving details

Sold by Leading Lumber and Building Material Dealers.

THE NATIONAL KELLASTONE CO.

19 S. La Salle St., Dept. 4

Chicago, Illinois

-D. IRWIN MYERS-

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

The a-b-c of Paint

All paint is composed of one or more pigments and a vehicle or liquid. White Lead is the most widely used white pigment, because it is the only one that can be successfully used by itself for exterior painting. It has a natural and lasting affinity for linseed oil. They unite to form a tough and leathery paint skin, which anchors firmly in the pores of the wood and keeps out the destroying elements. This film stretches in hot weather and shrinks in cold without breaking.

Carter is the *strictly pure* white lead of our forefathers, only whiter, finer and more perfectly made, *due to an improved modern process*. Carter makes the whitest white paint for *white houses*, and, with the addition of the proper tinting colors, most beautiful and durable colored paints.

Among painters, Carter is known as "The Lead with the Spread," because it has unusual covering and spreading qualities. While there are white leads which cost less by the pound and paints which cost less by the gallon, *none cost less per square yard of surface painted*, except some that would be dear at any price. Instead of cracking and scaling like paints that contain hard and inelastic pigments, pure Carter White Lead and linseed oil paint wears gradually, and though soiled by years of exposure, still fills the pores of the wood, resists moisture, prevents decay, and, what is important, is ready for repainting without burning or scraping or any other expensive preliminary treatment.

"Pure linseed oil is the life of paint." It absorbs oxygen from the air and becomes hard and elastic. It does not evaporate, but actually increases in weight as it dries. Other oils strike into the wood, entirely or partially evaporate, or never dry at all. There is nothing that is cheaper than pure linseed oil, which can be used safely.

How to estimate the cost of painting, how to treat different surfaces, how to mix Carter White Lead in all colors and for all purposes, how to remedy paint troubles and how to avoid them, is told in "The Carter Paint Calculator." The price of the book is 25c, but a copy will be sent free to any contractor or architect.

Carter White Lead Co.

West Pullman Sta. A.

CHICAGO, ILL.

Factories: CHICAGO—OMAHA

surveying and engineering instruments since 1860. They back this architect's and builder's level with an iron-clad guarantee, offering to give the use of it for ten days and then refund the money paid down, if for any reason the purchaser is not satisfied.

These people issue a very interesting little folder, telling all about how to use an architect's and builder's level. This is worth while writing for and it will be sent free.

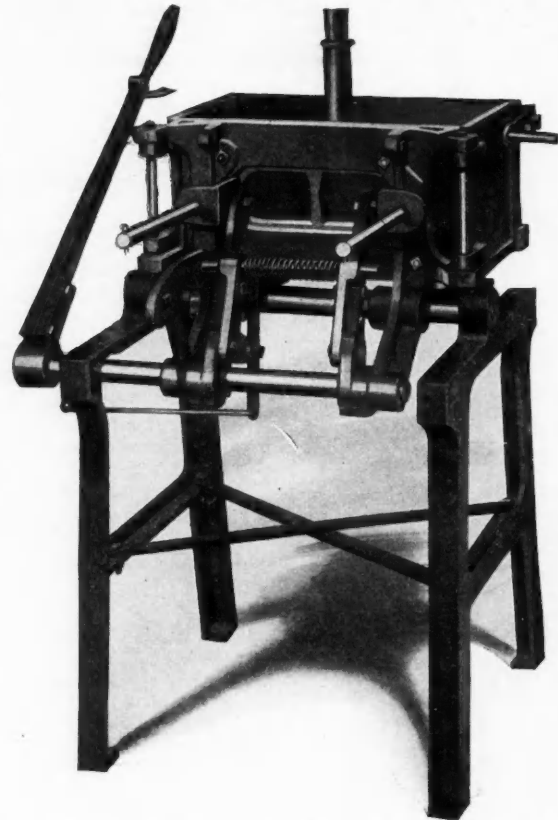


The Four-Way Block Machine

The Four-Way block machine, manufactured by the Cement Tile Machinery Company, Waterloo, Iowa, is a radical departure from the ordinary type of cement block machines. It takes its name from the number of different blocks that it will make without additional equipment and with but few changes which require only the work of one or two minutes.

First, the machine will make the usual face-down core block. Second, it will make a face-down, two-piece or continuous air space block to be used where beauty as well as an absolutely dry wall are required. Third, it will make a side-face core block. Fourth, it can be made to turn out a side-face, two-piece or continuous air space block.

These four ways of making concrete blocks on a single machine certainly give the Four-Way the right to considera-



This Machine Makes Four Distinct Types of Building Blocks.

tion from all considering the purchase of a block machine.

The power tamper which the Cement Tile Machinery Company make and which you will find advertised on another page, works very handily with this block machine. The tamper is known as the S. & S. Power Tamper. It can be used on any style of brick or block machines. This tamper is built to be hung from overhead and so takes up no floor space. It is said to be accurate and reliable with no complicated mechanism to get out of order.

Address the Cement Tile Machinery Company, 134 Rath Street, Waterloo, Iowa, and ask for their big catalog, illustrating and describing their line of concreting machinery.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

SEND TODAY FOR SPECIAL ALADDIN BUILDER'S PLAN

One Aladdin Carpenter in Each City

The great Aladdin Carpenter's Plan is going to many cities near you. Only one carpenter selected for each city. You should hurry the coupon to us and be sure of getting a direct benefit from the Aladdin Advertising Campaign that covers practically every country in the world. **There is absolutely no cost to you**—merely send in the coupon. This protects you—gives you the first chance to become the Aladdin Contractor for your city and doesn't hinder your regular line of business.



Many Towns "Closed Up"

Aladdin Carpenters have been appointed in a great many cities. Applications are coming in every day. When your coupon is received, and we accept you, the territory or the town is marked "Closed Up." Why not "Close Up" your city today by sending in the coupon with your name signed to it? Don't wait until it is too late—the other fellows may be writing to us now.



Increase Your Business 50%

You can get all the Aladdin business in your town without cost, without advertising, if we accept your application. Aladdin Read-Cut Houses will come to your city this year; do you want to build them, increase your business, building new houses without interfering with your regular work?

Biggest Aladdin Year

Year 1914 will be the greatest in our history. The Aladdin advertising campaign has been greatly enlarged. Orders are pouring in daily. Extra equipment has been added to our mills in order to meet the large amount of work. We want you to help us handle this great increase in business.

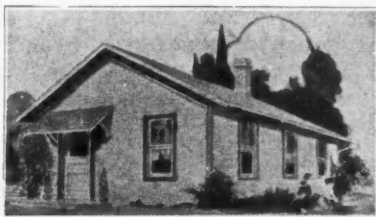


Better Lumber in Aladdin Houses

One dollar for every knot any customer can find in our Red Cedar Siding, shipped from Bay City, is the Aladdin guarantee. Better lumber is furnished for every Aladdin Read-Cut house than found elsewhere. Clear Siding, Clear Flooring, Clear Interior Finish, Clear Shingles are furnished for every Aladdin Dwelling House. Home builders demand better lumber and want Aladdin Houses. No other concern offers the lumber guarantee that is given to Aladdin customers. That is why more Aladdin Houses will be sold this year, than all others combined.

5-Room House \$298

To show you the low cost of Aladdin Read-Cut Houses, we have here pictured a five-room Aladdin Read-Cut House, complete for \$298. Price includes everything necessary to build. All lumber cut to fit, windows glazed, lath and plaster or plaster board, hardware, nails, locks, paints, and varnishes for two coats, inside and outside—in fact, everything needed to build.



Send Today

Orders Coming in for Spring Building

Orders are coming in every day; many are now in our hands. This means work for carpenters. Brand new houses from 5 rooms to 12 rooms, every piece of material in every house measuring up to the Aladdin quality standard.

Cut out the coupon, sign your name and get full particulars today. This Aladdin offer to carpenters closes as soon as an Aladdin carpenter is appointed in your town. Send the coupon today.



North American Construction Co.
990 Aladdin Avenue Bay City, Michigan

North American Construction Co.
990 Aladdin Avenue, Bay City, Mich.

Send me your Special Carpenter's Plan with full information as well as your Catalog No. 99X of houses and floor plans.

Name

Street

City

State

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Satisfactory Modern Lighting

Have you ever considered at how small a cost you can furnish a first-class, modern lighting system in all the country buildings you erect? If you have not, you should write for catalogs and see how easily you can do away with the troublesome and dangerous oil lamp, and substitute for it a modern acetylene gas lighting system.

Inventions of the last ten years have made it possible for a man living on the farm or in the small town to enjoy the conveniences of city life at small expense. Everyone who is building wants to have all of the modern conveniences he can afford; and a first-class lighting system is one of the improvements that is most valued and is really one that costs comparatively little.

The carpenter and builder is just in the right place to recommend modern lighting to his customers, and by a little special effort along this line can do them a good turn by making their buildings more attractive and up-to-date, and at the same time turn a profit for himself through the commissions the lighting people gladly pay carpenters and builders to look after this business for them.

Look into this proposition and you will be surprised at what it offers. For instance, the Johnson Acetylene Gas Co., Crawfordsville, Ind., are just now offering a special inducement to builders to take an interest in their Ben-Hur Pit Acetylene Generator and Lighting System. These people have been in business about twelve years, being one of the pioneers in the acetylene generator industry. Some time ago they saw the need of an acetylene generator to be installed out in the yard away from the house. Acetylene lighting is entirely safe and whenever there is any trouble it comes from carelessness in charging the generator. Now, in arranging the system so that the generator is entirely outside the building in the pit, the Johnson Company have done away with the one possible source of danger.



Fine Residence of Fred Huggins, Crawfordsville, Ind., Lighted with Johnson System.

If your building work is in the country or in suburban towns where there is no town gas or electric lighting system, every new house you build can have its own acetylene lighting plant. Also there are hundreds of prosperous farmers and villagers who can easily be interested to have their homes improved with this modern lighting. The expense is really very moderate. Any one can afford to have his house well lighted at the prices these plants sell for. This lighting business is right in line with your regular work and interests. Carpenters and builders have always made the most successful agents. In recommending a lighting system to your building customers, and to your friends and neighbors, you want to be sure you are recommending the best.

It costs you nothing to investigate the Ben-Hur Acetylene generator and the system of piping that puts the generator outside the building in the pit. Write the Johnson Acetylene Company, Crawfordsville, Ind., for full particulars.



How are You Going to Protect Porches, Roofs, and Sleeping Balconies From Bad Weather?

Shingles and slate are not satisfactory, especially when the surface is flat. Tin and copper corrode quickly and cannot stand continued wrenching and straining. Tarred felt and gravel become too rigid with weathering. Untreated Cotton Canvas cannot resist fungus growth.

The Best Protection is CON-SER-TEX

Con-ser-tex is a cotton duck scientifically treated by a combination chemical and water proof process. It will not mildew nor absorb moisture. This makes other fungus growths impossible. It is easy to lay and tightly adheres to the surface. With proper care it lasts as long as the house and protects it every minute. It gives the porch, the roof, the piazza, and the sleeping balcony a neat, clean, trim look. Use it to cover the garage, and other out-houses. Write for generous sample.

Chicago Distributor—
Geo. B. Carpenter & Co.
Wells and Michigan Sts.

WILLIAM L. BARRELL COMPANY



8 Thomas St.
NEW YORK



California Distributor—
Waterhouse & Price Co.
San Francisco, Los Angeles

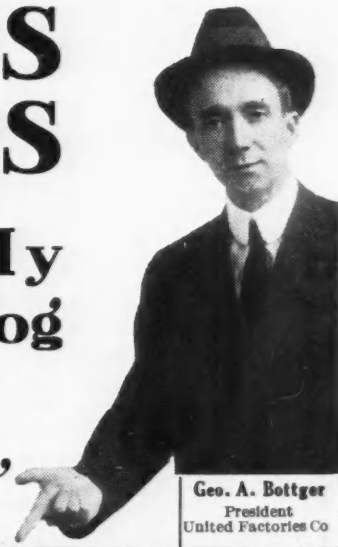
You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

I WANT BUILDERS and CONTRACTORS

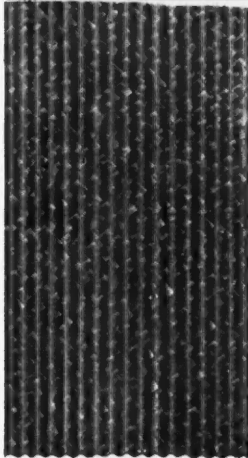


to Send for My **FREE 1914 Catalog**

"A New Way to Buy by Mail"

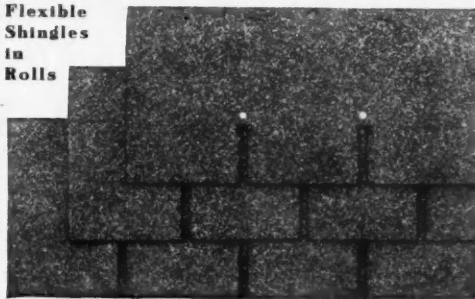


Geo. A. Bottger
President
United Factories Co



Write for Prices on Metal Roofing

Flexible Shingles in Rolls



GRAINED WALL BOARD



Get Our Estimates

See the Goods Before You Pay Try them 30 days Before You Pay

I want you to get my prices on Corrugated Roofing and Metal Roofing, Flexible Shingles, Grained Wall Board, Ready Roofing, Metal Tile, Plain Wall Board, Paints, Gasoline Engines, and many other items of interest to contractors and builders.

If you want to save money, let me figure on your estimates and quote you prices. I will positively ship the goods ordered, same as samples furnished.

No C. O. D. - No Deposit - No Papers to Sign

Any responsible builder or contractor can get all the materials he needs direct from our factories on the above terms. See the goods, test them—if not satisfactory and as represented, return at our expense.

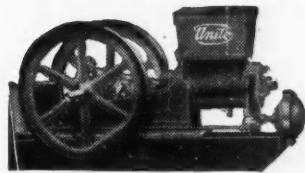
Write for the FREE Catalog

You will not only be interested in our building materials, roofing and paints, but also in our other lines—all fully guaranteed—all sold on the most liberal and fair terms ever offered. All we ask is an opportunity to show you that we can save you money. Write us NOW, while the matter is fresh in your mind.

GEO. A. BOTTGER, President

The United Factories Company

1819 Factories Bldg., CLEVELAND, OHIO

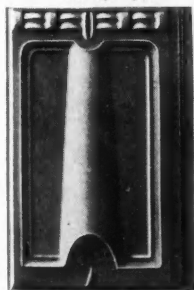


Unito Air-Cooled Gas Engine, Guaranteed for Five Years, 1½ horse power... \$24.75
Unito Water-Cooled Gas Engine, 1½ horse power... \$27.75
Other sizes in proportion. Write for full description.

Paint Color Cards FREE



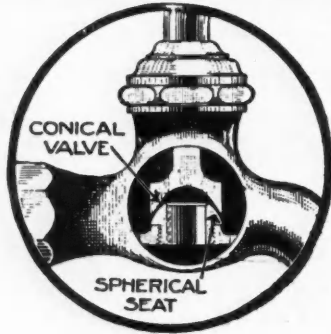
Challenge Ready Roofing. Per Roll 90c.



Metal Tiles

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

It can't leak!



Leaky faucets that require constant re-washing are destined to become a thing of the past.

Thousands of Contractors and Builders everywhere are installing the new

JM Washerless Faucet

The only faucet on the market with a **conical valve** that closes on a **spherical seat** (see illustration). Seats perfectly under all conditions. Can't drip or leak. Can't get out of order. No washers to wear out. No splashing. No water hammer or whistling. Operates equally well on high or low pressure. Seat is self cleaning.

Eliminates water waste—a great boon to property owners and municipal authorities.

Not an experiment. Thousands in use for years. Adopted by municipal water boards. Pronounced by experts the most perfect faucet on the market. **Seatings guaranteed for ten years against ordinary wear and tear.**

Write our nearest Branch for Booklet and Special Proposition

H. W. Johns-Manville Co.

Manufacturers of Asbestos Shingles; Roofings, Stucco; Pipe Coverings; Cold Storage Insulation; Waterproofing; Sanitary Specialties; Acoustical Correction; Cork Tiling; etc.

Akron	Columbus	Los Angeles	Milwaukee	St. Paul
Albany	Dallas	Louisville	Minneapolis	St. Louis
Atlanta	Dayton	Memphis	Newark, N. J.	Salt Lake City
Baltimore	Denver		New Orleans	San Francisco
Birmingham	Detroit		New York	Seattle
Boston	Duluth		Omaha	Syracuse
Buffalo	Galveston		Philadelphia	Toledo
Charlotte	Houghton		Pittsburgh	Washington
Chicago	Houston		Portland, Ore.	Wilkesbarre
Cincinnati	Indianapolis		Rochester	Youngstown
Cleveland	Kansas City			

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED
Toronto Montreal Winnipeg Vancouver 2158

Big Ornamental Wire Contract Booked

A contract amounting to over \$5,000 has recently been received by the Dow Wire & Iron Works, Louisville, Ky., for new elevator enclosures and cabs for the Hennen Building, New Orleans.



Going After the Sheet Metal Business

It is quite the popular thing for contractors and builders to take the agency for some good line of sheet metal goods; and, in connection with their other building work, build up quite a business on metal shingles, roll roofing, corrugated sheets, eaves troughs, and other forms of sheet metal building material. There is a good deal of this work every year, if only one goes after it.

An enthusiastic agent for Dickelman sheet metal goods is Mr. C. S. Stinemetz, of Sparta, Ohio. He does not believe in hiding his light under a bushel, but gets right out after all possible customers, and does not hesitate to let them know about *Dickelman quality*. One of his business getting methods is to send out a form letter, neatly typewritten, to everyone he thinks will be having any sheet metal work to do. One of the letters he uses, we reproduce—thinking that it may give other builders some pointers along this line.

C. S. STINEMETZ

DICKELMAN GALVANIZED ROOFING
AND METAL SHINGLES A SPECIALTY

Sparta, Ohio, April 10, 1914.

Dear Sir:

Are you putting up any new buildings or re-roofing any old ones this year? If so be sure to get my prices before you buy, as I can give you the **BEST** roof made and can give it to you at the **RIGHT** price.

I am enclosing with this, sample and booklet "A Cheap Roof," telling how to tell a Good roof from a Bad one. In Roofing as in everything else, **QUALITY COUNTS**, and a Galvanized Roof is no better than its Weakest Spot. For that reason I handle only the **BEST** roofing made, manufactured exclusively from Open Hearth Galvanized Sheets, very pliable, and **PERFECTLY** Galvanized. *Guaranteed to give perfect service.*

There is no question but what **DICKELMAN EXTRA GALVANIZED ROOFING** is the Cheapest and Best Roof a man can use in covering his Building, Quality of Material and Length of Service taken into consideration. This is Fire and Lightning proof, requires no paint or other attention to keep it in repairs and once on a Building is on for a life-time.

GOOD MATERIAL and **GOOD WORKMANSHIP** make a combination hard to beat and I Guarantee both the Material and Workmanship in putting on a Roof for you.

Before you get ready for your Roof be sure to call me up over the phone and I will be glad to come out and see you, or better yet, when you are in town drop in and see me and let me figure with you. I can make you the **RIGHT PRICE** and can give you the **RIGHT GOODS**. Read the enclosed booklet carefully and see me before letting your contract.

I am in position to do all work **PROMPTLY**, and am at all times glad to furnish prices and estimates on anything you may be wanting. I handle **DICKELMAN EXTRA GALVANIZED ROOFING** in all styles and shapes, including Galvanized Shingles, Roll Roofing, Corrugated, V Crimp, Weatherboard Siding, Rock Faced Stone and Brick and other forms of Sheet Metal Building Material.

Be sure to see me and get my prices before you buy.

Your very truly,

C. S. STINEMETZ.

CSS/JFS

The Dickelman sheet metal goods are manufactured by the Dickelman Manufacturing Company, Forest, Ohio. Their line is very complete, and they have some excellent illustrated catalogs and circular matter that they will gladly send

You will get **SPECIAL ATTENTION** if you tell Advertisers you read *American Carpenter and Builder*.

CADILLAC

MAPLE-BEECH-BIRCH FLOORING

The Home of Quality

The forests of Northern Michigan yield the best timber for hardwood flooring. The trees are superior in quality and size and produce hardwood flooring of better average quality and lengths than can be procured elsewhere in this country. Cadillac Hardwood Floorings lead the market, because they are made from the best lumber, properly kiln dried and manufactured. The grades are not mixed to produce a **cheap** flooring. Regardless of price, if you want the **best** hardwood flooring, see that you get one of the following brands:

"ELECTRIC" QUALITY FLOORING

Maple, Beech and Birch

The best floors to live on or work on are made of wood. The best wood for interior floors is Maple, with Beech and Birch a close second for durability and particularly desirable for appearance.

Floors made of Maple will last longer than mineral or other substitutes. There is nothing else "just as good" as a Maple, Beech or Birch Floor. In addition to our large production of the standard thickness, 13/16-inch flooring, we are specialists in manufacturing 3/8-inch flooring in various sizes, woods, and selected features. It is not expensive, and a hardwood floor need no longer be considered a luxury.

May We Write You Why "ELECTRIC" Flooring Saves Money and Trouble?

COBBS & MITCHELL, Inc.
Sales Dept. CADILLAC, MICH.

Cummer-Diggins Company

MANUFACTURERS

"CUMMER" BRAND

▲▲▲▲

MAPLE and BEECH FLOORING

▲▲▲▲

Let us tell you how to get less than car loads at car load prices.

▲▲▲▲

CUMMER-DIGGINS CO.
CADILLAC, MICH.

"ROCKHARD" FLOORING

When you buy "Rockhard" Flooring, you may be sure you are getting the best. If you use it once you will find how easy it is to lay and how serviceable.

"Rockhard" Maple Flooring combines *Cadillac Quality*, good lumber, experienced mill work, and careful grading. Attention to these things has made "Rockhard" the best flooring you can use.

Our "Rockhard" Beech and Birch Floorings display the same excellent qualities as our Maple Flooring, and on account of their warm color tone, are often preferred for residence floors.

"Modern Hardwood Floors"

—a twenty-five cent book, will be sent free of charge to Carpenters, Builders and Architects inquiring about "Rockhard" Flooring. A plain guide to the best method of laying hardwood flooring. Write for it.

MITCHELL BROS. COMPANY
Sales Dept. CADILLAC, MICH.

MAPLE *Cadillac* Hard Maple is unquestionably of the highest grade. Climatic and soil conditions all tend to make its quality Supreme, and in buying flooring, be sure it is *Cadillac* Maple. This wood, sometimes called Rock Maple, is unequalled as a flooring material. It represents the highest achievements in modern floor-making.

Our superior character of timber growth, and the thorough and systematic application of superior manufacturing and grading methods produce the famous *Cadillac Quality* Flooring.

BEECH *Cadillac* Beech is a close-grained, hard, strong and tough wood, and its durability is unquestioned. Beech is a close second to Maple in lasting quality and is particularly desirable for appearance.

The grain of Beech slightly resembles Oak. It is an excellent substitute for Oak and will wear longer and is cheaper. It has a natural warm tone and may be stained to produce many artistic effects.

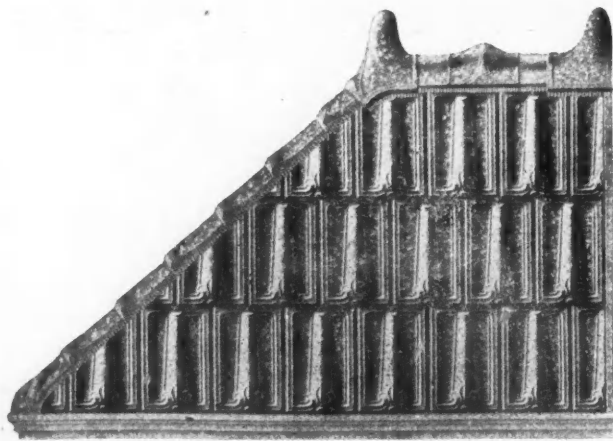
Beech Flooring, made the *Cadillac* way, is what you should use and specify.

SPECIAL Our 3/8" Maple, Beech and Birch Flooring, only slightly thicker than a carpet, can be easily and quickly laid upon the old floor without inconvenience or large expense, and is equally suited for new buildings, if laid on a smooth sub-floor. Being matched on sides and ends, the nails are concealed and cannot work out to the surface.

Made in different grades and selected colors to meet the varied requirements of the home-builder.

**We Sell Only Through Your Dealer
Send Us His Name If He Does Not Handle
CADILLAC QUALITY FLOORING**

You will get **SPECIAL ATTENTION** if you tell Advertisers you read *American Carpenter and Builder*.



A Popular Pattern of Dickelman Metal Shingles.

to our readers. Those who are interested should get in touch with them at once. ❖

"Varnish and Varnishing"

A very neat booklet, the avowed intention of which is to present "some varnish information and practical suggestions about home varnishing—for those who want to learn—not simply pay bills," has been issued by the Lowe Bros. Co., 457 East Third Street, Dayton, Ohio. It is a book that every builder should have.

Carpenters and builders know full well the beauty of a room or house depends not so much on the wood itself as on how it is varnished. Even mahogany, the most aristocratic of woods, needs the assistance of the expert finisher to give it the dark, rich appearance so much admired.

In this finishing, stains and varnishes have an important part—particularly varnish.

In these days the finisher is expected to produce in a day the beautiful, rich effects that are the result of years of exposure to the atmosphere. That so much has been accomplished is a testimony to the ability and knowledge of the paint and varnish manufacturers and of competent wood finishers.

These facts are reason enough for the preparation of this booklet on wood finishing and the use of varnishes, suggesting the important things that every householder and builder ought to know about beautifying homes.

This book gives the essential facts which builders, owners, architects and finishers wish to know. This varnish book is one of a series of very instructive books on painting and finishing of buildings recently issued by the Lowe Bros. Co. They are for free distribution.



The Enterprise Coal and Fuel Chute

The Enterprise Iron Works, Albert Lea, Minn., are making a special discount to carpenters and builders on their cast-iron coal chute. This is claimed to be the cheapest and simplest burglar-proof coal chute made. It is all iron; weighs 225 pounds. It pays for itself in saving battered foundations, broken and marred windows and casings. The price at which these can be furnished allows builders to put them into all buildings. For residences, stores, offices or school buildings, these Enterprise chutes give satisfaction.



Low Cost Fuel Chute

"Costs little to buy -- Almost nothing to maintain and operate"

A Money Maker

Pays for itself many times over in a year's time, in actual practice.

Costs Little to Buy

The trifling sum of 80 cents a day pays for it in a year—and after that everything is velvet.

Quantity Fixed the Price

A large output makes its low price possible. Manufacturing in small quantities would easily add a third more to the price asked.

Only 4 Cents an Hour to Run It

The time is past when you have to buy and operate big, unwieldy, slow-moving, expensive mixing machinery on any sized job—big or little. The cost to run is next to nothing.

Self Measuring

No filling barrows—no wheeling. Shovel from the pile into the mixer. This cheap method will surprise you.

Move the Mixer, Not the Material

Easy to move—two or three men can do it. Always handy to the material.

Power to Spare

A high grade, guaranteed, 2½ H. P. "NEW WAY" gasoline engine furnishes surplus power.

Eureka Fifty

"A Yard Every Twelve Minutes"

—What this contractor says:—"The Eureka has paid for itself this season. I have not paid out a cent for repairs, and it is always ready to do business when called upon."

Ask for Catalog No. 36 and Prices

Eureka Machine Co.

12 Case Street

LANSING, MICHIGAN

W. V. JOHNSON & CO.

General Eastern Agents

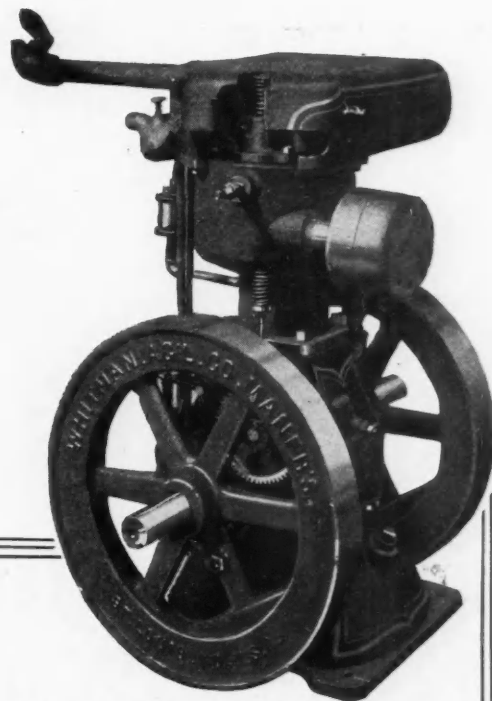
1 Madison Avenue New York City

Stocks in Principal Cities



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

The Power behind the SULTAN Saw Rig



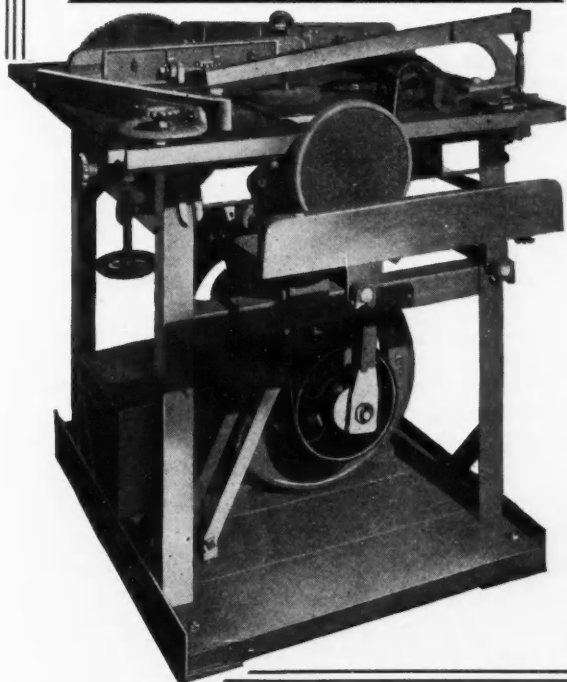
We make the Sultan Engine and we know just how good it is. More than that, we know it's just the engine for the purpose. You will have no trouble with the Sultan. It is specially made for use with the Sultan Saw Rig and that is your protection. The best material, the best workmanship and our guarantee is a combination you can't beat. The Sultan Engine is the power behind the Sultan Saw Rig that makes the best work possible in the shortest time.

The Sultan Dust-Proof Engine

assures complete freedom from engine trouble. It is complete in itself and has no piping, tanks or fittings. Every part is simple and accessible so the average carpenter can understand and operate it. It is designed and patterned after standard principles that are endorsed by the best engineers. 5 H. P.; 4 cycle; Water Cooled; Jump Spark Ignition; Sight Feed Oiling System; Easy to start; requires practically no attention; very saving on fuel and oil; can be used in any weather without danger of freezing.

THE SULTAN LINE

Saw Rigs Engines Hoists
Material Elevators Air Compressors
Builders' Jacks



The Saw Table

Frame of hot riveted angle steel with machine-surfaced table top of gray iron cast in one piece. Gravity blower to carry dust away from engine. All tools and fittings made by the Disston Saw Co. Norton Emery Wheel. Complete equipment, including tools and all accessories furnished with the machine. Our Catalog gives a complete list of what these are.

Every part of the Sultan Saw Rig is guaranteed for two years. The price is moderate and the quality throughout is the best. The Sultan will yield 100% in efficient service and is strongly recommended to all Contractors and Builders as the most reliable machine they can buy.

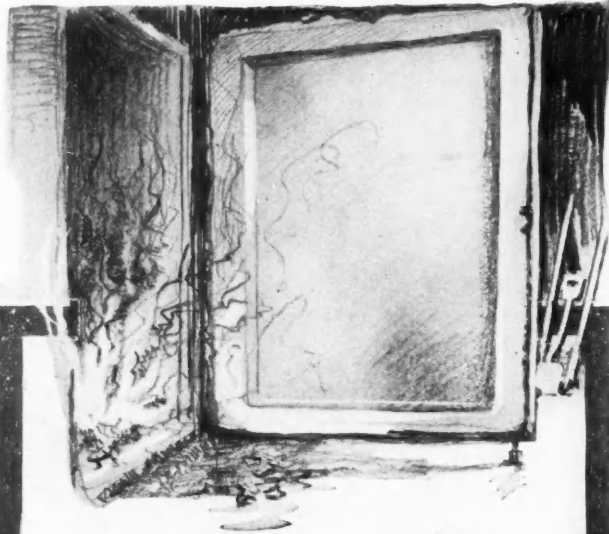
Our Catalog will give you a clearer idea of what Sultan Quality means. We want your consideration because we know we can give you full value for your money. Write us. It will pay you.

Whitman Agricultural Company

7003 South Broadway

ST. LOUIS, MISSOURI

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



What the Cleveland Fire Test Showed

This 2-inch solid plaster partition on metal lath was subjected to extreme heat, reaching a maximum temperature of 1929 degrees Fahrenheit. The picture—reproduced from a photograph—is proof of the wonderful fire-resisting qualities of

“Standardized” Wall Construction
ON

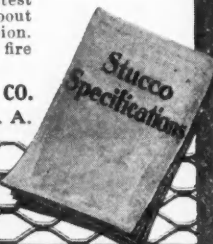
Kno-Burn
Expanded Metal Lath

The Building Department of Cleveland, Ohio, made this exhaustive test of materials used in the construction of partitions. Panels—like the one shown here—were built on plaster bases of metal lath, wood lath and plaster board. They were allowed to set for six weeks before the test was made. The wood lath and plaster board panels opened up clear through long before the two hours had expired and practically disintegrated when water was applied to cool them. Metal lath withstood both fire and water with absolutely no damage to the lath itself and with only slight damage to the plaster—damage that could easily be repaired without rebuilding.

A knowledge of the permanence of wall foundations is vitally interesting to you men who stake your reputations on every job you take.

“Stucco Specifications,” our latest booklet, will tell you in detail about “Standardized” wall construction. Send for it, also details about fire tests. Ask for Booklet 36.

NORTHWESTERN EXPANDED METAL CO.
903 Old Colony Bldg., Chicago, U. S. A.



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Storm Dumb-Waiters

A very neat twenty-eight page catalog, on fine enamel paper, has been received from the Storm Manufacturing Company, 40 to 50 Vesey St., Newark, N. J. It illustrates very clearly their line of automatic waiters, invalid elevators, trunk elevators, carriage and warehouse elevators, basement and sidewalk elevators, etc.

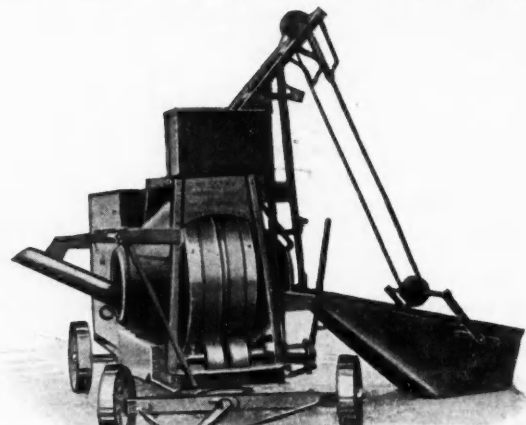
In offering this book, the manufacturers emphasize the high quality of their dumb-waiters and hand-power elevators, also the courteous and fair treatment their customers can always expect from them. The Storm Manufacturing Company have had over twenty years of practical experience in elevator building and installing. They will furnish estimates on machines installed in any part of the world, or will sell the fixtures only, or the machines complete, with full directions for erecting.



The “Big Sioux” Concrete and Mortar Mixer

A line of drum mixers equipped with side loader is offered by the Iowa Foundry Company, West Second and Cook Streets, Sioux City, Iowa. There are three sizes—one for every class of work.

The “Big Sioux” concrete and mortar mixer is built of steel and cast iron throughout. The drum operates with friction drive on roller bearings. This mixer handles dry as



“Big Sioux” Mixer with Side Loader.

well as wet mixtures. Concrete, mortar, hard wall plaster—everything looks alike to the “Big Sioux.” The mixing drum and paddles are shaped so the mixture is thrown three ways and emptied from the center of the drum, which assures an even mix at all times.

The Iowa Foundry Company guarantee satisfaction and prompt shipment—an important consideration at this season. Write them for circulars and price.



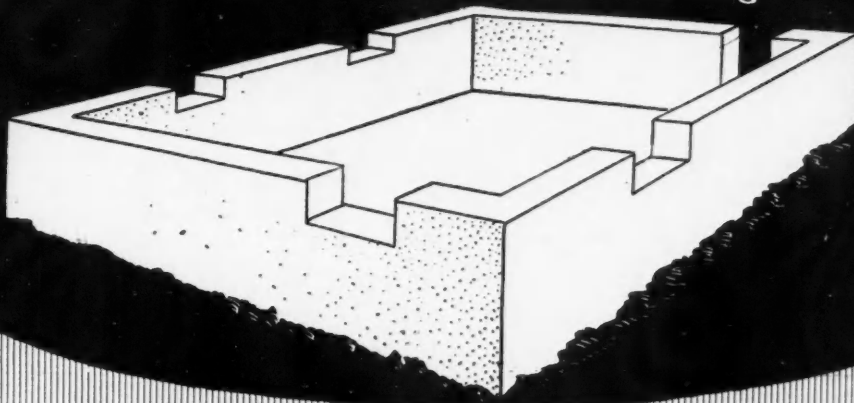
Planning the Kitchen for Convenience and Economy

Every successful architect, contractor and builder is confronted with the knotty problem of how best to arrange the kitchen to economize space and secure the most convenient and practical arrangement.

You receive no credit from working out ideas that are suggested by your clients, but when you are able to suggest some practical arrangement in the kitchen, that adds to its convenience and lessens the labors of the housewife, you will have secured a champion that will never miss an opportunity of praising your forethought that has added to the comfort of her home.

The kitchen is in reality the power plant of the home—the one room in the home that is in continuous active service three hundred and sixty-five days—one thousand ninety-five

The Foundation Everlasting



Make Foundations That Will Endure

The durability of your buildings depends largely upon the strength of their foundations. You can rely on a concrete foundation made with ALPHA Portland Cement, because ALPHA makes *everlasting* concrete, that grows harder and stronger with age. An ALPHA foundation is easy to construct, and will be as imperishable as if cut from solid stone. It makes a dry basement, warm in winter, cool in summer. Every ounce of ALPHA is pure, live and active—great in binding power—finely ground, thoroughly burned, and correctly seasoned. Every hour—day and night—our staff of chemists tests ALPHA Portland Cement. They make sure that the quality never varies, and that it is up to the high standard established by 23 years of experience in manufacturing only the best, safest and strongest Portland Cement that can be produced.

As a result of this extra care in manufacture,

ALPHA THE GUARANTEED PORTLAND CEMENT

The High-Water Mark of Quality

is stronger, goes further and is cheaper in actual use than ordinary Portland Cements. ALPHA is warranted in composition, fineness and tensile strength to more than meet the U. S. Government requirements and all other standard tests. Be careful, the Government advises, "to select some well-known make *guaranteed* to meet the standard specifications for cement of the U. S. Government."

ALPHA is used by the U. S. Government in important forts, piers, and sea walls, by the

greatest railroads (250,000 barrels used in the Pennsylvania Railroad Terminal, New York City), and is specified by engineers and architects for important work where cement has to meet the most exacting tests.

The ALPHA dealer in every community is a good man to know. He sells ALPHA Portland Cement because he can guarantee it—because he knows it never fails to give satisfactory results. Ask us for the name of the dealer nearest you.

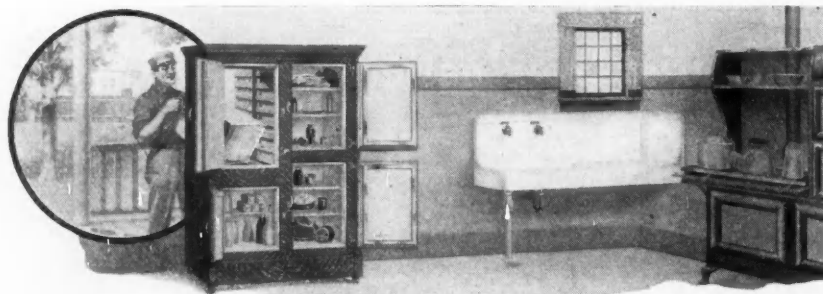
Let us send you, free of charge, valuable literature dealing with the use of ALPHA Portland Cement, with stucco work, concrete houses, and concrete improvements generally. Ask for ALPHA Book No. 10 and ask also for special literature on the kind of concrete work that most interests you.

ALPHA PORTLAND CEMENT CO. General Offices: **Easton, Pa.**

Sales Offices: New York, Chicago, Philadelphia, Pittsburgh, Boston, Buffalo, Baltimore and Savannah

Specify **ALPHA** and be **SURE**

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



The Modern Kitchen Has Refrigerator with Outside Icing Door.

meals—each year. Is it any wonder that we so often hear the remark, "Oh yes, we like our home very much—but if we only had our range here and our sink over there and our refrigerator built-in here, just think how many steps it would have saved me." It's up to the contractor to suggest an arrangement in the kitchen that is convenient and that will reflect with credit on the contractor-builder.

There is one kitchen necessity that should be given the most careful consideration when planning and building the home, viz., the refrigerator; this should be planned as a part of the house—built into the kitchen as a part of the home, and arranged to be iced from the outside, as shown by the accompanying illustration.

This illustration shows the refrigerator wholly in the kitchen, arranged with a rear door, corresponding with an opening in the wall which permits the ice being supplied from the rear porch. Where kitchen space is limited, the refrigerator can be set on the rear or side porch, the front being built-in flush with the inside wall of the kitchen and finished to match the interior woodwork.

When desirable, the refrigerator can be placed in the

corner of the kitchen with outside icing door in the end instead of the rear. By this arrangement, the ice man with his dirt and muss never enters the home, and it is impossible for anyone to gain access to the inside of the kitchen or to any of the food compartments through this outside icing door. It is also a very convenient place for the milk man to deposit his milk without disturbing the household or leaving it out in the warm air to sour.

As a matter of economy, this arrangement is actually a money saver, as during cool weather, the outside door may be left open sufficiently to maintain the proper temperature and thus avoid the expense of ice, which is necessary in the ordinary set inside refrigerator.

It is not advisable for the contractor to attempt to actually build the refrigerator, as efficient refrigeration is a science that has required many years of manufacturing experience to master. The two important factors being *insulation*, which determines whether it will be an ice eater or an ice saver, and *air circulation*, which is induced by the interior construction, and if properly designed results in a positive circulation of cold, dry air that automatically discharges through a water-sealed drain pipe all odors and impurities that are a menace to the health of the family.

The McCray Refrigerator Co., 606 Lake St., Kendallville, Ind., issue a most complete and handsome catalog of residence refrigerators that should be in the hands of every contractor and builder. This catalog illustrates a large variety of styles and sizes and contains complete tables for locating wall openings for outside icing, as well as much other valuable information. This catalog is mailed free upon request.

The Real Solution of the Garbage Problem

The only really sanitary way of disposing of garbage and refuse is by burning it on the premises where it originates, before it has a chance to decay. Incidentally, it is the least expensive way because, while the garbage and rubbish is being burned, it can be used as part of the fuel necessary for heating water.

KEWANEE Water Heating Garbage Burners

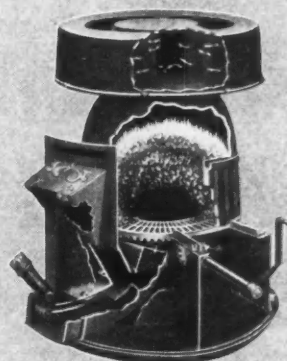
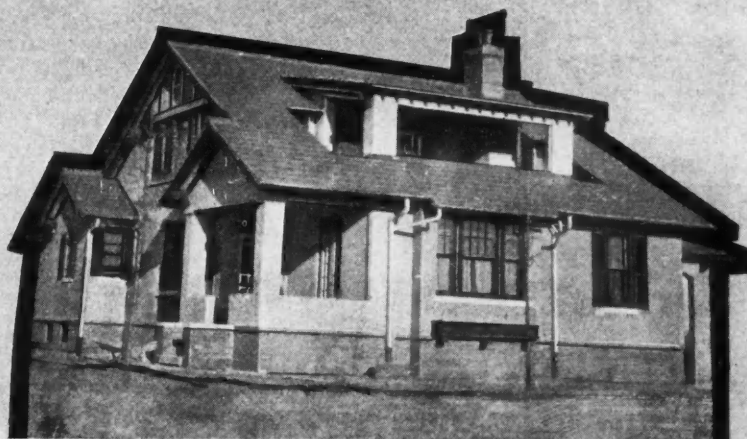
are turning garbage into fuel in the best apartment buildings, hospitals, restaurants, hotels, etc. They are built in correct sizes to supply from 200 to 2600 gallons of hot water every hour and at minimum cost. We will gladly furnish you any information you desire.

Steel Power and Heating
Boilers, Radiators, Tanks
and Garbage Burners.

KEWANEE BOILER COMPANY
Kewanee, Illinois

Branches: Chicago, New
York, St. Louis, Kansas
City, Salt Lake City.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



Cut-Out View
Underfeed Furnace

Coal Bill Cut From \$90 to \$17⁵⁰ With An Underfeed

H. C. Laird, Norfolk, Va., says: "I am using your **Underfeed** in my residence of thirteen rooms, and two bathrooms, and my total coal bill will be about \$17.50 per winter. I have divided my coal bill by five, and cannot recommend your **Underfeed** system too highly. I spent \$90.00 last winter heating a house one-half the size of above."

This is strong money-saving **Underfeed** evidence, isn't it?

Government Uses Underfeeds

The United States Government put the Underfeed through the hardest possible tests and *proved* that the following statements *were absolutely true*: "Coal bill \$16.22 for 7 rooms"; "\$5.50 to heat 4 rooms"; "Reduced coal bills from \$109 to \$53"; "Underfeed reduces coal bill 60 per cent"; "Have cut coal bill \$70 each winter for 9 years"; "Saved \$122 a season"; "Even temperature with no smoke or dirt."

Now the Government *specifies* Williamson Underfeeds wherever possible. There are over 25,000 Underfeeds in successful use. May we send you the names and addresses of over 2,000 Underfeed users—some right in your neighborhood—who *know* by experience that *clean, even, economical* heat is obtainable *only* with the Underfeed?

The Underfeed Is Different

The Underfeed system of heating is *different* from all other systems—it's better. With the Underfeed, coal is fed from below. All the fire is on top, causing perfect combustion. Smoke and gases are burned up, making more heat with *no* smoke, smell, clinkers, and very little ashes. You can use cheap slack soft coal or pea and buckwheat hard coal and secure same heat as highest priced coal. The Underfeed is adapted to warm air, steam and hot-water systems in homes, stores, churches, schools, halls and other buildings.

**WILLIAMSON
UNDERFEED**
Furnaces and Boilers

Cut Coal Bills $\frac{1}{2}$ to $\frac{2}{3}$

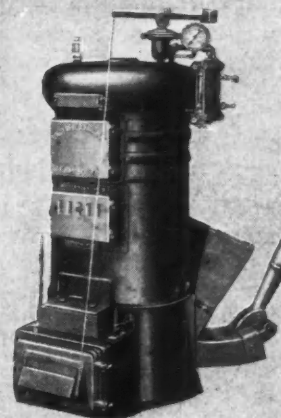
READ THIS GUARANTEE

Every Underfeed Furnace or Boiler, when properly installed and operated, is guaranteed to effect a saving of 50 per cent in coal bills. This is backed by a \$1,000,000 corporation. The strongest guarantee ever put behind any heating system is behind the Underfeed. If you are going to build or want more heat at less cost, send the coupon for full particulars. It will pay you well.

The Williamson Heater Company

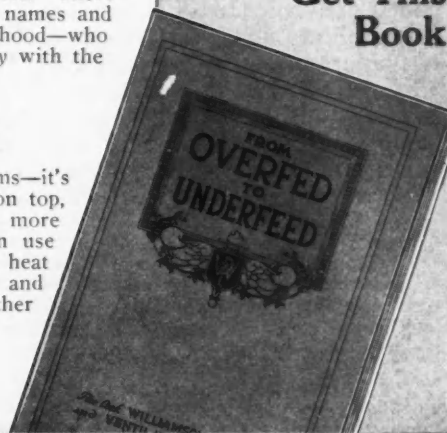
Successor to The Peck-Williamson Company

203 Fifth Street (20) CINCINNATI, OHIO



Underfeed Boiler

Get This
Book



The Coupon Brings All The Facts

THE WILLIAMSON HEATER COMPANY,
203 Fifth Street, Cincinnati, Ohio

I would like to know how to cut my coal bills from one-half to two-thirds with an Underfeed.

Warm Air.....Steam or Hot Water.....
(Mark an X after system interested in.)

Name.....

Address.....

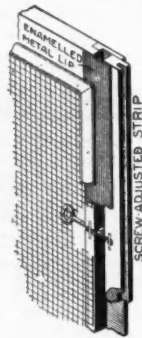
My dealer's name is.....

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

The Screw Adjustment In the Wheeler Screen Makes it Self-Fitting

THREE TROUBLES INHERE in every non-adjusting screen, viz.: (1) Errors of the opening (no man can make two openings of the same size); (2) weakness of the wooden slide-tracks used by all sliding screens except the "Wheeler"; (3) swelling and shrinking of all window frames in wet and dry weather.

WE END THEM ALL. No matter what the error of the carpenter, no matter how imperfect the window frames, no matter what the weather, merely push out the Adjustable Strip in the side, by the infinite gradation of the Thumb-Screw—more at the top—less at the bottom—which ever is needed—until the Screen just fits.



Corner showing
Screw Adjust-
ment.

With these inherent troubles ended, conveniences of all kinds at once follow, and the "Wheeler" out-points all others on any and all features. To the Contractor they afford two profits—the usual margin, and another in the saving over cost of fitting and painting the edges of all others. They fit without touch of tool at one-tenth the cost of other installations.

You can make more money SELLING screens to your customers than by making the screens. Keep your men busy at other work. Send us your Screen orders and have this much clear profit. Don't lose money and the time of your high-priced workmen.

You will make FIVE DOLLARS to our one, because we allow you the big-single profit on each individual house-order, since that is the only way for us to get hold of the little-many profits on the hundred house-orders from the tens of towns.

PROMPT SHIPMENTS: Special and automatic machines, on an acre-and-one-half of floor spare, reduce time of filling orders to days where others require weeks; speed is limited only by the time required for drying the finish specified. Three days after receipt of order is our average on White-Pine-Painted Goods.

If we have no Agency in your town, apply at once.

Wheeler Screen Co.
Geneva, Illinois

"High Grade Building Material"

The Huber Builders' Material Company, 45 to 49 Vine St., Cincinnati, Ohio, have recently issued a very complete catalog under the above title. Glancing at the alphabetical index, we see that everything in millwork and building material is included. The index ranges from "Art Glass" to "Wood Carpet." Such an index is, in itself, a valuable feature for builders, as it helps them to find quickly any item they want.

Throughout the book good clear illustrations are plentifully used, and the complete line of sizes is plainly stated below each illustration. No prices are given in the catalog proper, but a neat price list, in handy pocket-size form, accompanies the catalog.

Without doubt a good many of our readers will be glad to have a copy of this building material catalog for reference and use. The Huber Builders' Material Company will gladly mail copies to those who write them. It is a book of 56 large pages, and is decidedly worth while.



Splendid Construction of the Atlas

"Atlas" mixers have always been known as carefully constructed machines. Their latest models, however, seem to have attained as near mechanical perfection as it is possible, for an apparatus of this kind.

In examining their smaller mixer, which has a capacity of 50 cubic yards per day, one is particularly impressed with the attention to details of construction. Little things which were scarcely considered, heretofore, in the construction of



"Atlas" Mixer Is Easily Dumped.

concrete mixers, have been given serious consideration in the construction of the "Atlas."

One of them, for instance, is the manner in which the wheels are protected. Instead of a simple cotter pin through the axle, there is a strong, neat appearing cap which covers the nut which holds the wheel. This cap is dust and dirt-proof and keeps the inside of the hub clean, so that free running of the wheel is always assured. While this is perhaps not an important feature of construction, it gives one

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



The
Best Hardware
Dealer
in Your City
Sells
"PEARL"

No Other
Screen Equals
"PEARL" Wire Cloth
in Appearance and Wear—

In selecting screen material consider *wear* first. The screen that wears *longest* is least expensive and most satisfactory. Right?

Genuine Gilbert & Bennett "PEARL" will so far outlast the painted screen you have been using that there is positively no *comparison* between the two.

Painted screens are *ugly*—"PEARL" is *handsome*. And the same metallic coating which gives it *beauty* makes it practically *rust-proof*, consequently almost *wear-proof*.

Dust and dirt don't stay on the smooth, clean meshes of "PEARL" Wire Cloth. And by the same token that you don't object to glass in your windows you won't object to PEARL—it does not intercept your vision because after a little exposure it turns a permanent, "invisible gray."

If our claims for "PEARL" Wire Cloth are just, it is the screen you *want*. For the sake of satisfaction—investigate before you buy screens.



For Screening Doors, Porches and Windows

"PEARL" Wire Cloth is to be had in two weights—Regular Grade and Extra Heavy—both suitable for door, window and porch use.

The handsome appearance and rust-proof qualities of "PEARL" come from the same source, namely—a peculiar metallic coating which is part of the wire itself. This coating is exclusive with Gilbert & Bennett—no other manufacturer has it. So—if you would avoid imitations which *look* a little like "PEARL" but don't *wear* like it, make sure of the *genuine* article by looking for the two Copper Wires in the Selvage and the Round Tag bearing our name on every roll.

**Conscientious
Architects**

Specify Gilbert & Bennett "PEARL" Wire Cloth—

Good Carpenters and Contractors use "PEARL"

The best dealer in your city sells Gilbert & Bennett "PEARL" Wire Cloth and will gladly supply you.

Or—write our nearest office and we will send samples, literature and the dealer's name.

The Gilbert & Bennett Mfg. Co.

(Established 1818)

Dept. J-134
277 Broadway, New York
Georgetown, Conn.

Dept. J-134
38 So. Dearborn St., Chicago
Kansas City, Mo.



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

an idea of the amount of care exercised in the construction of the "Atlas."

The drum heads, instead of being of ordinary cast iron, are of semi-steel, made to the special analysis of the Atlas Engineering Company. The blades within the drums are of malleable iron and of the proper weight to resist the hardest possible usage, even with the heaviest material. No trouble is ever experienced at any temperature.

The rapidity with which the mixer handles a batch is quite noticeable. The small mixer gives 2½ cubic feet every minute.

The "Atlas" mixer, being a complete power plant, is so designed as to take care of a most efficient gasoline motor. This motor is not one of the flimsy "hit and miss" type, but is a most carefully made gasoline engine. It is built especially for the "Atlas" mixer, in accordance with Atlas specifications, and being completely concealed, although entirely accessible by lifting the hood, it can be operated in all kinds of weather.

One of the most important features of the entire machine is the loading feature, and as a prominent contractor in New York remarked, his men seemed to prefer the "Atlas," and he supposed this was the reason: It is an easy mixer to operate.

In addition to the hand-loading machine, the Atlas Company also manufacture a side-loading device for their large mixer. The side loader is so constructed as to be absolutely "fool-proof" and can be operated by anyone.

All parts of the "Atlas" mixer are easily accessible and are interchangeable.

Contractors who are seeking one or more small efficient machines, will do well to write the Atlas Engineering Company, 783 Thirtieth Street, Milwaukee, and ask for descriptive literature on their mixers.

Dumb-Waiter with Automatic Brake

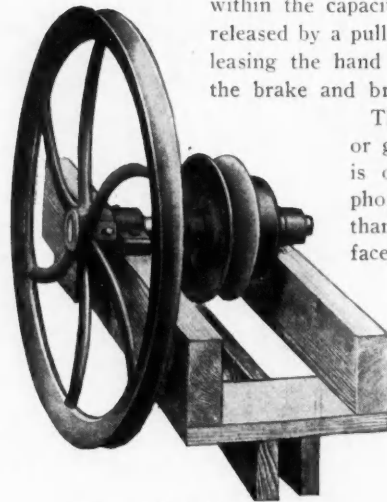
An approved automatic brake dumb-waiter machine has been recently perfected by the Chelsea Elevator Company, 330 West Twenty-sixth Street, New York City. This machine has an automatic lock which is effective both on the down motion of the car and also on the up motion. This automatic lock is positive and is designed to eliminate lost motion and noise it will hold any load within the capacity of the machine until released by a pull on the hand rope. Releasing the hand rope instantly operates the brake and brings the car to a stop.

This lock requires no oil or grease. The brake shoe is of heavy pattern phosphor bronze with more than ordinary braking surface.

The Chelsea Elevator Company have forty years of manufacturing experience back of this machine. Workmanship and material are guaranteed, and as these machines are manufactured in large quantities, the purchaser receives the benefit of reasonable prices.

These automatic brake dumb-waiters come in four sizes—75, 100, 150 and 200-pound capacities.

Write the company for full particulars.



Automatic Braking Device.

Guaranteed Lightning Protection

Every building—from the modest barn to the finest residence—is not completed until it's provided with an adequate protection against lightning. You realize that, and it's your duty to make the owner realize it.

The most adequate protection possible is furnished by Barnett Lightning Rods, made of pure Copper, of high conductivity, and constructed without joints. No other rods are of such good construction and no other system is so practical and thorough in installation. Remember this when you recommend the Barnett system to your customers.

Easily Installed By Any Carpenter and Builder

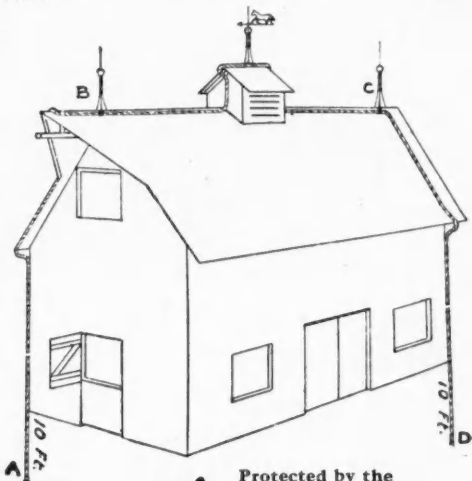


As a matter of convenience to your customers—and as a matter of profit to yourself—you should be in a position to equip every building you erect with the Barnett Lightning Rods. You built the house or barn, you have the owner's confidence, your argument carries weight. You are the logical man to do the work.

Our great trade proposition makes this one of the most profitable side-lines open to the carpenter and builder. We furnish the cable in many different styles and sizes—supply all necessary equipment and send full instructions for doing the work. Don't hesitate about writing—only one Carpenter and Builder in a town has the opportunity to be our agent. A binding guarantee issued to every purchaser of our rods.

Send a Post Card Today for FREE Samples and Catalog

Jos. A. C. Barnett & Co., Riverside, Iowa



Protected by the



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

SERVICE IN MILLWORK

Easy to talk about—Not easy to give

Everybody promises it—few give it. Everybody wants it—few get it

Every Purchaser buys two things—Goods and—Service

To give it, means years of preparation and experience. It is a growth—it is built up gradually—it implies stock—assortments—facilities—systems—competent men—and constant oversight.

To get it, the buyer must order plainly and definitely and his demands for delivery must be reasonable.

Cheap Goods are not cheap—unless the service is good

The contractor's season is short. His work is strongly competitive. His profit depends largely on everything going smoothly. Delays mean loss. Time is far more valuable than slight differences in cost.

He cannot afford to take chances on delivery or service.

We want to state briefly why we believe that

WE CAN GIVE GOOD SERVICE

and why we can often deliver goods two hundred miles away quicker than the local mills can furnish them.

First:—We have the stocks.

Over 1,000,000 feet of shop lumber always on hand.

Over fifty carloads of sash, doors, glass and building material.

Besides plate glass, Mirrors, Art Glass, Paints, Roofing, Hardware,

Wallboard and the hundred items that go to make up a builder's stock.

And our No. 1 goods are No. 1 in quality as well as in price.

Dealers who keep only No. 2 doors can't furnish No. 1 doors—no more can they furnish No. 1 service with only No. 2 (or worse) facilities

Second:—We have the assortment, and it is varied and modern.

Doors in one, two, four, five and six panel, in pine, birch, oak, yellow pine panel and fir.

Also new and modern front door styles.

Many sizes in doors and windows are stock with us that are odd with others.

Why buy where there are only No. 2 facilities when No. 1 service costs no more—often much less

Third:—We have the facilities.

Over 150,000 square feet of floor space, including modern mill employing from 100 to 150 men.

We do our art glass work, beveling and silvering in our own shops.

We don't depend on others.

We use three auto trucks and twenty horses for delivery.

We are located within five minutes of all the principal depots and boat lines.

You pay for goods when you get them—for service when you don't get it

Fourth:—We have the systems. We note a few, for example, designed for prompt delivery on odd work, especially for rush orders.

Window and frame stock in stock, machined, ready for putting up.

Door and sash stock cut to size, ready to machine (cut stock).

Stiles and rails glued up, and veneered in oak and birch—thoroughly dry, ready for the sticker.

Three-ply panels in oak, birch, yellow pine and fir, cut to size and sanded ready for use.

You know in advance what goods cost—you find out afterward what service (or lack of it) costs

To prevent delays:—We follow each order every day through the mill, keeping a daily record of work done. Our mill furnishes to the proper department exact sizes of all art or beveled glass as soon as laid out, so that glass and woodwork come through together; and many other systems and short cuts. They all help.

And we have constant oversight in all departments by competent men, which counts most of all.

A day of preparation often saves a week of delay

Odd work causes 90% of all the delays and consequent loss in building. Our systems and facilities are designed to eliminate this as far as possible. They count particularly in busy seasons when "Time is Money."

If our service is worth nothing to you, it is worth nothing to us

Try us on your rush work and convince yourself and we will take our chances of getting your current orders.



The Cleveland Window Glass and Door Co.

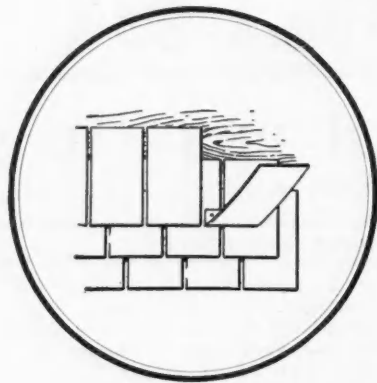
DOOR, SASH, FRAMES, FINISH, PORCH and STAIR STUFF, MILLWORK
PLATE, WINDOW and ART GLASS, MIRRORS and PAINTS

213 Champlain Street

CLEVELAND, OHIO



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



Making Courses

The method of laying the second and succeeding rows of shingles on a Rex-tile roof is shown here.

On each row after the first, the joints are broken one-third of the distance from the next shingle, exposing 5 inches of each shingle to the weather.

This makes a triple-thick coating of tough sheets, each absolutely water-proof, over every part of the roof.

There is no better covering for any roof than

Rex-tile

TRADE-MARK

"The Scientific Shingle"

It is the practical, economical roof material for the house in the suburbs, or on the farm, the bungalow or seashore cottage.

The soft colors, dull red or blue-black, harmonize with any style of architecture.

The color is a part of the shingle—no painting will be necessary.

Builders will appreciate the ease with which Rex-tile Shingles can be handled and laid. They are not heavy like slate roofing, nor sticky like some prepared roofing. And they make a roof that is a credit to the job.

Rex-tile Shingles are being advertised extensively throughout the country. We'll be glad to send you sample ads and samples of shingles with full information. Won't you write for them today?

FLINTKOTE MANUFACTURING CO.

90 Pearl Street, BOSTON, MASS.

659 Peoples Gas Bldg., CHICAGO

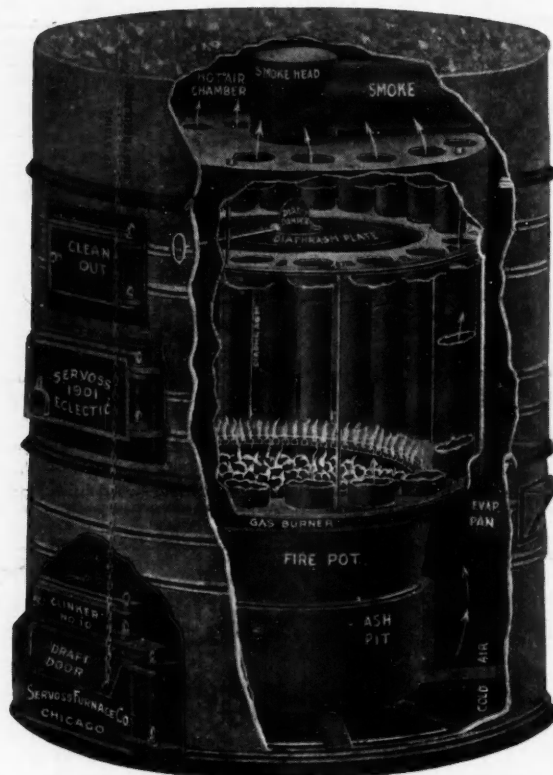
Manufacturers of the famous Rex Flintkote Roofing for factories, warehouses, farm buildings, etc.

The Right Kind of Heating for 40 Years

The problem of building the right kind of a furnace has been given the closest attention by the Servoss Furnace Company for a period of over 40 years. This may seem to be a long time to devote to one thing; but it has brought its reward in the perfection of the Servoss Tubular Furnace.

The Servoss Tubular Furnace is designed with a very roomy hot-air chamber which combined with the center draft feature, produces perfect circulation and even distribution of heat to all rooms.

The organization of this company, combined with their excellent equipment for hauling the needs of their customers, is quite in keeping with the high standard of their product. The estimating and engineering department is directed by com-



Servoss Tubular Furnace Cut Open to Show Construction.

petent and seasoned heating engineers who will furnish plans and estimates on a complete heating plant, including everything necessary, with a detailed plan and full instructions for installation.

Contractors and builders all over the country have found that the service rendered by this department through correspondence is equally as satisfactory as if they had personally called at the company's salesrooms.

Servoss Furnace Company's catalog is now ready and is worth sending for. It is brimful of furnace and heating facts that will interest every builder. Drop a postal to the Servoss Furnace Company, 115 West Lake Street, Chicago, and they will mail a book promptly.

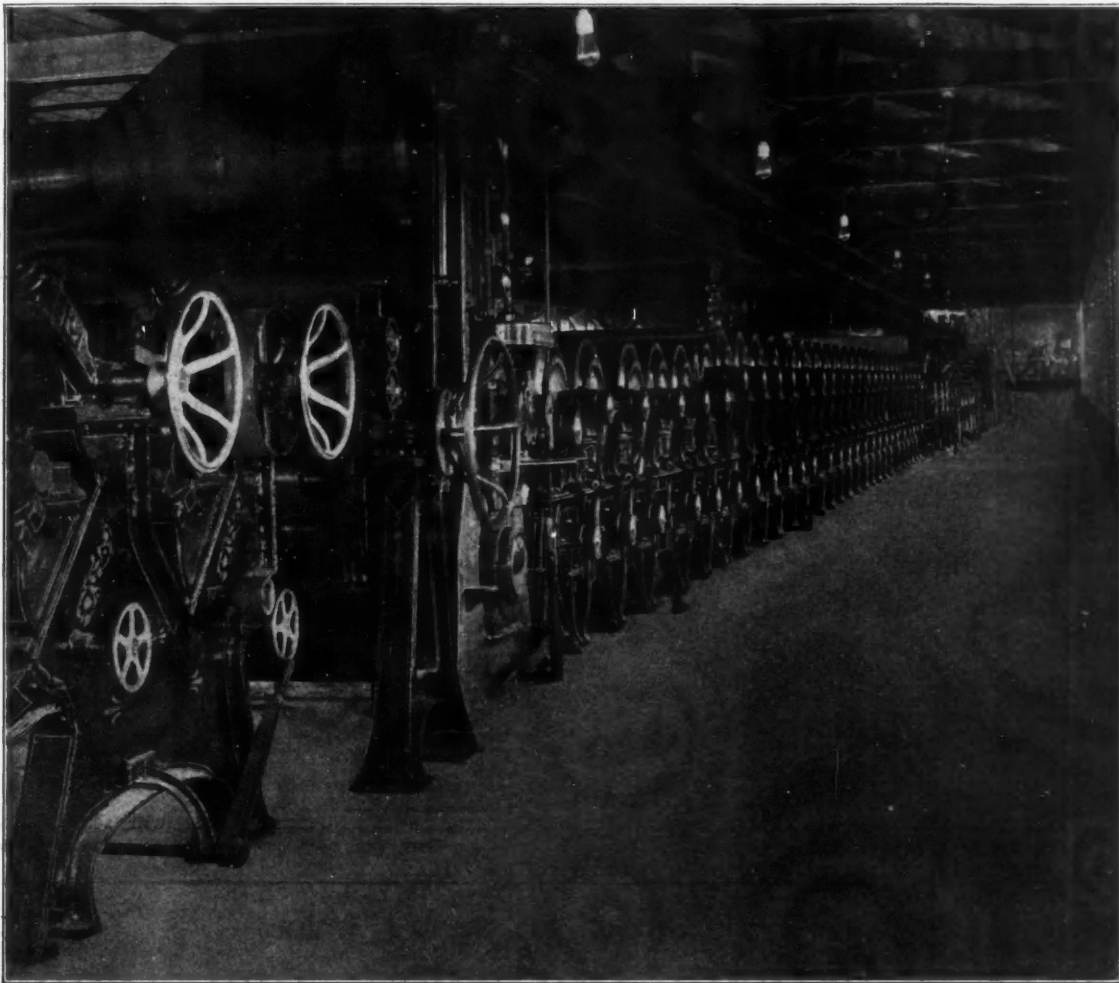


Good Automobile Advise

The automobile buying season is in full blast, and many purchasers will be car owners for the first time. Elwood Haynes, pioneer automobile manufacturer of Kokomo, Ind., gives the following timely advice to such owners, which should be very helpful indeed:

"One of the most important things for the automobilist to learn is not to 'tinker.' There is no mystery concealed

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder



Flex-A-Tile "GIANT" Asphalt Shingles

G IANT in every way—giant in size, in strength, in the "stuff" that goes into them—Flex-A-Tile GIANT Asphalt Shingles are built to give *lasting roof satisfaction*, regardless of weather, wear or climate.

The GIANT Rocky Mountains supply the asphalt—an asphalt entirely free from oil—that won't melt at a temperature less than 290° Fahrenheit.

We buy only the purest wool felt—long, strong, GIANT strands, capable of taking an asphalt saturation of **TWICE THEIR OWN** weight.

The slate and gravel surfacings come from the GIANT quarries of Vermont. Non-fading, unchanging natural colors of red, garnet, greenish gray, emerald and brown that age only makes more beautiful.

Put together with *giant* machinery by men of trained brains with *giant* experience in roof-making; heat treated—soaked and coated—rolled and crushed together—vulcanized into thick ebonized sheets and then cut by a steel monster into GIANT Flex-A-Tiles.

Send today for your specimen Flex-A-Tile GIANT

Learn for yourself why there is such splendid quality in this Flex-A-Tile GIANT shingle. Test its weight, its size, its quality for yourself. Drop us a post card now—we'll forward your Flex-A-Tile GIANT immediately.

NOTHING LIKE IT MADE

THE HEPPE'S CO.

Manufacturers also of Asphalt Paint,
Asphalt Roofing in Any Finish and
Utility Wall Board.

1010 S. Kilbourne Avenue
Chicago Illinois

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

under the hood of a car, there is nothing that should be kept secret from the car owner, but the temptation to 'tinker' usually becomes too great; a delicate adjusting screw is turned or a wire is disconnected and then—trouble begins.

"Talk to the repairman, study the instructions, learn all you can, and then when the emergency comes, you'll be prepared. But wait for the emergency. *Do not tinker.* Don't try to make adjustments when the car is already in adjustment. Don't begin tearing down until you have located the trouble. Don't try to improve the timing of the valves or the ignition; the manufacturer knows best. Treat your car as you would an expensive watch. A lot of trouble may be avoided by having an expert examine the car about once every two months. There are many little wrongs that may quickly develop into big wrongs if not discovered and checked.

"Don't patronize the cheap mechanic—his work is usually in keeping with his price. Keep your car out of the hands of the school boy who offers to work free of charge. The manufacturer is always ready to advise and help you. His reputation is in your hands and don't be too much inclined to blame the car when the first little trouble arises. Each machine has peculiarities of its own, and no matter how experienced you may be in the operation of motor cars in general, it is essential that the manufacturer's instructions be carefully read and followed.

"The idea that there is no particular care necessary for the successful operation of a car, aside from filling the tanks and radiator is erroneous. There is no more carefully designed mechanism in existence, and as is usually the case with all complicated machines, careful inspection and attention to details will

prolong its life and insure successful operation to an immeasurable degree.

"Treat your car well; lubricate it regularly. The result will be efficient service at minimum up-keep. And then, when the emergency comes, when something does go wrong, don't 'just tinker.' Be systematic. First, find WHERE the trouble is; second, determine WHAT it is; third, what is the remedy; and lastly, how this remedy may be applied."

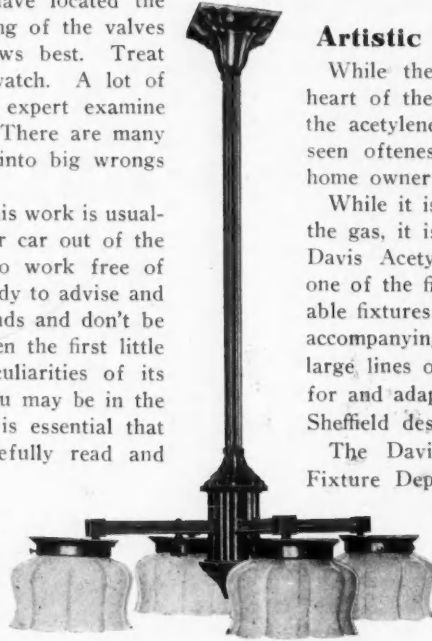


Artistic Acetylene Lighting Fixtures

While the acetylene generator or machine is the heart of the lighting system, the lighting fixtures and the acetylene lamps themselves are the parts that are seen oftenest, and on which the satisfaction of the home owner in his lighting system depends.

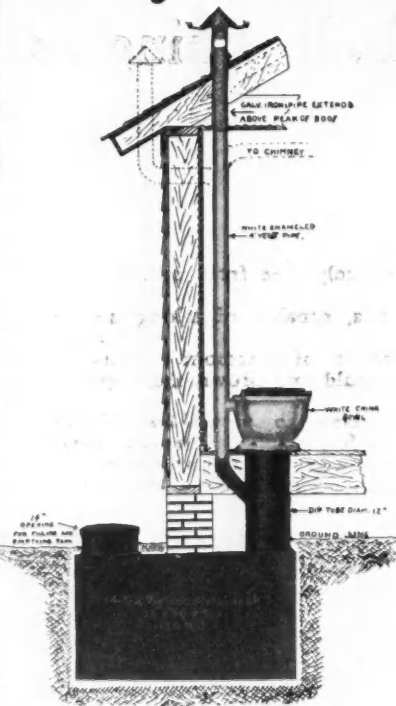
While it is the acetylene gas machine that generates the gas, it is the fixture that turns it into light. The Davis Acetylene Company, Elkhart, Ind., have been one of the first to fully realize the importance of suitable fixtures and lights for acetylene gas systems. The accompanying illustration shows a specimen of their large lines of fixtures and accessories, made expressly for and adapted to the use of acetylene. This is their Sheffield design, inverted chandelier.

The Davis Acetylene Company have made their Fixture Department an important part of their business. These fixtures are standard for all acetylene systems. They invite dealers and agents of other companies, regardless of the generators they are selling, to handle Davis acetylene fixtures. They will send their Fixture Catalog free upon request.



One of the Davis Acetylene Lighting Fixtures.

Every American Carpenter and Builder Should Know the Kaustine Chemical Closet



Suppose you are building a home, a factory, a school-house, anything, where there is neither sewer nor water—

Suppose you are remodeling a building where there is neither sewer nor water—

Isn't it a "feather in your cap"; a proof of your being "posted up-to-date," for you to know about and suggest

THE KAUSTINE CHEMICAL CLOSET?

- 1—Odorless
- 2—Sewerless
- 3—Waterless
- 4—Guaranteed
- 5—Inexpensive
- 6—Installed inside or outside
- 7—Requires no plumbing
- 8—Nothing to get out of order
- 9—Requires half an hour a year attention
- 10—Looks like regular water system

Write for our "A. C. & B."—"Get Acquainted" proposition today. Remember this is THE season, NOW, for YOU to make money with the Kaustine System.

Kaustine Co.

Dept. B

Buffalo, N. Y.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Consult Your Lumber Dealer

Lumber is holding its own in the regard of the builder, despite the general onslaughts of substitute materials. Manufacturers of substitutes have learned "*They can't fool all the people even a part of the time.*"

Good Lumber—*Arkansas Soft Pine*—gives the builder maximum returns on the money he invests.

Here is the opinion of a man who knows, the unsolicited statement from a contractor who has built homes for hundreds:

"Your *Arkansas Soft Pine* is all you claim and more. I will take it in preference to most soft pine and use it whenever I can get it. I have always wished there was more in the market."

Your local lumber dealer can furnish you *All the Arkansas Soft Pine* you need, whether you want one piece or One Million feet.

Make your preference known, ask for *Arkansas Soft Pine* and get full value for the money you invest.

We have literature of value to the architect, the contractor, the owner. It is sent free upon request.

If in doubt regarding what to use, consult

ARKANSAS SOFT PINE BUREAU

1738 Transportation Bldg.

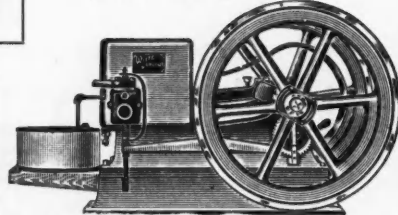
Chicago, Illinois

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



Get My Latest Engine Offer

Let a WITTE earn its cost while you pay for it. Take full 60 days' Free Trial to prove its big value.



Five-Year Guaranty

I unqualifiedly guarantee every WITTE engine for five years against defects, and consequent faulty operation. I carry the risk, as I have done for my thousands of customers during 27 years.
Ed. H. Witte.

WITTE Engines

Kerosene, Gasoline, Gas, Distillate

All styles 2 to 22 H. P. Used and recommended by shop, mill, and factory men all over the earth. All my life I have been a shop man, making my own engines. I sell only what I make. That is why, for 27 years, WITTE engines have always made good and stay good.

Look at These Prices!

4 H. P., \$ 69.75
6 H. P., 99.35
8 H. P., 139.65
12 H. P., 219.90

Other sizes proportionately low. WRITE FOR MY FREE BOOK, and all about my New Liberal Offer BEFORE you arrange to try any engine. I save you money, besides giving you the easiest chance to get the best engine service. Write me to show you.

Ed. H. WITTE, IRON WORKS CO., 1779 Oakland Ave., KANSAS CITY, MO.

The Power Back of the Sultan Saw Rig

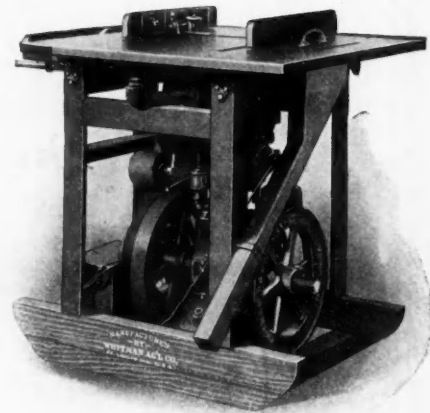
No saw rig, or for that matter, no other piece of contractor's power equipment, is any better than the gasoline engine that drives it,

When the Whitman Agricultural Company decided to put out a saw rig, they began in the right place. They first designed a special model of the well-known Sultan gasoline engine that would be just exactly right for saw rig duty.

The Sultan gasoline engines are, of course, well-known to all users of power. Since the year 1870, the Whitman Company have been laying up gasoline experience. During these forty-four years, the Sultan engines have met every test, have kept right in the front as gas engine science has developed, and all the way through have given dependable, satisfactory service. With such a good record as this, we are justified in expecting the best when the engineers of the Whitman Company announce that they have designed a Sultan engine especially and exactly suitable to the requirements of a power portable saw rig.

So having the heart of the saw rig the way they wanted it, the machine itself was designed and constructed in the same spirit.

The machine has been tested very severely in actual building work before it was ever put on the market. The Whitman Agricultural Company is now thoroughly satisfied that they have this machine just as it ought to be. They offer it to contractors and builders in full confidence. They guarantee the Sultan saw rig just the same as other Sultan engines and machines are guaranteed, for two years. They say



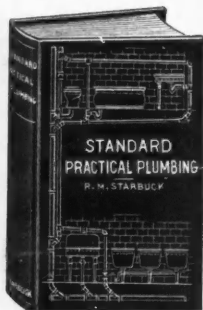
Sultan Power Saw Rig.

"Every Sultan outfit is made from the very best material, and we fully guarantee it against imperfect workmanship, bad material, flaws or breakage caused by faulty castings or parts that show flaws, and we will replace such parts, showing imperfect workmanship or flaw in casting free of charge for a period of two years from date of delivery of said article."

The Sultan portable saw rig and engine illustrated is furnished with 10-in. rip saw, 10-in. cross-cut saw, two 4½-in. jointer knives, sand paper wheel, two boring bits of ½ and ¾-in. size, emery wheel, 5-horse power Sultan sawing engine, gravity blower to take care of sawdust and shavings and many other approved details. All of the edged tools are Disston make.

The saw table, measuring 41¾ by 36 inches, is made of gray iron, the surface perfectly finished. The frame is steel, made of heavy angle iron, hot riveted together; thus insuring perfect rigidity, but light weight.

As the majority of the AMERICAN CARPENTER AND BUILDER readers are fully convinced of the labor-saving and money-making value of a portable power saw rig, we need take no space here to go into that matter. All that we will say is that every one of our readers should write the Whitman Agricultural Company, 7003 So. Broadway, St. Louis, Mo., and ask for a free copy of their "Contractors' Equipment Catalog."



Standard Practical Plumbing

By R. M. STARBUCK

450 pages, 347 illustrations. Of the three hundred and forty-seven illustrations contained in the book, one hundred of them are full-page illustrations. The illustrations all being drawn expressly for this work, show the most

modern and best practice in plumbing construction.

Plumbing in all its branches is treated within the pages of this book, and a large amount of space is devoted to a very complete and practical treatment of the subject of Hot Water Supply and Circulation and Range Boiler Work.

Another valuable feature is the special chapter on Drawing for the Plumber.

It Contains the Following Illustrated Chapters

- | | |
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| 1. The Plumber's Tools. | 16. Ventilation. |
| 2. Wiping Solder, Composition and Use. | 17. Improved Plumbing Connections. |
| 3. Joint Wiping. | 18. Residence Plumbing. |
| 4. Lead Work. | 19. Plumbing for Hotels, Schools, Factories, Stables, etc. |
| 5. Traps. | 20. Modern Country Plumbing. |
| 6. Siphonage of Traps. | 21. Filtration of Sewage and Water Supply. |
| 7. Venting. | 22. Hot and Cold Supply. |
| 8. Continuous Venting. | 23. Range Boilers, Circulation. |
| 9. House Sewer and Sewer Connections. | 24. Circulating Pipes. |
| 10. House Drain. | 25. Range Boiler Problems. |
| 11. Soil Piping, Roughing. | 26. Hot Water for Large Buildings. |
| 12. Main Trap and Fresh Air Inlet. | 27. Water Lift and Its Use. |
| 13. Floor, Yard, Cellar Drains, Rain Leaders, etc. | 28. Multiple Connections for Hot Water Boilers; Heating of Radiation by Supply System. |
| 14. Fixture Wastes. | 29. Theory for the Plumber. |
| 15. Water Closets. | 30. Drawing for the Plumber. |

Price, Postpaid \$3.00

Radford Architectural Co.

1827 Prairie Ave. : : : Chicago, Ill.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

On all woodwork where a filled grain effect is desired use Johnson's Paste Wood Filler

Floors finished with Johnson's Paste Wood Filler are sure to give satisfaction

**1
lb. of
Johnson's
Paste Wood
Filler — FREE**

Johnson's Paste Wood Filler is unquestionably the best on the market. All classes of trade, including furniture manufacturers, prefer it.

It will not harden in the cans, and may be wiped with equal ease in ten minutes or two hours after being applied. It does not settle after thinning.

Johnson's Paste Wood Filler is made in several shades — *Natural, Dark Oak, Golden Oak, Antwerp*, etc. The Natural is slightly tinted with Ochre so it will not show white in the grain of oak, maple and other woods.

Mail the coupon and secure free and postpaid a pound of Johnson's Paste Wood Filler for trial. We will also send you a free copy of our 25c book "The Proper Treatment for Floors, Woodwork and Furniture," which gives detailed information on finishing wood—soft or hard—old or new.

Johnson's Prepared Wax

is a complete finish and polish for all wood—floors, woodwork and furniture. Apply with a cloth and in five or ten minutes polish with a dry cloth. Gives perfect results over any finish—varnish, shellac or oil. For polishing **automobile bodies** and bar tops it has no equal.

Johnson's Flat Wood Finish

gives that artistic, hand-rubbed effect at one-third the expense. Does not require rubbing or polishing. Remember—for any work on any wood, Johnson's Finishes are best.

Please send me free and postpaid a pound sample of Johnson's Paste Wood Filler. I agree to try it and report results to you.

I buy paints from.....

Name

Address

City

State.....

To

S. C. Johnson & Son

"The Wood Finishing Authorities"

Racine, Wis.

A. C. B. 5

Johnson's Prepared Wax is a lasting artistic finish for floors - new or old - soft or hard

Johnson's Flat Wood Finish enables you to get hand rubbed effects with little labor and extra profit

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.

Hook for Measuring Tapes

This hook, when attached to the first end of a steel measuring tape, enables one person to take long as well as short measurements readily, while ordinarily two people are required, one at each end of the tape.

This is a new article, just put out by the Lufkin Rule Company. It is a substantial, nickel-plated hook, with serrated face as per cut, and is designed so that it can be instantly



Hook for One-Man Tape Line.

attached to the first end of 1/4 or 3/8-inch wide steel tapes. The hook grips the end of the article to be measured, and is so constructed that when attached to the first end of any regular tape measuring from the end of the ring, the zero point falls exactly at the inside of the hook, so that measurements obtained are accurate. The hook can be as readily detached from, as attached to, the tapes, in no way interfering with the use of the tape in the regular manner.

The Automatic Dumb-Waiter with Ice Compartment

Any housewife will tell you in a minute how much drudgery a dumb-waiter saves her. A dumb-waiter operating just between the kitchen and cellar travels—so it has been estimated—an average of sixty-one miles a year, and in that time carries about seven tons of kitchen necessities up and down; which, without it, the tired housewife would have to pack up and down the cellar stairs.

The Sanitary Automatic Dumb-Waiter, of the kind furnished by the York Automatic Dumb-Waiter Works, has



Dumb Waiter with Ice Compartment.

proven itself a great blessing. For seven years these York automatic dumb-waiters have been in use, so they are no longer an experiment. Improvements have been made from time to time and the latest one permits the dumb-waiter to be iced. They call it their refrigerator waiter.

In this, the upper compartment is converted into an ice chest of 50 pounds ice capacity. The dumb-waiter is packed with wool paper, sheet cork, mineral wool and asbestos sheeting for lining; and cannot be excelled as a cold retainer.

The photograph shows the icing door at the top slightly raised. Notice the refrigerator compartment is a two-shelf compartment. This gives plenty of space for milk, butter and other food stuffs that have to be kept extra cold.

The lower compartment of the

waiter furnishes lots of space for other materials. As the whole cabinet goes down into the cellar, everything is kept cool, and there is a big saving in the amount of ice consumed. These York automatic dumb-waiters are easy to install, and cost nothing to operate. Address the York Automatic Dumb-Waiter Works, 639 W. Market Street, York, Pa.

Packard MOTOR CAR COMPANY
DETROIT, MICHIGAN

Purchase Order No. **R 13376**
Equipment No. **R-1938**
For **R.C.**
Date **2-25-14**
Charge **R-1975**

To **Heppes Company,**
45th & Fillmore Sts.,
Chicago, Ill.

Please furnish us material specified below: Freight-Vanah Ry.

14900	Sq. Ft.	32" wide	x 10'-0"	long Utility Board
43700	" "	32"	x 12'-0"	" "
800	" "	48"	x 8'-0"	" "
2200	" "	48"	x 10'-0"	" "
8750	" "	48"	x 12'-0"	" "
6000	" "	48"	x 14'-0"	" "

Please ship by **EXPR. MAIL**

Please acknowledge receipt of this order and state when delivery will be made. Material will be reserved subject to our inspection and if not in accordance with the specifications or otherwise defective, will be returned at your expense. We reserve the right to return goods to source of operations ordered, unless other arrangements have been made. In case of delay in delivery, we will not be held responsible for any loss or damage to goods in transit or in storage. Please do not pack in bulk or in loose order unless otherwise specified. Pack in case each package will need a label of 2x4 in size to cover each of them. We allow no postage or storage charges. Mark all Packages.

Construction Department
R 13376

Packard Motor Car Company
C. J. Solzberger, President

Why do Packard Experts Choose UTILITY Wall Board?

Below we reproduce an order recently received from the Packard Motor Car Company for 74,350 square feet of Utility Wall Board. This is a mighty important bit of evidence for the quality of Utility. For, in their mammoth Detroit factories, the Packard experts buy supplies by rule of science—choosing only the best because their standard of quality demands the best.

This Packard order is only one of hundreds we are constantly receiving from firms of similar excellence who buy by test and analysis.

To Be Used in Their Dry Rooms

The Packard People intend to line the walls of their dry rooms with this order of Utility. They wanted a wall that would stand up and give lasting satisfaction regardless of the enormous heat; a moisture-proof, weather-proof wall surfacing that would neither check, crack or fall off on the fresh varnish—and so they chose Utility.

UTILITY Will Withstand Severest Service

It's the "stuff" we put into UTILITY that makes it so good a wall board. The high-quality fibre board that is cemented together with a high-melt-point asphalt under enormous pressure. It's the quality of the materials we use and the way we apply them—backed by our years of satisfaction to customers, large and small.

The "Rush" Season Is Now Beginning

Utility is a year 'round seller, but the demand will be bigger than ever starting now. Are you prepared? If not, get ready, by all means. Grab off the "cream" of the repair and remodelling business—be a Utility Wall Board man this year.

UTILITY the Only FIVE-PLY Wall Board

We now use five layers of fibreboard because it gives that much more strength and stiffness than the usual two or three layers. This is thoroughly cemented together with four layers of high-quality asphalt, so that we get a thoroughly non-porous, moisture-proof wall board impervious to heat or cold. It costs more for us to make Utility this way—but the cost to you is no higher. We know that you will like Utility. Let us send you a specimen and our booklet. Just drop a post card. No obligations at all.

THE HEPPES CO.

Manufacturers also of Flex-a-Tile Asphalt Shingles, Asphalt Paint and Asphalt Roofing in Any Finish

4503 Fillmore Street
Chicago, Illinois

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

YOUR COPY IS READY

WRITE TO-DAY ~



OUR BIG 1914
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CATALOG NO 311
250 PAGES
8000 PRICE BARGAINS
JUST OFF THE PRESS

BIGGER AND
BETTER THAN EVER

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Will reduce your
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This Great Book is *Too Valuable* to mail except on Request, but if you want a Copy it will be sent you at once Postage Prepaid.

A Superbly Illustrated
PLAN BOOK

For those who expect to build a New Home, Summer Cottage, Bungalow, Barn or Garage. Tells How to secure Architect's Plans Free. Building made easy and safe. Will save you big money.

This Book is Free, but Send 10 cents to Cover the Cost of Postage and Mailing.



Gentlemen—Please send your FREE books listed below, to—

Name _____

Address _____

CHICAGO MILLWORK SUPPLY CO.

AMERICA'S GREATEST SASH AND DOOR HOUSE

1422 West 37th Street & Loomis Place, CHICAGO, ILL., U. S. A.

Place Check Mark Before Book Wanted

- Catalog of Building Material (POSTAGE PREPAID)
- Plan Book of Modern Homes

If Plan Book is wanted send 10 cents for postage and mailing 1422

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



This truck is operated by the County of Missoula, Montana, in hauling material for road construction.

KisselKar Truck with hydraulic dump body

The patent hydraulic KisselKar dump body shown is used with remarkable success in meeting the transportation requirements of contractors and builders, who measure time in dollars and cents.

It is one of the many KisselKar Truck models that are making money for men in your business.

KisselKar Trucks are good trucks, strong, simple, economical in fuel and tires and responsive to every demand. In more than two hundred lines of business they are being used with the utmost satisfaction to owners.

They are built by a corporation that is here to stay; one which will stand the most rigid inquiry as to its integrity and resources.

KisselKar Service

KisselKar Service is a definite, specific service **written into the sale**. There is no chance for misunderstanding—the guarantee covers everything plainly.

There are six capacity sizes in KisselKar Trucks—1500 lbs., 1, 1½, 2½, 3½ and 6 tons. Bodies to suit requirements.

SEND FOR ILLUSTRATED PORTFOLIO

KISSEL MOTOR CAR CO.

546 Kissel Avenue HARTFORD, WISCONSIN

Boston, New York, Chicago, Kansas City, Milwaukee, Minneapolis, St. Paul, San Francisco, Oakland, Los Angeles, Dallas and 300 other American and Canadian points.

KISSELKAR TRUCKS

Better Service, Better Satisfaction

The up-to-date American kitchen is provided with a good refrigerator. The wide-awake builder these days furnishes that refrigerator, making it a part of his home-building contract, just the same as he furnishes the plumbing system or installs the furnace.

In the cities, where the building of apartments for rent has developed into a science, every apartment, even the smallest ones, has its ice box furnished by the owner of the building. Sometimes it is built in, that is, fastened solidly in place and finished like the balance of the wood trim. Sometimes a movable refrigerator is furnished. No matter whether it is a movable piece of furniture or built in, the point is that the modern home requires a refrigerator and that purchasers of homes, as well as renters, like to have these things furnished. It adds to the standing of the builder to equip his structures completely. Very often he can do this at a moderate expense, too, as he can place the order at one time for a number of refrigerators, and get them at wholesale rates.

Refrigerator building is quite a study. It is one of the newer things that has come right to the front the last few years. The Herrick Refrigerator Company of Waterloo, Iowa, have built up a big business, manufacturing especially designed refrigerators for residences and apartments, for hotels, cafes, meat markets, etc. They also make special built-in residence refrigerators with outside icing door. These are very popular. Their line also includes ice cream cabinets, soda fountain bases, cheese counters, and other store ice boxes.

Their plant is one of the largest exclusive refrigerator factories in the world. They have superior facilities for making thoroughly good refrigerators at the lowest possible price. Their new catalog, No. 24, gives full particulars and should be in the possession of every one of our readers. It is a book of 76 pages, printed in three colors. It will be mailed to Our Folks free, on request.



"Titgrip" Shingler's Chair

Every man who works on a roof will be interested in the shingler's chair, illustrated in the accompanying photograph. Shinglers and painters can make fine use of this, as it will make their work safer and allow them to do more in a day. With this chair there is no need for foot holds and scaffolds, nor any need to drive nails in the roof. The "Titgrip" grips onto a shingle like a vise. The gripping feature works automatically—takes no time or effort. The chair is easily changed from place to place. The two legs are sharp pointed, so that they cannot slip. The chair weighs less than three pounds.

The Titgrip shingler's chair is made and sold by the C. & E. Manufacturing Company, 107 N. Center Street, Marshalltown, Iowa. Write them for price and full description. They are looking for a few carpenters in every locality to take orders for this chair. We understand their proposition is very attractive.



Chair in Position as on Roof—Gripping Device Ready to Clamp onto Shingle End.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Are You a Leader or a Trailer?



Traffic experts have figured that in only a few years from now 90 per cent of the commercial hauling will be done by motor trucks.

Already, in your own field, contractors and builders are using motor trucks, and find their use profitable—not only in reducing the per ton mile cost of hauling, but in time saved and in the general quickening of every part of the business.

A Reo Motor Truck in your business will cut out costly delays and exasperating "fall-downs" in delivering goods and materials. Right on the minute and ahead of time means better business and more profits all along the line.

Reo Motor Trucks have won the approval of shrewd carefully calculating business men in every line of industry—not only because of the remarkably low cost \$1650 for chassis with driver's cab, but because it has so many essentially modern and progressive features not found in other motor trucks.

Here are some of the features that mark the Reo as the most advanced type of medium heavy-duty motor truck now on the market: Reo Sectional Radiator, of 24 separate interchangeable units, may be repaired on the road anywhere; motor, clutch and transmission are cushioned on a sub-frame, away from jars and road shocks; left-side drive, and the best and handiest center control ever brought out; big armored

front frame; demountable driver's cab; gas headlights and Prest-O-Lite tank, and many other details of design and construction that mark the utmost advance in modern engineering practice.

These features mean sure, unbroken service, low up-keep cost, and that wide margin of safety that a motor truck must have to meet the frequent emergencies of extra service, bad roads and overloading, that cannot be otherwise forestalled.

Get Ahead of Competition

Don't wait until your competitor forces you to use motor trucks. Be a leader, and enjoy the profits and prestige that go to the man who uses modern methods and equipment.

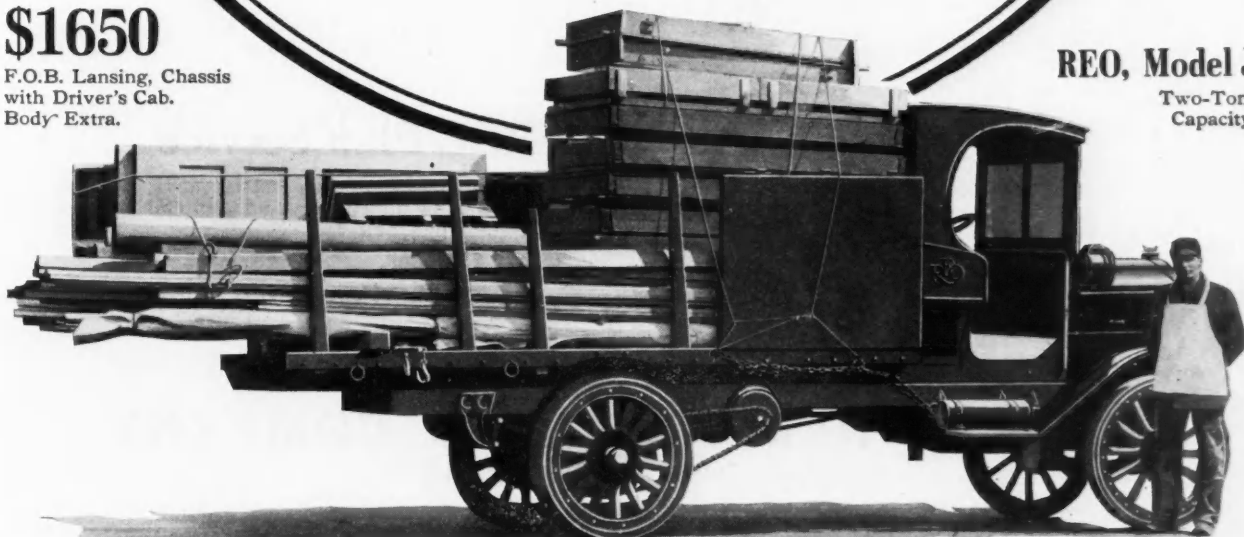
We will gladly assist you with facts and figures, if you will tell us the conditions under which you are working. A Reo Truck Catalog and other helpful information is at your disposal; write today.

Reo Motor Truck Company
Lansing, Michigan

\$1650

F.O.B. Lansing, Chassis with Driver's Cab. Body Extra.

REO, Model J
Two-Tons Capacity



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

1864—Shapleigh Hardware Company Celebrate Their Diamond Edge Golden Jubilee—1914

From many sources we hear of the extensive advertising and preparation being made by the Shapleigh Hardware Company of St. Louis, to celebrate their Golden Jubilee or Fiftieth Anniversary of their Diamond Edge trade-mark.

They feel very proud of this occasion, of which they have every reason to be. First, the Diamond Edge trade-mark has been in continuous use for the past fifty years. Second, that the Diamond Edge trade-mark has been the oldest trade-mark on edge tools in use in the United States today.

This, in itself, is an honor and distinction of which any house should feel justly proud.

By authentic records, it is shown that the Diamond Edge trade-mark was first used by the Shapleigh Hardware Company in May, 1864, and they have used said trade-mark continuously since that date.

The authorizing of registration of trade-marks was not approved by Congress until March 3, 1881, entitled, "An Act to Authorize the Registration of Trade-Marks and Protect the Same." It will be therefore seen that the Diamond Edge trade-mark had been in use seventeen years before Congress had enacted a law permitting the issuance of copyrights.

A few years had elapsed before this important trade-mark had been applied for. In 1881, application was made and granted to Mr. Frank Shapleigh, then vice-president of the A. F. Shapleigh Hardware Company, under which name they were then known.

The Diamond Edge trade-mark started in a small way, and applied to only a few items of tools fifty years ago, until today, it covers their entire line of hardware.

The phrase, "Diamond Edge," is a particularly appropriate

one to a line of high-grade tools. The word "Diamond" indicates the highest known quality and value of any well-known substance. This, coupled with the word "Edge," indicates quality so necessary in tools and cutlery.

To the house of Shapleigh, the Diamond Edge trade-mark is a pledge of quality; thus, their slogan has been originated as a constant reminder that "Diamond Edge is a quality pledge."

That quality is their constant aim is best proven by their



liberal guarantee on all goods bearing the Diamond Edge trade-mark.

Fifty years is their record. They have stood the test of time. New ideas and improvements have been constantly originated which has kept the Diamond Edge line constantly in the foreground and is today one of the most important trade-marks in use in any line in the United States.

That Diamond Edge goods have become popular has been demonstrated by their constant growth, with its meager beginning, until today they are regularly sold from ocean to ocean, from Canada to gulf and also in many foreign countries, by their large corps of well trained and efficient salesmen.

Established by Mr. A. F. Shapleigh, in 1843, this also marks their seventy-first year of business. Through all these years they have undergone several changes, but the name Shapleigh has always been continued in use.

Specify the MCCRAY Refrigerator

in your plans and win the lasting approval of your clients.

McCray Refrigerators are scientifically built. Their patented system of air circulation keeps a pure, cold, dry current of air constantly passing over ice and contents, all odors and impurities being automatically discharged through a water-sealed drain pipe. They keep perishable foods fresh and wholesome. Linings are sanitary and easy to clean—porcelain, white enamel, opal glass or odorless white wood. A convenience that will be appreciated by your clients is our outside icing arrangement, which keeps the iceman outside the home. Many of the largest Institutions and Residences in the country use the McCray. Stock sizes, or built-to-order, just as your requirements demand.



Take Advantage of Our FREE Plan Service

We co-operate with architects everywhere and will gladly relieve you of any refrigerating problems that confront you. Send us a rough plan of kitchen arrangement and dimensions and our efficient corps of draughtsmen will furnish you complete blue-prints and specifications and relieve you of many of the troublesome details you encounter.

Send Now for the Following Catalogs for Your Files

No. 91—Regular Sizes for Residences.

No. 73—For Florists.

No. 50—For Hotels, Clubs and Institutions.

No. 60—For Meat Markets.

No. 69—For Grocers.

No. A.H.—Built to Order for Residences.

MCCRAY REFRIGERATOR COMPANY

606 Lake Street, Kendallville, Indiana

For Branch Salesrooms in Principal Cities, See Your Local Phone Directory.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



Exposition Chief Buys Haynes Car

Chas. C. Moore, President of the Panama-Pacific International Exposition, has purchased a Haynes four-cylinder car equipped with the Vulcan Electric Gear Shift.

Worthy of note is the fact that this car is the twenty-seventh owned by Mr. Moore. It is in constant use—much more so than were any of its twenty-six predecessors, and, due largely to its simplicity of control, Mr. Moore frankly admits that only now is he deriving the real pleasures of motoring. No doubt about it—the hand shift method suffers by comparison.

Before you buy, look over other cars at the price you want to pay, compare the specifications, part for part with those of the Haynes. Here are a few facts regarding the

HAYNES

America's First Car

The Haynes motor has a bore of 4¼ in. and a stroke of 5½ in.; cylinders cast in pairs; L-head design; valves enclosed; with a dynamometer rating of 65 and 48 horsepower on the "six" and "four," respectively. Ignition is provided by the American Simms Dual High Tension Magneto; carburetion, by the Stromberg device; electric lighting and starting, by the Leece-Neville dust-proof separate unit system; and cooling by centrifugal pump, pressed steel fan and cellular radiator.

Other Haynes specifications are the splash and gravity lubrication system; contracting band clutch; Timken and McCue full floating rear axles; twenty-one gallon gas tank on rear of chassis; motor-driven tire pump; extra demountable rim; and Collins curtains. Shock absorbers on the "six."

The Haynes "Four," 48 dynamometer horsepower, 118-inch wheelbase... \$1785 and \$1985

The Haynes "Six," 65 dynamometer horsepower, 130-inch wheelbase... 2500 and 2700

The Haynes "Six," 65 dynamometer horsepower, 136-inch wheelbase... 2585 and 2785

"The Complete Motorist" by Elwood Haynes, Father of the American Automobile Industry, fully describing the Vulcan Electric Gear Shift, will be mailed upon receipt of ten cents in stamps. Write to

THE HAYNES AUTOMOBILE COMPANY, 14 Main St., Kokomo, Ind.

Builders of America's First Car

The Haynes car is handled by Direct Factory Branches at 1715 Broadway, New York City, N. Y.; 1702 Michigan Ave., Chicago, Ill., and by dealers in every state in the Union.

Dealers: The Haynes sells readily because of its mechanical features. You may be in open territory—send for catalog and four pages of detailed specifications, giving over 500 items which comprise the Haynes. Write us right now!

THE HAYNES AUTOMOBILE CO., 14 Main St., Kokomo, Ind.

Enclosed find 10 cents in stamps. Please send me Elwood Haynes' Book, "The Complete Motorist."

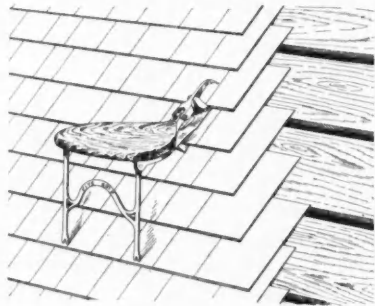
NameAddress

I expect to buy a car about.....

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

"TITGRIP" SHINGLER'S CHAIR

A modern necessity for fast, easy shingling



**YOU
can lay
5,000
shingles
a day if
you have
the
"TITGRIP"**

Chair in position on roof. Claw grips shingles already laid. Quickly released when shifted. **A positive foe to "That tired feeling!"**

FINE for painting jobs, too. It makes the day's work easier. Does away with all chalk lines, straight edges, footholds and scaffolds. No need to drive nails in the roof. The "Titgrip" can be easily changed from place to place and can't slip. Grips like a vise. Light and easy to handle.

Try the Titgrip Shingler's Chair once and you'll never be content to go back to the old way of sprawling all over the roof and ache in every bone after the day's work.

AGENTS WANTED

Write for Price and Full Description

C. & E. Mfg. Co. 107 N. Center St.
Marshalltown, Iowa

WEST BANGOR SLATE



Permanency and Satisfaction

Nature has made the most durable roof known, **West Bangor Slate—rock hard.** You cannot think of a roofing that will offer more resistance to all weather conditions and to fire, than **WEST BANGOR SLATE.**

Because of its wearing qualities and its moderate cost, **West Bangor Slate** is the roofing for you. Other roofing materials cannot be compared with it. **West Bangor Slate** leads. No imitations, no "man-made" roofings can compete with Nature's best.

Use **WEST BANGOR SLATE** on your modest residences, on your churches, schools, factories and store buildings. **WRITE US FOR FREE SAMPLES AND PRICES.** We'll show you why you can afford **WEST BANGOR SLATE.**

BANGOR SLATE MINING CO.
Trust Building Bangor, Penna.

Clover Leaf Equipment

The wear and tear on contractors' equipment is something pretty strenuous, so that in the long run it is the strong, simply built machines that stand up the longest and give the least amount of trouble.

A machine with a lot of complicated parts may look very convincing on the demonstration floor, but in the rough-and-tumble fight out on the job it's quite a different story.

Here's where the question of upkeep cost comes in. The profits from many a job have been wiped out by repair

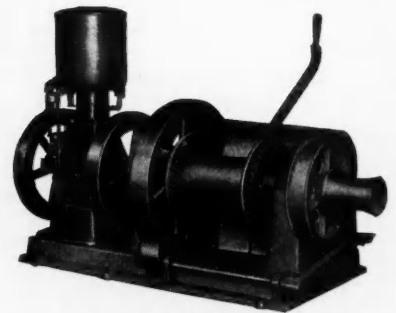


Clover Leaf Mixer with Handy Side Loading Platform.

expenses on complicated power machinery. Contractors who have been using the Clover Leaf mixer are congratulating themselves on this matter of upkeep costs. They say there is practically no upkeep expense on the Clover Leaf, as it is so simple and strong.

As our readers doubtless know, the Clover Leaf mixer has no paddle or deflector arrangement, but accomplishes the mixing because of the shape of the mixing drum itself. This is a mixer without any "insides."

The same strong simplicity that marks the Clover Leaf mixer is also characteristic of the Clover Leaf contractors' hoist.



Clover Leaf Builders' Hoist

This has a main drum for single line lifting; sheave for double platform elevating; winch head for general utility; ratchet for holding load; forward and reverse operating lever, etc. The engine is mounted on the same base with the hoist, making a very compact rig.

If interested in either mixer or hoist, write the Clover Leaf Machine Company, South Bend, Ind., for their illustrated catalogs, giving full particulars.



A Keyless Padlock

The "No-key" padlock is offered by the Main Line Sales Company, Box 28, Bryn Mawr, Pa., at a sharp reduction in price. This is the padlock that abolishes the key nuisance. The face of the padlock carries eight buttons, any of which may be included in a combination. As more than 40,000 combinations are possible, each purchaser is assured of a combination known only to himself.

Building mechanics find the "No-key" padlock very handy for locking up tool boxes, work sheds, garages, etc. The "No-key" padlock is also just the thing for locking up a bicycle, motorcycle or boat. Write the Main Line Sales Company for circular and price.

You will get **SPECIAL ATTENTION** if you tell Advertisers you read **American Carpenter and Builder.**



The Honeywell Unique Hot Water Radiator Valve.—With this valve it is only necessary to connect to one end of the radiator.

Architects Recognize True Merit —and That Alone

Simply that a device—or a method is *new* is not sufficient recommendation to win recognition for it from the architectural fraternity.

Its merit must be *unmistakable*—its superiority *marked*—to be accepted and approved by the

keen, discerning men who are leaders in the field of modern architecture.

For that reason—the rapid and wide-spreading popularity of the hot water heating system perfected by our Mr. M. C. Honeywell—the

Honeywell System of Hot Water Heating

—the fact that the demand for it from the architects of the world has compelled the erection of branch Honeywell manufacturing establishments in Montreal, Canada, and Birmingham, England, must mean much to every architect who is facing any kind of a heating problem.

The higher order of efficiency—the decidedly greater economy of installation and upkeep—the remarkable sightliness of the Honeywell System, all appeal to architects seeking the best.

Honeywell Heating Specialty Company

Our New Manual for Architects, Heating Engineers and Builders is Ready.

This 160-page manual on the installation of hot water heating plants is a desk book of *value* for daily reference—an exposition of that which is concrete in heating system truths.

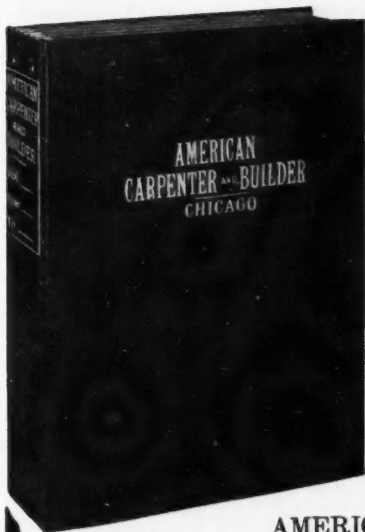
Where Shall We Send Your Copy?

140 Main Street
WABASH, INDIANA



The Honeywell Heat Generator—The Heart of the Honeywell System.

Have Your Own Reference Library At a Trifling Cost:



Here's a good way to keep your magazines. What's the use of cutting them up? It's just as easy to save the complete magazine and have the use of ALL the good information it contains.

We have had 10,000 Binders made up for our readers. We don't want to make any money on these, so we're selling them at actual cost. We do want you to save every number of the AMERICAN CARPENTER AND BUILDER, because we know that you'll always find it a handy and valuable reference.

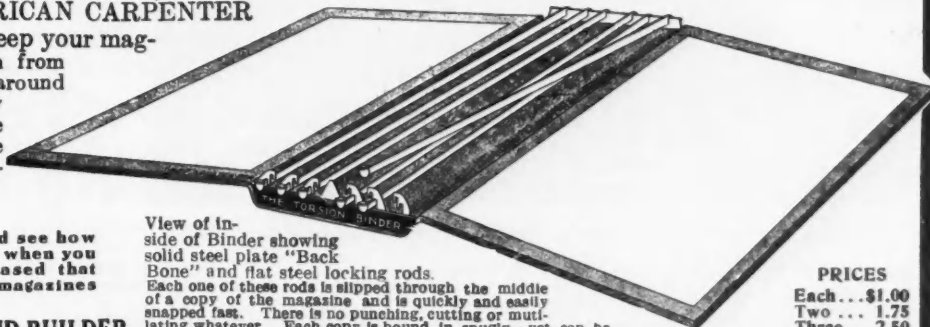
These "TORSION" STEEL WIRE BINDERS are made of maroon art canvas and lettered in gold. On the back of each one is a three-color label with spaces for dates and volume number. Each binder holds six numbers (1 volume) of the

AMERICAN CARPENTER

AND BUILDER. They keep your magazines neatly and save them from being torn, soiled or kicked around the house. When bound neatly in one of these Binders, the magazines are never in the way and look fine in any bookcase or on any bookshelf.

Send for Binders today and see how nice they are. We are sure when you have one you'll be so pleased that you'll want to bind all your magazines

AMERICAN CARPENTER AND BUILDER
1827 Prairie Ave., Chicago, Ill.



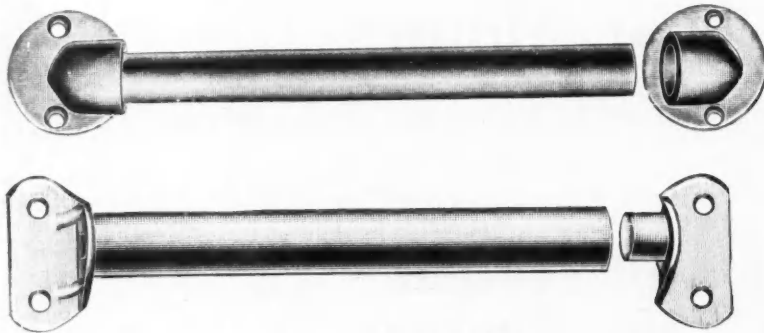
View of inside of Binder showing solid steel plate "Back Bone" and flat steel locking rods. Each one of these rods is slipped through the middle of a copy of the magazine and is quickly and easily snapped fast. There is no punching, cutting or mutilating whatever. Each copy is bound in snugly—yet can be opened absolute y flat. Keeps your magazines clean and fresh—and right where you want them for ready reference.

PRICES
Each... \$1.00
Two... 1.75
Three... 2.50
Four... 3.25
Five... 4.00

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Shelby Push Bars and Screen Door Guards

The Shelby Spring Hinge Co., Shelby, Ohio, manufacturers of "Chief" floor hinges, door checks, screen door hinges and hardware specialties, recently added to their line, Shelby push bars and screen door guards. Both the push bars and



Two New Styles of Screen Door Guards Offered by Shelby Spring Hinge Co.

door guards are made in 30 and 36 inch lengths, one-half inch bar with detached ends. If shorter lengths are desired all that is necessary is to saw the rod with a hack saw to the proper length. They are finished in the regular hardware finishes.

"Reliable Power"

Catalog No. 614 of the Novo Engine Company, 443 Willow Street, Lansing, Mich., carries the above title. It is a very attractive, 64-page book, telling all about Novo gasoline engines and contractors' equipment. It is very interesting

to see illustrated just how Novo engines are being used. Builders will get a good many worth-while ideas from a perusal of this book.

The construction and operation of Novo engines is illustrated and described very thoroughly. Sizes from one-horse power up to 15-horse power are featured. They are shown with stationary mounting, mounted on skids, and mounted on wheel trucks. The reasons for Novo reliability are fully explained. The contractors' equipment illustrated includes power hoisting outfits, power pumps of several types, Novo power saw rig, air compressor outfits and double platform elevators.

This valuable book will be sent free to all readers who will write for it.



Gas Lighting for Country Homes

A modern light for the country home of any size and in any location is featured in the new illustrated catalog just received from the Alexander Milburn Company, Baltimore, Md. This catalog deals with acetylene gas lighting and describes the Milburn "Homegas" machines. The smallest "Homegas" machine is a 16-light capacity—just right for the country bungalow. There are also 2, 3 and 4-cylinder machines, having a capacity of 32, 48 and 64 lights, respectively.

The Milburn "Wheel Feed" acetylene machines for public buildings and industrial plants are also illustrated in this catalog. These machines come in various sizes, ranging from 100 to 500-light capacity. These catalogs will be mailed with the compliments of the Alexander Milburn Company to all those interested.

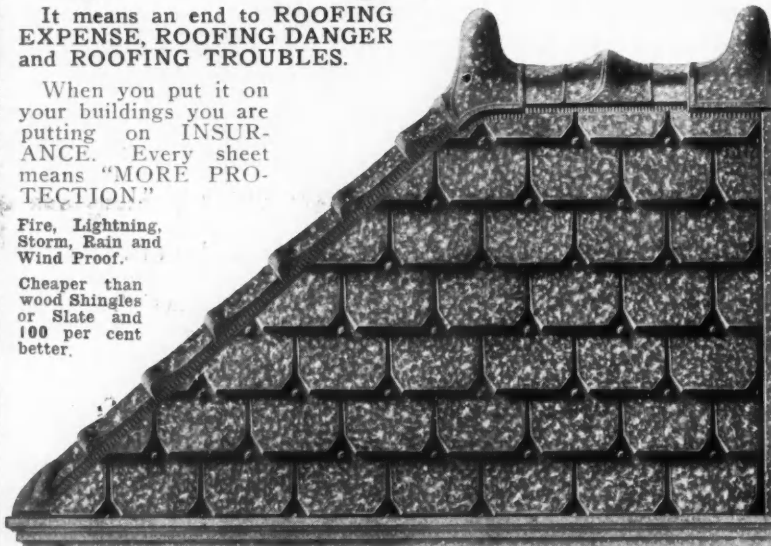
Quality The Distinguishing Trade Mark DICKELMAN EXTRA Metal Tile and Shingles

It means an end to ROOFING EXPENSE, ROOFING DANGER and ROOFING TROUBLES.

When you put it on your buildings you are putting on INSURANCE. Every sheet means "MORE PROTECTION."

Fire, Lightning, Storm, Rain and Wind Proof.

Cheaper than wood Shingles or Slate and 100 per cent better.



THE MOST BEAUTIFUL ROOF IN THE WORLD.—Ornamental and Lasting.

Many different designs in painted tin, galvanized or copper. Easy to lay, economical, beautiful. If you are a builder and contractor, let us know, for we have a profit-sharing arrangement which we make with builders, and it would pay you to ask us about it.

Consist of 99.9% pure, open hearth iron. This, combined with perfect galvanizing, enables us to give you a roof that will last! Over a quarter century experience is back of all our products, which include corrugated, v-crimped and roll Roofing besides shingles and other metal specialties.

DEFIES THE DESTRUCTIVENESS OF TIME

Here is an investment that pays unusually large dividends to

Carpenters and Builders

Galvanized Shingles can be laid by a Carpenter or Roofer quicker than any other material.

No Soldering required, just nails; the lock and flange take care of the rest. Under no condition can any of our DICKELMAN EXTRA Metal Shingles or Tile ever blow off.

No little bills to pay for Soldering and Painting on account of Leaking. Once on, on for a life-time.

Reduce the cost of insurance, being both fire and lightning proof. Lightning was never known to strike or injure a building covered with a metal roof.

Can be successfully laid by any workman who will read and follow our printed instructions. No solder is used; only a pair of snips and a hammer are needed.

Write for FREE CATALOG.

Offers many valuable roofing suggestions. Explains "Dickelman Quality" and guarantee.

The Dickelman Manufacturing Co. Department "C" Forest, Ohio

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

For the Information of the Contractor

ASBESTOS "Century" Shingles are Artificial Roofing Slate made of Portland Cement and long fibre Asbestos, compacted by a hydraulic pressure of 1,300,000 pounds per square foot. Being produced by scientific methods, they are tougher, more elastic, more uniform than any natural roofing material—or any composite shingles which do not enjoy the special advantages of the patented "Century" Process, which is controlled by the makers of Asbestos "Century" Shingles.

Send for the facts, and Booklet: "Roofing: a Practical Talk."

KEASBEY & MATTISON CO., Factors
Dept. B., Ambler, Pa.

Branch Offices in the Principal Cities of the United States

For Town or Country Houses

—USE—

HUDSON ASPHALT SHINGLES

Rich and beautiful for roofing or siding.
Provide fire protection at the least cost.

Surfaced with Red and Green Crushed Slate. Fast colors. Require no painting or staining. Rust-proof. Easy to lay.

Send for Samples
ASPHALT READY ROOFING CO.
9 Church Street : : New York, N. Y.



Buy Shingles Already Stained

You save money, time and worry, and the bother and muss of staining on the job. We select Washington Red Cedar Shingles (no poor or wedge-shaped shingles), preserve them with creosote and stain them in colors made of earth's finest pigments—no aniline dyes. Shingles are thoroughly dried, bundled and stamped.

"CREO-DIPT" STAINED SHINGLES

12 Grades. 16-18-24 Inch. 30 Different Color Shades

They last twice as long as brush-coated, painted or natural wood; cost less and look better than any stained-on-the-job shingles you ever saw.

The "CREO-DIPT" process insures an even stain or color on the job. We are responsible for both quality of shingles and quality of stain.

Write for Pad of Colors on Wood and Catalog that shows "CREO-DIPT" shingled houses in all parts of the country. Give us the name of your Lumber Dealer.

STANDARD STAINED SHINGLE COMPANY
1028 Oliver Street North Tonawanda, N. Y.



Residence of F. L. Grant, Shaker Heights, Cleveland. Architect, Mr. Wm. Powell. Gray Shingles on Side Walls; Darker Shade on Roof.

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.

CORTRIGHT METAL SHINGLES

TWO great questions with the prospective buyer of roofing are—"How long will this roofing last?" and, "What will be the cost for repairs?"

Frankly, we don't know just how long Cortright Metal Shingles will last. A great many Cortright Roofs, put on twenty-seven years ago, are as good as ever today, and have cost nothing for repairs or replacements.

We have a great number of letters from contractors and builders, telling of the satisfaction Cortright Metal Shingles have given customers during the ten, fifteen, eighteen, or twenty years they have been handling them.

Our illustrated catalog and special proposition to contractors and builders should be in your hands. Write now.

Cortright Metal Roofing Co.

**PHILADELPHIA
AND
CHICAGO**

NEVER NEED REPAIRS

You will get **SPECIAL ATTENTION** if you tell Advertisers you read **American Carpenter and Builder**.

Motor Trucks to Pump Hot Tar on Highways

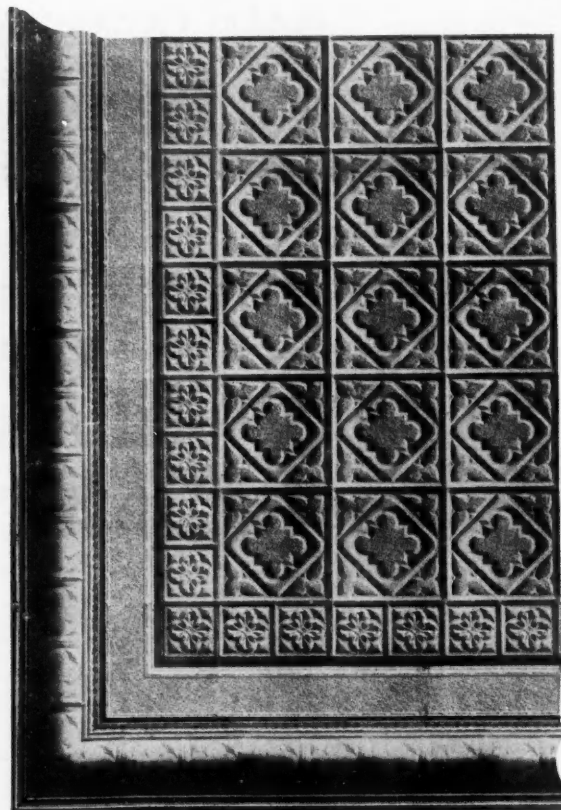
The White Company, of Cleveland, Ohio, announce the sale of three 5-ton trucks to the Good Roads Company, contractors, of Baltimore, Md. These trucks will be built with power transmission tank bodies for sprinkling and spreading hot tar and other road-binding materials.

The tank bodies will be built with a steam generator and a series of interior steam pipes for maintaining the tar in the proper state of fluidity and the power transmission will operate an air compressor to force the fluid through the passages to the spreading outlet.



Klauer Ceilings Easy to Sell

Metal ceilings, manufactured by the Klauer Mfg. Co., of Dubuque, Iowa, are being used by a great many readers of the **AMERICAN CARPENTER AND BUILDER**, and some of them have written to the manufacturers telling them how pleased their customers are. Recently a contractor in Pennsylvania secured the contract for the erection of a moving picture



Artistic Metal Ceiling—A Klauer Design.

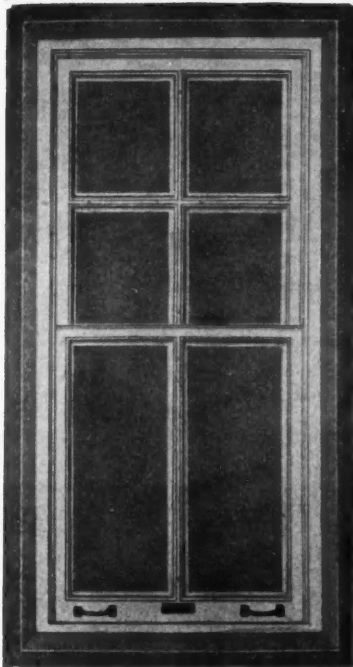
theatre. He recommended metal ceilings and walls, and at first the owner seemed inclined to reject them; but when our contractor friend showed him the handsome designs in the Klauer catalog, he at once decided that metal was indeed the proper material to use.

Klauer metal ceilings and walls are being installed by contractors with great success, in offices, stores, residences, and in fact they are becoming universally known as ideal material for all kinds of structures.

The beauty of metal ceilings cannot be fully appreciated until you see the new catalog, gotten out by the manufacturers. Every reader of the **AMERICAN CARPENTER AND BUILDER** should have one on hand to show prospective builders. It is sent free for the asking.

Make Your Buildings FIREPROOF

All modern factories, stores, warehouses, office buildings and all public buildings are using fire-proof materials wherever possible. You can give better service to your clients if you use our sheet metal products for your buildings.



Foster Fire-Proof Metal Window

Every article we manufacture is of a standard design. Made of the best materials obtainable for the purpose. Our fire-proof windows are endorsed by the Underwriters' Laboratories. We can save you big money on

Fire-Proof Windows, Skylights, Ventilators, Cornices, Metal Siding, Metal Shingles, Metal Ceilings, Conductor Pipe

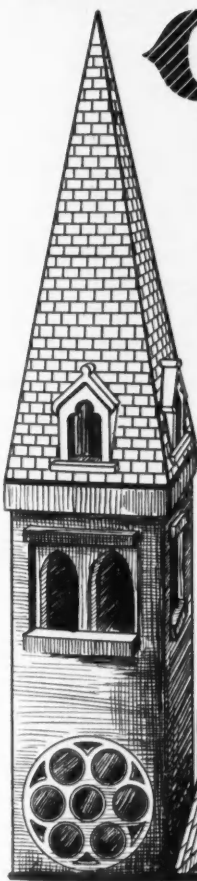
Write at once for our catalogs and circulars that illustrate and describe our sheet metal goods. Let us figure a price on what you need for any of your buildings. We can give you prompt service. Shipments on short notice are our specialty. We can furnish items from stock or will make special designs to your order at lowest prices.

Satisfaction Guaranteed in all your dealings with us. Our reputation is your protection. Send for Catalogs today.



Foster Metal Shingles
A fine design for residences or public buildings

FOSTER SHEET METAL WORKS
530 N. Tenth St. **SPRINGFIELD, ILL.**



G. F. T. ROOFING SLATE

Many Builders think that Slate Roofing is expensive

That's the wrong idea. Any Builder who once uses GENUINE FRANKLIN TUNNEL SLATE, uses it always. What's the answer?

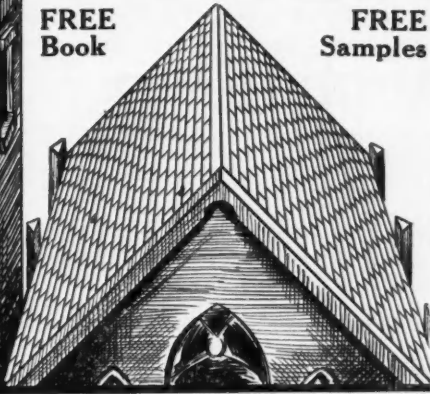
G. F. T. ROOFING SLATE is reasonable in first cost. The first cost is positively the last cost. It is the only roofing that satisfactorily meets EVERY REQUIREMENT of the PARTICULAR Builder. On account of their uniform size, G. F. T. Slates are very easy to lay.

We have published a most complete book on Slate Roofing and how it is laid. Sent FREE TO YOU.

SLATINGTON SLATE CO., Slatington, Penna.

FREE Book

FREE Samples



You Will Have the Pick of the Contracts

if you cover your houses with our slate. This is no idle boast or claim. It is proved by the fact that we ship more slate than any other firm in this country, and supply the "cream of the roofing trade" with goods and with assistance that enables them to obtain a fair price and a fair profit for their work.

To this end we maintain a special trade help department that is at the disposal of our customers without charge. You are hardly fair to yourself if you do not know just how we can serve you. Writing to us for particulars has been the first step to more profits and more satisfaction for a good many citizens of "buildingdom."

You are under no obligation, under no expense if you let us give you this information. Why not send for it today—now—before this slips your busy mind?

Simply fill out the attached coupon, tear off and mail it today.

Genuine Bangor Slate Co.

EASTON, PA.

Please send particulars about your ability to help me make more money.

Name

Address

It will pay you to fill this out, detach, and mail today.

May, 1914

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Send for This Truck Book

The Kissel Motor Car Company of Hartford, Wis., has just issued a new motor truck book containing more than three hundred and fifty illustrations of various KisselKar truck models in service. Looking over this publication for the first time, many will realize more than before what an important figure in transportation the truck is getting to be.

There is scarcely a line of business that doesn't use trucks, and this new KisselKar book doesn't merely say so, but proves it by the photographs of trucks in actual use.



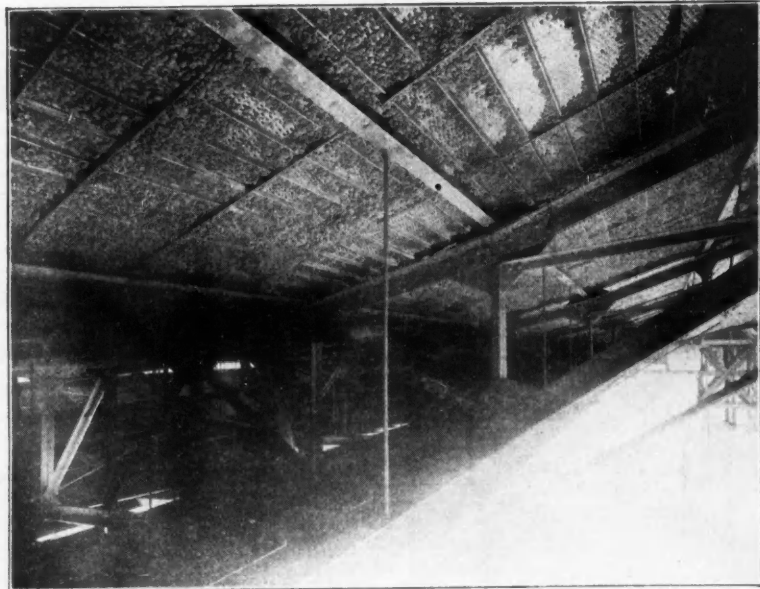
Rib-Trus in Jefferson Theatre, Philadelphia

In the new Jefferson Theatre Building, just being completed in Philadelphia, stringent building laws presented a rather difficult problem to the construction of the Auditorium ceiling.

In that city it is required that the structural steel of such structures be protected with 3 inches of concrete.

This is usually accomplished by making the ceiling, which hangs below the structural steel work of the roof, of a 3-inch concrete slab. This slab can be constructed in the usual manner with wood forms and the slab reinforced with rods or expanded metal, but the unusual height of the Auditorium made this type of construction both inconvenient and expensive.

However, after inspecting various types of self-centering materials, the bureau of building inspection finally approved 1-inch, No. 26 gauge Rib-Trus plates, manufactured by the



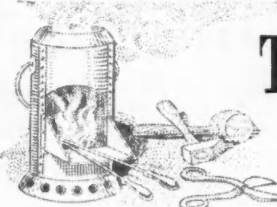
Self-Centering "Rib-Trus" Plates in Ceiling Construction in Philadelphia Theatre

Berger Mfg. Co., Canton, Ohio, for all spans not exceeding 3 feet.

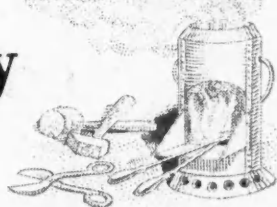
The construction calls for plates resting on the flanges of angles or "T" bars, which are bolted to the chord of trusses or other main bearings.

Over the Rib-Trus plates is placed 3 inches of cinder concrete, and the bottom of the plates are plastered to form the finished ceiling.

It is interesting to note that Rib-Trus was given preference for this class of construction by the building department.



The Roof for Posterity



is made from

COPPER BEARING STEEL

Actual time and weather tests have proved beyond question that this material gives superior service for roofing purposes. Architects, builders and property owners will save time, worry and expense by using our Copper Bearing

Sheets and Roofing Tin

Copper Bearing Sheets, both Black and Galvanized, are designated "C. B. Keystone Grade" added to the regular brand. Copper Bearing Roofing Tin is stamped "C. B. Open Hearth" in addition to brand and weight of coating. You should use no other. Send for booklet "Copper in Steel—the Influence on Corrosion."

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES:

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis

Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City.

Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle

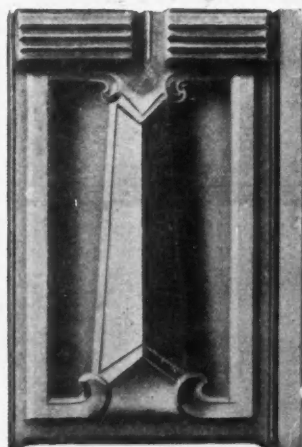
You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

THE ONLY ROOF THAT STAYS
 THE ONLY ROOF THAT PAYS

RED
 GREEN
 PURPLE
 BLACK

SHELDON'S SLATES

Cost no more than wood shingles. Outlast the building. No disadvantages. Used on new and old structures. Easy to lay; quick to obtain.
 Post a Postal and Get Posted NOW
F. C. SHELDON SLATE COMPANY, Granville, N.Y.

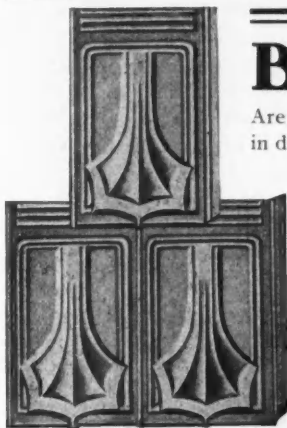


"Tamco Metal"

TILE OR SHINGLES

Durable and Artistic. For Residences, Barns, etc. Send for "Tile" Catalogue

THE TIFFIN ART METAL CO.
 TIFFIN OHIO
 Manufacturers
 Metal Roofings, Ceilings, Etc.

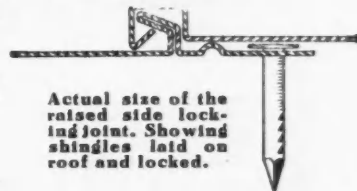


BUCKEYE METAL SHINGLES

Are the latest development in Metal Roofing. Patented Buckeye Raised Side Locking Joints, shown in detail to the right, formed entirely above the surface of the shingles, prevent rusting and leaking.

Practical—Lasting and Ornamental

Well made of heavy gauge metal. Absolutely proof against water, fire and weather. Come in three beautifully embossed patterns, one of which is shown to the left. Reasonable in price. Write for our catalog and special proposition to carpenters and builders today.



The Thomas & Armstrong Co., Dep't A, London, Ohio

Plastergon—the Choice of Prominent People



Dining Room of Elbert Hubbard's Nationally-Known East Aurora Inn, Finished in Plastergon

Men who have traveled much and seen the best interior finishes—who are in a position to get the best—these men, many of them, use Plastergon. Plastergon is used in Elbert Hubbard's beautiful Inn—it's being installed in the Kansas State and other Panama-Pacific Exposition Buildings.

PLASTERGON CREATED WOOD FIBER WALL-BOARD

Only Guaranteed Wall Board

You, as a builder, can't afford to risk your reputation with a board that's not dependable. Plastergon displaces lath and plaster—you get the plasterer's work, his profit. And you can get the decorator's job, too.

Drop us a postal—we'll gladly tell you how Plastergon will increase your Spring business. Samples and literature free.

Plastergon Wall Board Company, Dept. A, Tonawanda, N.Y.

Send the Coupon for 2 Big Free Books on Mantels and Millwork



We can supply you with millwork, mantels, builders' hardware, roofing, etc., at lower prices than you've ever paid for the same quality. Nothing cheap except the price. Write us; we'll save you money. Prompt shipment; Absolute Quality; everything as represented.



- | | |
|--|---------------------------|
| Red Oak Doors (as illustrated) | \$4.23 |
| Door Sets | 1.57 |
| Mantels | Price List on application |
| Windows | 70c and up |
| Columns | \$2.09 and up |
| Spindles | 1c to 2c |
| Turned and Square Newels | 31c to 72c |
| Screen Doors | .70c to \$3.00 |
| Window Screens (Metal Extension) | .25c to 55c |
| Maple and Beech Flooring | Prices on application |
| Spring Hinges, Bell Sets, Art Glass, Paint, Roofing, Church Pews and Pulpits and hundreds of other items you will use in building. | |
- We guarantee safe delivery and all round satisfaction. **WRITE FOR OUR TWO BIG CATALOGS.**

The Huber Builders' Material Company

45-49 Vine Street,
 CINCINNATI,
 OHIO

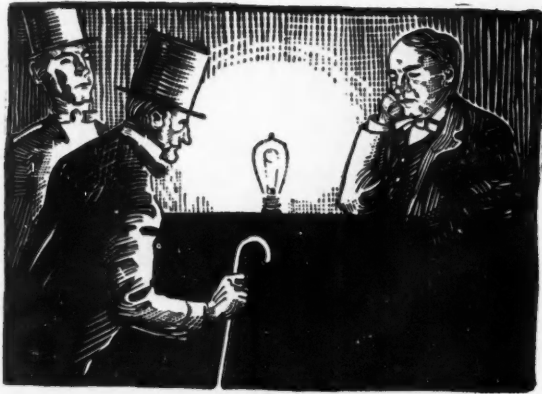


SPECIAL A. G. & B. COUPON

Please send, with **no charge** to me, your two big books on Millwork and Builders' Hardware. I will pay for the books and postage. Also explain your guarantee on all goods you sell.

Name.....
 Street.....
 Town and State.....
 Are you a contractor?

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



How Far Back Does Your Memory Go?

Have you ever given your memory a real test?

Take some object that you are accustomed to seeing every day—the electric light, for instance.

When did you first see an incandescent electric lamp?

Stop and think a minute! It's almost impossible to recall your first experience with such familiar things, isn't it?

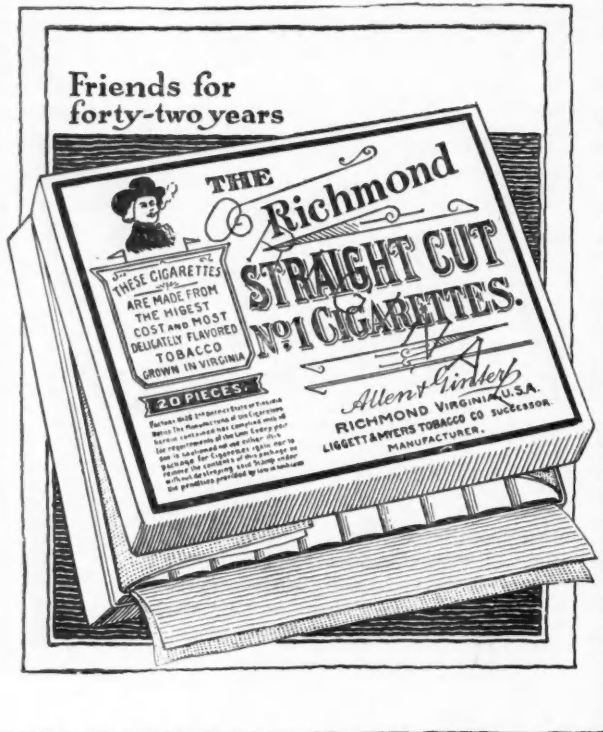
And just think, away back in 1879,

when Edison exhibited his first incandescent lamp—Richmond Straight Cut was already considered the "Henry Clay" of cigarettes. In the changing years that have followed, it has never lost its place. It is still the best of all Virginia cigarettes.

True, our memories may be fickle with the crowding, commonplace incidents of busy days, but which of us does not remember quality.

20 for 15c

Leggett & Myers Tobacco Co.



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

House-Moving Machinery

Every building contractor is interested in house-moving equipment, for he never knows when he will be called on to execute a quick move on some building. In the old days house moving was such a cumbersome task, requiring so much work, that only a few contractors ever took an interest in it. With the advent of up-to-date house-moving equipment, this has changed. Nowadays, the contractor simply runs three steel wheel trucks under a building and walks off with it.

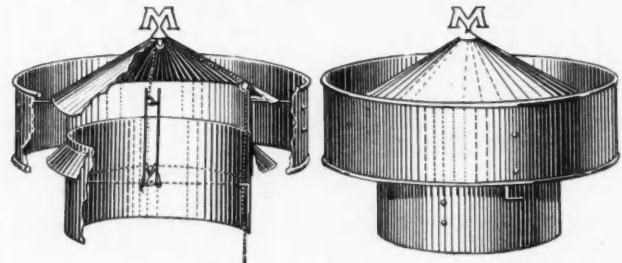
Looking over the new catalog, "B," of the House Movers Supply Company, Cedar Rapids, Iowa, we see just how all kinds of house-moving jobs are handled in the modern, easy way. Some things illustrated in this book will surprise some of our readers. You will find it an interesting book to have. Write for a copy today.



Ventilators with Fire Retarding Damper

The accompanying cuts illustrate the Monitor ventilators, manufactured by B. F. Lichty & Sons Co., at Waterloo, Iowa.

These ventilator heads are made along the same lines as the Monitor cupolas, and are fitted with a quick-acting, fire-retarding damper. This damper is equipped with a fusible link and is regulated with a chain. If the damper is open and a fire occurs in the building, the fusible link melts and the damper closes automatically, and is held firmly in the closed position, thus checking the fire and saving great loss.



Two Views of Fusible Link Ventilator.

They are adapted to all kinds of buildings where ventilation is required and are suitable where a fan is necessary. They are made of heavy metal, well braced, and can be had in galvanized steel, rust resisting metal and copper. Are made in all sizes from 12 inches up.

The manufacturers, B. F. Lichty & Sons Co., will be pleased to send lists and discounts to readers of the AMERICAN CARPENTER AND BUILDER who are interested. They also furnish, free of charge, ventilation plans for any kind of buildings, as they are practical ventilating engineers.



"S. S. S." Low Priced Mixer

"The Standard" low charging mixer was put on the market several years ago and immediately the contractors adopted this machine for certain classes of concrete work where a portable machine was desirable.

The manufacturers of "The Standard" mixer are now bringing out a new "SSS" low priced machine, and we are certain that there will be the same popular demand for this machine for another class of concrete work where it is now customary to mix by hand. We refer to the smaller contract work where the contractor feels that he cannot afford to buy a mixer, or where it is desirable to have an outfit which can be moved by one or two men. For sidewalks, curbs and gutters, foundations, piers and many other classes of work and also where it is desirable to use the machine on different floors in the building for cement floors, top dressing and cement mortar or plaster, this machine will be useful.

The new "SSS" low charging mixer is mounted on either two or four wheels, and equipped with gasoline engine, the



It Pays to Equip Your Buildings with the TUEC Stationary Cleaner

The TUEC adds to the selling value of a building twice as much as it adds to the cost; it increases the rentals out of all proportion to the increased investment involved. It finds quick buyers and ready tenants. And it keeps the building new

Leading contractors and builders have proven this. Many of them now place their orders for TUECS in quantity. Three out of every five stationary cleaners in use today are TUECS. The proportion will be still greater after the present season, because we are now selling the

TUEC Stationary Cleaner - 170
Complete with Hose and Tools, for only
\$160 F. O. B. Canton, Ohio

At this price the TUEC becomes as necessary to the equipment of any modern building as a stationary heating plant, stationary plumbing and stationary lighting.

The TUEC is made in 15 sizes. The TUEC Book tells where thousands of them have been installed in homes, apartments, theaters, hospitals, schools, office buildings and public institutions. Also gives letters from enthusiastic owners.

Write today for the TUEC Book. Special inducements to contractors and builders. Prompt shipments. Guaranteed satisfaction.

UNITED ELECTRIC COMPANY
30 Hurford St., Canton, Ohio

Sixty TUEC offices in United States. Also offices in Canada, Hawaiian Islands and Australia.



GET MORE CONTRACTS

Your interest as a contractor and builder lies in satisfied customers. But your good work is wasted if you build with poor stock.

It takes quality lumber to build a quality house.

Our lumber is all carefully graded up to the manufacturers' grading specifications; and with our enormous stock we fill your order exactly, item for item—no trouble-making substitutions in dimensions or quality.

We carry everything you need, including roofing and mill work—all guaranteed high quality.

You get quick service and low freight rates from Dubuque.

If you're in the market for a carload, come to Dubuque and let's talk it over. We'll refund your railroad fare both

ways and you select what you want.

BESIDES, we have a special proposition

OUR DUX BAK ROOFING has no equal in the market for the money. Sells for less and is backed by a longer guarantee than any other standard goods.



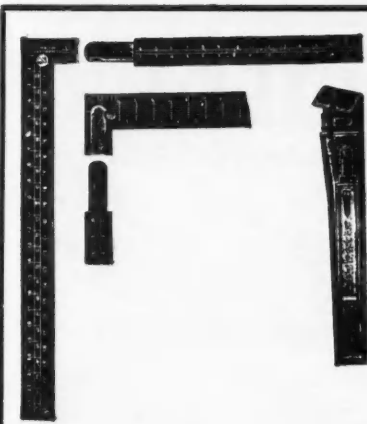
in which you'll be interested.

We'll save you money on small orders, and guarantee satisfaction.

Write us at once. Place yourself in position to make more money during this building season.

Orders solicited only from Iowa, Illinois, Southern Wisconsin, Indiana, Northern Missouri, Southern Minnesota, Southeastern South Dakota.

PETER J. SEIPPEL LUMBER COMPANY
212 S. Locust Street DUBUQUE, IOWA



This is the **Standard Take Down Square.**

It makes good with the user. Send and know more about it.

Southington Hardware Co.
Southington, Conn.

WATERLOO CAST IRON Coal Chutes



Protect the house from careless coal men. They are burglar proof—unlock only from the inside.

Being made of cast iron, are not affected by the weather.

Wire glass in door furnishes light to cellar. When door is open, the glass is protected by heavy steel, which operates automatically.

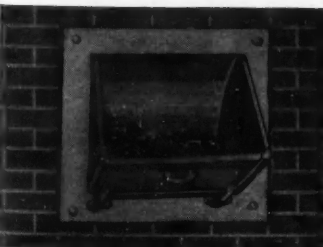
The watertable at the top of chute protects the inside of foundation from moisture. Doors are extra heavy, with three hinges at top, and are made with a beaded edge which extends over the border opening, making a tight joint. Are made to fit any depth wall.

Send for catalog, which quotes special prices to contractors.

The Waterloo Register Co.

114 Rath Street

Waterloo, Iowa



THE ENTERPRISE Coal and Fuel SHUTE

will absolutely protect the foundations of your buildings. It saves battered and disfigured walls and broken windows. It is the *cheapest* burglar-proof Fuel Shute on the market at the price for stores, churches, schools, offices and homes. All iron, wonderfully strong.

Price \$7.50. Special Discount to Builders

Write for Special Builders' Discount
Enterprise Iron Works Albert Lea, Minnesota

LEAVITT Coal Chutes

are becoming popular with contractors and builders—made of cast iron with the exception of steel apron to protect the wall at the bottom.

Protect Your Buildings

Leavitt Coal Chutes protect the side of the building from becoming damaged by careless coal drivers—no dust and dirt to disfigure building or premises—closes tight and locks from inside—absolutely burglar proof.

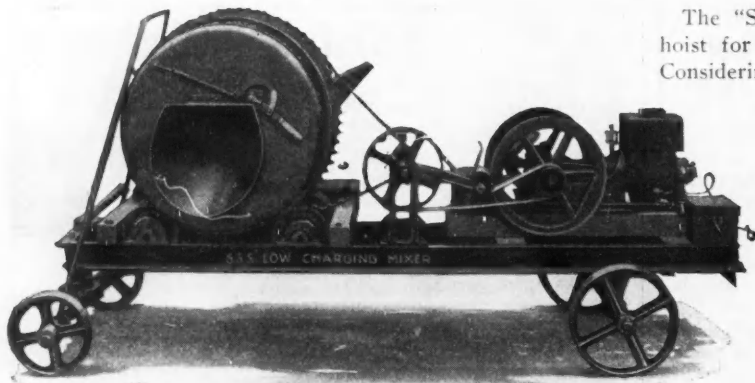
Compare Our Prices

The extremely low price for which we offer these serviceable coal chutes will surprise you. Write us today, get our literature and prices on these coal chutes and other building accessories. We can save you money.

LEAVITT Manufacturing Co.
110 Griggs St., URBANA ILLINOIS



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



New Low Cost Mixer Offered by The Standard Scale & Supply Co.

whole outfit being made as simple and compact as possible and extremely light in weight, weighing less than 1200 pounds, including engine. The "SSS" mixer is simply driven with chain around the drum and with gear or belt from engine to countershaft. The aim being to make the outfit as simple and practical as possible.

The "SSS" low charging mixer is built with capacities from 20 to 32 cubic yards, two men being ample to handle this capacity. The saving by using this machine, even on a small job, will very often pay for the outfit, or at least pay half the cost and the contractor still will have an investment rather than an expense, as when the concrete is being mixed by hand. The machine also has the advantage that it can be used for concrete and then for top dressing or plaster and cement mortar. For the smaller job, the "SSS" mixer can be used from the foundation, up to mixing plaster for interior finishing.

The "SSS" mixer can be equipped with nigger head or hoist for handling material on the job, also for silo work. Considering the extremely low price of the "SSS" mixer the contractor cannot afford to be without one of these machines. This not only from the lower cost of operation but from the fact that high grade, uniform concrete is secured when mixed by machinery, and especially when mixed in a batch mixer of the "SSS" type, as the one feature of all the machines manufactured by the Standard Scale & Supply Company is the high quality which they produce at the low labor and operating cost.

Contractors will appreciate that the "SSS" mixer weighing 1200 pounds can be readily placed anywhere and can be moved by one man.

The outfit is also mounted on wheels of about 3-foot tread and can be taken through an ordinary door for use inside of building or can be placed on an ordinary elevator for hoisting from one floor to another.

Although the "SSS" mixer is reduced in selling cost, it will have the same guarantee as to material and workmanship as the regular "The Standard" mixers which are now "The Standard" for concrete work in nearly every section of the country.

Another feature about both "The Standard" and the "SSS" mixers, as manufactured by The Standard Scale & Supply Company, Chicago, Pittsburgh, Philadelphia, New York and Cleveland, and sold through all their agencies and branch houses, is the ability to make prompt shipments on account of the large stock carried at various points throughout the United States.

A special circular, 44-S, covering the "SSS" low charging mixer will be sent upon request.

The MASTER BUILDER

**Superior to all others in the three principal points
Ideal Hardness—Oval-Faced Head—A Claw That GRIPS**

The MASTER BUILDER HAMMER is built to satisfy the most exacting mechanic. The shape of the claw gives the greatest possible leverage. IT IS THE ONLY HAMMER THAT WILL PULL THE HEAD OF A 10D NAIL THROUGH AN INCH PLANK. Has special nail-holding device IN THE CLAW for overhead work and for erecting scaffolding where high nailing is necessary. Edges of head specially beveled so they will never mar the work.

Unequaled in Hang and Balance

The head of the MASTER BUILDER HAMMER is nicely balanced on an octagon handle of second-growth hickory with natural finish. It is this balance that gives the right hang, makes a surer stroke and prevents arm tire. Octagon handle prevents slipping. Does not require a tight grip, so does not tire the hand.

Made of Specially Hardened Tool Steel

The MASTER BUILDER is forged from Master Steel which is the finest specially tempered steel for the purpose. This steel is made for us alone, and you cannot obtain such quality elsewhere. The fine temper gives a head of ideal hardness, and a claw that BITES and GRIPS.

Made in Three Sizes: No. 745, 11 oz. No. 746, 16 oz. No. 747, 20 oz. Price \$1.00 for all sizes.

A Companion to the Master Builder Hatchet that sells for \$1.50

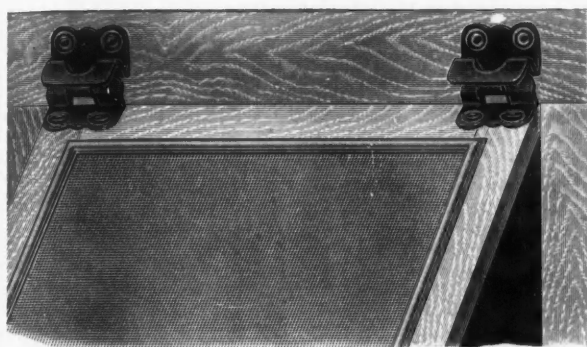
Write us a postal card for the name of the dealer nearest you from whom you can get Master Builder tools. Circulars sent free. Write us.

GERMANTOWN TOOL WORKS

Germantown, Penna.

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SAFETY FIRST!



No. 18 Safety Screen or Storm Sash Hanger

Here you have it, Mr. Carpenter! No one hurt by a falling screen—no screen damaged by being blown off, or dropped through a very little carelessness. Let us tell you about this.

WATROUS-ACME MFG. CO.

DES MOINES, IOWA

Chicago Sales Office • 180 No. Dearborn St.

Novo Hoists Withstand the Test of Contract Work

NO TANK
NO FAN
NO FREEZING
TROUBLE

They have the strength, power and economy of operation that mean money saved for the contractor who uses them. The gears are big, the bearings wide, and engine and hoist make a compact outfit that is easily handled. They are made in reversible, non-reversible and double-drum types, and fitted with Novo Engines of from 2½ to 15 h. p.

Send for the Novo Book "Reliable Power"

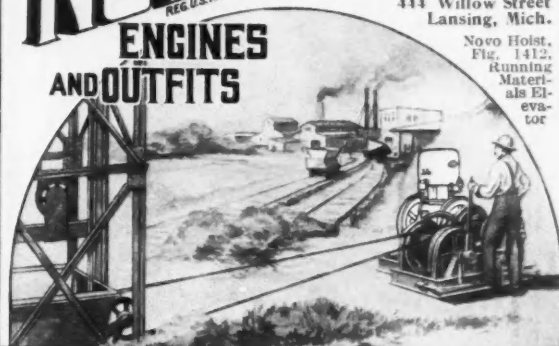
for full details of all Novo Hoists and the big line of Novo Pumping Outfits and Engines that fit every contractor's needs. Novo Engines are made in ten sizes—1 to 15 h. p. "The Engines for Every Purpose."

NOVO
REG. U.S. PAT. OFF.
ENGINES

NOVO ENGINE CO.

Clarence E. Bement, Sec'y and Mgr.
444 Willow Street
Lansing, Mich.

Novo Hoist,
Fig. 1412,
Running
Materials
Elevator



TOOLS: WE MAKE A COMPLETE LINE FOR CARPENTERS, MASONS, BRICKLAYERS, PLUMBERS, ENGINEERS AND MANY OTHER TRADES.

OUR LINE is so complete that we can fill orders for tools of any kind from all sections of the country. The leading jobbers throughout the United States carry our line.

Buffum Tools agree with your ideas of quality and price. You can buy cheap tools, but cheap tools are the enemies of good work. To use cheap tools is to put yourself in a class with the junk man. Fair price and best quality have made Buffum Tools the favorites with every trade. The Design, the Material, the Finish, the Price—all are right. What more could you ask? Oh, yes, a guarantee. Well, we give it on all our tools.

We have built our reputation by selling good tools. In making a strong bid for your business, we know we'll hold it. The next time you need a tool or many tools, ask your hardware dealer to show you the Buffum Line. If he doesn't carry them, ask him to do so. Send us his name. You'll get what you want when you want it. No delays.

Scratch Awls
Belt Awls
Brad Awls
Nail Sets
Nail Pullers
Saw Sets
Saw Swages
Saw Filing Vises
Cabinet Makers' Bevel
Carpenter Pincers

Screw Clamps
Cabinet Scrapers
Bench Hooks
Wood Turners Gauge
Wrecking Bars
Cement Workers' Tools
Bricklayers' Tools
Plumbers' Tools
Plasterers' Tools, etc.

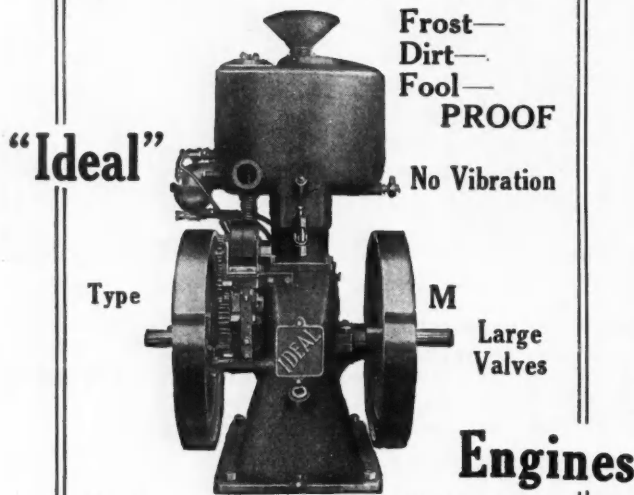


BUFFUM TOOL CO. LOUISIANA, MO.
High grade tools for high grade workmen

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

READ what it says in the circle—are you one who wants “Constant Service?”

Does “Constant Service” mean anything to you? Does the fact that, if your equipment is equipped with “Ideal” Power, you can feel assured that your work will never be held up on account of engine trouble? The enclosed crank case eliminated the greatest trouble that engines on mixers have.



No dirt or cement can be drawn into the crank case. Every part is built compact—sturdy—light-weight. For work on mixer or hoists—the hardest kind—where engines are subject to dirt, dust, water and misuse you can't beat “Ideal” Power when it comes to giving “Constant Service.”

Always on the job equipment—
“Ideal” Hoists
“Ideal” Pumps
When buying equipment buy “Ideal” Power.

Contractors who want

“Constant Service”
use
“Ideal”
Power

Write for complete Catalog No. 314

Original Gas Engine Co.

R. E. OLDS, Chairman

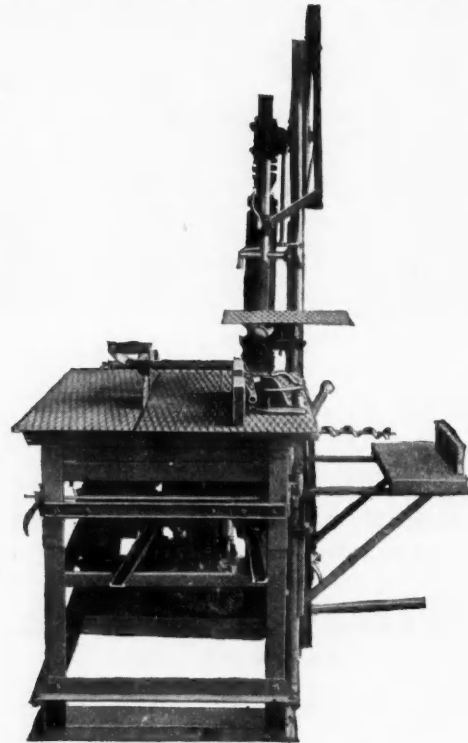
630 Kalamazoo St., E.

LANSING

MICHIGAN

This Woodworker is Its Own Shelter

A very practical, portable woodworker has been designed so that part of the space under the table is boxed in, and fitted with a door and padlock which makes a safe, dry locker, big enough to hold saws, sander disks, and special tools when



End View of “U-Neek” Power Woodworker.

not in use. This machine is called the “U-Neek,” and is made by the Unique Manufacturing Company, 32 East Georgia St., Indianapolis, Ind.

This has been called the ideal machine for contractors and carpenters, as it can be taken to the work and left outside with perfect safety, or if preferred, can be taken inside the building, as it is not too wide to go through an ordinary door.

The illustration shows the end view of the machine. It is furnished either with gasoline engine or electric motor. The machine is equipped with a 24-inch wheel band saw, carrying blade one inch wide and under; has tilting table; also equipped with straight line draw-cut circular saw, which cuts 4½ inches thick, 19 inches wide; also equipped with boring and tenoning bits, having six inches of travel; also has 15-inch sand wheel; emery wheel, and jointer arrangement. This last will accommodate special knives such as dado cutters, matchers, groovers, wabble saws, etc.

The drive of this machine is through friction clutch three-step cone pulley, which gives to each tool the correct speed.

The Unique Manufacturing Company are making an interesting offer to readers of the AMERICAN CARPENTER AND BUILDER, and we suggest that you write to them at once.

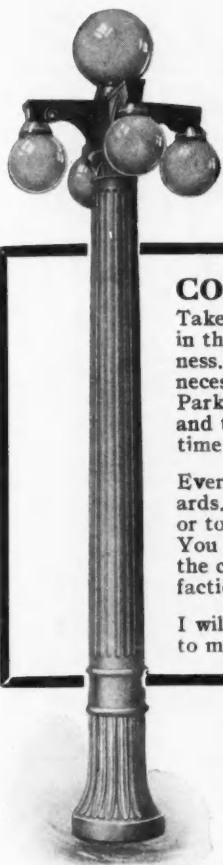


How to Waterproof Stucco

The title, “Waterproofing for Cement Houses” interests immediately. In this booklet, the problem of waterproofing cement stucco houses is discussed logically and interestingly. Such a careful treatment of this subject is bound to increase interest in the use of cement stucco, and in the necessity for safeguarding against dampness.

The booklet is written around Ceresit waterproofing compound, which is explained by the fact that it is issued by the Ceresit Waterproofing Company, Chicago.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



CONCRETE LIGHTING STANDARDS

CONTRACTORS

Take the enormous opportunities offered in the Concrete Lighting Standard business. Only a very small investment is necessary. These posts are ideal for Parks, Driveways, Entrances. Cities and towns buy hundreds of them at a time for street lighting purposes.

Everyone is interested in these Standards. They are ornaments to any city or town. Easily sold and at a big profit. You can underbid any competitor, even the cast iron post, and give better satisfaction.

I will sell the Standards or the Molds to manufacture them.

MY FREE BOOKLET

will tell you how easy it is. Send for it. It will help you double your income. I shall be glad to figure on any special designs of molds or standards that you may submit to me. **I Save You Money.**

GEO. W. EDGCUMBE

The Post Man

BENTON HARBOR MICHIGAN

HOBBS OF COURSE

The **one** Block Machine that is positively **better made**, actually **faster**, and that makes **natural** rock face and **real** ashlar.

Send **today** for catalog and state whether 16-in. or 24-in. size is desired.

Adjusts to
2,000 Sizes

We ship on
trial anywhere



Hobbs Concrete Machinery Co.

724 Peter Smith Bldg., Detroit, Mich.

Ventilation Means Sanitary Conditions

in any kind of building where

ROYAL VENTILATORS

are used



Ventilator with Base and Damper for Apex of Roof

They give the greatest possible circulation of air in Residences, Barns, Factories, Stores, Shops and Theatres. ROYAL VENTILATORS are leak-proof, storm-proof and durable. No others are "just as good."

Every one of your buildings should be ventilated the "ROYAL WAY."

Made in all sizes with Metal or Glass Tops.

Our new CATALOG will help you with your estimating. Write for it.

"Let us figure on your requirements"

ROYAL VENTILATOR COMPANY, 417 Locust St., PHILADELPHIA, PA.

Be the Bungalow Man of your Town

You can build a real Bungalow anywhere at surprising economy of space and cost. My designs have real individuality and are the latest styles. Profitable to build. Easy to sell.

THE CRAFTSMAN BUNGALOW PLAN BOOK

should be in the hands of every builder. It contains the cream of 1000 designs actually built for \$400 to \$4000, showing exterior and interior photos, floor plans, size of rooms, cost, etc. In fact, all the data you need.

Price \$1.00 Postpaid

Send M. O., stamps or check. Money back if not satisfied.



JUD YOHO, The Bungalow Craftsman
804 Bungalow Bldg., Seattle, Wash.

You Take No Chances When You Put on Guaranteed Queen Cupolas

They are made right from heavy galvanized steel. Put together by experts. They look right because they are thoroughly finished. They give service and satisfaction. Last a lifetime without painting or repairs.

Don't Experiment—Get the Cupola That Has a Reputation Back of It

On the market 15 years. Thousands now in use. That's the kind for you to use. To prove that the Queen is the best we will ship you one for examination and 30 days' trial.

WRITE FOR CATALOG AND PRICES
Find out what we have and you will not be satisfied with ordinary kind. Address

QUEEN CUPOLA CO., 405 Peck St., Cresco, Ia.



You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.

Big Shipment of "Winner" and "Money Maker" Mixers

The Cement Tile Machinery Company, Waterloo, Iowa, are enjoying a great run of business this spring. Contractors all over the country are keen for their concrete mixers and have been hurrying in their orders so as to have the machines all ready for the opening of the busy building season.

ticketed to Honolulu.

This shipment was made up of two of the popular models which the Cement Tile Machinery Company are putting out this year—the "Winner" and "Money-Maker." Each of these machines is equipped with a side-loader. They are light weight, yet very strong machines, requiring little power to turn out a large volume of well mixed concrete.



One Day's Shipment of Concrete Mixers from Cement Tile Machinery Co. Factory.

On one day recently a shipment of fourteen mixers was made from their factory. The photographer happened by at the time and snapped this view. These machines were to be shipped to all parts of the United States. In fact, one was

All who are considering the concrete mixer proposition, will do well to write the Cement Tile Machinery Co., 134 Rath Street, Waterloo, Iowa, for their illustrated catalog of concrete mixers.

You Men Who Use Tools!

Make Your Work Easy!

You know that good work demands the best you are capable of. You can't afford to be handicapped by inferior tools that won't stand up to the work. Try out a genuine Irwin Bit. Use it on hard lignum vitae; use it on soft pine—it will turn out as clean a job of boring as you could wish for.

The solid centre means greatest strength—no danger of snapping where the twist joins the shank, where other bits are weak. But be sure you get the genuine Irwin. The word "IRWIN" guarantees a bit well worth your money.

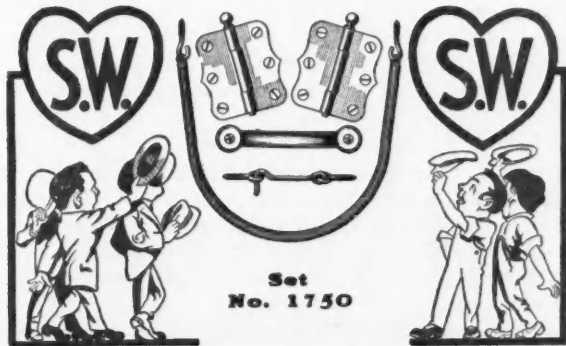
Demand the Genuine IRWIN Bit

The Irwin Auger Bit Company
Wilmington, Ohio

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

STANLEY'S

Wrought Steel Screen Door Hardware



Each Set Complete with Screws Ready to go on the Screen Door

Owners and Builders alike are pleased with the high quality of the hardware and the convenient way it is packed ready for use.

Butts, pull, spring, hook and eye and screws, all of the highest quality of material and workmanship

They can be furnished in Japan, Antique Copper, Brass or "Stanley" Sherardized rust-proof finish, the proper finish for outside doors.

The doors are removed in fall by merely slipping out the pins and are as readily re-hung in spring.

Write us for Circular "A". It tells the story.

THE STANLEY WORKS
New York New Britain, Conn.. Chicago

KEEN KUTTER

Buy Tools That Carry Insurance

BUY Keen Kutter tools and you'll get insurance of quality, long life and good work. The Keen Kutter trade mark on *any* tool means that it must make good or back comes your money on demand—any time, anywhere. You don't have to go to the shop where you bought it. Any Keen Kutter dealer will hand the price to you, and never an argument out of him.

Just as much pride as you take in *your* tasks, just as much skill as you send out of your hands on a fine piece of work—that's the measure of care that goes into all Keen Kutter tools. They're made by good men with their full share of pride and they know *how*. And we are as proud of their products as they are. The stuff that goes into Keen Kutter tools keeps step with the skill that fashions them—it's quality every time and

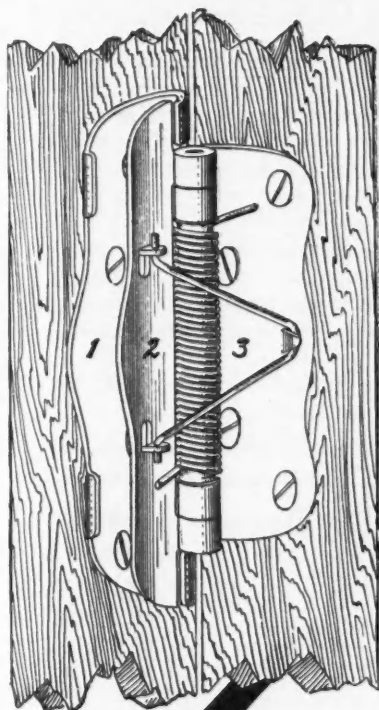
"The Recollection of Quality Remains Long After the Price is Forgotten."

Trade Mark Registered. —E. C. SIMMONS.

If not at your dealer's, write us.

SIMMONS HARDWARE CO.

St. Louis New York Philadelphia Toledo Minneapolis
Sioux City Wichita



E-Z-ON SCREEN STORM-DOOR HINGES

Be Our Agent in Your Town

The E-Z-ON is a detachable and reversible hinge for screen and storm doors. Extremely simple of construction and **BUILT TO LAST**. Anyone can replace a storm door with a screen door if equipped with E-Z-ON hinges in thirty seconds.

The construction of the E-Z-ON eliminates 500 per cent of the wear on spring by the use of a 1-inch bushing between spring and pin. Keeps your door and casing in normal condition and has 100 per cent greater resisting force by use of a long jam plate. The weight of the door is carried on the lugs and there is no moving part or friction. This construction

Absolutely Prevents Door From Sagging

The E-Z-ON is handsome. It will add style to the door of a cottage or a mansion. Its construction is such that it will outlast others five to one. Leading architects and contractors indorse and specify



We Want Live Agents in Every Town Where We Are Not Already Represented

E-Z-ON hinges are selling very rapidly and the agency in your territory will soon be taken up. We are not selling patent rights or territory. We are makers of and sellers of E-Z-ON hinges.

Do You Want to Represent Us

We will send you, on receipt of fifty cents, one pair of E-Z-ON hinges for inspection and trial. Money refunded if not satisfactory. Clip coupon today, and get our agency before someone else does.

RACINE DETACHABLE HINGE CO.
RACINE, WISCONSIN

Gentlemen:

Enclosed please find 50 cents for which please send me one pair of E-Z-ON hinges. Money to be refunded if not satisfactory. Also your special agent's proposition.

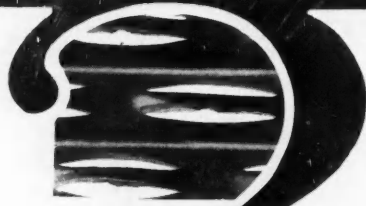
Name

Street

Town State

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.

WHY YOU MAKE NO MISTAKE BY USING "TRUSS-LOOP" LATH



Because its the Heaviest and Best Metal Lath Made and the Quality and Weight is Rigidly Maintained Because

You Can Save Money on Every Yard of Finished Surface on "Bostwick Truss-Loop" Metal Lath.

The Bostwick Steel Lath Co. Niles, Ohio

Not Merely "Paint"

TO many people paint is merely p-a-i-n-t and the materials it is made of are unknown quantities. Make paint mean more than that to you. Make it mean pure white lead (Dutch Boy Painter trade-mark) and pure linseed oil (Dutch Boy Painter trade-mark) hand-mixed to suit wood and weather conditions.

Dutch Boy White Lead

and Dutch Boy linseed oil make durable and beautiful paint for outside and inside work, the kind that penetrates into the wood pores and anchors there. Any tint, texture or finish may be obtained.

We will send for a two-cent stamp to any architect or builder, our folder containing 39 color combinations, together with specifications for general painting. Write our nearest branch for Folder "B."

NATIONAL LEAD COMPANY

New York Boston Buffalo Chicago
Cincinnati Cleveland St. Louis San Francisco
(John T. Lewis & Bros. Co., Phila.) (Nat'l Lead and Oil Co., Pittsburgh)



Spring is Here

By L. M. Stocking

The preacher takes his homily or lesson from the spring, and advises his hearers to repair their ways.

The poets take their song from the vernal awakening: "sermons from stones, songs from the running brooks," etc.

Spring is not an insignificant thing in astronomical mathematics. For instance, the earth has to swing around in its orbit 560,000,000 miles to reach from one spring to the next spring. Other brother planets in our solar system have to swing around an even larger orbit than our earth to reach their spring. The next planet to the earth, that is, Mars, swings around in 687 days, nearly a thousand million miles from one spring to another; while Neptune swings around over 18,000,000,000 miles from one Neptunic spring to the next Neptunic spring, which must be quite an event with the Neptunians.

Therefore, mathematically speaking, spring is a ponderously important matter, and not merely an "ethereal mildness" of do-nothing and dream, as one noted poet puts it.

The winter of biting melancholy and chafing ice has gone and left its injuries only too apparent.

If spring can relieve and repair such melancholy and injury, it is indeed an ethereal healing season.

Every good rhyme has its reason and corollary. Here is mine in a nut-shell.

No season puts its grip and its bite harder into metal than the winter. Bridges, signal apparatus, steel cars, smokestacks, iron poles, fences, gas holders, water towers, and every kind of exposed metal structure, in the clear and pitiless light of spring, reveals the terrific and merciless wear and bite and corrosion of winter's tooth. Corrosion, unattended to, soon means a loss of strength; a structure beyond repair; a double cost for a new structure. Spring repainting is a spring resolution, as wise as it is natural.

The Jos. Dixon Crucible Company advise the longest made (fifty years), the "longer service," the best known protective paint for steel, Dixon's silica-graphite paint, the pigment of which is nature's mixture of the silica and graphite, mined alone at the Dixon Company's mines at Ticonderoga, N. Y. It has been used for many years as a construction and maintenance paint for all steel work by the leading railroads and industrial plants of this country and abroad.

Washington stands first in lumber production, with Louisiana second.

It is said that 90,000,000 broom handles are used annually in the United States; one for each man, woman, and child.

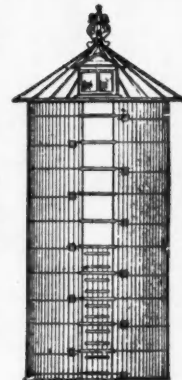
The lands burned over during the terrible fires on the Idaho national forests in 1910 are now largely covered with a thick growth of young tree seedlings, by natural re-seeding.

Lacey (Patented) Silo Doors and Silo Hoops

make silo building easy. You can build better silos for less money by ordering your Doors and Hoops from my factory and buying the rest of the material in your own town. My doors and hoops will save you time and money on all silo work. Your order will receive individual attention. Prompt shipment and Freight Prepaid to any point east of the Mississippi.

Write for my Free Circulars and Silo Book. This book will give you some good pointers on silo construction. Ask for it. Costs you nothing.

Elmer B. Lacey, Endicott, N. Y.



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

SAFETY FIRST

TO PLAY safe in your building contracts is necessary to always assure yourself of satisfied patrons. **THEN WHY NOT USE THOSE materials that are past the experimental stage, THAT HAVE BEEN PROVEN BEST BY TEST?**

DRIWAL

Coating for cement, concrete, stone, brick, and stucco is

A Damp-Proofing Coating

It penetrates into and fills the pores, not lying upon the surface nor obscuring the texture of the surface.

Our booklet No. 5A gives complete information. Send for it

THE BILLINGS-CHAPIN CO.

1163 E. 40th Street

Boston

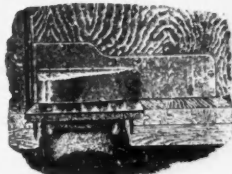
CLEVELAND

New York

ABSOLUTE SAFETY

Here's the greatest improvement of recent years in the way of a double-action door spring. Combines all the advantages of the old style, double-action hinge with the all-important Door Check feature. Door swings slowly, stopping at dead center. No "swing bang" motion. Can't fly back unexpectedly.

STANDARD CHECKING



SPRING HINGE

Fills a long-felt want. Children are safe where it is used. Noiseless. Push the door open as hard as you like; it comes back only so fast. Practical for double-acting doors anywhere. Absolutely dependable. Warranted to satisfactorily swing and control inside doors not exceeding 34" in width and 7 feet in height. Wears indefinitely.

Specify and use the Standard. Your name and address on a postal card will bring complete information. Write us now.

Standard Manufacturing Co.
Shelby, Ohio

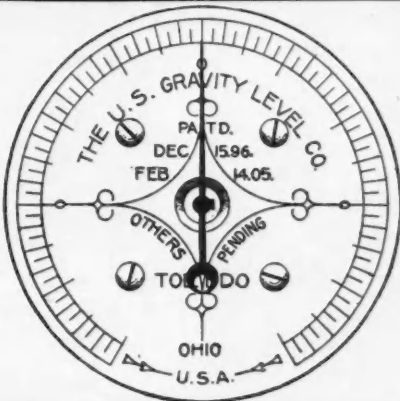


The Standard Checking Spring Hinge absolutely controls the door at all times.

THE LEVEL

The indicator immediately shows how much the work is out and where. It is the most modern level on the market. It does away with guess-work. It is on the plumb-bob principle. It is in every way a high-class tool, one of which you will be proud.

U. S. Gravity Level Co.
Dept. H



THAT TALKS

Will be expressed to you upon 10 days' approval, by making your deposit with your express agent. You can return the level any time within 10 days and get your money back. Send for descriptive circular.

48 Nicholas Building
Toledo, Ohio

Doors—Sash—Millwork



It will pay you to send us your orders and inquiries in this line. We are leaders of

Low Prices and Quick Shipments

Write Us

The National Millwork and Supply Co.

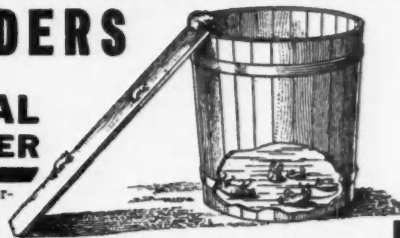
No. 8411 Hough Ave.

Cleveland, O.

GET ORDERS

for the

UNIVERSAL RAT CATCHER



EVERY farmer, merchant and lumber dealer in your locality will buy one of these Rat Traps. It's a sure and quick way to rid all buildings of the pests. One of these Catchers placed in a livery stable in Scranton, Pa. caught over 100 rats in ONE MONTH. Trap made of galvanized iron; can't get out of order; lasts for years; always clean. 18 inches high, 10 inches diameter. One delivered prepaid upon receipt of \$3. Rats and mice die; no marks left on them.

My proposition requires no time from your work. I can show you how to make money easily. Don't be afraid to ask how. Cost you nothing to find out. I'll guarantee you can sell these Universal Rat Catchers easily.

WRITE TO ME AT ONCE.

H. D. Swarts, Inventor and Manufacturer, Scranton, Pa.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Bishops Refined "Greyhound" Steel Saw—A Masterpiece

Of the Saw Maker's Art. We are proud of its quality and guarantee it to cut faster and run easier in all kinds of wood, to hold its sharpness and set longer than any other good saws.

It's the Your-Money-Back-If-Not-Satisfied Saw

30 Days' Trial Will Prove Our Guarantee

The "Greyhound" is the result of years of experimenting to originate a purity of steel with fine grain and tough body.



Made in both Straight and Skew Back

Length	18	20	22	24	26	28 1/2	30 inches
Each	\$2.35	\$2.50	\$2.65	\$2.80	\$3.00	\$3.30	\$3.65 net

Packed One in a Box



GEO. H. BISHOP & COMPANY
LAWRENCEBURG, IND.



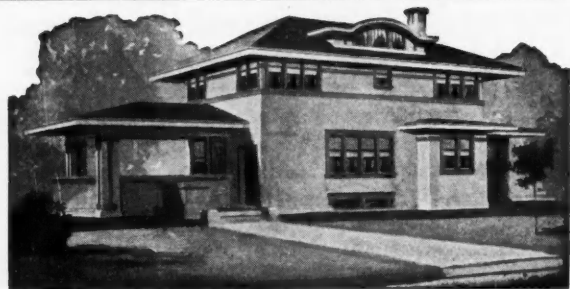
Brick Houses AND HOW TO BUILD THEM

Containing 219 (8 x 11 inch) pages illustrated by over 300 designs and details of brick house construction, beside perspective views and floor plans of 82 brick houses with estimates of cost construction and miscellaneous data about the use of brick from its manufacture to its placing in the building, including ornamental brick and tile work, sewer construction, fireplaces, brick veneer construction, arches, cements and mortars, how to estimate the cost of brick construction, etc., etc. A valuable book for the home-builder as well as to the builder and brick-layer.

Your Copy is Ready to Mail

Simply send us your subscription at the regular rates and this book will be sent by return mail, **Free**, postage paid. Regular subscription \$2.00 per year.

American Carpenter and Builder
1827 Prairie Ave. CHICAGO, ILLINOIS



Cement Houses and How to Build Them

This large book of 176 (8 x 11 inch) pages contains illustrated details of cement construction—standard specifications for cement—concrete blocks—general information concerning waterproofing, coloring, aggregates, mixtures, paving, reinforcing, foundations, walls, steps, chimneys, floors, etc., together with perspective views and floor plans of 87 stucco and concrete block houses.

The illustrations show the houses exactly as they will look when built. All the floor plans are shown, giving the location and dimensions of all rooms, closets, porches, etc.

This Book Sent Free

Send in your subscription today and receive one of these books by return mail, **Free**, postage paid. Regular subscription \$2.00 per year.

American Carpenter and Builder
1827 Prairie Ave. CHICAGO, ILLINOIS

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



**The
Perfect Light
For the
Home**

is the clear, white, restful light of acetylene gas generated by the

DAVIS ACETYLENE SYSTEM

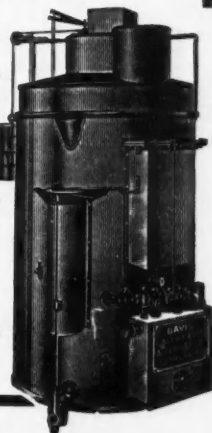
If you Contractors and Builders will just take two minutes to write for our literature, you'll find out why the Davis System is best for the homes you build.

Be a Money-Maker'

Sell Davis Acetylene Lighting Systems. We want Agents in unoccupied territory. Make an extra \$1,000 this season without extra work. You can guarantee the Davis to your clients because we guarantee it to you as the safest and most perfect acetylene lighting system known.

A moment now will make dollars for you this season. Write for handsome booklets.

DAVIS ACETYLENE CO.
Elkhart, Ind.



Stop That Leak

If some one was stealing your material or tools you would do everything in your power to stop them, wouldn't you? Then why not stop the hole that leads to your pocketbook? You can sew it up so that there will be no more leaks, by insisting that your power machinery be equipped with the reliable, durable and economical

**The "New-Way"
Air Cooled Engine**

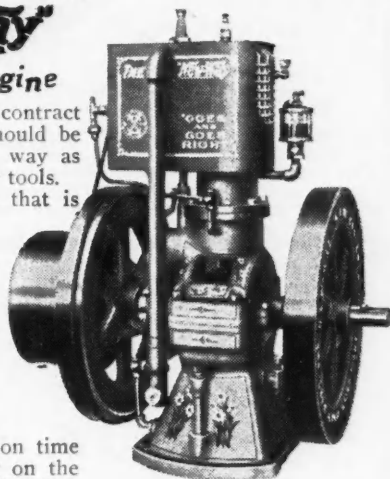
The profit from your contract belongs to you and should be protected in the same way as you would protect your tools. If you use an engine that is costing money for repairs, one that is unreliable and leaves your men idle, you are losing money.

You might just as well let a pickpocket get it.

Make more money, forget your worries and get your job out on time by using and insisting on the "NEW-WAY" AIR COOLED Engine upon your Power Machinery at all times.

Get our Catalog X at once. You cannot afford to wait any longer.

The "New-Way" Motor Company
LANSING, MICHIGAN, U.S.A.



**The First Result
of Training**

More money is not the *only* result of training but it's the *first* and a mighty important result.

The carpenter who draws his pay whether business is good or bad is trained to *think* and *plan*—he can take hold of a job as foreman, supervise every detail, and complete the job on scheduled time.

The contractor who pulls down the most money is trained to figure *close* and *correctly*—he doesn't figure too high and lose the contract, nor does he get the contract and lose money because he figured too low.

YOU can train yourself for a steady job as foreman. You can learn how to handle jobs by contract. You can learn to design and draw plans and get the fat fees of the architect.

You've had a lot of valuable experience. And if you will reinforce this experience with a little well-directed, systematic training such as you can get through the Builders' Courses of the International Correspondence Schools you can easily increase your earnings or build up a profitable business as a contractor or architect.

In justice to yourself the least you can do is to get the particulars of this system of Home Instruction, and in the quiet of your own home find out how it will help you.

Just check the course that most interests you on the coupon below. Mail it to the I.C.S. Full particulars will come by return mail.

International Correspondence Schools
Box 910, SCRANTON, PA.

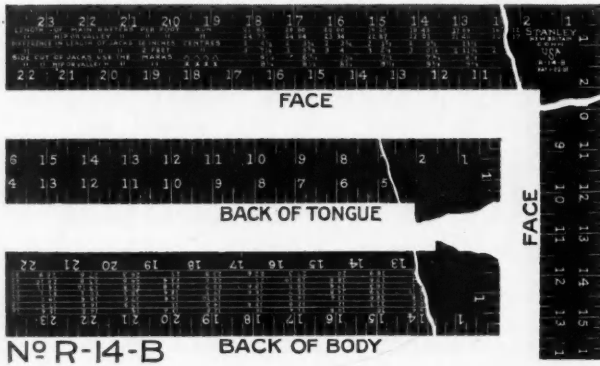
Please explain, without further obligation on my part, how I can qualify for a larger salary and advancement in the position, trade, or profession before which I have marked X.

Architect	Foreman Steam Fit.	Automobile Runn'g
Arch'l Draftsman	Plumbing Inspector	Foreman Machinist
Contract'g & Build.	Heat. & Vent. Eng.	Sh.-Met. Pat. Drafts.
Estimating Clerk	Civil Engineer	Textile Manufact'g
Building Foreman	Surveying	Bookkeeper
Building Inspector	Mining Engineering	Stenographer
Structural Eng.	Mechanical Eng.	Advertising Man
Structural Draftsman	Mechanical Draftm'n	Window Trimming
Concrete Construct'n	Stationary Eng.	Commer'l Illustrat'g
Plum. & Heat. Con.	Electrical Engineer	Civ. Service Exams.
Supt. of Plumbing	Electric Lighting	Chemist

Name _____
 Street and No. _____
 City _____ State _____
 Present Occupation _____

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Stanley Tools



CARPENTER'S STEEL SQUARES


A New Stanley Line

Stanley Steel Squares are made with the same careful attention to detail and the same high quality of material and workmanship as distinguishes all STANLEY TOOLS.

Every Square is weldless, or—in other words, made from one piece of steel, and all four edges are machined. Particular attention is called to the finish of all numbers and the depth and accuracy of the graduations.

Special care has been given to the simplifying of all tables used, so that the workman can get the measurements he desires with ease and rapidity.

They can be furnished in a number of different styles and the variety of finishes offered include Royal Copper, Blued, Nickel Plated, Galvanized and Polished. All Royal Copper and Blued finished Squares have white enamel figures and graduations.

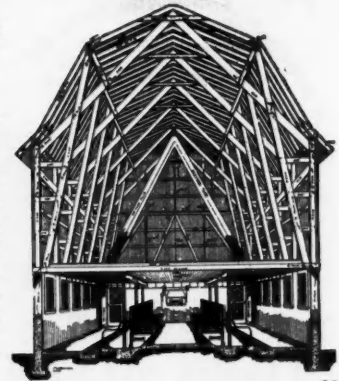
Each Square is packed in an anti-rust wrapper and this stamp  appears on the face of all numbers.

Send for special circular containing complete description.

STANLEY RULE & LEVEL CO.
NEW BRITAIN, CONN. U.S.A.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

How to Make More Money Building Barns



Every man in the building business can have the benefit of W. D. James' barn knowledge and use it to his own advantage and profit. There's more money in building up-to-date, properly equipped barns on scientific principles than in putting up the old type. The right kind of a barn means an enthusiastic owner, and that means more jobs in the same neighborhood.

Get Our Special Blue Print and Building Service Offer

Mr. James is the foremost authority on dairy barn building, and he wants to make you a special offer of complete working blue prints of several practical dairy barns of different sizes and types. In addition to Mr. James' personal co-operation, you can have help from our architectural department, conducted by experts. Write today for all the facts regarding this service.

James Manufacturing Co.
A. H. 75 Cane Street Ft. Atkinson, Wis.



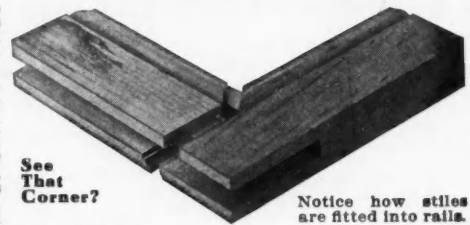
This Valuable Book Free

—tells about new and better construction—lighting—size—site—drainage—general equipment—King system of ventilation; gives floor plans of successful barns. Your copy—**Free**—if you answer these questions: For whom do you expect to build or remodel dairy barns? (Give names and addresses). When? For how many cows? Send your application now for book and complete information.

MADE TO ORDER

Fly Screens and Screen Doors

We use the best grades of wire cloth, black enamel, galvanized, pearl and copper bronze, fastened by the improved Standard Shoulder Strip Method, which makes the wire drum tight and firm, can not sag or pull away.



See That Corner?

Notice how stiles are fitted into rails.

Dealers, Carpenters, Contractors and Builders, write for a free copy of our 1913 illustrated catalog.

STANDARD SCREEN CO., 1848-50 W. 14th St., Chicago, Ill.

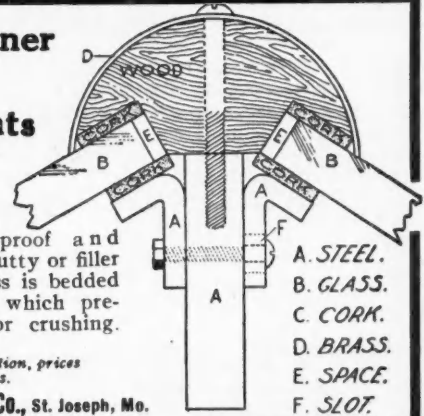
Our screens are all mortised, tenoned, joined with waterproof glue and pinned with steel pins, will last a lifetime.

Shultz Corner Posts For Store Fronts

make a strong, handsome and practical joint. They are water-proof and dust-proof and never rot. No putty or filler is used. The glass is bedded on Spanish cork which prevents cracking or crushing. Not expensive.

Write us for description, prices or estimates.

All Steel Corner Post Co., St. Joseph, Mo.



- A. STEEL.
- B. GLASS.
- C. CORK.
- D. BRASS.
- E. SPACE.
- F. SLOT.



\$60 A WEEK and Expenses

**YOU!
YES YOU
CAN GET IT**

That's the money you can get this year. I mean it. I want County Sales Managers quick, men or women who believe in the square deal, who will go into partnership with me. No capital or experience needed. My folding Bath Tub has taken the country by storm. Solves the bathing problem. No plumbing, no water works required. Full length bath in any room. Folds in small roll, handy as an umbrella. I tell you it's great! GREAT! Rivals \$100 bath room. Now listen! I want YOU to handle your county. I'll furnish demonstrating tub free. I'm positive—absolutely certain—you can get bigger money in a week with me than you ever made in a month before—I KNOW IT!

Two Sales A Day—\$300 A Month

That's what you get—every month. Needed in every home, badly wanted, eagerly bought. Modern bathing facilities for all the people. Take the orders right and left. Quick sales, immense profits. Look at these men: Kunkle, Ohio, received \$240 first week; Mathias, Florida, \$120 in two days; Corrigan, New York, \$114 in 60 hours; Newton, California, \$80 in three days. You can do as well—2 SALES A DAY MEANS \$300 A MONTH. The work is very easy, pleasant, permanent, fascinating. It means a business of your own.



**DEM-
ON-
STRAT-
ING
TUB FREE**

I grant credit—Furnish sample—Help you out—Back you up—Don't doubt—Don't hesitate—Don't hold back—You cannot lose. My other men are building homes, bank accounts, so can you. Act then quickly, SEND NO MONEY. Just name on penny post card for free tub offer. Hustle!

H. S. ROBINSON, President, 20 Factories Bldg., Toledo, Ohio
CANADIAN BRANCH, Walkerville, Ont. Can.



Better Service Better Satisfaction

HERRICK REFRIGERATORS

MAKE the installation of refrigerators as much a part of your building operations as the plumbing or heating.

You are safe in recommending and placing the Herrick in any of your buildings requiring a sanitary, up-to-date refrigerator. Perfect sanitation is assured by the lining and the construction. Economy is certain; doors fit closely and walls are properly insulated. No spoiled food; no wasted ice.

The HERRICK REFRIGERATOR is not by any means the cheapest but by all means the BEST.

Catalog 24 contains fine plans for installing refrigerators and general refrigerator information of genuine value. Send your name and address. The book is free.

HERRICK REFRIGERATOR CO., Waterloo, Iowa



The Ives Window Ventilating Lock.



A Safeguard for Ventilating Rooms.
A Lock, quickly applied and operated.
Affording Sure Protection against Intruders.

CHILDREN KEPT IN. BURGLARS KEPT OUT.
—WRITE FOR DESCRIPTIVE CIRCULAR.—

THE H. B. IVES CO., NEW HAVEN, CONN., U. S. A.



LAUGHS AT LOST KEYS

Here's the lock for your tool chest or your shop cabinets. Safe as a bank. No keys to lose. Locks automatically. A few turns of the knob opens it. Made of brass and fits all chests from 1/2" thick and up.

**"Standard Time"
KEYLESS CHEST LOCK**

will prevent the theft of your tools. You are the only one who can open the lock. Price very reasonable. Can you afford to be without this strong protector for your valuable tools? Of course not.

Write for Keyless Lock Catalog
Miller Lock Co., Frankford, Philadelphia, U. S. A.

No. 3380 All Brass Size 4"x3"



34c For This Lock Set

No. 5155 Antique
Copper Finish

FREE—No. 5. Builders Hardware Catalog and net price list to Contractors and Material Men.

We do not sell to contractors or carpenters in Cook County, Ill.

Rehm Hardware Co.
1501 Blue Island Ave.
CHICAGO, ILL.

No. 5155

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



A WHITE TRUCK

Is Your Best Advertisement

YOUR ownership of a White guarantees to your customers the most prompt and efficient delivery system money can buy. A White Truck will cost you a little more to begin with, because it is built a little better, but it will cost so much less to operate and maintain that it is by far the best investment in the end. Always ready to run, good twenty-four hours of the day in all seasons, in a White Truck the dependability of your service to your customers is always assured.

What Lumber Companies Say

"We are satisfied with the White Truck because it has given us good results considering the hills we must climb with it. We have been able to take orders from people living in other towns which we could not do before we had the truck."

Clark Brothers & Company
Plymouth, Pa.

"We purchased a three-ton White Truck from you on Nov. 13, 1912, which has been in continual service since, and up to this writing have had no expense for repairs connected therewith, and is giving entire satisfaction."

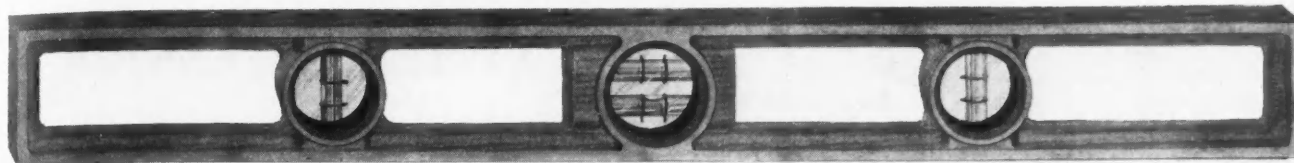
West Lumber and Manufacturing Co.
Plymouth, Pa.

THE WHITE  COMPANY

Manufacturers of Gasoline Motor Cars, Trucks and Taxicabs

CLEVELAND

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EXAMINE IT FREE

Send us the name of your local hardware man and say you'd like to examine a Sand's Aluminum Level. We'll send one to the hardware store where you can handle it and try it. If you like it you can buy it. If you don't want to buy, you don't have to. Hand the Level back. Doesn't cost you anything. WRITE TODAY.

FREE EXAMINATION OFFER

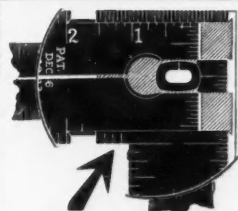
SAND'S ALUMINUM LEVEL

is the latest improvement in spirit levels. Lightest level made. Easily handled—therefore less danger of dropping or breaking it. The best level to use in dark places. The plumbs at each end and the double center level make it readable in any position and at arm's length. Spirit glasses covered with heavy plate glass, making those important parts dust, dirt, and water-proof.

WRITE US TODAY.

In 24 and 30" for Carpenters and 42" for Masons Use State what Size?

J. SAND & SON, 1027 Rivard St., Detroit, Mich.



NICHOLLS EXPANSION FIT JOINT TAKE-DOWN SQUARE

PAT. DEC. 6, 1913

GUARANTEED TO REMAIN TRUE

These Squares are hand fit, thus making a perfect joint, and taking this in connection with the expansion which comes when cam is turned, these Squares will last indefinitely.

The following are some of the good points:

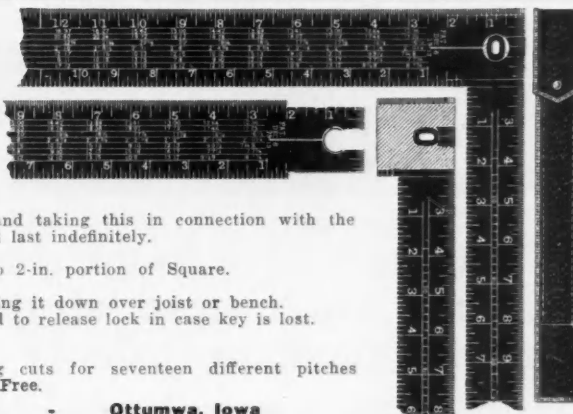
1. Strength where 1½-in. portion of tongue joins on to 2-in. portion of Square.
2. Long bearings assure accuracy.
3. Tongue slipping on to body gives strength when throwing it down over joist or bench.
4. Oblong hole in cam so screw driver or nail can be used to release lock in case key is lost.
5. Bevel under cam holds end of tongue down.

RUST PROOF CANVAS CASE WITH EACH SQUARE.

These are stamped with our Rafter Framing Rule, giving cuts for seventeen different pitches of roof. Send for our Little Book on Rafter Framing. It is Free.

NICHOLLS MANUFACTURING COMPANY

Ottumwa, Iowa



Rent This Level 10 Months Then It is Yours

Builders --- Contractors --- Architects

This is not the old style Architect's Level. It is the newest model convertible level. There is not a single Builder, Contractor or Architect who has not almost daily need of this instrument. For laying out buildings, locating foundation piers, leveling up foundations, walls and floors, aligning shafting, walls, piers, etc., for getting angles, locating levels anywhere, ditching, laying streets and walks, running straight lines, and a hundred other uses.

Instruction Book Free

Complete illustrated booklet, telling how a builder, contractor or architect can use the convertible level, sent free on request.

WARNING

The Level we offer is the new Aloë Convertible Level. Don't confuse the Convertible Level with the ordinary style Architect's Level. The only work that can be satisfactorily done with the ordinary Architect's Level, is the determining of elevations. But the Convertible Level, besides its use as a level, is a modified transit and broadens the use of the level 100%. You can't afford to buy any but the Aloë Convertible Level.

HALF CENTURY REPUTATION

We have been manufacturers of transits and levels since 1863, and our instruments are the standard of the world.

FREE TRIAL

We allow you to convince yourself by a trial of the instrument before you obligate yourself.

THE RENT BUYS IT

No large cash outlay needed. Just pay the rent for a few months and the instrument is your absolute property.

Send Coupon—No Obligation

Send the attached coupon today and we'll send illustrated booklet and complete details of how you can own the Aloë Convertible Level for 10 months' rent.

A. S. Aloe Co., 621 Olive St., St. Louis, Mo.

COUPON

A. S. Aloe Co., 621 Olive St., St. Louis, Mo.
 Please send free instruction book on the use of the Convertible Level and complete details of your rental plan. This request in no way obligates me.

Name

Occupation

Street

City..... State.....
 Am. C. & B. May 14

You will get **SPECIAL ATTENTION** if you tell Advertisers you read **American Carpenter and Builder**.

IT'S up to you to be the man at the top instead of the man with the dinner pail.

Don't hesitate to grasp this opportunity to win success, for there's always room at the top for the man who knows how.

The LIGHTNING ESTIMATOR

stops worry, lying awake nights, over or under estimating and guessing—in fact, by showing you how to estimate the cost correctly, it spells the word **\$uccess** for you. Don't do yourself an injustice by passing up the greatest opportunity ever offered to Carpenter, Contractor or Builder.

The New Seventh Edition of the LIGHTNING ESTIMATOR

will teach you: How much time and material involved in each part of your work; how to figure on unfamiliar work; how to estimate quickly and correctly on a large job; how to estimate on time, material and prices in all parts of the country.

This Book is written by a man who has made good in this profession, and is based on hard, solid facts, secured by the knocks of experience, making it an invaluable guide to any one engaged in or those about to enter the building business.

If you are just starting out here is your chance to get a firm foot hold. If you are an old timer and getting a little behind the times, here's your chance to brighten up and get some new ideas.

This Edition is bound in cloth, profusely illustrated—a feature not found in other books of this kind. The price, \$1.00. Don't delay. Send for it today.

BRADT PUBLISHING CO.
1260 Michigan Avenue JACKSON, MICH.



The KEYLESS Lock

No Keys to Lose. No Knobs to Turn. No Clicks to Count.

When you know the combination, it's as simple to open as can be. Use it wherever you want special protection. No one but you can open it. Press the right buttons and the lock flies open. Made of solid brass. Cannot rust. Lasts a lifetime.

The finest lock made for a carpenter's tool chest, motor cycle and for buildings.

WRITE FOR CIRCULAR AND PRICE.
MAIN LINE SALES CO. Box 28, BRYN MAWR, PENNSYLVANIA



FIRE—Excitement reigns supreme!
Panic—In a twinkling of an eye.
Exit—The terror-stricken rush.
Door—Though tightly closed—
Bolt—Columbia opens with a gentle push.

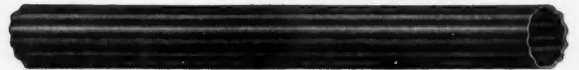
Full information upon request.

The Columbia Iron & Wire Works Co.
Canton, Ohio

C. G. HUSSEY & CO.
Pittsburgh, Penna.

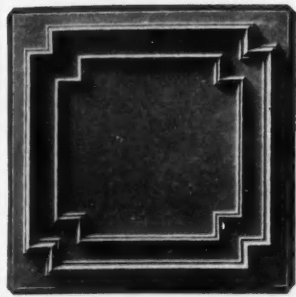
MANUFACTURERS OF **COPPER**
In Sheets, Plates, Rolls

CORRUGATED COPPER CONDUCTOR PIPE

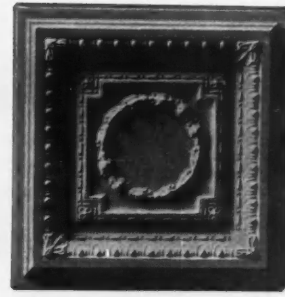


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**Hours of Worry and Valuable Time Saved
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**No Joints
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**50% Saved
Absolutely
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**Schoedinger's Universal Lock Joint Construction
Helps YOU to PUT UP Your CEILINGS. Try It. No Cross Furring.
No Cross Nailing. No Nails That SHOW. That SPECIAL
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THE GALE

**BARN AND GRANARY
VENTILATOR**

For all your buildings

INEXPENSIVE, BEAUTIFUL, STRONG
Made of heavy galvanized iron.
Screened inside. Storm-proof and bird-
proof. Perfect ventilation guaranteed.
All you have to do is to place ventila-
tor on roof and nail fast.

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with Complete Prices.*

**Galesburg Sheet Metal Works,
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You Can't Lose—

**The Larger It Is Expense
The Harder to Cover**

Every dollar of selling cost is inclu-
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tem of selling through local
agents, eliminating high-priced
salesmen and traveling ex-
penses enables us to give
you **better goods at
less cost.**



The Result

**Your Cost Lower—Your Sales Greater—Your Profits
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Why not establish a good paying side line for yourself
by selling “Art-Kraft” Metal Ceilings and Shingles?
The most modern and attractive designs on the market.



We are giving agencies in every
community. They are going
fast, but some good towns are
yet available—today—perhaps
not tomorrow.

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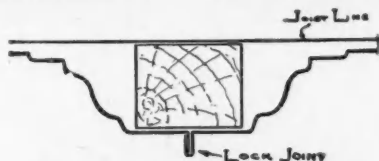
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offer NOW! Details for the asking.

The Canton Metal Ceiling Company

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CANTON, OHIO

METAL CEILING

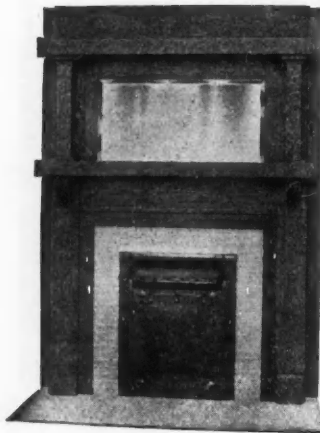


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**The Acme of perfect construction.
Don't nail or slip the joints. Lock them.
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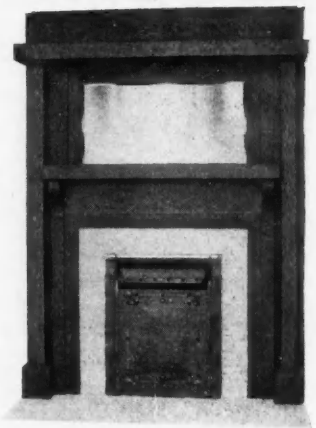
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Prices include our "Queen" Coal Grate with best quality enameled tile for facing and hearth. Mantels 82 inches high, 5 feet wide. Furnished with round or square columns, as shown in cuts.

Catalogue Free—Will send our 100 page catalogue, the finest ever issued, free, to carpenters, builders and those building a home.

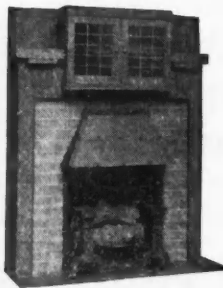
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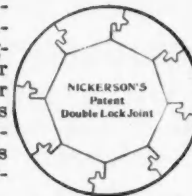
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We Specialize on Detail-work. "Vignola" is our Standard for proportions when Architect's details are not furnished.



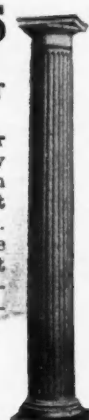
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in Yellow Pine, Oak or Birch, in the White.

Any size up to 8x8.

Freight paid to your station

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Exclusive Manufacturers of

Kolls Lock Joint



Patent Stave Column

Suitable for Pergolas, Porches or Interior Use. Main Office and Factory Elston and Webster Aves., Chicago, Ill. Eastern Office: 1123 Broadway, New York City, N. Y. Pacific Coast Branch, A. J. Koll Planing Mill Co., Los Angeles, Calif.

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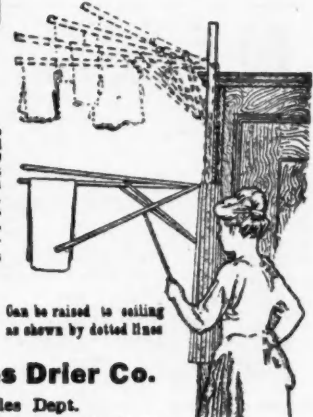
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WE WANT AGENTS

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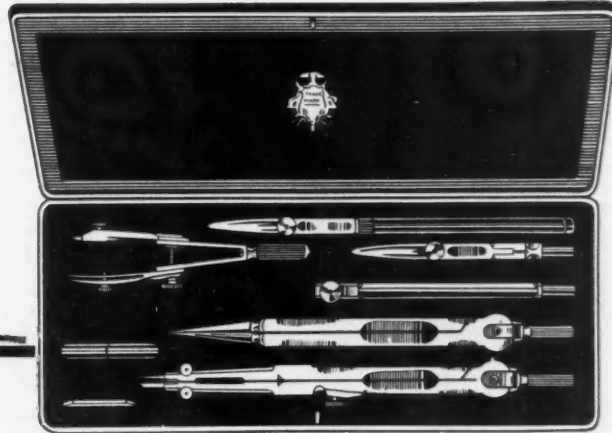


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 display a composition of utility, durability and good, pure architecture without any "gingerbread."
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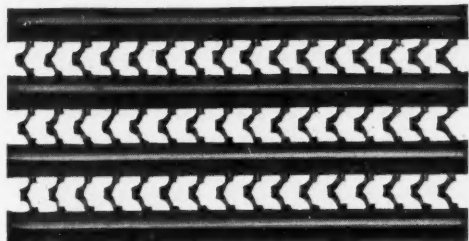
RIB LATH Residence of H. A. Ertz, St. Paul, Minn., during construction.



Note perfect clinch of plaster on RIB LATH, with no dropping off.

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RIB LATH is the stiffest steel lath because the beaded parallel ribs span directly between the studs. Permits wider spacing of studs and in plastering effects a great saving in labor and material. Improved form of expansion provides a perfect clinch for the plaster. Two coat work is ample with RIB LATH, where other laths require at least three. Prevents streaking and cracking of plaster as occurs with wood lath. RIB LATH covers about 10% more area than other metal laths because of interlocking ribs along sides of sheets.



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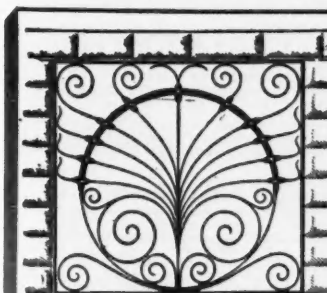
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THE MACK IRON & WIRE WKS. CO.
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IRON, BRASS and BRONZE

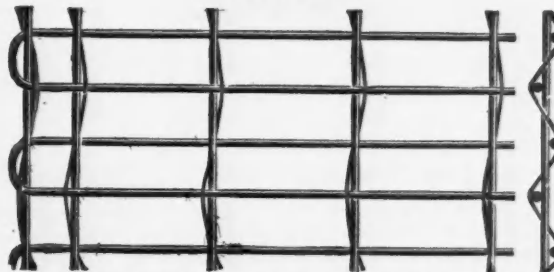
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DOW WIRE & IRON WORKS
Incorporated
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(GREENING'S)

PATENT TRUSSED STEEL WIRE LATHING



ELIMINATES ONE-HALF OF INSTALLATION COST, owing to its Truss formation, which makes it possible to staple or nail it directly to studs or joists without furring.

It will take sharp corners without cutting, and has a sustaining power of three and one-half times greater than square mesh lathing of equal weight. IT EMBEDS ITSELF COMPLETELY in the mortar and is thus secured from the corrosive action of the atmosphere, and WILL NOT RUST.

Another feature of this Wire Lathing is the fact that rust will not attack the smooth round wires, as it does the thin cut edges of the metal fabric. Walls or ceilings plastered on this lathing will never crack or drop off, the key being so firm.

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We are also manufacturers of GRIMM'S GALVANIZED CORRUGATED WIRE LATHING.

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Storm-proof and Bird-proof. A handsome combined Cupola and Ventilator for your buildings.

CONTRACTORS

you know what wood ventilators of this character cost to build. Furthermore, they check and rot out in a short time.

Willis Ventilators are made of heavy galvanized iron. All sizes. They are very strong and last a lifetime. Can be put up in an hour. Get our descriptive catalog with prices on the Willis Ventilators. They are better and cheaper than any you've seen.

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Money Makers



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COUNTERSUNK

SELF CENTERING NEVER SLIP

SELF GUIDING NAILING POINT

Two New Features Of Berger's Classik Steel Ceilings

Never-Slip Nailing Point

A deep cup in each button which positively prevents the nail from slipping.

Extra Long Bead

The bead is made extra long in shape of half an oval, fitting snugly over underlapping bead and making a tight and perfect fitting joint. Write us about them today.

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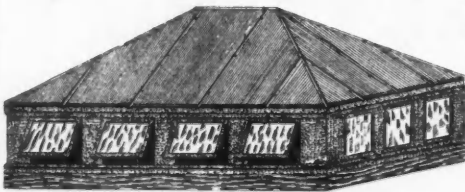
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HIPPED TURRET SKYLIGHT



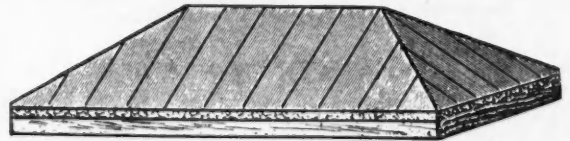
with swinging sash. Sides 24" high; all windows on each side made to open at the same time. Operating device securely locks them open or closed.

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Galesburg Sheet Metal Works - Galesburg, Ill.

MONITOR PUTTYLESS SKYLIGHT

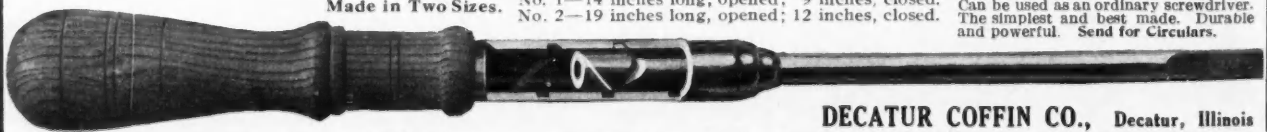


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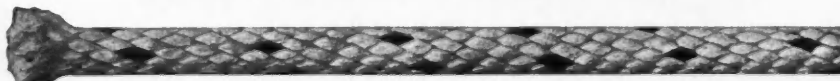
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Push on the end and the screw goes in. Can be used as an ordinary screwdriver. The simplest and best made. Durable and powerful. Send for Circulars.

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The preparation is forced through every fibre of the cotton fabric, making it impervious to water. It is easy to lay—requires no painting before laying to make a good job, need not be sized before painting—and will not crack, peel nor buckle.

One coat of paint covers perfectly.

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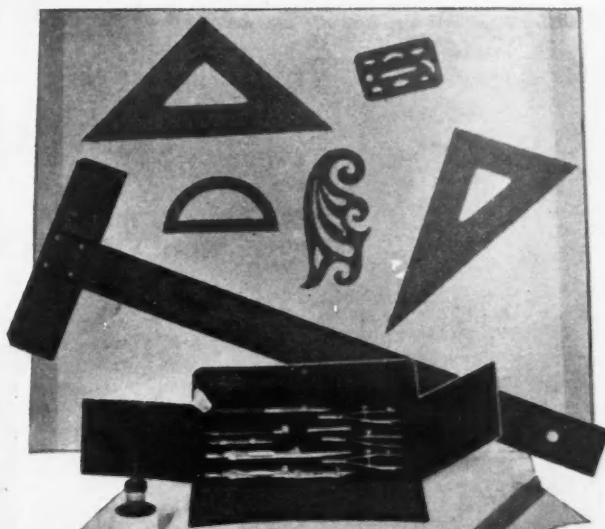
THE BEST LUMBER
FOR THE OWNER OR THE INVESTOR TO PAY FOR IS
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FOR THE CARPENTER AND BUILDER TO USE.

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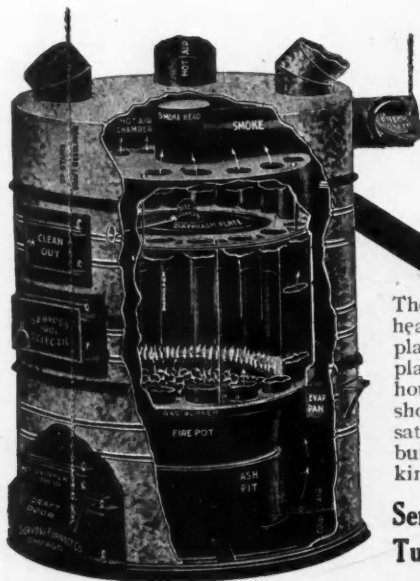
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The heating plant you place in the house you build should prove as satisfactory as the building itself. The kind that will is the

Servoss Eclectic Tubular Furnace

Over 40 years' experience in building and installing furnaces has resulted in the production of the perfect furnace for home heating. The Servoss Tubular Furnace has many exclusive and individual features not found in any other style.

*Extra large radiating surface. Small fire pot.
Perfect heat circulation. Fuel economy.
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Will give every one of your patrons most perfect results. They last longer and actually require about one-half the fuel used by other furnaces.

They are made heavy, of the very best material and workmanship. Take your rule and measure the fire pots, the large combustion chamber and the long travel of heat and compare it with all other furnaces and see **WHY** the Bovee

uses less fuel and lasts longer than others.

Get our special prices. We can save you 40% on a heating plant. Any handy man can install them.

Bovee Furnace Works

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Waterloo, Iowa

Every Contractor

should acquaint himself with the special terms we are making on hot-air furnace equipments.

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We are not offering furnaces to dealers, and the prices to contractors, therefore, are the best we are making to anyone, and better than they can obtain from local dealers.

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We have also a **Profit Sharing** arrangement for contractors, aside from the discount we offer on furnaces. Drop us a card, **stating that you are a contractor**, and we will send full particulars.

Our customers are numbered by thousands in every section of the United States. You know some of them.

HESS WARMING & VENTILATING CO.

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Remember the Coal Man when you plan and when you build



Windows were made to admit light and air but not to admit coal. One season of battering and banging will ruin the best window that was ever built into a foundation wall. The

Majestic Coal Chute

absolutely protects the foundation and the woodwork from being injured while the cellar is being filled with the winter fuel. The door opens upward locking against the building protecting the siding. The Hopper swings out and catches all the coal direct from the wagon, barrow or basket. The coal is delivered in the cellar and *nowhere else*.


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Special proposition to contractors and builders on request. Write for it.

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NO USE!!

Can't "Jimmy" a
CANTON
Coal Chute




Ordinary cellar windows leave any building at the mercy of burglars. The Canton Coal Chute is positively burglar-proof.

It also prevents battered foundations, broken windows and sash, blackened walls, and dirty lawns.

You can use the CANTON COAL CHUTE in every one of your buildings. Many farmers want the CANTON as a vegetable chute or as a grain chute.

Always specify and use the CANTON COAL CHUTE. The most solidly built—the BEST coal chute, at a very fair price. Send for Booklet B-1 of Builders' Iron Work.




Canton Foundry & Machine Co.
CANTON, OHIO

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For Your Coal Bin

The Window Chute is a selling feature for any Residence or Building.

Ready for the Coal Man

**THOUSANDS IN USE—
THE VERY BEST**

**If You Build,
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Be up to date and Have the World's Best

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A Light Basement

HOLLAND FURNACE CO. :: Holland, Mich.
World's Largest Direct Installers of Furnaces.

In Position "SAFETY FIRST"



Fold Compactly

Wheeler Safety Scaffold Brackets

Save Lumber—Save Labor—Save Nails—Save Accidents

Pay for themselves on two jobs and last a lifetime. Lock automatically. Men cannot be careless putting them up. Are rigid and firm when in place. Scaffold cannot swing. Write for our

FREE TRIAL OFFER

AMERICAN STEEL SCAFFOLD CO., Dept. 7, DETROIT, MICH.


WHY TAKE A CHANCE

of having a defective wall from using a scrap wall tie in varying thickness as light as tin.

Ask your dealer the weight of a box containing 1000 ties and if the weight is below 50 pounds you are buying an inferior tie and entitled to rebate.

To be safe, specify the


WHALE BONE WALL TIE



and if your dealer cannot supply same, order direct from us and we will ship the same day as received, at price of \$2.50 per 1000, Pittsburgh, Pa.

ALLEGHENY STEEL BAND COMPANY
BELL PHONE: 718 Cedar North Side, PITTSBURGH, PA.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



Silentflow

A Noiseless Water Closet

IN THE TOILET adjoining the sick room one of the distressing noises can be eliminated by installing the "Silentflow."

This closet was not put on the market until it was proven perfect in construction, design and workmanship.

SPECIFY WOLFF H-7005 FOR RESIDENTIAL USE

L. WOLFF MANUFACTURING COMPANY
Manufacturers of
Everything in the Plumbing Line
The only complete line made by any one firm.

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PLUMBING AND HEATING SUPPLIES AT WHOLESALE



When in the market for Plumbing and Heating Supplies and you wish to

SAVE 20 to 40 Per Cent

on every article, write for my free illustrated Catalog. The only house that sells first class guaranteed goods at wholesale prices direct. Shipments are promptly made from a very complete stock. Small orders are as carefully handled as large ones.

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A HOT AIR FURNACE

For Less Than \$50 Complete

For 5 and 8 Room Dwellings

An Unheard of Price and a most Remarkable and Indestructible Furnace

No Pipes No Lost Heat

AMERICAN BELL AND FOUNDRY CO.

NORTHVILLE MICH.



HESS MEDICINE SANITARY LOCKER

The Only Modern, Sanitary STEEL Medicine Cabinet



or locker, finished in snow-white, baked everlasting enamel, inside and out. Beautiful beveled mirror door. Nickel plate brass trimmings. Steel or glass shelves.

Costs Less Than Wood

Never warps, shrinks nor swells. Dust and vermin proof, easily cleaned. Should be in Every Bath Room. Four styles—four sizes. To recess in wall or to hang outside. Send for illustrated circular.

HESS, 920L Tacoma Bldg., CHICAGO
Makers of Steel Furnaces Free Booklet

BUY YOUR FURNACE \$10.00 DOWN — \$10.00 A MONTH



Our monthly-payment plan of selling direct saves you the dealer's profits and excessive charges for installation. The

Jahant Furnace

with the patented "Down Draft System," is the best for residences, schools, hotels, churches, etc. Saves 1/3 to 1/2 in fuel bill. Install the Jahant yourself. We send complete outfit, freight prepaid, with special plans, detailed instructions and all necessary tools for installation. Satisfaction guaranteed or money refunded. Thos. I. Flaherty, Hamilton, N. Y. writes: "Best furnace made. Had no trouble to install it. Had it up and fire started in 12 hours. Write for Free Illustrated book."

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SAVES 1/3 TO 1/2 ON FUEL BILLS

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



The Parrot says—

“Contractors! Equip your houses with the

**PARROTT
(Hot Water)
HEATER**

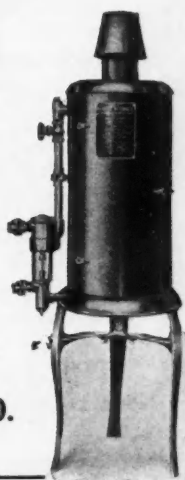
10 Gallons of water heated for one cent

Put a Parrott Heater in the basement, light the pilot light and all inconvenience is past. Opening any hot water faucet in the house automatically turns on the gas in the heater. The water is heated “on the run”. In a few seconds it is rushing from the faucet.

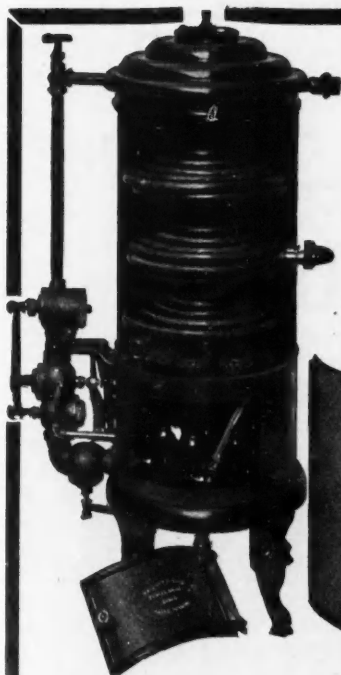
Supply the Demand

for Hot Water Heaters. The Parrott gives the best service at the lowest price. Clean and convenient. All home owners now want a Parrott Heater. Take up practically no room. Capacity unlimited. Easy to install. Requires no attention. Positively supplies hot water for any purpose at any time.

Your Clients will want a Parrott. Learn more about the Parrott Heater from our literature. Money for you. Write for FREE CATALOG.



MICHIGAN GAS APPLIANCE CO.
JACKSON, MICHIGAN



HOT WATER

Absolutely Without Labor
Supply Unlimited
Water Heated on the Run
with

PERFECT SAFETY

No building is complete without hot water the year 'round. The

Radke “Safety” Instantaneous Automatic Gas Water Heater



- For Residences
- Stores
- Schools
- Churches
- Apartments
- Garages
- Clubs
- Laundries
- Halls
- Armories

THE “SAFETY” IS ALWAYS SAFE because it automatically shuts off all gas from the heater in case the pilot light should accidentally go out. Your customer expects you to furnish the best article on the market. *Send for Catalog* and let us tell you wherein this heater excels.

RADKE MANUFACTURING CO.
173 West Jackson Boulevard
CHICAGO, ILL.

Take your pick—



or take them all

“Waterproofing for Cement Stucco Houses.”

“Waterproofing Damp and Leaky Basements.”

“Waterproofing on the Farm.”

“Waterproofing with Ceresit. What a Building Contractor Did in a Small Town.”

“Waterproofing Black Hawk, the 40-foot Reinforced Concrete Indian.”



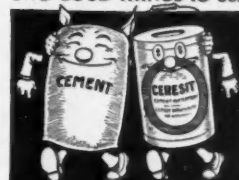
A Cement Waterproofer That Always Gives Satisfaction

Hundreds of Contractors, Engineers, Architects and others have already sent for their copies of the above booklets.

Have you received yours yet?

If not, just drop us a line and we will send you the most interesting and valuable set of literature on waterproofing that you have ever read. Write today.

TWO GOOD THINGS TO USE




THEY GO WELL TOGETHER

Ceresit Waterproofing Company
910 Westminster Building
CHICAGO

FACTORIES—Chicago; Unna, Germany; London; Paris; Vienna; Warsaw.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

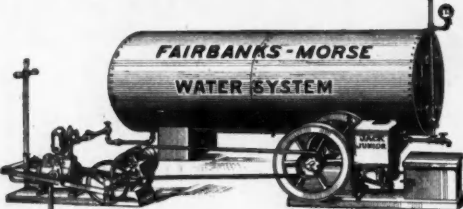


WATER

When You Want It;
Where You Want It

“Equal to City Service”

Water system economy exists only where the equipment of the private plant exactly fills the requirements that prevail. A standard, inflexible set cannot supply water economically under widely varying conditions.



Fairbanks-Morse Pneumatic Water Systems

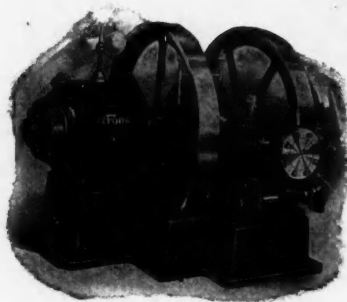
are made of standard parts, but the pump, tank, oil engine or electric motor are selected and combined to fit exactly the conditions found. Every outfit is specially arranged for your service—yet sold at a price only possible where each part is perfectly standardized. There are innumerable combinations, to fit every depth of well, every service requirement, and every size and style of house.

Write for Catalog 4H1409
containing complete description.

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New York Chicago San Francisco

THE FOOS



Direct Connected Set for Generating Electric Current

This Factory builds outfits for every service from 1½ to 325 Horse Power. Its electrical units give illumination equal to the best Central Stations and can be installed in any location. If you are in the market for power for any purpose, you will be interested in the big Foos Catalogs, showing engines for lighting, pumping, hoisting, etc., and for general power requirements. We will know what you want if you simply ask for Bulletin No. 47.

THE FOOS GAS ENGINE CO.

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G O O D E L L

You Will Buy This All-Steel Mitre Box

In fact you can't help buying it if it's shown to you, and the more you know about mitre boxes, the quicker you will buy it.

The Goodell is made of Steel—from end to end and all the way through. It is provided with automatic stops for holding the saw, it has an accurate scale in its base, and is fitted with a gauge for making duplicate cuts, etc.

It cannot break and get out of order—it is always ready to do fast, accurate work at no notice.

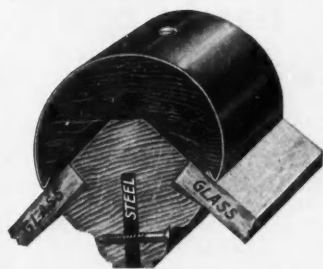
Send for Circular C and prices—now, in time to have it for your spring building work.

Goodell Mfg. Co.
Greenfield, Mass.



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Store Front Strength



PETZ

The Bar with the Steel Backbone



This patent store front construction has proven its safety to the insurance companies—its superior appearance to the merchant, and its practicability to architects and contractors.

Send for booklet, "Modern Store Front Construction."

DETROIT SHOW CASE CO.
491 W. Fort Street DETROIT, MICH.

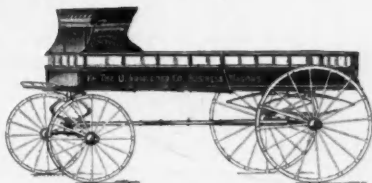
Best Carpenter Wagon Built

ARMLEDER STYLE No. 705

\$86.92

Body 9 ft. long, 45 inches wide, 13 inches deep inside, 1 1/2 inch axle gear, capacity 1,200 lbs.

Absolutely the Best—Nobody Builds Better



Prompt Shipment. Convenient Terms. 303 Other Styles and Sizes. YOU NEED OUR FREE CATALOG.

Address: **ARMLEDER, Cincinnati, O.**
WAGON BUILDERS FOR 33 YEARS.



This Pearson's Automatic SHINGLE NAILER WILL PAY FOR ITSELF ON FIRST JOB

Do your nailing fast—faster than ever before. You can use this Pearson's Nailer on any pitch roof. Wear mittens, gloves, etc. This "Head Nailer" is the only Nailer—throw nails in by the handful—then start nailing. Nails easily driven through tin or quite heavy sheet iron.

These nailers are made in two sizes—The BLUE Nailer for 3d common No. 14 gauge wire nails. The RED Nailer for 3d galvanized No. 13 gauge 1 1/4 inch wire nails. It will come right to your door, quick, by insured parcel post, all prepaid for only \$5.00.

IT MAKES GOOD.

PEARSON MFG. CO. ROBBINSDALE, MINN.

MODERN AMERICAN HOMES

FREE THIS 224 PAGE PLAN BOOK

Here is your chance to secure absolutely Free of Charge, the most complete and up-to-date plan book ever published. No carpenter or contractor who wishes to be familiar with the latest in building construction—no man who is contemplating erecting a home—can afford to be without it. This great new plan book, "Modern American Homes," contains plans and specifications for 168 different structures, including excellent exterior and interior views, detailed estimates, etc. Designed by the leading architects of this country. Includes city, country and suburban homes, bungalows, farm houses, summer cottages, tent houses, camps, garages, apartment houses and various public buildings. 224 pages, 9 1/2 x 12 3/4 inches, and 426 illustrations. Printed on heavily enameled paper and substantially bound.

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This work covers everything in the building professions, from the first rough sketch of the architect to the acceptance of the finished structure. It includes wood, stone, steel and reinforced concrete construction; estimating and contracting; a study of the Greek and Roman Orders; interior finishing and decorating; and modern house lighting and sanitation.

Partial Table of Contents

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Please send Free Plan Book, also Cyclopedia of Architecture, Carpentry and Building for seven days' examination. I will send \$2.00 within seven days and \$2.00 a month until I have paid \$24.80 for Cyclopedia (Plan Book included free), or notify you and hold books subject to your order. Title not to pass until fully paid. A. C. & B. 5-14

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Sykes Expanded Cup Lath

Being SELF-FURRING Has No Equal

For ALL STUCCO WORK



The demand is on. For making over old buildings, for new buildings, stucco gives service and beauty. YOU can make a BIG SAVING in construction costs by using SYKES EXPANDED CUP LATH.

No furring strips needed. Both sides alike—cannot be applied wrong. Heavier and costs less than other metal laths. Gives perfect key; saves on plaster; never discolors plaster; never warps. Stucco or plaster, when properly applied on Sykes Expanded Cup Lath, will always be free from crack or blemish. Sheets, 18 x 96 inches, with Anti-Rust (oil), painted Black, or Galvanized Finish. 20 Square Yards to the bundle.

SYKES TROUGH LATH—another money-saver. Gives great strength and a positive keying principle that makes it desirable for use in all buildings. For inside plaster work; great for ceilings. Easy to apply; easy to plaster on. Promotes fast, clean, durable work. Sheets 18½, 15½, 18½, 23½ in. wide by 96 in. long.

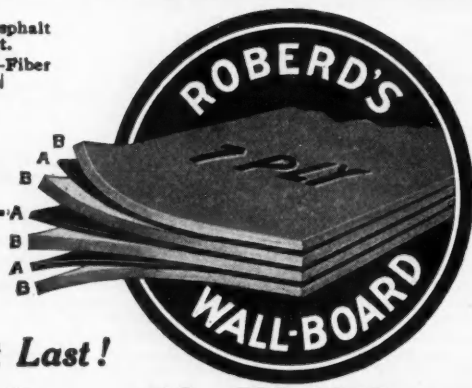
SYKES WALL TIES—extra heavy galvanized metal of full strength and with deep cross corrugations. Grips mortar strongly and does not weaken under strain. Samples and price on request.

SYKES CORNER BEADS, in lengths 6 to 10 feet; 10 pieces of uniform length to the bundle. Gives unequalled protection to corners and projections. Cheaper than making a plaster corner. Specially designed to grip the plaster and give great protection.

As a Builder, we know you will be interested in our reliable products. We can save you money and give you a quality that will please you and your clients. Write at once for a complete list of our products, samples and prices.

SYKES METAL LATH AND ROOFING CO.
506 Walnut St. NILES, OHIO

A-A-A-Asphalt Cement.
B-B-B-Fiber Board.



At Last!

Seven-Ply Wall Board

At last you can have a perfect wall board, stiffer, harder, tougher, more easily handled, more quickly applied and more satisfactory when on the walls. We have solved the problem. We are now making

Roberds Ideal Wall Board

with four layers of fiber board and three layers of asphalt adhesive compound. Our discoveries, our special machinery, our secret methods of manufacture and our original asphalt cement make possible the production of this IDEAL WALL BOARD.

Dealers everywhere are enthusiastic about it. Contractors prefer it to all other brands. Home owners delighted with the fine finish and the perfect butting of edges which enables them to paper direct to the wall board.

We have doubled the capacity of our plant to take care of the increasing demand for Roberds Ideal. No advance in prices. Special inducements to the trade. Write today for our dealers' proposition.

The Roberds Manufacturing Co.

100 Railroad Street

Marion, Indiana



Ornamental and Enduring

Mullins Metal Tile Roofing

is ornamental, as well as weather-defying. With proper care, it is everlasting. Its first cost is almost its last cost. It is the one Metal Tile Roofing that is faultless, as all drawbacks from expansion and contraction have been eliminated. It is simple in construction, and when put on according to directions is guaranteed for years.

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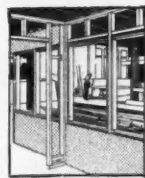
Write for catalog

THE W. H. MULLINS CO.

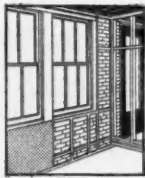
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Salem, Ohio, U. S. A.

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Walls ready for BEAVER BOARD



Nailed to furring strips on brick walls



Method of supporting ceiling panels

BEAVER BOARD

WALLS & CEILINGS



Nail top center first with fine wire brads

Carpenters and decorators should know BEAVER BOARD. Tremendous growth within the last eight years has placed it almost on a par with brick or concrete as a standard building material.

There are thousands of possible users who ask about BEAVER BOARD. The men who can supply the information—and do the work right—are more and more in demand every year.

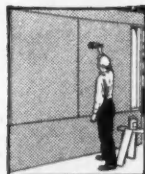
A post card will put your name on the mailing list of our Builders' Service Department, and entitle you to all the literature of this department. Write today.

The Beaver Board Co's.

U. S.: 332 Beaver Road, Buffalo, N. Y.
Canada: 532 Wall St., Beavertdale, Ott.
Gr. Brit.: 4 Southampton Row, London



Nail edges with flat-head nails.



Paint before paneling



Decorative strips give panel effect

Because Its Surfaces Have Been Waterproofed

A carpenter who furnishes a room with **NEPONSET** Wall Board is doing the right thing by his customer because the surfaces of **NEPONSET** Wall Board have been thoroughly **waterproofed**. This extra treatment which is given to the surfaces of **NEPONSET** Wall Board is done to prevent the board from absorbing moisture.

Another point—**NEPONSET** Wall Board is beautifully finished and requires no further decoration.

To get an **attractive** as well as a **practical** job with Wall Board be sure to get

NEPONSET

WALL BOARD

Write for samples and information to

BIRD & SON

ESTABLISHED 1795

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EAST WALPOLE, MASSACHUSETTS

NEW YORK, CHICAGO, WASHINGTON, SAN FRANCISCO

Canadian Office and Plant:
HAMILTON, ONT.



Trade Mark Registered U. S. Patent Office, No. 94745

A Money-Saving Repair Material

That hurry-up repair job—he wants it cheap, and quickly. Compo-Board is the answer.

Of course Compo-Board is the best wall lining you can find for a new building. But for the repair job where speed is essential, you can "deliver" best by finishing walls, partitions, etc., with Compo-Board.

You can get exactly the amount you need, in strips 4 feet wide and up to 18 feet long. No waste—no muss from plastering and no waste of valuable time. The decorator can take a room the day you're thru with it.

The corner of this advertisement shows the construction of Compo-Board, the "Wood-Core" wall board. It is non-porous, hence resists temperature changes and fire very well. And the chances are it will outlast the rest of the finishing woodwork.

Sold by dealers almost everywhere. Send for booklet and free sample. Test it yourself.

Northwestern Compo-Board Company
5777 Lyndale Ave. No.
MINNEAPOLIS MINN.

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How long do you suppose Opportunity 'll stick 'round?

While you're debatin' an' thinkin', Opportunity has passed on to the man next door and you're out of it. Get a rope on Opportunity now—while you can.



Ask for Cat. A. C.

Get the skids under adversity

Ask for Cat. A. C.



by handling the acknowledged world's highest efficiency roofing material—the Walter's and Cooper's Interlocking Metal Shingles, the winners for thirty-two years.

Walter's and Cooper's Metal Shingles



W. & C. metal shingles are proof against fire, wind, storm, snow, rain, lightning and decay; they will not curl, burn, rot, check, split, crack, blow or drop off; they require no heavy under framing to support them and they cost the user but a little.

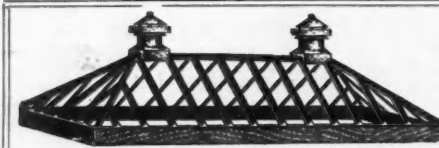


We have a very special proposition to make to every builder, contractor and roofing engineer in the country; its acceptance puts the recipient in a way to make money faster and easier than he ever did before. Let us send you this proposition—now—today.



National Sheet Metal Roofing Co.

339-98 Grand St., Jersey City, N. J.

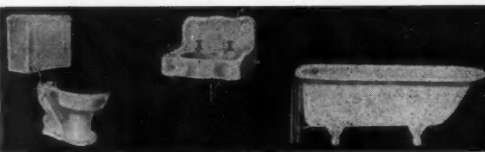


Badger Quality Always Leads

Cornices, Skylights, Finials, Ventilators, Metal Ceilings, Slate, Tile, and Tin Roofing, Galvanized and Wood Tanks, Eave Troughs, Conductor Pipe, Wire and Steel Hangers, Sheet Metal Roofing and Siding, Galvanized Screw Joint Well Casing and Culverts, Tin Plate, Galvanized and Black Sheets, Toncan Metal Rust Resisting Sheets.

Badger Steel Roofing & Corrugating Co.

213-215 So. 2d Street, La Crosse, Wis.

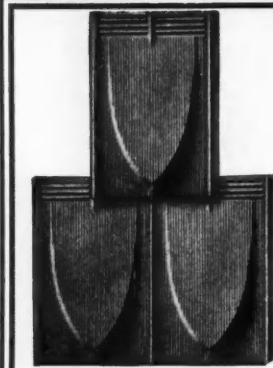


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BUY AT WHOLESALE PRICES Bathroom Outfits, Sinks, Pipe, Fittings, Valves, Faucets, Heating Boilers, Radiators, Water Pressure Systems and Lighting Plants for Country Homes, etc., etc.
Our \$200,000.00 plant behind our GUARANTEE.

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JOHN HARDIN COMPANY
30 Years at 4543-53 Cottage Grove Ave., CHICAGO



Style "B"—Showing Method of Laying

PLACE YOURSELF ABOVE YOUR COMPETITOR

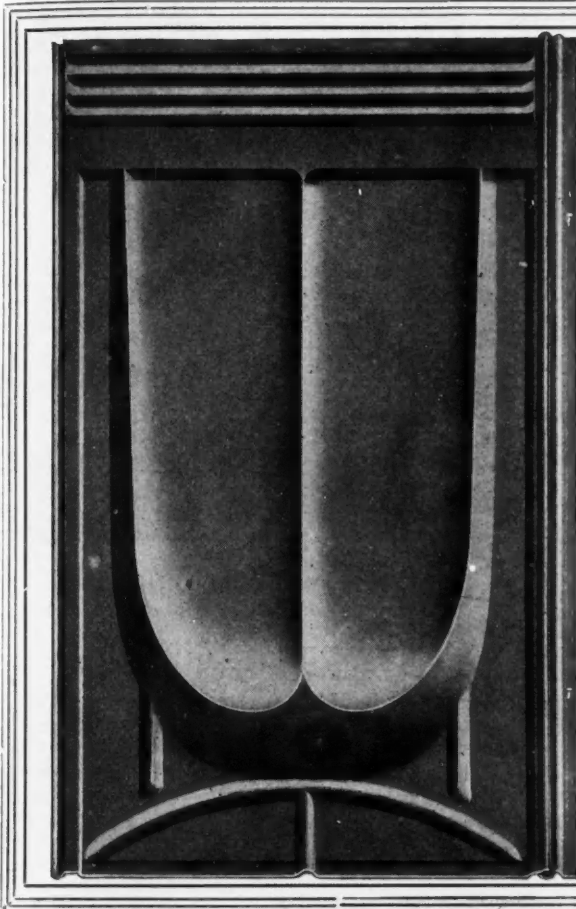
AND SELL **"TITELOCK"** THE BEST

METAL SHINGLES made. They are business-getters and money makers. **FIRE, WATER AND LIGHTNING PROOF.**

Write for Samples and Prices

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MILWAUKEE, WIS. KANSAS CITY, MO.

You will get **SPECIAL ATTENTION** if you tell Advertisers you read **American Carpenter and Builder**.



NAIL
HERE

NAIL
HERE

EDWARDS "OHIO" METAL SHINGLE

The very latest addition to the big Edwards Metal Shingle Family has just arrived.

The "baby" is named after our own great state. Note the handsome, novel design and clean cut embossing. This pattern is made in one size only, 14 x 20 inches.

Manufactured from the best quality Worcester Grade Terne Plate, painted or "Tightcote" galvanized.

The "Ohio" has the patent interlocking device and every other good feature that has made Edwards Shingles famous.

Samples and Price on Application

The Edwards Mfg. Co.

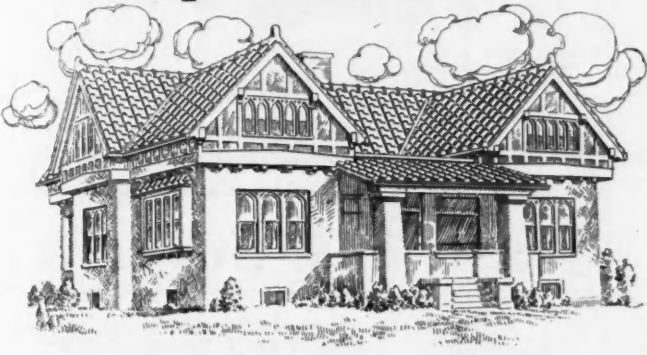
"The Sheet Metal Folks"

401-417 Eggleston Avenue, Cincinnati, Ohio

Largest Manufacturers of Metal Ceilings, Metal Shingles, Steel Roofing and Siding in the World.

New York Office: 81-83 Fulton St. Branch Office and Warehouse: 1625-1627 Pacific Ave., Dallas Texas.

Spanish Tile



The MOESCHL-EDWARDS CORRUGATING CO.

EVERYTHING IN SHEET METAL
BUILDING MATERIAL

COVINGTON, KENTUCKY

Catalogue "S" showing a complete line of Ornamental Roofings mailed free to Architects, Contractors and Carpenters.

Write for Prices on

Ceiling Marquise
Columns Roofing
Cornice Shingles
Cresting Siding
Culverts Skylights
Finials Spouting
Garages Tanks
Gutter Ventilators

Address The Moeschl-Edwards Corrugating Co.

Covington, Kentucky

REYNOLDS ASPHALT SHINGLES

Guaranteed for 10 Years

will last many years longer—Natural colors of garnet, red, gray and green, which never fade.

We are the ORIGINAL MAKERS of Flexible Asphalt Slate Shingles and tested our product for ten years before putting it on the market. Let us send you a booklet.

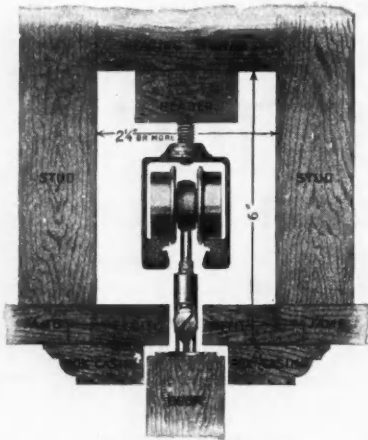
H. M. Reynolds Asphalt Shingle Co.

Established 1868

West Grant St. GRAND RAPIDS, MICH.



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Cross Section View No. 221 Advance House Door Hanger

Insure proper operating sliding doors in the perfect home

Richard's-Wilcox

MANUFACTURING CO. AURORA, ILL. U.S.A.

A hanger for any door that slides.

OPEN AND SHUT

They slide so still you never know
Unless you see them shut.
They occupy no needed space
Nor bang, nor slam, nor butt.

LARGE doorways increase the effect of space in small houses or apartments, and permit of more beautiful decorative treatment in larger homes.

Install sliding doors in these openings, and you have convenience for all occasions.

Privacy of separate rooms.

Use of all rooms if desired.

Comfortable ventilation.

No wasted wall or floor space "behind the door" or when it is opened and closed.

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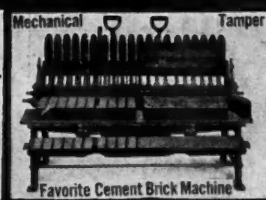
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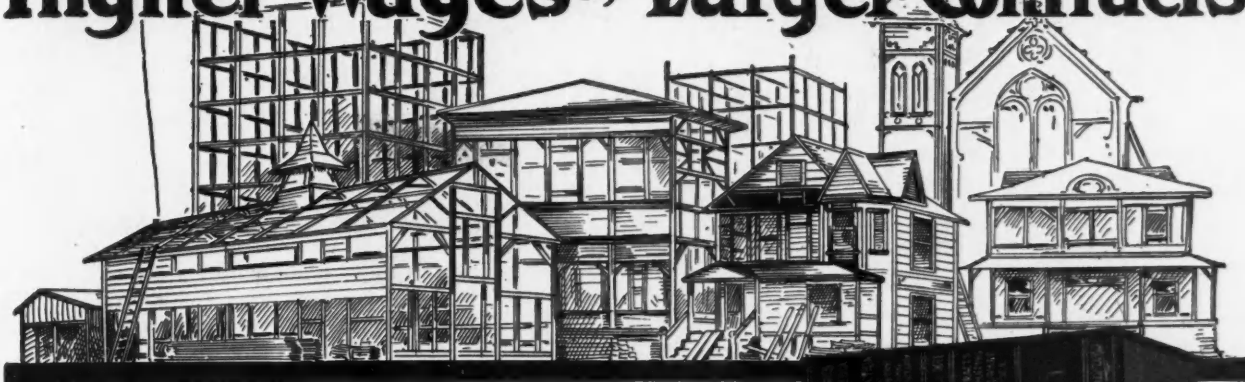


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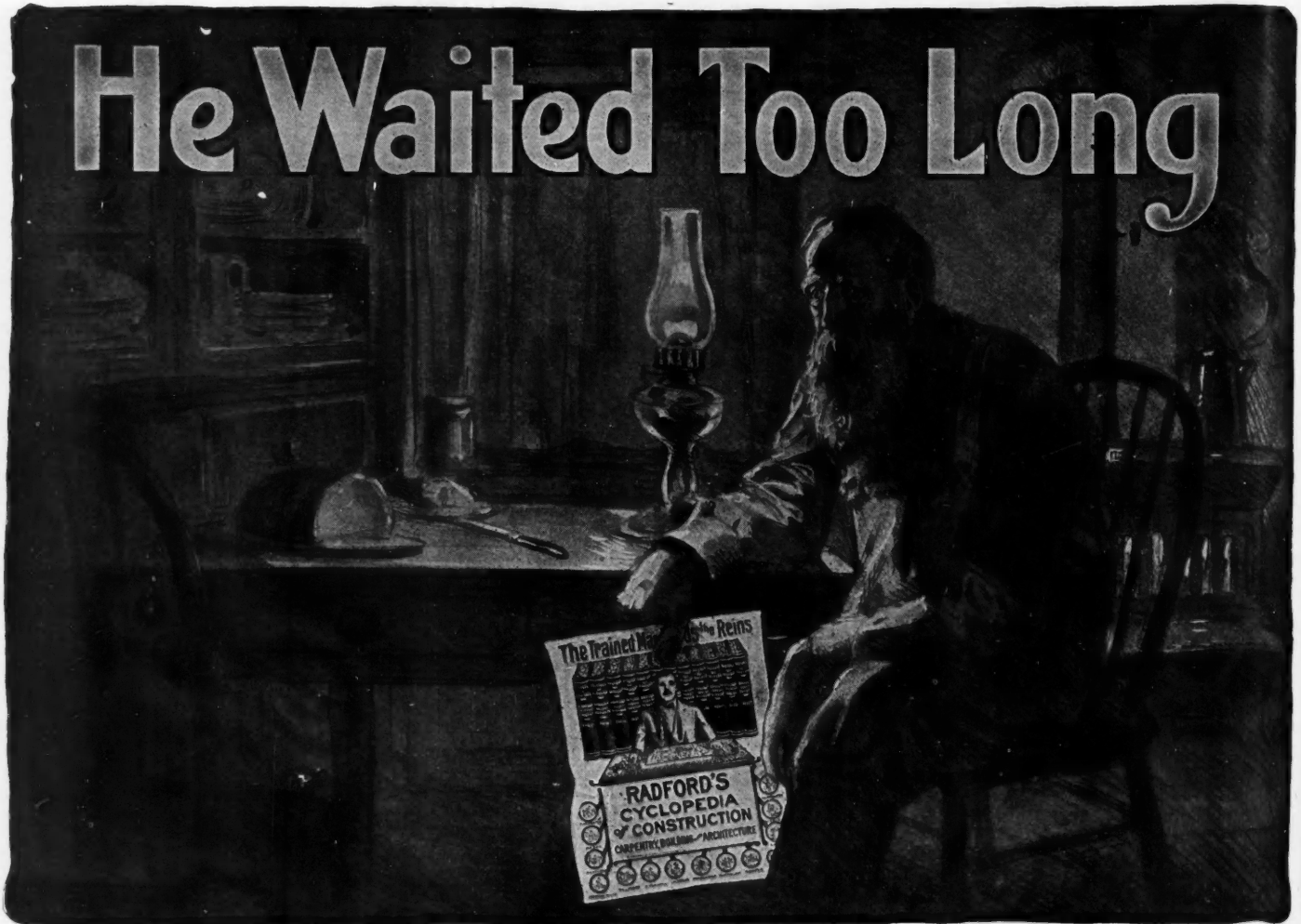
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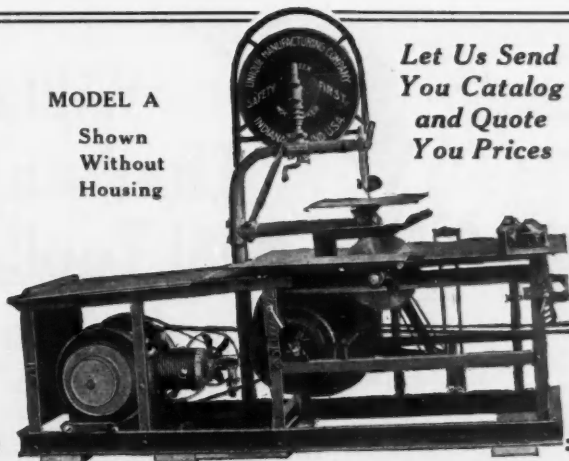
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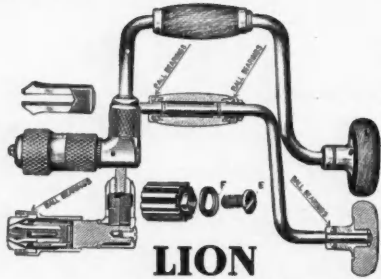
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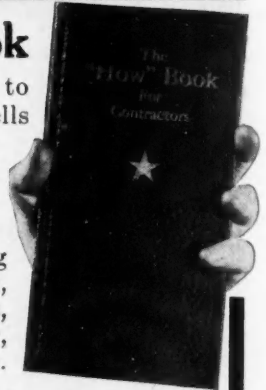
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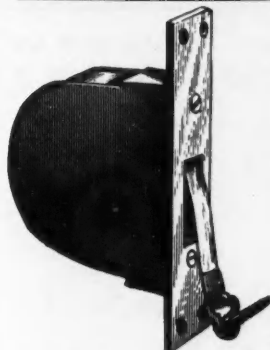
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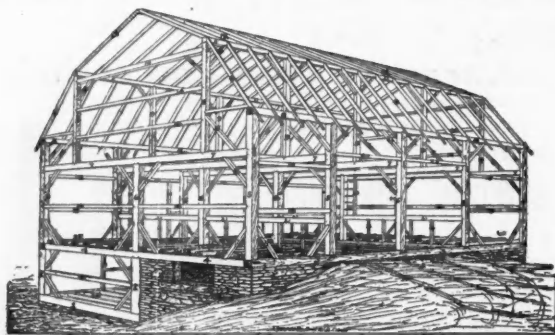
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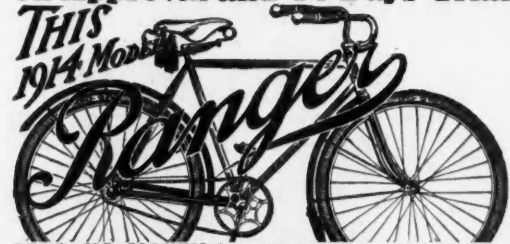
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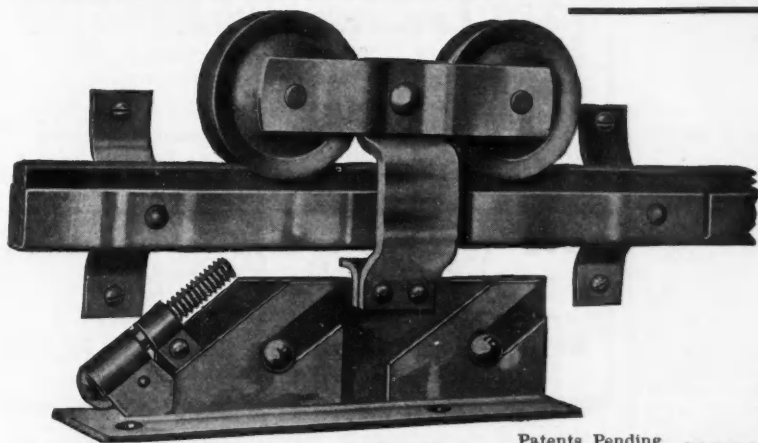


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PATENT RIGHT FOR SALE—Hand Hammer Saw Set: sells on sight: fortune for right party. Apply **GERSTNOR'S HARDWARE STORE, 638 8th Ave., Brooklyn, N. Y.**

FOR SALE—U. S. Standard Block Machine, large outfit. Good as new. **W. J. Barnhart, Guthrie, Okla.**

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.



Pullman Ventilating Cows

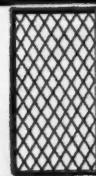
are the best exhaust medium on the market. Provide for removing the foul air by using Pullman Cows on the roof. Write for booklet. Ask us to solve your Ventilating problems. The Pullman System means Natural Ventilation.

**Pullman Automatic Ventilator
Mfg. Co., 21 York St., York, Pa.**

APOLLO RUBBER ROOFING

Made of highest quality felt and asphaltum. One ply lasts 5 years—2 ply, 10 years—3 ply, 15 years. Rolls contain 108 square feet, including nails and cement.

1 PLY \$1.35 Freight allowed any part of United States. Samples sent.
2 PLY 1.65
3 PLY 1.95
THE RUBBER ROOFING MFG. CO.
5 Cortlandt St., New York City, New York



WINDOW GUARDS ELEVATOR ENCLOSURES

Fences, Gates, Railings,
and Wire Specialties.

Send specifications for prices, etc. Write today.

KOKOMO FENCE MACHINE COMPANY
502 North Street Kokomo, Indiana

Use Webster's Elastic Cement

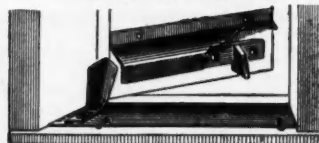
For Bedding Slate, Pointing Wood, Stone, Brick
and Iron for Waterproofing and for Setting Glass.

Write for Prices

W. F. Webster Cement Co., Cambridge, Mass.
Established 1848

Over 1,000,000

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People Want **The Axtell**



In Daily Use

A perfectly tight All-Metal Weather Strip for bottom of doors and swinging windows. Saves sill from wearing and can be put on any door in 5 minutes at 200% profit. Sells at sight wherever shown. Our price will interest you. Write us.

E. I. Church & Co.
West Hanover, Massachusetts

ROOFING SLATE

OF QUALITY

MINERS

MANUFACTURERS

The AULD & CONGER CO.
DEPT. B.

ESTABLISHED CLEVELAND, OHIO. 1870

8 Grape Vines, 6 Currant Bushes \$1

All best 3 year old stock. If planted now or early spring will fruit next summer. Should ground be frozen we tell you how to protect and keep them dormant ready for early spring planting. Orders accepted now and forwarded at any future time if preferred. Grapes are Worden, Niagara, Iona, Concord, the best early, medium and late varieties. Large cherry currants. Write for list of our \$1 Fruit Makers, consisting of all kinds of Fruit Trees, Berries and Roses.

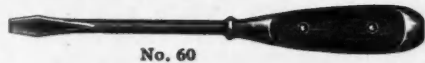
The Landscape Garden Co., Newburgh, N. Y.



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Pioneer Drop Forged Screw Drivers



No. 60

One piece. Bend prevents slipping. Most practical, durable, improved driver made

Show this ad to your hardware dealer, or write us for catalog.

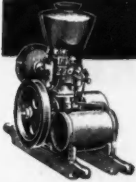
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We will show you how you can do it. Write us and we will send you full particulars. No enrollment. No first payment. Your own ability is what counts. No \$10 down, \$10 a month game. Just write and find out. Catalog C. B. free.
THE T-SQUARE & TRIANGLE CO.
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AUTOMATIC SASH HOLDERS

Proved by Use—Unexcelled for windows without pocket frames. Excellent for new windows.



Send for circular and prices, or \$1.00 for trial set prepaid; state approximate weight of sash.

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CARPENTERS AND BUILDERS

make extra money by installing this practical necessity in new and old homes. It saves 3650 trips to the cellar each year. "WIPE'S JOY" DUMBWAITER—Ball Bearing—Disappearing Operates quickly by a press of the button. Takes up no room. Top lies flush with floor; can be walked on. Practical for any home. Keeps food perfectly. Can be installed complete in 2 hours. WRITE FOR CIRCULARS.
Fifteen Days' Free Trial Without Any Deposit.

AMERICAN ELEVATOR CO. - - Bloomsburg, Pa.

BYERS HOISTING ENGINES

Specially Designed for Builders

Write for Catalogue No. 20

The John F. Byers Machine Co. Ravenna, O.

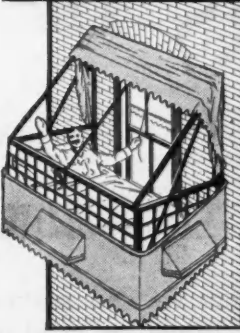


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10 per cent Larger Bedrooms
50 per cent Larger Wardrobe capacity and you can save from \$100 to \$300 in building a home.
Send 50c for Plan Book which shows 22 designs—ranging in price from \$1200 to \$12,000.

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Big half-a-week's pay



for half-a-day's work

Millions are eager to sleep outdoors. But only a few have sleeping porches. Here is an improvement on the sleeping porch, that almost everybody can afford. The

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Put up outside any bedroom window. Has quick adjusting storm curtains. Completely equipped for sleeping. Supports a ton. Ornament to home.

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You can put up this Porchet in half a day or less at a big profit. Cost moderate. Sales easy. Write today for prices, our proposition to you, and book, "Outdoor Sleeping Made Easy."

American Porch Construction Works

Dept. 15 South Bend, Ind.

Write for Free Book

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EVERYBODY WANTS BETTER LIGHT. HERE IT IS

This new 100 to 700 candle power light turns up and down like gas. One-third cost of electricity, gas or kerosene. For home, church or store. Anyone can operate. Perfection guaranteed or money back. Write for catalog. (A. C. B.) Dept. 20. Agents Wanted. BRILLIANT GAS LAMP COMPANY
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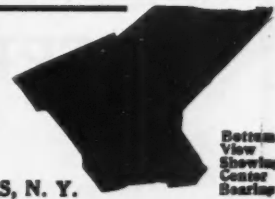
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is the ONLY BASE having a CENTER BEARING.

It carries the required weight without a lowing the corner supports to sink into the floor and prevents the base of columns and floor from rotting.

See "SWEET'S" page 958.

S. CHENEY & SON, MANLIUS, N. Y.



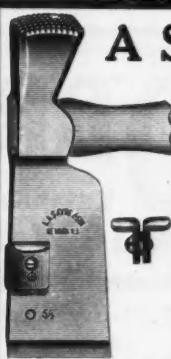
Bottom View Showing Center Bearing



The Eau Claire Chalk Line Reel

Always ready; holds chalk and line together; uses solid chalk, no powder. We furnish no line. Sent to any address prepaid, 75c. We handle Eau Claire chalk. Agents wanted.

THE MILLER-LAUT CO., 916 Menomonie St., Eau Claire, Wis.



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WITH POSITIVE GAUGE

CARPENTERS and BUILDERS

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1872

1914

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WITH

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**Tools for Every Trade
Electrical Supplies
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(80,000 Different Items)**

Our years of experience, our immense buying power, our reputation, have enabled us to place before you the largest assortment of well-known builders' hardware, tools of all kinds, etc., in the country. All the leading manufacturers are represented. Our stock is the pick of the choicest and most reliable.

Your orders will be filled promptly. No delays; no waiting for goods out of stock. You will be entirely satisfied with our selection, for our knowledge of hardware and supplies insures your getting the best. Each piece in every shipment is sorted and labeled from the specifications and packed so the workmen will lose no time in handling.

Let us bid on your next contract. Whether your order is large or small, we appreciate it and give it the individual attention that makes buying from us both pleasant and profitable.

When you are in Chicago, call on us. Let us show you over our big store. Look over our display of "quality" hardware. You will go away with the feeling that we can make good on our promise to give you the best service, the greatest satisfaction, the utmost quality at a moderate price.

Let us figure on your next bill.

UNUSUAL VALUES IN BUILDERS' HARDWARE

We are discontinuing several lines of Inside Lock Sets, Front Door Bit Keyed Sets, Front and Vestibule Lock Sets, Front Door Cylinder Locks, Vestibule Cylinder Latches and Branford Bronze Butts. These will be closed out at real bargain prices, although every piece is in perfect condition. Write us today for the complete list.

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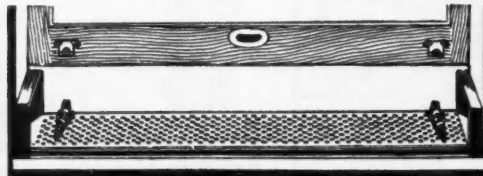
BERRY WINDOW VENTILATORS are in demand. We control the sales in the United States. Every reader should know about them and install and specify them in the buildings he erects or designs. Indispensable to homes or offices.

Operate on the right principle. Burglar proof and Indestructible.

Can be adjusted to fit another window. Easily installed and can be furnished in any length.



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Showing window open with ventilator closed and not in use

All the hardware on the Bungalow of the Northern Hemlock and Hardwood Manufacturers' Association at the Forest Products Exposition in both Chicago and New York, has been provided by us.

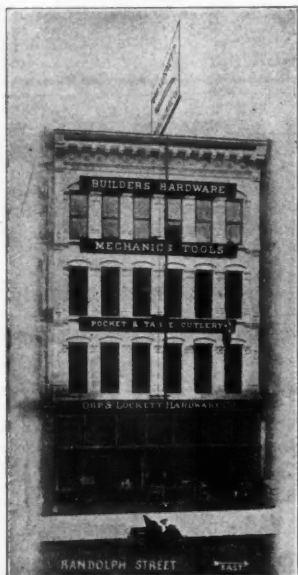
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ORR & LOCKETT

Established 1872

HARDWARE CO.

14-16 West Randolph St., CHICAGO, ILL.

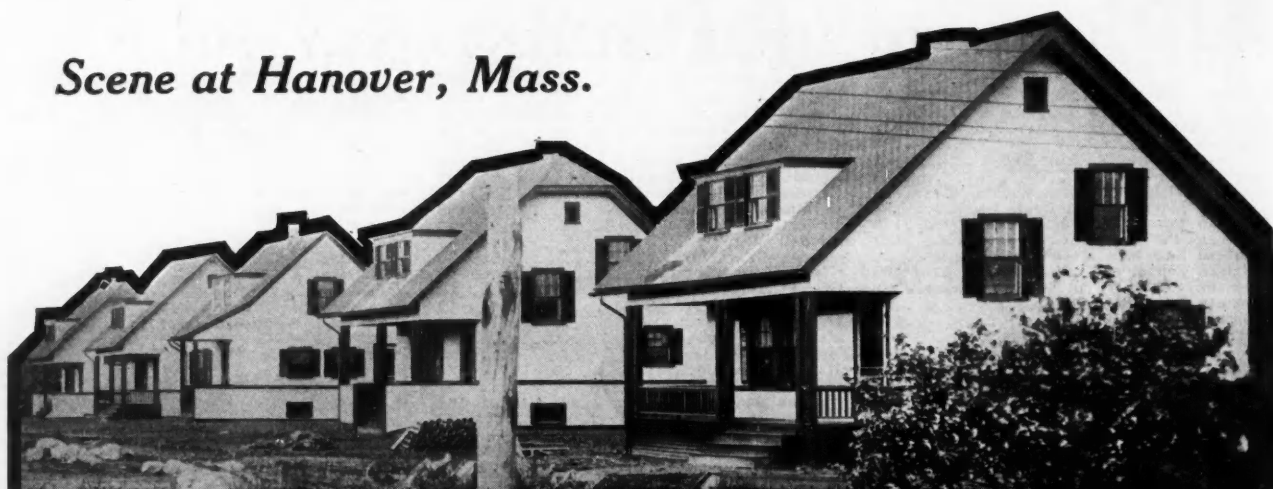


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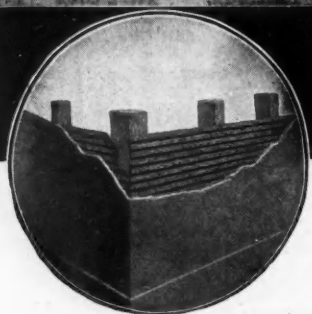
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Scene at Hanover, Mass.



30 Bishopric Stucco or Plaster Board Houses



Bishopric Stucco or Plaster Board nailed to studding and stucco applied to stucco board.

The picture above shows a group of thirty houses built at Hanover, Mass., where Bishopric Stucco or Plaster Board was used with entire satisfaction. This is strong evidence of merit, isn't it? You can save 25% in time, labor, money and material by using Bishopric Stucco or Plaster Board for both exterior and interior work. Bishopric Stucco or Plaster Board keeps the building damp-proof and is a perfect sound deadener.

For interior work it is applied dry, directly to the studding. No building paper, no wood sheathing necessary. Complete the building 30 days sooner and have permanent construction. Plaster may be applied in one-third less time than with ordinary lath, metal or wood. It makes a permanent construction, and a building that is cool in summer and warm in winter, because it is a non-conductor of heat and cold. Don't ceil your cellar with lath and plaster! The constant jarring above will develop cracks and loosen it. Use Bishopric Stucco or Plaster Board with its dovetailed laths that hold plaster like nothing else can.

Bishopric Stucco or Plaster Board

"Dampness Can't Penetrate"

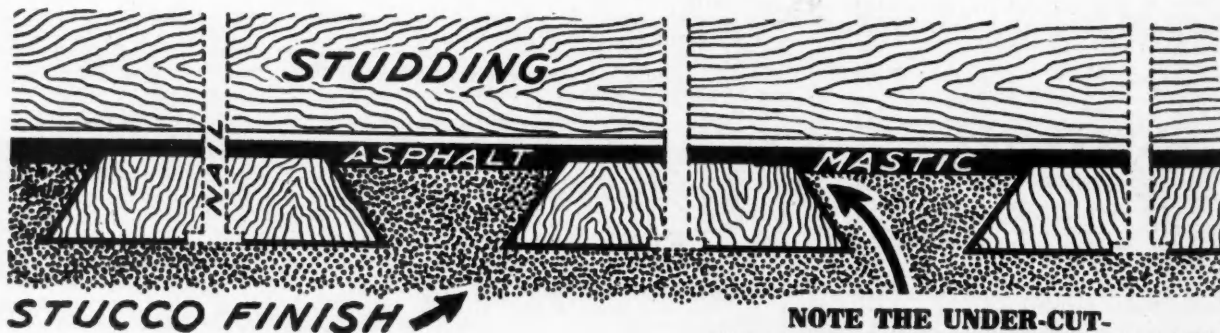
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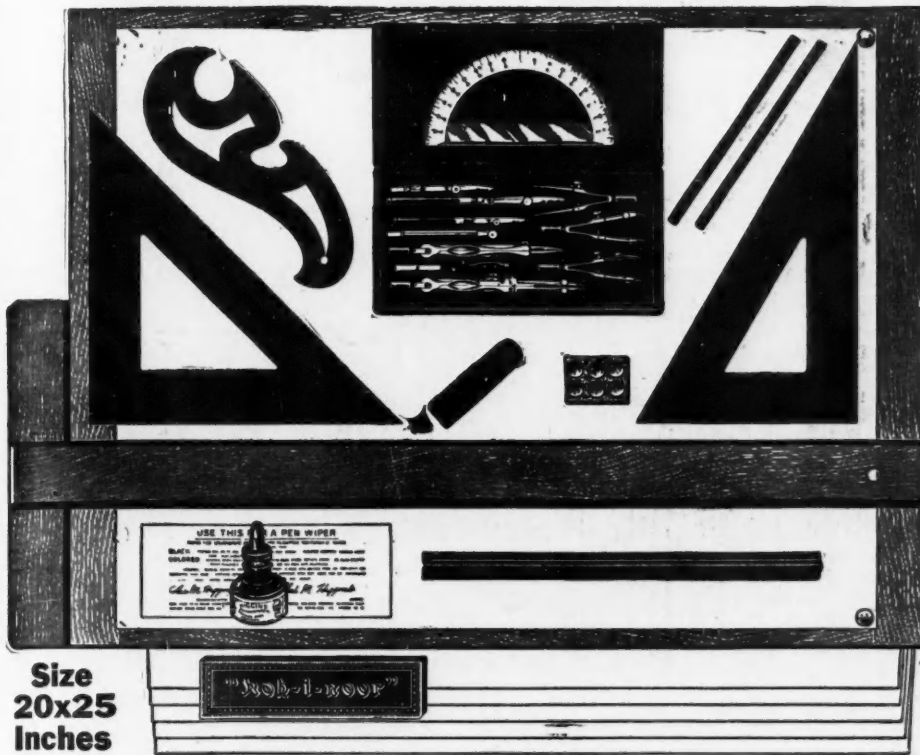
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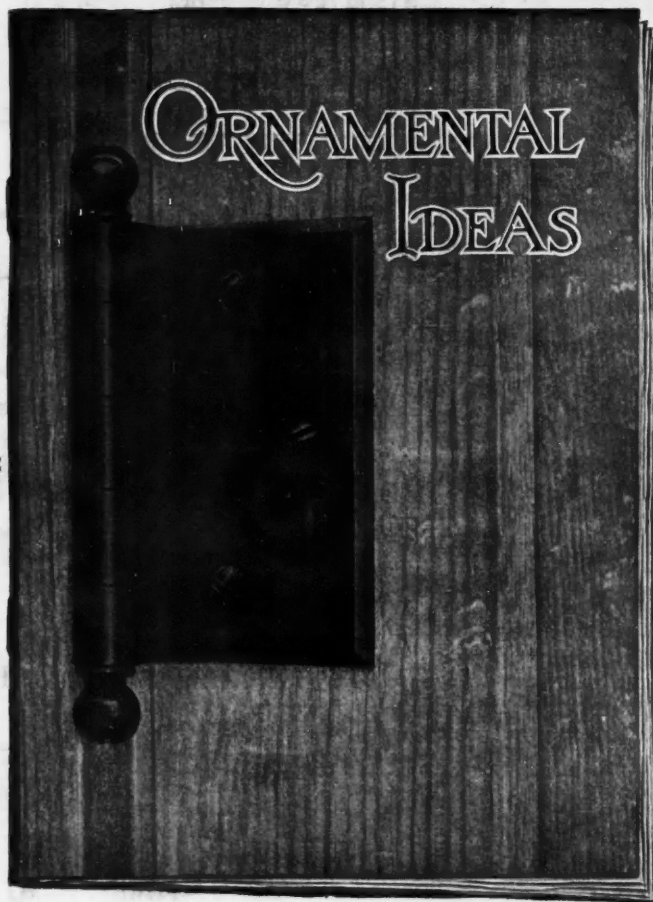
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