

AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER

SPECIAL IN THIS ISSUE

A Model Shop for Every Carpenter and Builder

Experiences with Portable Woodworkers

Life of Lincoln in Terra Cotta

How to Build a Stave Silo

Talks by the Boss Carpenter

Roof Framing with the Steel Square

Sewage Disposal for Country Homes



See pages 38 to 40 for Design and Layout for Model Small Shop Showing What Equipment to Have and How to Arrange It.

Complete Plans: 7-Room Gambrel Roof
House for Narrow Lot

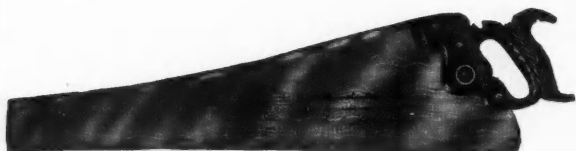
DON'T OVERLOOK The 12 Pages of Correspondence—Questions and Answers, and Builders' Personal Experiences

ATKINS "SPRING BEAUTIES"

Here are just a few of the tools that you will find invaluable in your kit. They represent the most scientific construction and Highest Quality. Your regular dealer will supply you. Just tell him you want "ATKINS SILVER STEEL". He will order from his wholesale house, if he does not have them in stock. Why not "sort up" your outfit—this spring—now—and enjoy the benefits these really fine **mechanics** tools will bring.



Two Man Saws—For Heavy Cutting



Hand, Rip and Panel Saws



For Heavy Framing



Floor Scrapers. Blades of Saw Steel



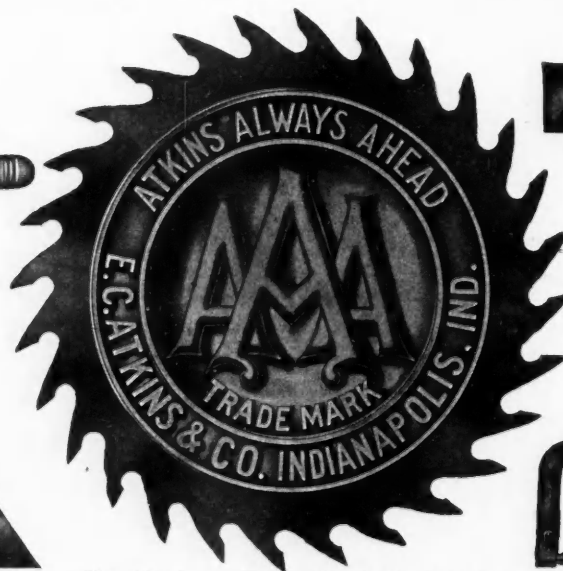
Nests of Saws with Metal Cutting Blade



Coping Saw



Back or Mitre Saws



This Mark on all Genuine Atkins Tools



Trowels Made of Saw Steel



Improved Hack Saw Frames



Atkins No. 100 Flooring Saw



Atkins AAA Saw Clamp



Another Popular Floor Scraper

FREE Send your name and address with ten cents for postage, and we will register you on our list of High Class Mechanics and send you **Free** our Carpenters Book, called Saw Sense, a handy monthly Time Book, with wage scale and a fine carpenters nail apron.

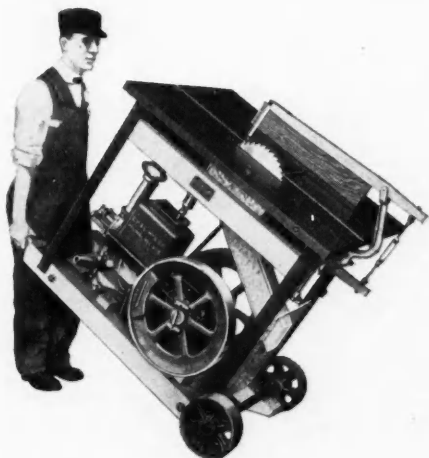
E. C. ATKINS & CO., INC.

THE SILVER STEEL SAW PEOPLE

INDIANAPOLIS, INDIANA

When Writing Advertisers Please Mention the American Carpenter and Builder.

WHEEL



THIS PORTABLE
SAW RIG

TO ANY PART
OF YOUR JOB

The Real Sensation of 1912

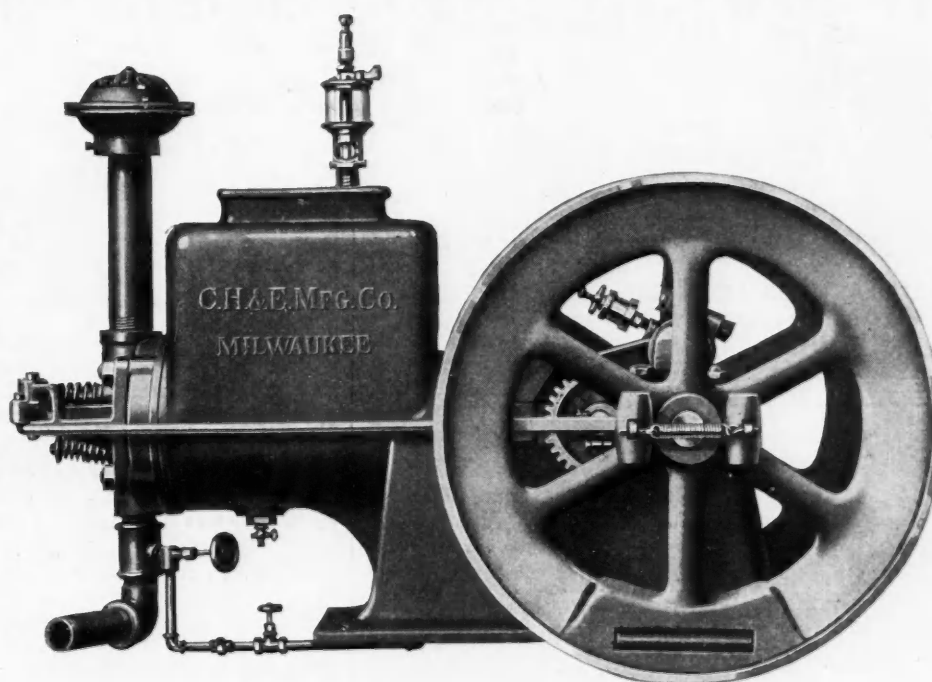
This shows the 4 H. P. 4 cycle water hopper cooled C. H. & E. gasoline engine which is installed in the C. H. & E. No. 3 Portable Saw Rig. The cylinder and frame is cast in one piece of special grey iron, making it very rigid. The connecting rod is made of malleable iron and the crank shaft is of high-carbon drop forged steel. The original C. H. & E. suction gasoline feed or vaporizer does away with the complicated pump and there is no danger of fire or flooding.

The gasoline tank is enclosed in the base of the engine cylinder.

This engine is very easy to start.

Running this engine for eight or ten hours straight consumes from two to two and one-half gallons of gasoline per day.

Write for our large colored wall hanger.



C. H. & E. MANUFACTURING CO., Inc.
322 Mineral St. MILWAUKEE, WIS.

When Writing Advertisers Please Mention the American Carpenter and Builder.

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 the 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 finest 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.

Write for Our Free Book, "Surfacing Floors as a Business."

Manufactured By **The American Floor Surfacing Machine Co., TOLEDO, O.**



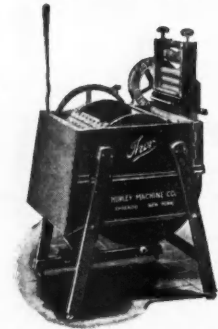
DON'T BUY A FLOOR SCRAPER of any kind until you have tested the **LITTLE GIANT**

at our expense. Sold only on its merits. Shipped to you prepaid for a free trial. If not satisfactory in every particular, return it to us, at our expense.

Easy to operate. Will scrape your floors rapidly, perfectly and economically.



Ask for special price on the **LITTLE GIANT**



The Thor Electric Home Laundry Machine

permanently solves the laundry problem in the home. More than 34,000 now in use. Sizes, designs and prices to meet every requirement. Free trial. Easy payments.

Write for full particulars.

Hurley Machine Company
1008 Flatiron Building NEW YORK 37 So. Clinton St. CHICAGO

"It Works Like a Plane"

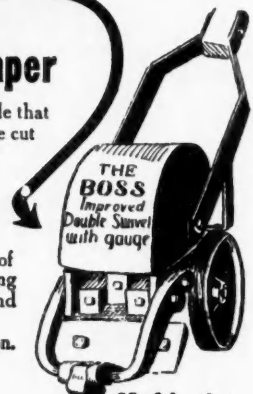
The Boss Floor Scraper

The "Boss" is the only Floor Scraper made that will plane a floor without leaving a square cut where knife first starts cutting. Why? Because the "Boss" is made with a gauge on front, to which is attached a pear-shaped wheel which raises when machine is pulled and lets the knife down gradually. The "Boss" can be set for any thickness of shaving, it also can be set for any shearing cut right or left up or down to suit the kind of Lumber.

It is guaranteed to give absolute satisfaction.

G. J. KEPPLINGER

Main Office: - DWIGHT, ILL.

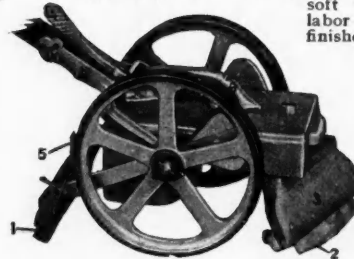


Mnfd. also in Canada.

THE RAPID FLOOR SCRAPER

Large Wheels—easy motion. Automatic brush, sweeps floor ahead of knife. Knives sharpened in machine. No bolts to loosen when knives are sharpened or changed. Scrapes hard or soft wood. Saves labor of 3 men. Does a finished job. With the **RAPID KNIFE SHARPENER (INCLUDED FREE) ANY MAN CAN SHARPEN KNIVES.**

SEND FOR CATALOG — AND — **FREE TRIAL OFFER**



MONARCH MFG. CO
269 Shepard Bldg. GRAND RAPIDS, Mich.

The Myers New-Way Adjustable Tandem Door Hanger

is adjustable to and from buildings and permits the door to be raised or lowered as desired. This is a very important feature in cold weather when the ground is frozen and heaved up. It is absolutely dust proof and can be adjusted to keep out all snow and rain. Owing to its construction it will carry a heavier load than any other style tubular track. Another very important feature is its flexibility which permits the door to pass over uneven surfaces.

Write us for information and catalog.

F. E. MYERS & BRO.

ASHLAND, OHIO

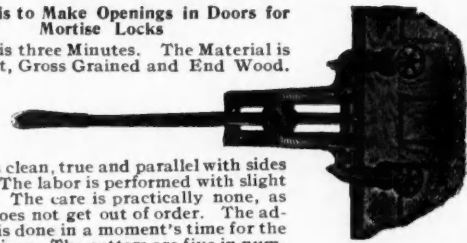


Miller's Hand Mortiser

WILL SEND ON APPROVAL

Its Work is to Make Openings in Doors for Mortise Locks

The time is three Minutes. The Material is Hard, Soft, Gross Grained and End Wood.



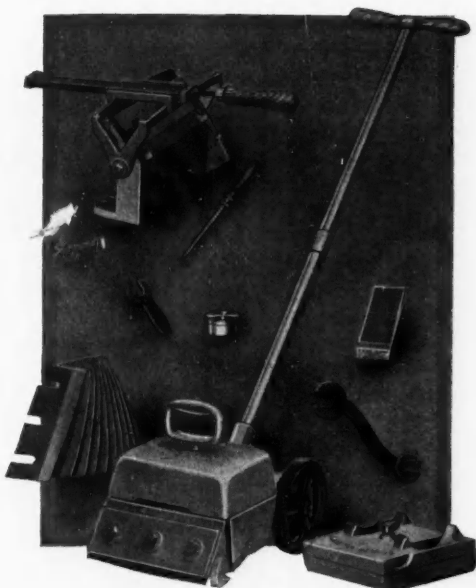
The job is clean, true and parallel with sides of door. The labor is performed with slight exertion. The care is practically none, as the tool does not get out of order. The adjustment is done in a moment's time for the different sizes. The cutters are five in number and cover locks from 1/2 inch to 1 1/2 inches thick. Thin doors are handled as easily as thick doors.

Riverside, Cal. **A. W. MILLER MFG. CO.** Cincinnati, O.

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TRY IT FREE

and thereby convince yourself just what the



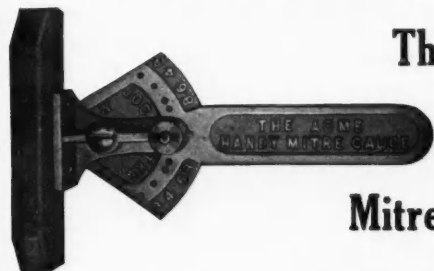
Acme Floor Scraping Outfit

can do on your own work

I do not expect or want you to buy a machine that you are not thoroughly familiar with, so in order to introduce my equipment to you and to permit you to fully investigate into its merits, I make you this offer:

I will send the complete Acme Floor Scraping Outfit, as here shown, to you for a WEEK'S FREE TRIAL. I will allow you to work the machines and if after you have given them a thorough trial you find that they do not meet with your entire approval, simply send the outfit back to me and you will owe me nothing.

If this proposition sounds reasonable and you want more information, drop me a line and I will forward booklet and full particulars by return mail.



The Acme Handy Mitre Gauge

is one of those little tools that is a great time saver. It fits in the pocket where it is always ready for immediate use. The dollar that you pay for this mitre gauge is the best investment that you ever made. If your dealer can't supply you, I can. Guaranteed absolutely accurate.

I have a circular that gives full particulars. Write for it today.

JOSEPH MIOTKE
247 Lake Street : : Milwaukee, Wis.

TWO KNIVES Scrapes Forward or Backward

Saves time and strength
—Scrapes every inch perfectly.



Pull a while, than drop rear knife and push a while—the change rests your back and increases your speed. Double knife feature also enables you to reach the center of the smallest room. Knives drop at either end and let you right into the angle of the baseboard.

The WEBER DOUBLE ACTING Floor Scraper

works perfectly at all angles on any flooring—maple, oak, yellow pine, fir — with or against grain. Accurately balanced; makes a smooth "shearing" cut without a particle of side draft. Absolutely the only scraper of its kind. Prove its worth for yourself.

Try It Five Days FREE

on your hardest job—then put it up against any make you know of. If its work isn't the best you ever saw, the trial won't cost one cent. Send for circular and full details NOW.

JOHN F. WEBER, Pres.
Weber Mfg. Co.
670 71st Avenue
Milwaukee, Wis.

No Chattering

No Waves

The Contractor is Wise

When he selects a Machine that will last a long time



Will a complicated machines with lots of small parts last as long as the

Fox Floor Scraper

with the least number of parts?

Your common sense tells you NO

We make enough scrapers so as to get the lowest possible cost and not so many but that each one gets my personal inspection before it leaves the factory.

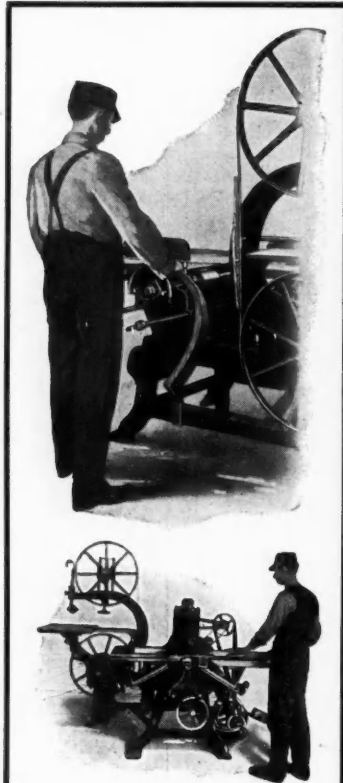
I will send you this machine on 10 days free trial. If you aren't satisfied with it, ship it back at our expense. It will cost you only \$25.00 to keep it and you will find it the greatest expense reducer you ever saw.

FRANK CAMPION, Manager

FOX SUPPLY CO.
BROOKLYN : : WISCONSIN

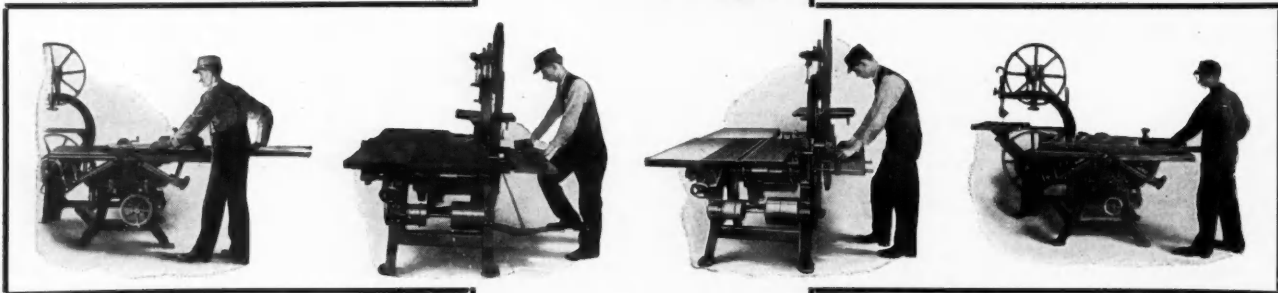
Buying a FAMOUS Universal Woodworker is just like buying an outfit of sixteen individual machines—the only difference being an enormous saving in initial investment, maintenance, power and power equipment, floor space and labor. Then there's no idle machinery, yet sufficient equipment for your needs without being too much.

Four men can operate four separate attachments at one time—doing four different kinds of work. Band-Sawing, Boring, Sanding, Planing, Tenoning, Grinding, Shaping—and various other kinds of work can be readily accomplished on the same machine.



There's a 27-inch Band Saw, 12-inch Jointer, Saw Table (with raising and lowering arbor), Single Spindle Shaper, Boring Machine, Pony Planer, Tongue and Pole Rounder, Hollow Chisel Mortiser, Single End Tenoner, Drum Sander, Disc Sander, Emery Grinder, Knife Grinder, Band Re-Saw, Spoke Tenoner, Rim Borer and Wheel Equalizer, Adjustable Felloe Rounder—all combined on one base—all for individual operation.

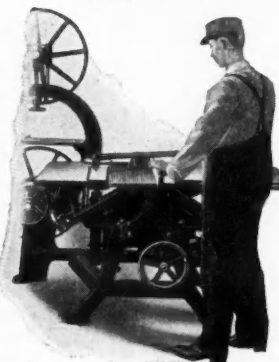
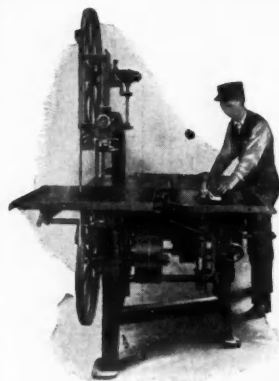
For multiplicity of work the FAMOUS has never been duplicated. Adjustments for the different operations are made almost instantly, without the least trouble or inconvenience—without any previous knowledge.



You can outbid competition in price and time, because you can get your work out cheaper and quicker than by relying upon local planing mills.

Over thirteen hundred other carpenters and builders are letting a FAMOUS Universal woodworker boost their business. They are kept busy all the time and are making bigger profits than ever they did before, simply because they can satisfy their customers on price and time while, because of the lowered cost of production, they make more profit for themselves.

Of course they realized the FAMOUS to be the only practical Universal Woodworker on the market.



The low price and the liberal terms of payment, bring the FAMOUS Universal Woodworker within the reach of every carpenter and builder. It cannot be figured as an expense—simply as a dividend-paying investment, that soon pays for itself, then saves right along.

We can furnish stationary types for permanent use in the shop, or portable types that can be moved from job to job. Every FAMOUS is guaranteed for life—you cannot lose a cent.

Don't wait any longer—just write for full information today.

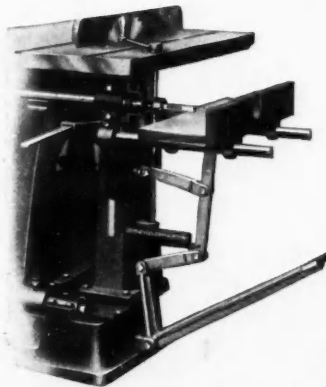
THE SIDNEY TOOL CO.
SIDNEY, OHIO - U. S. A.

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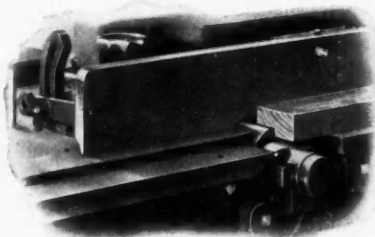
Increase Your Profits Cut Down Your Costs Do More AND Better Work

With This

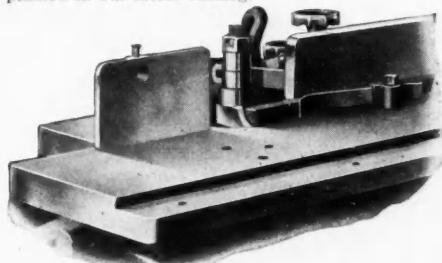
CRESCENT UNIVERSAL WOODWORKER



This attachment converts the borer into a hollow chisel mortiser, suitable for cutting mortises up to $\frac{3}{4}$ inch square.



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.



It is a very easy matter to work quarter round or moulding on the shaper spindle. The pressure spring holds the work securely up against the fence.

¶ This woodworking equipment—our Crescent Universal Woodworker complete with band saw, jointer, saw table, reversible single spindle shaper and borer you want to make a part of your working force.

¶ In any Carpenter's or Contractor's Shop, Supply or Lumber Yard, this Crescent Universal Woodworker will be a money maker—a money saver. You can do more and better work with this woodworking equipment in less working cost and time.

¶ Here is a woodworking machine that is practical in every way;—that is compact;—that is convenient;—that is especially adapted for your kind of work;—that is easily and economically operated.

¶ This Crescent Universal Woodworker gives you all the facilities of a fully equipped planing mill. It is a five in one machine—five separate, complete, machines in one—a combined band saw, jointer, shaper, saw table and borer. Each machine is in every way independent of the others. It is a machine that four men can work on at one time without interfering in any way with each other. Each machine can be started and stopped independently of the others.

¶ Our Crescent Universal Woodworker is built of quality material in every respect. It is thoroughly strong throughout. It is always in workable condition. Attachments include a mortiser, tenoner, panel raiser, emery wheel, knife grinder, disk grinder, dado head and resaw gauge. Crescent Universal Woodworker does away with all separate countershafts.

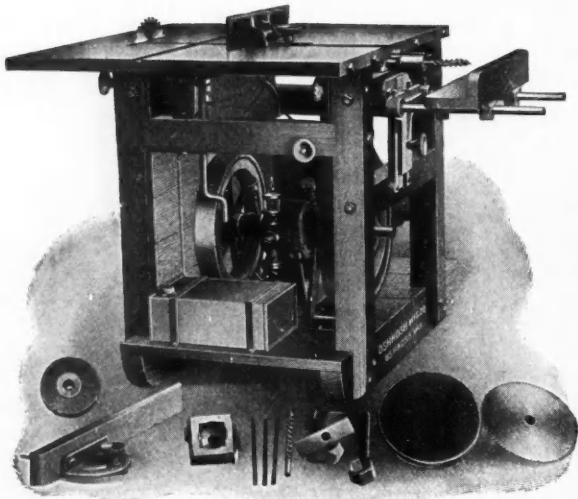
¶ We equip our Crescent Universal Woodworker with either a 26-inch or 32-inch band saw and either an 8-inch, 12-inch or 16-inch jointer. We can also furnish you with the Crescent Universal Woodworker without the band saw equipment.

Our new 128 page 1913 catalog is just off the press. It illustrates and describes in detail our Crescent Universal Woodworker in detail. It also tells about our complete line of band saws, jointers, saw tables, planers, shapers, swing saws, disk grinders, matchers, etc.

¶ Let us mail you your copy of our new catalog. Read it through thoroughly. Investigate our Crescent Universal Woodworker in every way before you decide definitely upon any certain woodworking equipment. Let us hear from you today—SURE.

THE CRESCENT MACHINE COMPANY
224 MAIN STREET
LEETONIA, OHIO

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Uncle Sam is glad he bought two “Evereadys”



AFTER exhaustive search and severe tests, the U. S. Government saw fit, last September, to buy two “Eveready” Saw Rigs. Letter just received says they have given

good satisfaction. If you are on the fence as to what saw rig to get, here’s a tip: Our government buys strictly on merit. Personality of salesman or firm counts for nothing after a machine is explained. You’re always safe if you buy where the government buys. The

TRADE MARK OSHKOSH “Eveready” SAW RIG

“GUARANTEED FOR LIFE”

is the best investment a carpenter, contractor or lumber retailer ever made. It makes a deep cut in your woodworking costs and enlarges your facilities in a way wonderful to behold. We say it will save you \$10.00 a week—others claim \$25.00.

Built strong and rigid from the ground up—and will not give or spread. Yet it is so light two men can swing it into a rig and have it on the job in a jiffy. No expert needed to run it. En-

gine is very simple and directions are right to the point, easy to understand.

It’s a whole planing mill in itself—for, besides two circle saws (cross-cut and rip) you get all the attachments listed below. These are not flimsy make-shifts to boost the machine, but real business-like tools, made with extreme care. Just the same, we don’t charge any more for the “Eveready” than others do, who don’t furnish extras. Read these descriptions carefully:

All These Attachments FREE

Jointer Head—This works on exactly the same principle as an up-to-date planer. Produces a smooth, even job, with no deep cut as the material leaves the jointer head. 2½ inches in size.

Saw Gauge and Miter Device—Saw gauge of the best gray iron, 18 inches long, adjustable to any bevel. Miter device adjustable to any angle and can be used as a cross-cut gauge.

Sander—The best one yet—a great time and money saver over old methods in change and economy of paper. Our methods of holding paper will not blister as do many others. 10 inches in diameter.

Jig Saw—Not a cheap one, but the best 12-inch jig we can make. All joints reinforced with steel, equipped with brass bushings. Once use it you won’t part with it.

Boring Attachment—A highclass attachment. Guaranteed absolutely accurate. Extra long boxes insure easy, long running qualities on the guides. Bits, standard size.

Dado Head—Our Own special design. Does smooth, even work with or across the grain. Makes window frames, dados, etc.

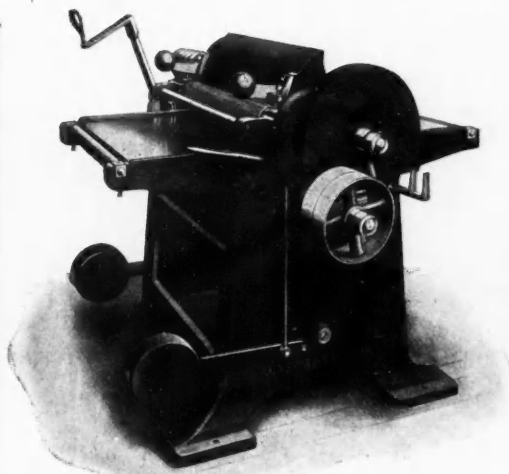
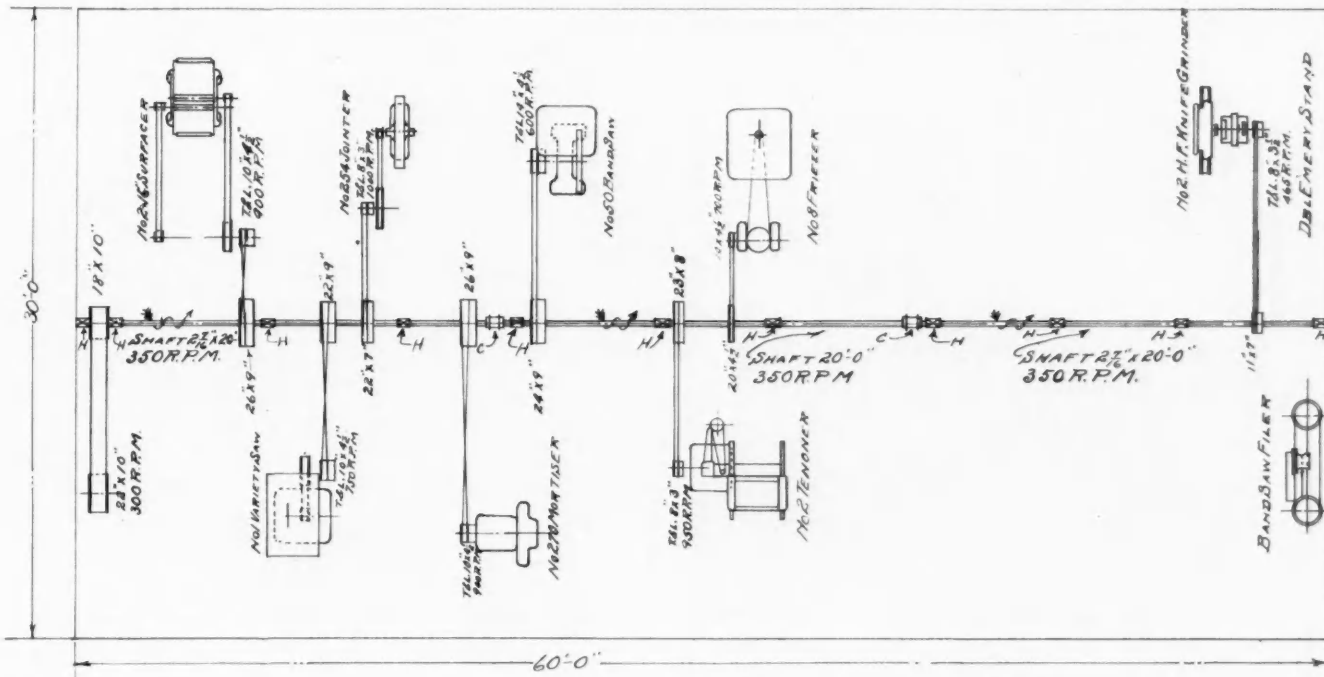
Emery Wheel—A 6-inch wheel made for grinding tools is also furnished with this rig.

Try It a Week At Our Risk

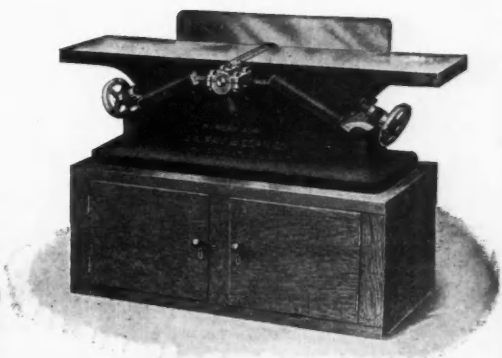
Work it hard—use all the Attachments. Keep track of its time and fuel and compare with hand labor. Then if you think you can get along without it, we’ll take it away, making no charge whatever. Write for details today—the risk is all ours.

**OSHKOSH MFG. CO. : : 316 South Main Street
OSHKOSH, WIS.**

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No. 2 Centennial Surfer



No. 254 Bench Hand Planer

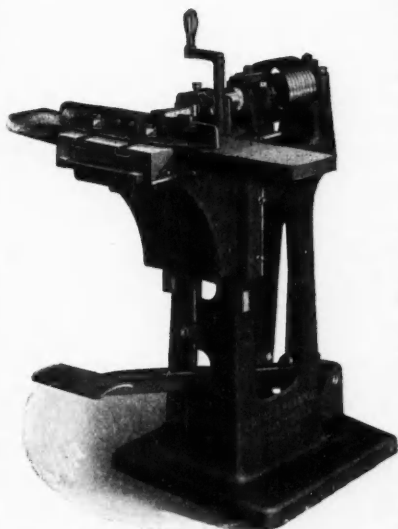
AN IDEAL PLAN

for the Carpenter-Contractor's shop, and a few of the machines used with same.

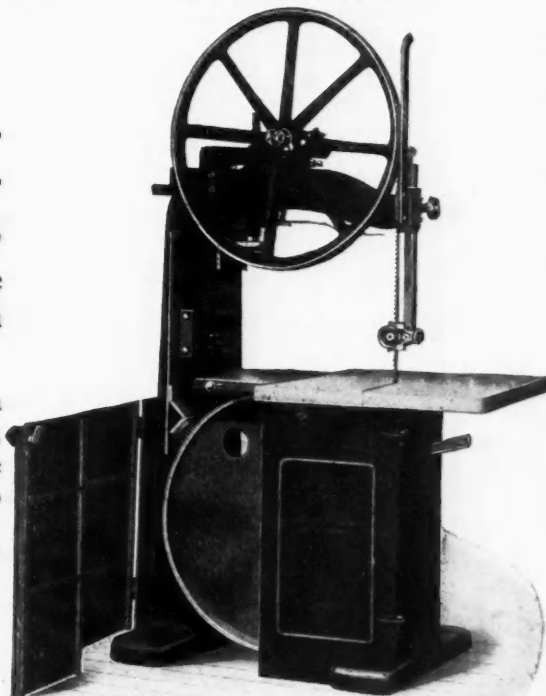
Any further information concerning this layout, or the machines, can be had upon application to

J. A. Fay & Egan Co.
 Mrs. of Woodworking Mch.
 THE "LIGHTNING" LINE
 545-565 W. Front St.
 CINCINNATI, OHIO

SALES OFFICES:
 New York Chicago
 St. Louis Seattle



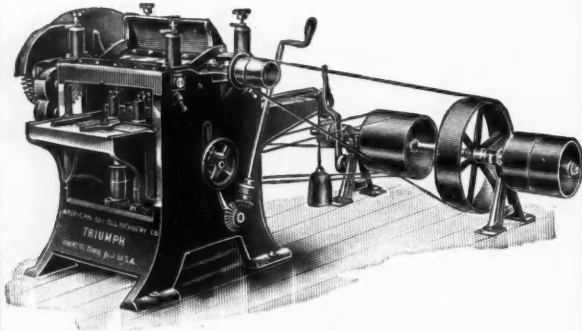
No. 270 Hollow Chisel Mortiser



No. 50 Band Saw

When Writing Advertisers Please Mention the American Carpenter and Builder.

AMERICAN "TRIUMPH" PLANER, MATCHER AND MOULDER.



Here is a machine which is so far ahead of any other supposedly in its class that there is really no comparison. You must study it, detail by detail—or let us tell you more about it than we have space for here—to realize its many advantages.

One thing we want to emphasize. The "Triumph," though a small machine, turns out work as uniform, accurate and high in quality as the largest, most expensive machines.

The explanation is that the "Triumph" is better designed, more strongly and rigidly built, has a higher class of workmanship and more attention to the fine details, than any other small planer.

We could not make the "Triumph" Planer better than it is if we charged twice the price for it.

Here is what the small mill or shop equipped with a "Triumph" can do:—planing and matching; working flooring, ceiling, siding, casing, wainscoting; a large variety of moulding and trim.

Write us at once for the "Triumph" pamphlet. See for yourself what splendid value the "Triumph" is. And be convinced.

American Saw Mill Machinery Co.

64 MAIN STREET
HACKETTSTOWN, N. J.

1380 HUDSON TERMINAL
NEW YORK CITY



GRIMM WOODWORKER

9 Machines in 1
The Handiest, Most Prac-
tical Time Saving
Machine Made

It will complete all the work you now have done at the planing mill, such as ripping, cross cutting, dadoing, jig sawing, jointing, boring, moulding, sanding and emery wheels. Get a Grimm and increase your profits.

Built with belt or electric motor drive, also gasoline engine for portable use.

Thousands in use.

Send for catalogue and prices.

Belt Drive

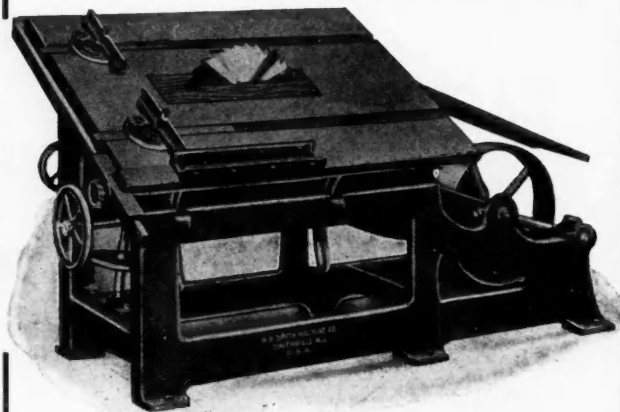
GRIMM MANUFACTURING CO.

46 Erie St.,

Buffalo, N. Y.



Woodworking Machinery



UNIVERSAL SAW BENCHES of several sizes and styles, and some with TWO arbors—all have tilting tables and cross-cutting and slitting gauges.

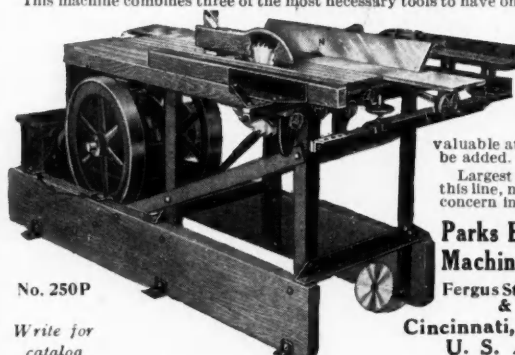
Address for Literature and Prices

H. B. SMITH MACHINE CO. SMITHVILLE, N. J.

NEW YORK CHICAGO ATLANTA SAN FRANCISCO

Parks Portable Single and Combination Woodworking Outfits

This machine combines three of the most necessary tools to have on the job, namely Circular Rip or Cross-cut saw, 6" Jointer tilting guide and boring machine. Jig Saw, Band Saw and many other valuable attachments can be added.



Largest assortment, in this line, made by any one concern in the world.

Parks Ball Bearing Machine Company

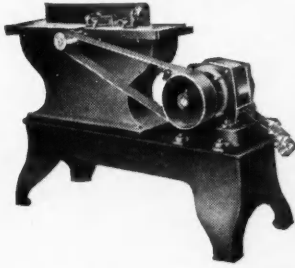
Fergus Street and C. H. & D. Ry.
Cincinnati, Ohio,
U. S. A.

No. 250P

Write for
catalog

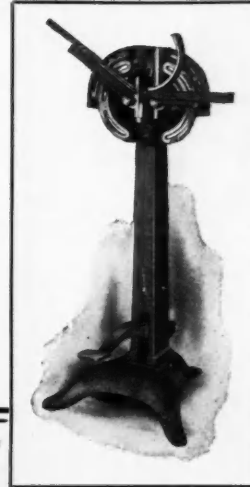
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The Porter 5" Jointer



Is used for Jointing, Planing, Moulding, Beveling, Rabbeting, Grooving, and any other work that any Jointer can be used for. We furnish it with or without countershaft, bench or motor. Just as you desire. The **Best** machine for the money on the market. We make 6 larger sizes, and Wood Lathes, Shapers, Planers, Cut-off Saws, Band Saws and Saw Tables.

C. O. Porter Machinery Co.
666-668 Front Ave., N. W., Grand Rapids Mich.



75% SAVES 75%

Costs but little

We guarantee the AMERICAN SASH TRIMMER to save at least 75% of the cost of fitting fancy sash by hand, and the price not being large, it only takes a short time for this machine to pay for itself.

We want to send one on trial to every responsible concern who has use for it.

May we send you one?

The Heald Machine Co., 2 New Bond St., Worcester, Mass.

CARPENTERS

In these days of close competition need the best possible equipment, and this they can have in

Barnes' Hand and Foot Power Machinery

Our new foot and hand power Circular Saw No. 4, the strongest, most powerful and in every way the best machine of its kind ever made. For ripping, cross cutting, boring and grooving.

SEND FOR OUR NEW CATALOGUE

W. F. & John Barnes Co.
74 RUBY ST. ROCKFORD, ILL.



"Victor" Scroll-Saw

FOR FOOT AND POWER

Suitable for carpenters, pattern and cabinet makers and all wood-workers requiring accurate work, also for sawing soft metals. Will cut up to 3 inches thick, swings 24 inches, has powerful tread motion, cuts rapidly and is easy to operate. Has adjustable tension spring on upper spindle, dust blower, drill attachment, iron tilting-table, etc. Will furnish tight and loose pulleys for power in place of treadles when desired.

This is acknowledged to be in all respects the most complete foot-power scroll saw made.

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

SEND FOR CATALOG A

THE SENECA FALLS MFG. CO.

218 Water Street, SENECA FALLS, N. Y., U.S.A.

263



SEE HERE—Read What A Big Contracting Firm Says About Our Double Arbor Rip and Cut Off Machine

HEDDEN CONSTRUCTION COMPANY,
Builders

Metropolitan Tower, New York City.
Subject: Northwestern Mutual Life Building of Milwaukee, Wis.

Milwaukee, Wis., June 12, 1912

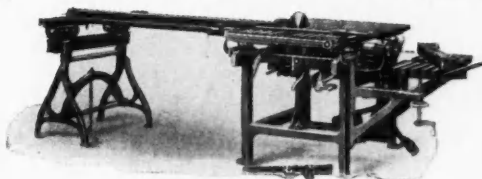
Beach Manufacturing Co., Montrose, Pa.

Gentlemen:—We beg to acknowledge your favor of the 7th inst., in reference to the No. 3 Double Arbor Rip and Cut-off Machine which we purchased from you. In reply to same, beg to advise you that we have been entirely satisfied with the work performed by this machine and found it to be a great labor saving device.

Very truly yours,
HEDDEN CONSTRUCTION CO.
(Sgd.) By R. W. Berliner.

RWB/NC.

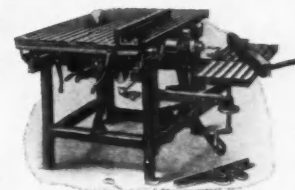
These Portable Double Arbor Rip and Cut-Off Saw Machines with either Iron or Wood Frames, can save you time, labor and material on any job. The machines are easily portable and require but small space to operate in. They are equipped with either electric motor or gasoline engine.



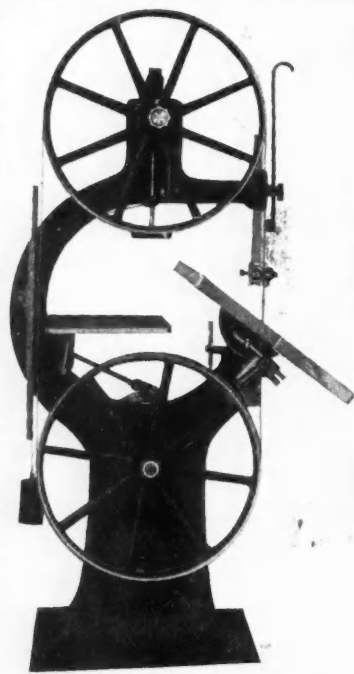
Our Double Arbor feature gives you in one machine a Rip and Cross-Cut Saw ready for use at any time. Their boring attachments require no pushing of lumber to bit. The bevel gauge will make any cut that can be made on a tilting top table. The mitre gauge can be set to any angle—right or left. The dado head can be used in either saw arbor.

Our table extension is framed together, trussed to prevent springing and provided with steel lumber roll, at outer end.

We guarantee these machines in every respect. Write us today about them. Get our catalog "M."
BEACH MANUFACTURING CO. - MONTROSE, PA.



When Writing Advertisers Please Mention the American Carpenter and Builder.

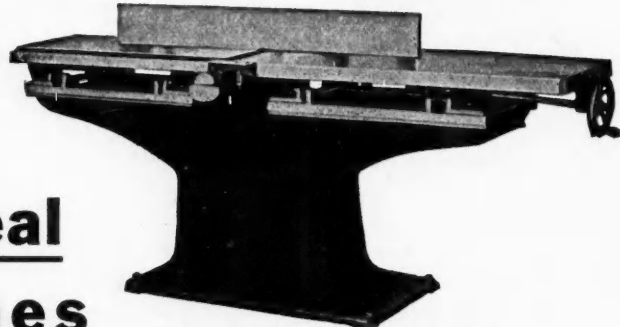


27-inch Chicago Band Saw

\$127.⁰⁰ for Both to Contractors and Builders

Ask for Price on One if You Can't Use Both

Used for Planing, Jointing, Shaping, Matching, Rabbeting, Grooving, Chamfering, Beading and Making Mouldings.



Chicago 8-inch Jointer and Planer

Use Real Machines

READ what this user writes:

Dear Sirs:

July 1, 1912.

I received my 27-inch Chicago band saw and 8-inch hand jointer together with belting and pulleys shipped by you some time ago, and have been using them ever since—almost night and day, and must say they are as good as money can buy.

Thanking you for your promptness in filling the order, I remain

Yours truly, F. W. HAWES, Knoxville, Ill.

Send for our Free Special Catalogue today. We issue a catalogue of machines especially adapted to Contractor's and Builder's Use.

Chicago Machinery Exchange

1213-1224 Washington Boulevard - - - CHICAGO, ILL.

TRADE



MARK



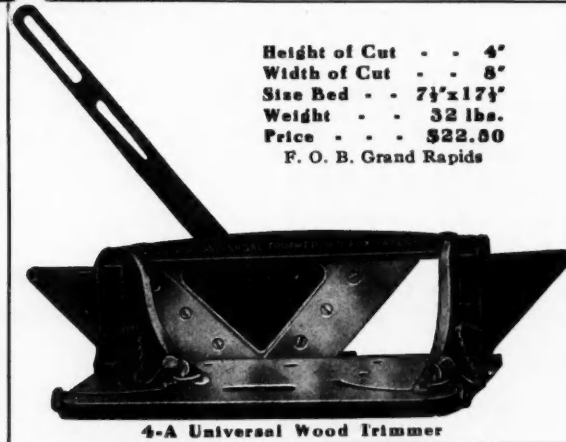
Height of Cut . . . 6"
Width of Cut . . . 12½"
Size Bed . . . 18"x39"
Weight . . . 420 lbs.
Price . . . \$90.00
F. O. B. Grand Rapids

6-E Universal Wood Trimmer

Bench and Floor Type

Universal Wood Trimmers

To Meet Every Demand



Height of Cut . . . 4"
Width of Cut . . . 8"
Size Bed . . . 7½"x17½"
Weight . . . 32 lbs.
Price . . . \$22.50
F. O. B. Grand Rapids

4-A Universal Wood Trimmer

EVERY PATTERN SHOP, INTERIOR FINISH MILL, FURNITURE FACTORY, and others doing work requiring perfect glue joints and angles should have our Trimmers or Miter Machines to produce the best results.

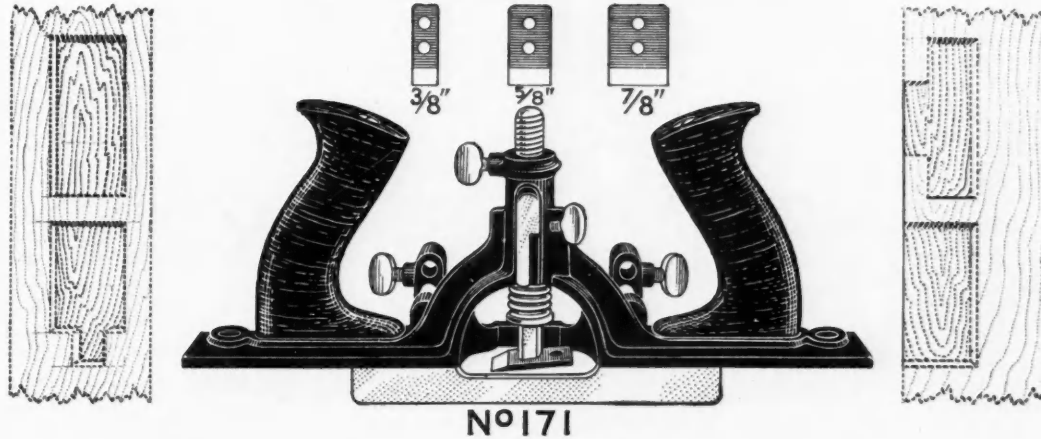
WRITE TODAY FOR COMPLETE CATALOG OF OUR TOOLS

FOX
MACHINE CO.

22 N. Front Street
GRAND RAPIDS, MICHIGAN
30 Church Street, New York
J. B. STONE & CO.,
135 Flinbury Pavement, E. C.

When Writing Advertisers Please Mention the American Carpenter and Builder.

Stanley Tools



No. 171

Stanley Door Trim Plane

THIS new Plane will make mortises for Butts, Face Plates, Strike Plates, Escutcheons, etc., without the use of a butt gauge or chisel. In fact it might very properly be termed a mechanical chisel. ¶ It is also a very superior Router Plane for surfacing the bottom of grooves or other depressions parallel with the general surface of the work. ¶ The Plane is japanned, has nickel plated trimmings, rosewood handles, and three forged steel cutters.

SEND FOR SPECIAL CIRCULAR

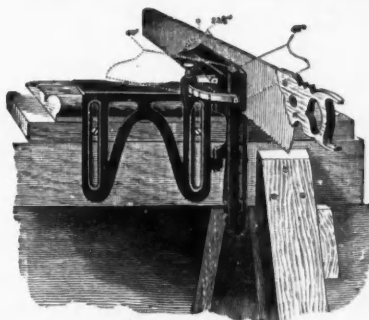
No. 171 Length, 11 Inches Weight, 3 Pounds List, \$2.75



Stanley Rule & Level Co.
NEW BRITAIN, CONN. U.S.A.



"RED DEVIL" Improved MITRE BOX



IT'S THE ONLY MITRE BOX MADE

**All Metal
Light in Weight
Practical in Every Detail**

Folds up to Carry in Tool Box



"It's all in the wheel"

We Make 33 styles of Glass Cutters. You of course use RED DEVIL Glass Cutters! Send 10c for a Sample.

That will cut any angle with any saw, any place. Can be used anywhere in the shop or on the job. You want this "RED DEVIL" Mitre Box and no other. All good hardware dealers sell it. Just insist on the "RED DEVIL" Mitre Box and take no other. It's to your advantage to use it and do perfect work and save time. If you can't get it locally, send us \$2.00 and your dealer's name, and one sample only will be sent you prepaid.

Smith & Hemenway Co.

Only Makers of Genuine Red Devil Tools. 150-152 Chambers St. - New York, U. S. A.
Over 3,000 Different Kinds and Sizes. 240 Lemoine St. - Montreal, Canada

When Writing Advertisers Please Mention the American Carpenter and Builder.



An Automatic Boring Tool That Fits Your Pocket

This is a mighty handy, convenient tool. It is compact and when compressed can be carried in the pocket. But set it to work and you'll find it has all the good qualities of larger and more expensive borers.

STAR BORER No. 8

has cells in the handle holding eight drill points ranging in size from 1-16 inch to 11-64 inch, and numbered from 1 to 8. Cell No. 9 contains a small screwdriver to be used when the tool is compressed, with the plunger forced back into the handle and held there.

Look for the name — **MILLERS FALLS.**

Our book "Tool Practice" is FREE — Send for it.

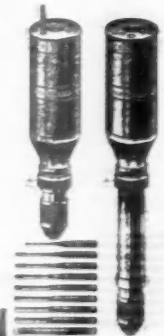
MILLERS FALLS COMPANY

28 Warren Street

::

::

NEW YORK CITY



A 1912
PRODUCTION

BLACK, 75 Cents. NICKEL, \$1.00.

Will be pleased to mail you a sample of this tool on receipt of the above price, provided your dealer does not carry them.

OTIS A. SMITH

ROCKFALL, CONN.

CARPENTERS and JOINERS

JUST A WORD!

ABOUT THIS NEW "COMPLETE" SAW SET

Every practical, common sense feature is embodied in this tool. A few of which are:
Adjustable side gauge which brings the point of each tooth under the anvil. Top Clamp Screw when adjusted, regulates the amount of set. The setting or wearing surfaces are made of Tool Steel and carefully hardened. Front Screw holds down Saw, allowing free use of left hand. Compact, Attractive and Low in Price.

INTRODUCTORY TRIAL OFFER

If the SELF-SETTING PLANES are not sold in your town and you write us saying, "I saw your trial offer in A. C. & B." we will send you particulars, a carpenter's pencil and our \$1.00 Certificate, which we will receive as \$1.00 in payment for a SELF-SETTING PLANE as stated in our \$1.00 Certificate, and if this S. S. Plane is unsatisfactory and returned to us at our expense, we will send you \$1.00 more than you sent us, as the \$1.00 Certificate says.



As this paper guarantees we will do as our advertisement says, you know the plane must be O. K. ALL WE ASK is to have you TRY the SELF-SETTING PLANE on your own bench, in your own way, with or against the grain, on the WORST cross-grained oak, knurley, knotty, hard or soft wood you can find. THAT IS FREE FROM SAND OR DIRT.

If it is not worth to YOU, OR YOUR MEN. TWICE ITS COST, return it at our expense as above stated.

If you send us the addresses of ten carpenters, no matter where they live we will send you another hard, tough carpenter's pencil.

Give the SELF-SETTING PLANE a chance to PROVE ITS WORTH. If it FAILS, return it and we will return your money.

Carpenters' Hard, Tough Pencils, 30c per dozen, postage prepaid.

GAGE TOOL CO., Vineland, N. J.

GOODELL MITRE BOX

Made of STEEL - Cannot Break



First in Quality and Improvements
Automatic Stops for holding up saw.
Corrugated Backs Graduated.
Gauge for duplicate cuts and many other features

Send for Circular "C"

GOODELL MFG. CO., Greenfield Mass.

When Writing Advertisers Please Mention the American Carpenter and Builder.

A BIT of Bit Wisdom

to be remembered when you are purchasing auger bits.

RUSSELL JENNINGS

Precision Bits Have Turned Shanks

This is important, for these bits are more easily and quickly placed in the brace chuck than any bits you ever saw, and after they're placed you don't have to worry about them—they will stay put.

The seconds saved each time you change bits make many minutes when a day's work is counted up. Are *you* saving these seconds?

Russell Jennings Mfg. Co.

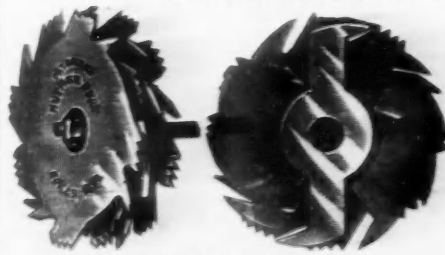
CHESTER

21-81

CONNECTICUT

Huther Bros. Patent Groover or Dado Head

Will save it's cost in three days' time



Showing Arrangement of Cutters

of concave ground smooth cutting circular Mitre[Saws, for either rip or cross cut; Grooving Saws for all kinds of special work; Lock, Corner Cutters Concave Saws, etc.

Try our Scraper Blades and you will use no others.

HUTHER BROS. SAW MFG. CO.
1000 University Ave. ROCHESTER, N. Y.

Can be used on any Circular Saw Mandrel

For cutting any width groove from 1/4" to 2" or over. Will cut a perfect groove, either with or across the grain, and leave edges smooth. Will ship to any responsible firm on ten days' approval; if not satisfactory you are at liberty to return at our expense. We also make a specialty

LUFKIN Tapes & Rules

are Standards of Accuracy, Durability and Workmanship.

SEND FOR CATALOG

THE LUFKIN RULE CO.

SAGINAW, MICH.

NEW YORK LONDON, ENG. WINDSOR, CAN



"YANKEE" DRILL No. 50

is the quickest Hand Drill made for small holes in wood or metal up to 3-16 inch.

The double (Backward and Forward) action of the Driving Handle is light and quick, and gives it a speed that cannot be matched by any geared drill.

A great convenience to any mechanic who has a large number of holes to drill in awkward places. The price, \$2.50 from the factory if you cannot get it from your dealer.

Send for "Yankee" Tool Book telling you about a number of "Yankee" Tools.

Your dealers sell the "Yankee"

North Bros. Mfg. Co.

Department A

PHILADELPHIA, PA.





An Automatic Boring Tool That Fits Your Pocket

This is a mighty handy, convenient tool. It is compact and when compressed can be carried in the pocket. But set it to work and you'll find it has all the good qualities of larger and more expensive borers.

STAR BORER No. 8

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Look for the name — **MILLERS FALLS.**

Our book "Tool Practice" is FREE — Send for it.

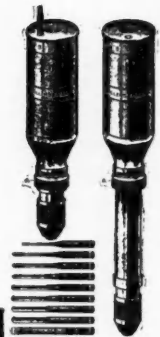
MILLERS FALLS COMPANY

28 Warren Street

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NEW YORK CITY



A 1912
PRODUCTION

BLACK, 75 Cents. NICKEL, \$1.00.

Will be pleased to mail you a sample of this tool on receipt of the above price, provided your dealer does not carry them.

OTIS A. SMITH

ROCKFALL, CONN.

CARPENTERS and JOINERS

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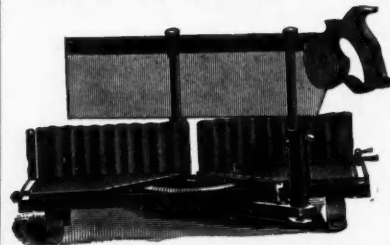
■ If you send us the addresses of ten carpenters, no matter where they live we will send you another hard, tough carpenter's pencil. Give the SELF-SETTING PLANE a chance to PROVE ITS WORTH, if it FAILS, return it and we will return your money.

Carpenters' Hard, Tough Pencils, 30c per dozen, postage prepaid.

GAGE TOOL CO., Vineland, N. J.

GOODELL MITRE BOX

Made of STEEL - Cannot Break



First in Quality and Improvements
Automatic Stops for holding up saw.
Corrugated Backs Graduated.
Gauge for duplicate cuts and many other features

Send for Circular "C"

GOODELL MFG. CO., Greenfield Mass.

When Writing Advertisers Please Mention the American Carpenter and Builder.

A BIT of Bit Wisdom

to be remembered when you are purchasing auger bits.

RUSSELL JENNINGS

Precision Bits Have Turned Shanks

This is important, for these bits are more easily and quickly placed in the brace chuck than any bits you ever saw, and after they're placed you don't have to worry about them—they will stay put.

The seconds saved each time you change bits make many minutes when a day's work is counted up. Are you saving these seconds?

Russell Jennings Mfg. Co.

CHESTER

21-81

CONNECTICUT

Huther Bros. Patent Groover or Dado Head
 'Will save it's cost in three days' time



Can be used on any Circular Saw Mandrel

For cutting any width groove from 1/4" to 2" or over. Will cut a perfect groove, either with or across the grain, and leave edges smooth. Will ship to any responsible firm on ten days' approval; if not satisfactory you are at liberty to return at our expense. We also make a specialty of concave ground smooth cutting circular Mitre Saws, for either rip or cross cut; Grooving Saws for all kinds of special work; Lock, Corner Cutters Concave Saws, etc.

Showing Arrangement of Cutters

Try our Scraper Blades and you will use no others.

HUTHER BROS. SAW MFG. CO.
 1000 University Ave. ROCHESTER, N. Y.

LUFKIN
Tapes & Rules
 are Standards of Accuracy, Durability and Workmanship.



SEND FOR CATALOG

THE LUFKIN RULE CO.
 NEW YORK LONDON, ENG. WINDSOR, CAN.
 SAGINAW, MICH.

"YANKEE" DRILL No. 50

is the quickest Hand Drill made for small holes in wood or metal up to 3-16 inch.

The double (Backward and Forward) action of the Driving Handle is light and quick, and gives it a speed that cannot be matched by any geared drill.

A great convenience to any mechanic who has a large number of holes to drill in awkward places. The price, \$2.50 from the factory if you cannot get it from your dealer.

Send for "Yankee" Tool Book telling you about a number of "Yankee" Tools.

Your dealers sell the "Yankee"

North Bros. Mfg. Co.

Department A

PHILADELPHIA, PA.





"From the Paine Korelock

"The TRAIL of the **KORELOCK**
TREE to FINISHED PRODUCT"
More than two-thirds of the
Reach the User through the

*We invite correspondence from Contractors
We respectfully remind you that the only
promptly is to apply for same at once.*

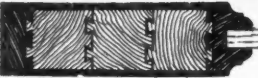
We Manufacture Everything Known



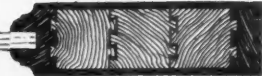
"ORIGINATORS OF THE STANDARD



OSHKOSH WISCONSIN



KORELOCK



PAINE

Forests to the Doors."

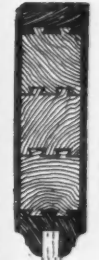
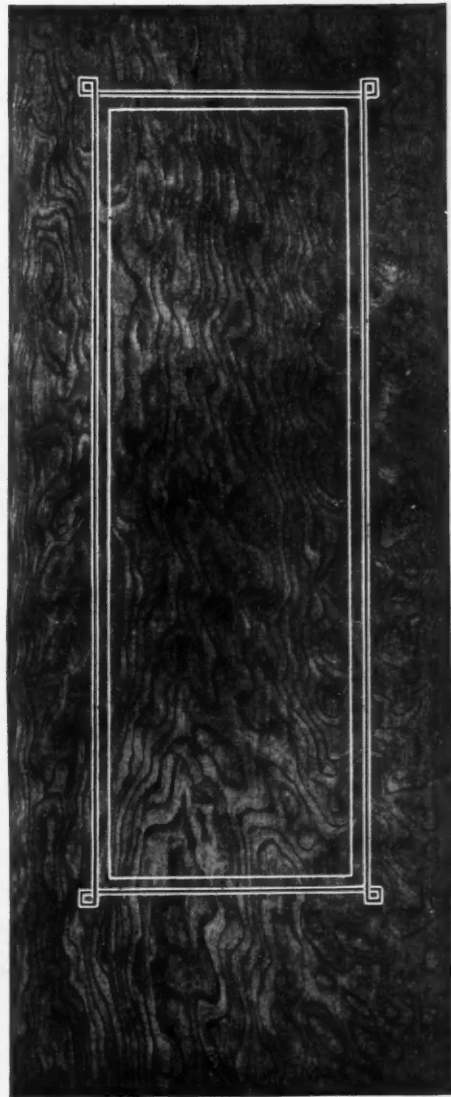
KLIMAX

DOOR" leads straight "FROM without leaving PAINE Ownership.

World's Standard Veneered Doors PAINE PLANT Shown Below.

*and Builders anywhere in the world.
way to secure our New CATALOG "A"
(Requests met in order received).*

in Millwork—in Every Kind of Wood



WISCONSIN LUMBER CO., LTD.

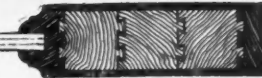
STANDARD HARDWOOD VENEERED DOOR"

WISCONSIN U. S. A.

KORELOCK



KLIMAX



PAINE

"IMPRESS THIS MARK UPON YOUR MIND **Arrow Head** THAT SUBSTITUTES MAY BE DECLINED"

C. E. Jennings **ARROW HEAD** *Trade Mark*

HIGH GRADE MECHANICS TOOLS

"DAN"

NOTE

DAN IS ALWAYS DOING SOME FOOL STUNT THAT SOME ONE TELLS HIM TO DO *B*



MORAL

DON'T USE YOUR CHISEL FOR A COLD CHISEL OR YOUR SCREW DRIVER FOR A CROW-BAR *B*

WHAT NOW HAVE YOU BEEN DOING DAN; YOU MUST HAVE HIT A BRAND NEW PLAN ?

I 'SPOSE I OUGHTTER BE IN JAIL; I USED YER CHISEL ON A NAIL!

SEND FOR CIRCULAR "D" WATCH THIS SPACE SOMETHING NEW EACH ISSUE. - C. E. JENNINGS & CO., NEW YORK

Cut Your Glass

with *Goodell-Pratt's*

GLASS CUTTERS



GODELL-PRATT COMPANY, GREENFIELD, MASS., U.S.A.

To the ordinary layman a Glass Cutter is a Glass Cutter, but to the well-versed Carpenter it's all in the Wheels. It's the wheels on Goodell-Pratt's Glass Cutters that have increased the sales on this particular article to large proportions.

The complete line comprises 10 styles.

It will pay you to get posted on these Cutters. Just ask us for No. 10 Catalog.

Goodell-Pratt Company
Greenfield, Mass., U. S. A.

Toolsmiths

THE FOLDING DRAW KNIFE

It's the Draw Knife that's the seller
Right up to the Draw Knife law;
It's the workman's prize and treasure,
And the Draw Knife that will draw.



If your hardware dealer does not keep it, we will send it to your address postage paid. : :

A. J. WILKINSON & CO., 180 to 188 Washington St., BOSTON, MASS.

"Last a Lifetime and Give Satisfaction To the End"



BUTT CHISEL

TRADE MARK
D. R. BARTON
1882
ROCHESTER, N. Y.

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

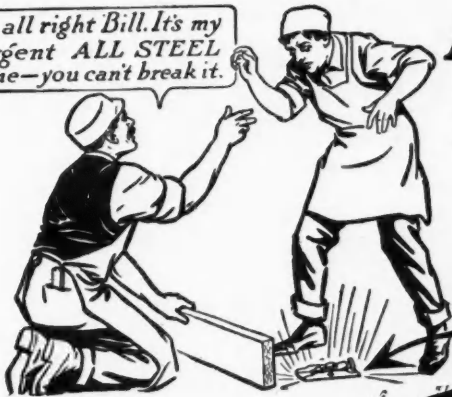
THE CELEBRATED BARTON TOOLS

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

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

When Writing Advertisers Please Mention the American Carpenter and Builder.

It's all right Bill. It's my Sargent ALL STEEL plane—you can't break it.



Accidents Will Happen

but dropping a SARGENT All-Steel Plane will not break it—that is one of its advantages.

There are other advantages, too, that will appeal to you as a practical mechanic. It is light, but being made of selected and tested steel, it is very strong. You can carry it in the pocket of your apron and you can use it for all kinds of work.

You will find it a substantial, serviceable and handy tool—useful every day.

SARGENT Planes, Squares and other Tools are sold everywhere by first-class hardware dealers.

For detailed description of the full line of SARGENT Planes, also Squares and other Tools, send for the SARGENT Tool Book (free on request.)

SARGENT
V.B.M.

Length 6 inches with 1 3/8 inch cutter.

Polished Finish (No. 4206)

Nickel Plated (No. 5206)



SARGENT & CO.
Tool Makers

1149 Leonard Street, NEW YORK

50c FOR THIS Clamp Fixture

It is Unequaled for Strength—Quick Action and Lasting Qualities

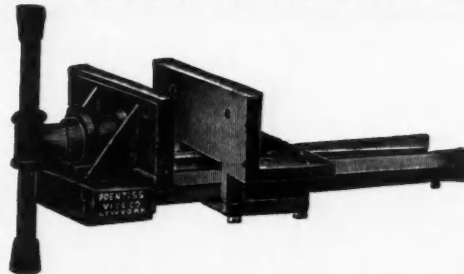


Write for Catalog of Sheldon's Clamps and Vises.

E. H. SHELDON & CO.

184 Nims Street :: :: MUSKOGON, MICH.

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
106-110 La Fayette St., New York, U. S. A.

1810 THE JAMES SWAN COMPANY 1912

SEYMOUR, CONN.

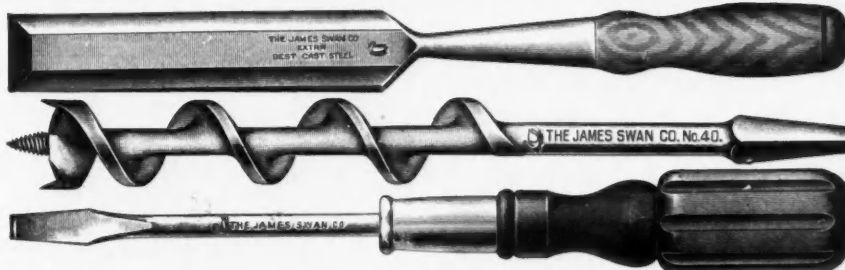
Manufacturers of

Mechanics' Tools, Augers, Auger Bits, Draw Knives, Chisels, Hollow Augers, Gimlets, Boring Machines, Gouges, Screw Drivers, etc.

Send for Catalogue



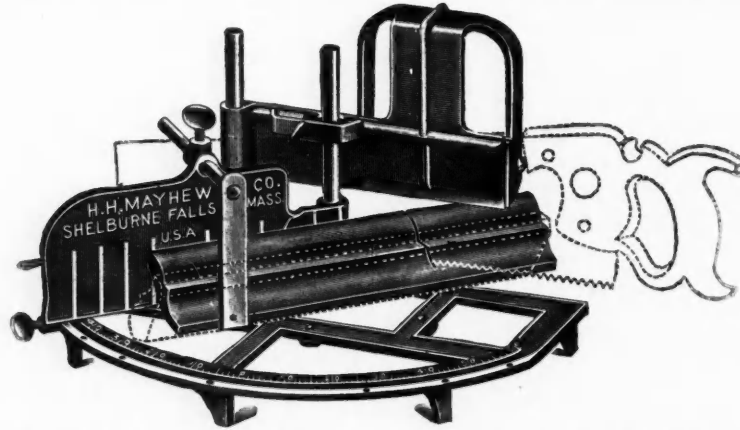
Inquiries Solicited



When looking for quality buy goods with the "Swan" trade mark.

When Writing Advertisers Please Mention the American Carpenter and Builder.

MAYHEW 60° MITRE BOX



This box embodies more distinctive features than any other made

Designed for Simplicity, Accuracy, and Durability. Strictly a right hand tool for mitering.

Box embodies a new feature in reversing the principle commonly used on other boxes.

Any of three saws may be used — Panel — Hand or Back saw.

Saw guide adjustable for any thickness of saw.

Extreme mitre to 60° without makeshift. May be used as a stationary or pivot box by use of the pin posts.

In mitering duplicate cuts there is no restriction on length.

Will cut compound mitre.

Parts take down into space 10x10x4 inches.

Weight 15 lbs. complete.

Box contains full directions for use.

PRICE EACH, \$10.00

H. H. MAYHEW COMPANY, SHELburne FALLS, MASS.

FORD FACTS

Would you knowingly
buy a Bit
of inferior quality?

Some dealers are offering imitation Ford Bits as a substitute for the genuine. They make a few cents more profit at the expense of giving you an inferior Bit.

Imitations of the Ford Single Lip Bit are imitations in appearance only. They lack the FORD high quality special steel—the FORD process of tempering—the FORD superior WORKING and WEARING qualities and the FORD ironclad guarantee does not go with them.

At best they are an expensive buy, altho sometimes costing a few cents less than the genuine.

Refuse the imitation—demand the genuine. It pays.

The name FORD is on the shank of every genuine Bit—its your protection against inferior imitations.

Your name on a postal will bring circulars and a neat memo book. Dept. 1F.

Ford Auger Bit Co.
Holyoke, Mass.

1853



1912

BRO. S.

Fine Beveled Edge
Shank and Socket

Chisels

Butt Chisels

Plain and Beveled Edges

Send for illustrated Catalog

Buck Brothers, Milbury, Mass.

PEARSON'S AUTOMATIC SHINGLE NAILER



Works well on any pitch roof. Gloves or mittens can be worn and nails driven faster than by the old way. Throw nails in by the handful—holds about 600 nails—start nailing. Nails can be driven through tin or quite heavy sheet iron.

PAYS ITS COST ON ONE JOB

Made in two sizes:
The **BLUE** Nailer for 3d common No. 14 gauge wire nails.
The **RED** Nailer for 3d galvanized No. 13 gauge 1½ inch wire nails.

Order through your dealer or sent prepaid for \$5.00.

Money refunded if not as represented

PEARSON MFG. CO.
Robbinsdale, Minn.

When Writing Advertisers Please Mention the American Carpenter and Builder.

TRY IT FREE

Why, compared with the grindstone or emery wheel, it is mere child's play to do the toughest job of grinding—and with the patent tool rests and attachments an apprentice can do any job of sharpening, such as gumming saws, sharpening plane bits and twist drills as well as a high paid mechanic. Try it 30 days absolutely free—then if you don't want to keep it, return it at our expense.



JIG SAW



LATHE AND SAW



SAW OUTFIT



BORING ATTACHMENT

A Work Shop in Itself

Extra attachments convert the Luther "Hummer" Tool Grinder into jig and circle saw, lathe, force feed, drill, etc.—you can completely equip your workshop at very low cost—free book illustrates and describes extra attachments.—17 in all. Write for Free Book today.

DIMO-GRIT Sharpening Stones

Ask your dealer for Dimo-Grit Sharpening Stones—the fastest, smoothest sharpening substance for steel. Look for the name, "Dimo-Grit" on the stones.

Cuts Steel as Emery Does Copper

Dimo-Grit, the new artificial diamond abrasive, peels steel away in tiny shavings—25 times faster than the grindstone, 10 times more efficient than emery—no need of water cooling, no danger of drawing temper. Will not glaze or wear lopsided. Dimo-Grit is especially adapted for steel. Carborundum wheels supplied when wanted.

LUTHER SHOP TOOL GRINDER

Foot and engine power—built completely of steel and iron, enclosed shaft drive like an automobile, dust-proof bearing—runs as easy as sewing machine—4000 revolutions per minute by foot power.

LUTHER GRINDER MFG. CO.

1205 Michigan Street MILWAUKEE, WIS.



14 MACHINES IN ONE

1—Fine Dimo-Grit Wheel. 2—Coarse Dimo-Grit Wheel. 3—Universal Tool Rest. 4—Chisel and Plane Bit Guide. 5—Dimo-Grit Razor Hone. 6—Dimo-Grit Scythe Stone. 7—Dimo-Grit Saw Gummer. 8—Felt Polishing Wheel. 9—Medium Dimo-Grit Wheel. 10—Cloth Buffing Wheel. 11—Dimo-Grit Oil Stone. 12—Dimo-Grit Pocket Hone. 13M—Plane Bit Honing Attachment. 14M—Twist Drill Sharpening Attachment

40-Page Free Book

Shows all ways this machine saves and earns money and makes work easier—gives valuable pointers on tool sharpening. Prove this machine's value to you in your own work. Send for full information, then decide if you want to try the shop outfit for 30 days free. Don't delay. Write today.



What is it Worth to You

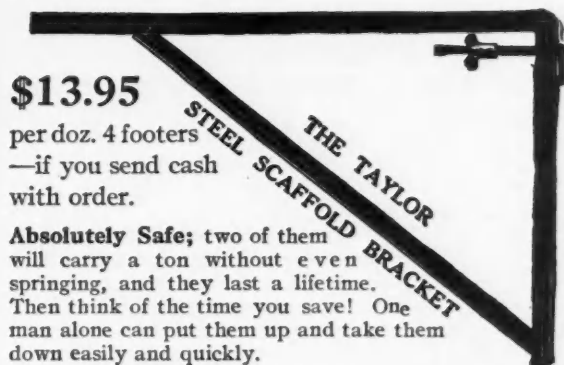
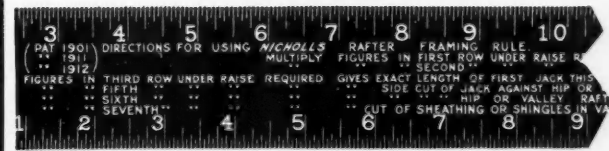
to be able to pick up your square and get the length or cut of any rafter for any pitch of roof?

Our Rafter Framing Squares give you the length and cut of Common, Hip, Valley and Jack Rafters for seventeen different pitches of roof. Our No. 100-A has the octagon roof framing rule stamped on back of body.

We manufacture these in both Solid and Take-Down styles.

Send for our LITTLE BOOK explaining this rule.

NICHOLLS MFG. CO.
OTTUMWA, IOWA

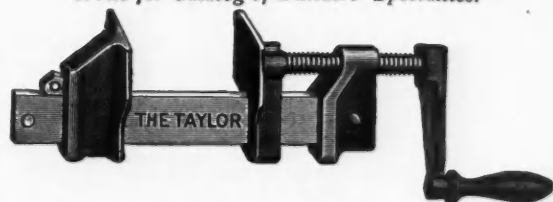


\$13.95

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

Absolutely Safe; two of them will carry a ton without even springing, and they last a lifetime. Then think of the time you save! One man alone can put them up and take them down easily and quickly.

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.

When Writing Advertisers Please Mention the American Carpenter and Builder.

DISSTON
*Quality
Sells*

There is something in the appearance of a well-made, high-grade tool which carries to the mind an undefinable feeling of real value—a sense of efficiency and creates a desire for possession.

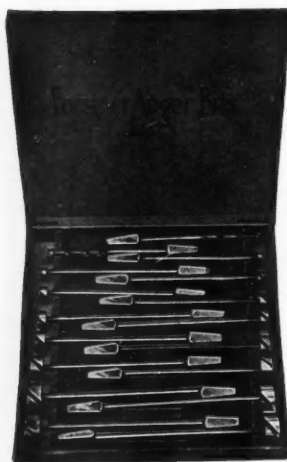
The demand for the **DISSTON BRAND** Saws, Tools and Files has been steadily increasing since 1840.

HENRY DISSTON & SONS
Incorporated
Keystone Saw, Tool, Steel and File Works
PHILADELPHIA



Send us two or more names of persons who are interested in or want to buy Hot Water Heating Plants and we will send you this scale. Back inches are divided into 6, 10, 12, 16, 20 and 40 parts. Also free catalog on request. Mention this paper.

Andrews Heating Co., 1288 Heating Bldg., Minneapolis, Minn.



“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.

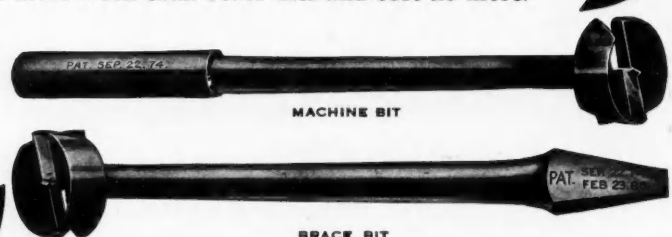
Doesn't matter how hard the wood is, no consequence whether it is full of knots, or the grain awkward to negotiate. The Forstner Bit works with equal smoothness under any condition and leaves a true polished surface on every job.

Unequaled for Delicate Work

Supersedes 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.

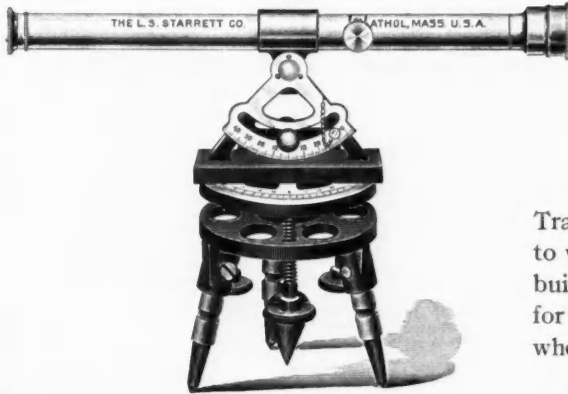
The Progressive Mfg. Co.
Torrington, Conn.



When Writing Advertisers Please Mention the American Carpenter and Builder.

Don't Pay High Prices

to Civil Engineers for laying out your foundation sites, running levels, and similar preliminary work. Do all this yourself with the



Starrett Transit

You can do all your own engineering work with this Transit, and do it just when you need it—you don't have to wait the convenience of any engineer. This instrument is built for your class of work. All the expensive attachments for special engineering are left out so that the price is down where "I can't afford it" is no excuse.

Send for catalog No. 196 and learn the other tools we make for the carpenter and builder.

THE L. S. STARRETT CO.

ATHOL, MASS.

42-71

NEW YORK

LONDON

CHICAGO

NOTE—Our Special brand Clamps, have notches on the bottom of the bar, instead of on the top.

Per pair, 1 foot	.....	\$2 70
" 1 1/2 feet	.....	2 85
" 2 "	.....	3 00
" 2 1/2 "	.....	3 75
" 3 "	.....	4 00
" 4 "	.....	4 50
" 5 "	.....	5 00
" 5 " heavy	.....	7 50
" 6 "	.....	8 50
" 7 "	.....	9 50
" 8 "	.....	11 00
" 9 "	.....	12 00
" 10 "	.....	14 00

These clamps have steel bars and screws and malleable iron parts.

The New Adjustable and Perfection Clamps are made in the following lengths and sizes:

2 1/2, 3, 4 and 5 foot have . . . 1 1/2 x 1/2 inch bars.

5, 6, 7, 8, 9 and 10 foot have 1 1/2 x 1/2 "

Joiners' Clamps—1, 1 1/2, and 2 foot have hand-wheels for rapid work, 1 1/2 x 3-16 inch bars.

In ordering parts always make sketch, to avoid delay.

Hargrave's New Adjustable SPECIAL Clamp.



Hargrave's Perfection SPECIAL Clamp.



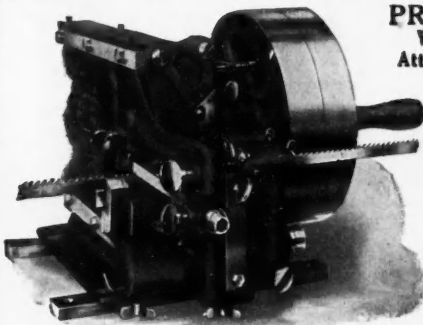
Hargrave's Joiners' SPECIAL Clamp.



Write for circular Dept. H.

THE CINCINNATI TOOL CO.,

CINCINNATI, O., U. S. A.

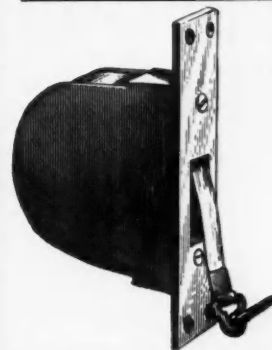


PRICE \$50.00
Without Setting
Attachment \$25.00

The cut herewith represents the only Automatic Band Saw Filer, Setter and Joiner on the market that will accurately Set, File and Joint a Band Saw during one and the same operation. No personal attention required after the Saw is placed in the machine. Six Minutes does the Complete Job. Guaranteed satisfactory in every respect. Sent on 30 days' free trial. If not satisfactory, return at our expense. Manufactured by the

FOLEY MFG. CO., 1230-32 E. 3rd St., Cleveland, O.
Manufacturers of all kinds of Saw and Machine Knife Fitting Tools.

CALDWELL SASH BALANCE



Does away with weights and cords, and VASTLY more durable.

Makes sashes work perfectly.

Permits greater window space in new work, as box frames are not necessary.

May be applied to old windows without altering sashes or frames.

Write for circular to the

Caldwell Mfg. Co.
15 Jones Street, - Rochester, N. Y.

When Writing Advertisers Please Mention the American Carpenter and Builder.

Big Profits in Concrete Specialties

One Man's Experience
A Single Week's Receipts:
 12 Lawn Vases, \$5 each. \$ 60.00
 33 Hitching Posts, \$5 each 165.00
 12 Flower Boxes, \$2 each. 24.00
Total Cost of Above:
 11 Barrels of cement at \$2. \$22.00
 6 Yards of sand at \$1. 6.00
 60 Hours' labor at 20c. 12.00
 33 Staples and rings for hitching posts at 10c. 3.30 43.30
A Good Week's Profit. \$205.70
 Do you know of another line that will net you such handsome profits in so short a time as the manufacture of these articles?



Do you realize that there is a lot of money in some sand bank waiting for you to take it out? Do you know that every wagon-load of sand can be made to produce a net profit of \$25? Very few people realize the large and attractive profits in the manufacture of concrete specialties. Many ambitious men are making large attractive profits every year in this way. As an example we cite one man's experience and profits for one week.

Work Easy—Demand Big

The manufacture of ornamental concrete articles is not difficult and can be accomplished by any ordinary careful man. Ornamental concrete moulds can be readily sold for use everywhere. They are suitable for lawns, gardens, parks, cemeteries, pergolas, and every property owner is a prospective customer for some of these articles.

Figure the Profits for Yourself

These moulds never sell for less than \$3 and generally bring \$5, which is much less than the cheapest iron vase or hitching post you can buy. Concrete vases or other ornamental moulds are very beautiful, as concrete makes an ideal outdoor ornamental material.



HITCHING POST

SEND FOR OUR BEAUTIFUL ORNAMENTAL CIRCULAR

It shows everything in the Ornamental Line

- | | | |
|--------------|-------------------------|----------------|
| Flower Boxes | Lawn Vases | Ball Moulds |
| Flower Pots | Porch Column Moulds | Chimney Moulds |
| Sun Dials | Railing Moulds | Coping Moulds |
| Jardinieres | Baluster Moulds | Gate Posts |
| | Newel Post Moulds, etc. | |

THE BIG NORTHWESTERN LINE

Everything required in the concrete industry: mixers of all sizes and description; block machines, brick machines; tools; sand screens; rock crushers; coping moulds; fence post machines. Every carpenter, builder, contractor or mason should have a copy of our catalog. You will find prices lower than any similar line of goods anywhere.

Catalogs show many articles you ought to have in your business. Write and get in line for some of the good profits in this line of work.



FLOWER BOX

Northwestern Steel and Iron Works, 1107 Spring St., EAU CLAIRE, WIS.

MONEY MAKING CONCRETE

Mr. Block-Maker

**Wet Process is Right.
 Face down is Right.
 Three blocks at a time is Right.
 Triple Tiering is Right.
 Damp Curing is Right.**

**The Mogul Invincible Block Machine
 COMBINES ALL THESE
 IT IS RIGHT**

It is 46 inches long and will make three 16" or two 24" blocks at one operation. It makes sills, caps, copings, rails and steps, faster and better than a special sill machine. It has every adjustment that any other machine has and many that no other machine has.

PRICE—Machine and Outfit, \$75.00

WRITE FOR CATALOG

THE PETTYJOHN COMPANY
 634 No. 6th St., TERRE HAUTE, IND.

**THE
Blystone**

**Batch
Mixer**

Mixes Concrete, Mortar or Plaster

You can use the Blystone Batch Mixer for the mixing of mortar and plaster as well as concrete. It operates easily and mixes perfectly regardless of material being used.

The Blystone is filled while in motion. The material is discharged while machine is in motion. Material is mixed in full view, assuring absolute accuracy in wetting material.

The Blystone with its reverse spiral paddle system mixes rapidly. Material is turned over forty times in one minute.

The Blystone mixer is durable—it is well built throughout. It is simple in construction. It is easily cleaned.

Blystone Mixers are furnished with gasoline engine power equipment or for belt driving. Mounted on skids or portable hand trucks.

Contractors—Carpenters—Builders

Let us tell you in detail about the Blystone Mixer. Send for our catalog. Get this and investigate the Blystone before you buy ANY mixing equipment.

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

When Writing Advertisers Please Mention the American Carpenter and Builder.

The Greatest Offer Ever Made On a Cement Tile Machine

For a limited time we will ship the Dunn Tile Machine on conditions that you are to

Test the machine in your own plant **AT**
Test the sale for tile in your locality **OUR**
Test the profit in the business **RISK**

We have lots of confidence in our machine and the business or we wouldn't dare ship machines this way. Put one of these machines in your plant at our risk. Make up several thousand sample tile and show them to the farmers. They will not hesitate in buying them. Figure the cost of making a thousand tile and see for yourself the big profit there is in this business.

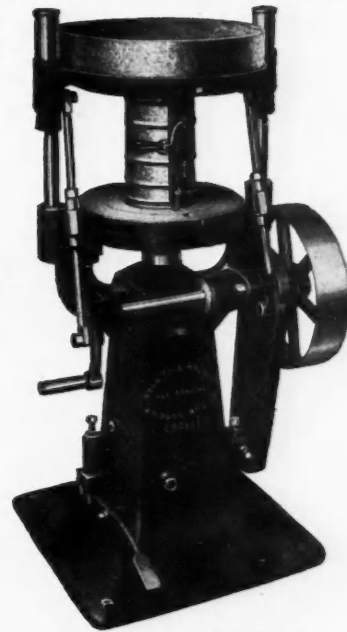
Get Started Now. The farmers will need lots of tile this Fall, so don't delay. You may as well have the profits on the tile used in your vicinity as the clay man.

Write for catalogue and limited time proposition.

Dunn Tile Machine

Makes all sizes of tile from 3 to 12 inches and makes them perfect. Capacity, 1,800 tile per day.

Send for a catalogue.



Tile Machine



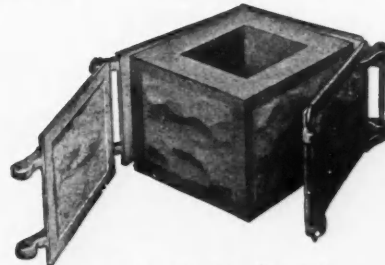
Price \$40

Combination Block Machine

You won't find a simpler, better block machine anywhere. It makes blocks from a wet mixture, thus making a denser and more waterproof block than with the usual semi-dry mixture.

It makes blocks in widths of 8, 10 and 12 inches, all on the one size wood pallet. It makes veneer and two piece wall blocks in widths of 2, 3, and 4 inches in different designs. It is a simple, practical machine that will make all

blocks used in ordinary building construction.
Send for a Catalogue.



8 x 8 Mold \$3.50

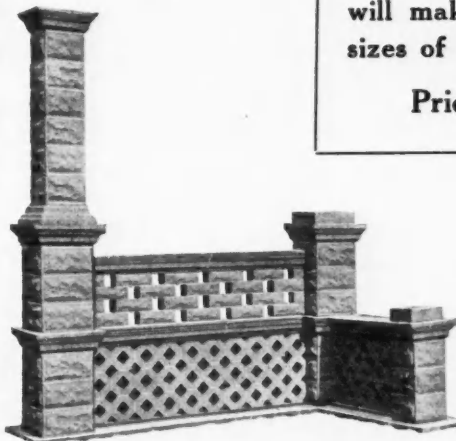
Ornamental Porch Molds

We sell a combination of molds to make this concrete porch, besides porch piers, posts, chimneys and a great variety of other work.

Price Complete \$22.50

Send for Concrete Mold Catalogue.

Be sure and send for this catalogue. It shows the different molds and the many products they will make.



One set of these molds will make 21 different sizes of blocks

Price \$25.00



Six of the Sizes

W. E. DUNN MFG. CO.

4132 Fillmore Street

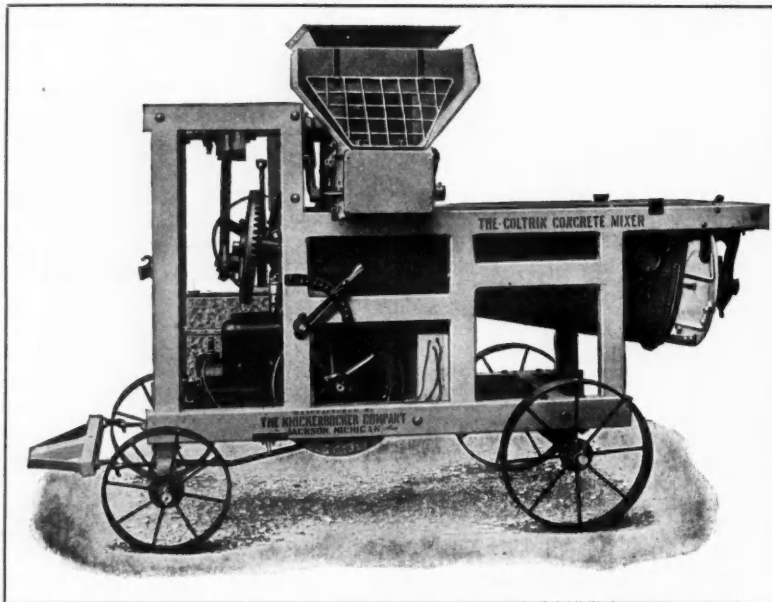
[Chicago

When Writing Advertisers Please Mention the American Carpenter and Builder.

The Coltrin Continuous-Batch Mixer No. 8

WITH AUTOMATIC MEASURING FEED

SHIPPED ANYWHERE ON TRIAL



Housing Removed to Show Drive

CAPACITY:

Five Cubic Yards Per Hour.

POWER:

2½ H. P. Gasoline Engine.

LENGTH:

8 ft. 4 in. Over All.

WHEELS:

18 and 20 Inch Diameter.

WEIGHT:

1800 Pounds.

And Do Not Forget

that the Coltrin's first claim to superiority is that it works on an **entirely different principle** from any other continuous mixer and produces **more uniform** and **better** concrete than any batch mixer in existence.

WRITE FOR CATALOG

The Knickerbocker Company

::

Jackson, Michigan



Making ready to insert the floor beams.

Van Guilder Hollow Wall Concrete Machine-- Continuous Air Chamber from Cellar to Roof

Steel Reinforced Throughout

DONT WASTE YOUR MONEY

The labor employed for making building material, such as blocks, brick, tile, etc., we utilize to erect the building. Completely revolutionizing building methods.

Our Walls are Stronger

being double and monolithic from footing to roof plate, with a continuous air space everywhere between—a house within a house. The walls are tied together, also steel reinforced horizontally every 9" high.

Our Buildings are Warmer in Winter, Cooler in Summer

Damp proof Frost proof Fire proof Vermin proof No Maintenance
Everlasting Cost Less Sell Higher Exterior finished up-to-date Italian Stucco

Our Silo Machines

build the best silo walls in the world. Continuous air space. No freezing of ensilage. No vermin. No repairs. Stand forever.

Cold Storage Machine

Makes 3 walls and 2 continuous air chambers at one time. For cold storage, fruit and vegetable storehouses.
Send for Illustrated Folders.

VAN GUILDER HOLLOW WALL COMPANY 720 CHAMBER OF COMMERCE
BLDG., ROCHESTER, N. Y.

PEERLESS Cement Brick Machine

Big money is being made in the production of Cement Brick. Thousands of carpenter-contractors have already entered this field. Equip yourself NOW with THE PEERLESS—the original hand power brick machine with automatic Tampers.

Makes Brick Face-down and delivers them Face-up. One man operation.

Large variety of face plates with machine.

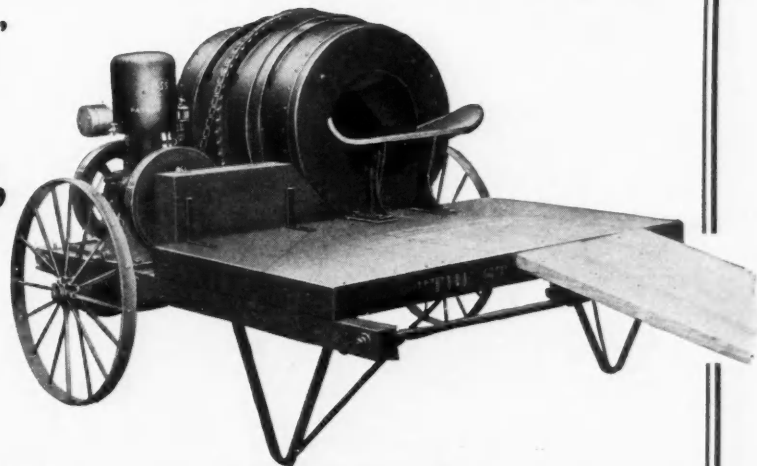
Learn all about the Cement Brick business. It pays others. It will pay you. One booklet will tell you more about it. Write for it NOW.



PEERLESS BRICK MACHINE CO.
19 North Sixth Street MINNEAPOLIS, MINN.

When Writing Advertisers Please Mention the American Carpenter and Builder.

"The Standard" Low-Charging, Cart Concrete Batch Mixer



"The Standard" Cart Mixer secures, for the small jobs or where a light, portable mixer is required, all the advantages of "The Standard" regular Low Charging mixers, producing uniform high grade concrete with the least possible expense.

"The Standard" Cart Mixer is suitably mounted on two wheels, with the engine beside the drum, and is built on the same general lines as "The Standard" regular mixers, having Low Charging, Open Drum, and Semi-Automatic Discharge.

"The Standard" Cart Mixer is especially adapted for smaller contracts, foundations, sidewalks, curbing, gutters, etc., where it is necessary to move the mixer frequently or as the work progresses. One man can easily move the outfit on paved streets, and two men can move it most anywhere.

"The Standard" Cart Mixer will mix top dressing for sidewalks, cement mortar, as well as all grades of concrete and many other mixtures.

"The Standard" Cart Mixer is used for lighter work by many contractors having heavy, cumbersome mixers standing idle. It is of the batch type and enables the contractor with a small capital to compete both in quality and price for his share of concrete work.

"The Standard" Cart Mixer will enable two or three men to turn out several times the amount of work per day with less exertion than mixing by hand, also from 10 to 20 per cent of cement is saved by batch mixing.

"The Standard" Cart Mixer can be placed to discharge into the forms or into barrows as desired. When material is properly placed, all wheeling can be often avoided.

"The Standard" Cart Mixer is a great advantage to contractors on rush jobs, and where labor is scarce, as the mixer can be operated by a few men.

"The Standard" Cart Mixer will pay for itself within two months by a saving in labor alone, and also will save enough in one season in cement to more than pay for the mixer.

"The Standard" Small Mixer is also built mounted on four wheels. These mixers are in addition to our regular machines which are built in 10 different sizes and furnished with any kind of power.

"The Standard" Cart Mixer bulletin 44 and more information sent upon request. Prices are so low you can not afford to take any mixing chances.



The Standard Scale and Supply Company

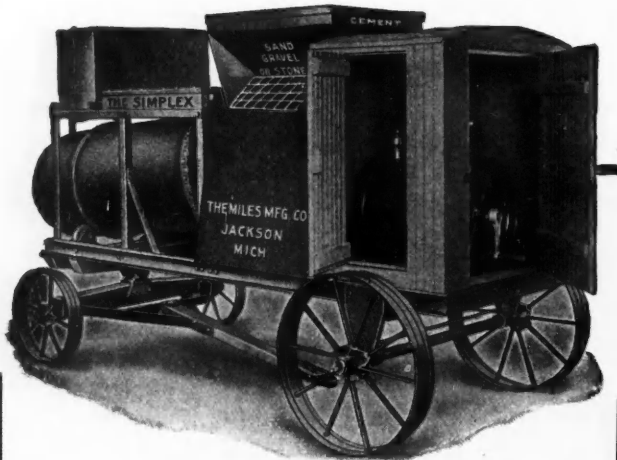
NEW YORK
136 West Broadway

PHILADELPHIA
35 South Fourth Street

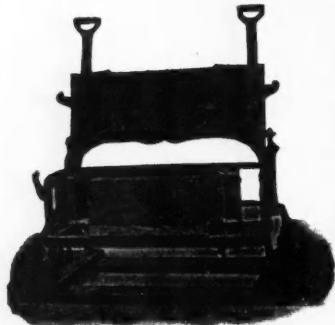
PITTSBURGH
243-245 Water Street

CHICAGO
1345-1347 Wabash Avenue

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**THE SIMPLEX IMPROVED MIXER
1912 MODEL**



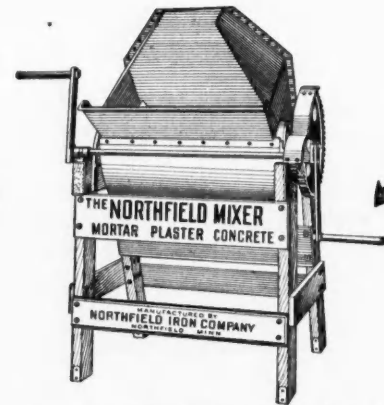
3-Hoppers, Continuous feed Rolling Mix, Low down Steel frame. Simple Strong and Accurate.

"The Miles" No. 5, Down Face, Wet Concrete Block Machine

Makes Stone in Lengths, 4", 6", 8", 10", 12", 16", 18", 20", 22", 24"; in Width, 4", 6", 8", 10", 12"; in Height, 4", 6", 8". Also Angle Stone, Circle Stone, Gable Stone, Hollow or Solid Stone.
The Contractor's Friend, Simple, Strong and Rapid. Lowest in price.

WRITE FOR NEW 1911 CATALOGUE

THE MILES MFG CO., Inc. 309 E. Franklin St. JACKSON, MICHIGAN



**The Simple, Little, Light, Handy and Substantial
NORTHFIELD MIXER**

will save you big money on every job. Conservative Capacity: 90 Cu. Yds. per day. It can always be set to discharge direct into Forms, cutting out one-half the wheelers. It saves you three-fourths the Transportation charges and all repair bills, as compared with any other mixer.

No man's business is so big, nor no job so small but what it will pay to have this little Money, Time and Worry Saver on the Work.

New Principle: Plows, Hoes, Stirs, Mixes Mortar, Plaster, or Concrete. Insures a thorough mixture under all conditions. The only satisfactory color blending machine.

IS NOT A MAN-KILLER

Operates by either Engine, Motor or Hand Power. Most reasonable priced good mixer on the market.

Sold on trial. Satisfaction Guaranteed.

Write at once for FREE Catalogue, Price and Terms.

Manufactured by

NORTHFIELD IRON COMPANY

402 Water Street : : : Northfield, Minn.



Dog House of Blocks made with the \$3.00 Simpson Junior Outfit.

Get your boy one of these outfits. They only cost \$3.00 prepaid. The practical knowledge he will get from making blocks will be worth hundreds of times that amount. Besides he can make and sell cement articles and soon get the cost price back. Don't overlook your boy. Help him to help himself.

Let us send you our detailed descriptive folders explaining the SIMPSON Junior fully and just how much good your boy can get from it.

The Simpson Cement Mold Co., 121 Vine St., Columbus, Ohio

YOUR BOY

What does he do with his spare moments—his play time—his vacation time? Why not let him make practical, educational—as well as—playful use of this time?

Get him a SIMPSON Junior Cement Block Making Outfit and he will make his play time profitable, both to himself and to you. He will learn, in a practical first hand manner, of the wonderful modern building material—CEMENT. He will make—plan and build—many practically useful, though small, structures—such as models of buildings and houses; a miniature city; a real workshop for himself; a chicken coop; a dog kennel; a house for cats; rabbits, pigeons or other pets; walls to protect flower beds; boxes for garbage cans; mantel fronts; etc. etc.

A sack of Portland Cement costs very little—sand is cheap. And that is all that is needed to make blocks on our Junior Block machine. This Junior machine produces the small blocks perfectly. It is equipped to make blocks of different sizes and faces.

**Concrete Marble
Decorative Concrete
Composition Flooring Processes**

FOR SALE, Shop, County or State Licenses.

No machinery used. Big Profits for Contractors and Builders. For literature write to

Art Stone Co.

Waynesboro, Pa.

Box A

**SASGEN REINFORCED
CIRCLE SWING DERRICK**
\$45.00 complete ready for use with geared winch, 150 ft. cable and block. 2500 lbs. Capacity.

**LIGHT
STRONG
STIFF-LEG
DERRICK**

All crucible steel fittings with split mast and boom.

SASGEN BROS.
2053-57 Racine Ave. CHICAGO, ILL.
NEW YORK OFFICE, 103 Park Ave.
Write for Illustrated Catalog No. 2.

**Taylor Portable
Steel Derrick**

Tested at factory, is hoisted and swung a complete circle 1900 lbs. Shipped ready to operate. No wrench or tools required to set derrick on job. Made in two sections. Beam section connects post by tipping in a vertical position and projects at such an angle to clear side wall of building and has sufficient height to hoist wheel-barrows, window frames and timbers. One man can climb a ladder with either section. Consider the durability of a derrick constructed entirely of malleable Iron and Steel and that of Wood, more compact, more powerful.

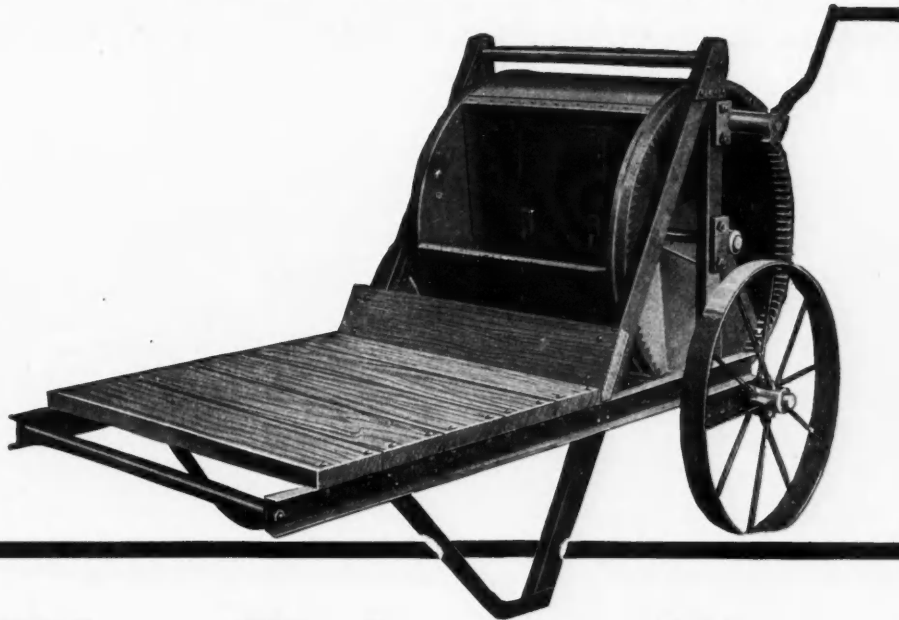
Derrick complete with three way block channel steel brackets, bolts for attaching to building, price \$40.00, and four and one-half cents per ft. for crucible steel cable attached. Drum capacity 300 ft.

Special platform and chains for attaching derrick to gondola railroad cars, price \$15. Chains for hoisting wheel-barrows, price \$2.

JOHN L. TAYLOR, Manufacturer
Taylor Portable Steel Derricks
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Why Take a Chance on Crude Methods of Mixing Concrete?

Lay down your shovel and look around you. No matter how small the yardage, first class concrete is worth while; and first class concrete is impossible at prevailing prices, unless mechanically mixed. The old shovel and hoe methods are obsolete—they don't pay. But surplus capacity and weight, cost of operating, erection and haulage make a power mixer unprofitable on the small job. There's *no escape* either way. The progressive contractor **MUST** use the

SMITH HAND MIXER

It is a batch mixer with a capacity of $2\frac{1}{2}$ cu. ft.—a thoroughly tested machine, guaranteed to mix in *three turns* of the drum — a MIXER capable of reliable service under long, hard service — a REAL mixer backed by the best and oldest firm of mixer builders in the U. S. This machine will improve your work and increase your income at the same time.

Write for our special Smith Hand Mixer proposal and booklet No. 17.



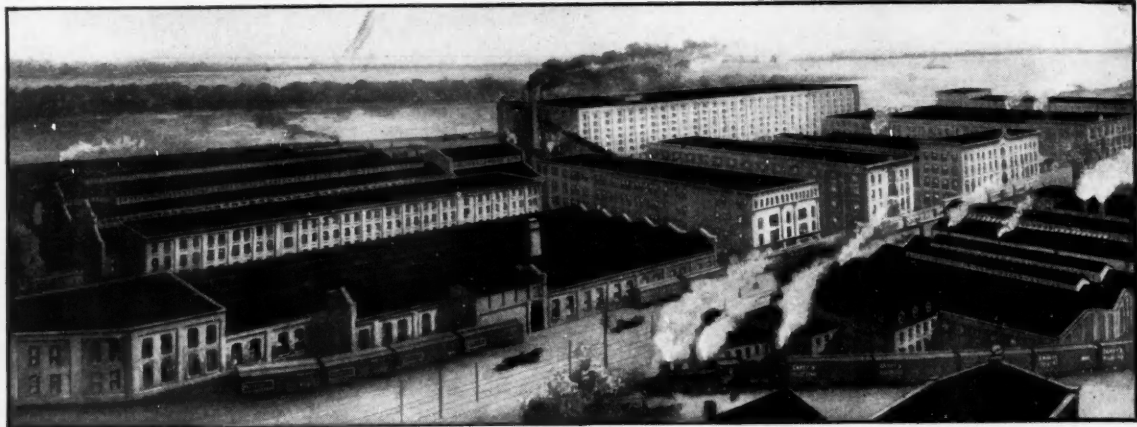
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Carey Roofing on the John Deere Plow Works. Moline, Ill.—the Largest Plow Works in the World

Before you select any Roofing — face facts

YOU want no uncertainty about your Roofing. It must give *certain* protection and *lasting* protection. It must give these two things economically and under severest conditions. Carey Roofing has been proven. It covers large, prominent factories, foundries and other buildings throughout the country—you can personally investigate some of these 15, 20 and 25 year old Carey Roofs in your vicinity. One of the largest roof areas ever covered is on the factory pictured above. It is completely protected by Carey Roofing.

The sure and permanent service of this Roofing is explained by its self-protecting construction. A live and flexible heavy body of asphalt cement is laid on a strong woolen felt foundation. This cement

body is protected above by a layer of strong Calcutta burlap, giving great tensile strength, which is covered by a solid layer of preserving asphalt compound.

These layers are all pressed into one solid piece at the factory. Carey Roofing, therefore, is always uniform and

Carey Flexible Cement Roofing

exactly "up to specifications" when laid on your roof.

A final protection to the laid sheets of roofing is furnished by the Carey Patent Lap. This exclusive feature of this roofing is an extension

of the burlap layer out along the edge of each sheet of roofing. After the sheets have been laid, overlapped and nailed down, this Lap is sealed down over the nails and joints, making one solid sheet. There are no seams or exposed nails.

All interested in roofing, either now or in future, should send for our booklet, "Facing the Facts About Roofing." This booklet gives facts about other types of roofing, as well as a complete description and full information about Carey Flexible Cement Roofing. Every architect, contractor, building owner, and agent will be interested in this book of facts. It will be sent promptly, or request. Write today.

THE PHILIP CAREY COMPANY

Send for this Booklet—

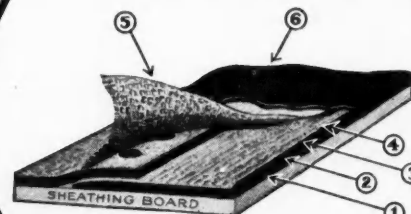


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Write nearest branch if not familiar with name of our local dealer

How Carey Roofing is made at the Factory and laid



1. Woolen Felt foundation.
2. Flexible Cement body.
3. Strong Burlap layer.
4. Asphalt Compound over Burlap.
5. Carey Patent Lap.
6. Asphalt Compound cementing down Lap.

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SHORT TALKS WITH OUR SUBSCRIBERS



We Want You to Help Edit This Magazine

IT'S an old joke that anybody can edit the paper better than the Editor. Whether that applies to us personally or not, we will leave to others to say, but anyhow we hate to think of what would happen to our good old friend the AMERICAN CARPENTER AND BUILDER, if it were not for the suggestions, ideas and kindly comments we are all the time receiving from our readers, the practical carpenters and builders.

We are very glad to acknowledge overwhelming indebtedness, almost bankruptcy, to the interest and loyalty of our subscribers.

The purpose of the AMERICAN CARPENTER AND BUILDER is to be helpful to all wide awake builders. We want just exactly what YOU want. Write us a letter, now.

What Are You Interested in Besides Carpentry Work?

WE find that builders today are broadening out. Many of them are interested in all forms of building construction, brick work, cement work, stucco houses, steel construction, etc. They will undertake contracts along any of these lines.

The Carpenter and Builder in the Smaller Cities and Towns

IT has come about through a natural development that the man who calls himself "Carpenter and Builder" or "Contractor and Builder" or sometimes "Architect and Builder" is the big man with respect to building of all kinds, in the world of the smaller cities, towns and rural communities.

As we have seen in many of the builders' personal experience letters, published recently, it is an easy step for any carpenter, who is wide-awake, honest and industrious, to branch out and become a good deal more than a journeyman carpenter. He understands carpentry work thoroughly, and that is the beginning of all building knowledge; and as he branches out and looks after other parts of the work, he finds his customers like to have everything under one contract, with just one man responsible for everything from the drawing of the plans to the setting of the bath-tub and the painting of the radiators.

Big Rewards for Keeping Posted

THERE are big opportunities in this for builders today. The man who is going to build wants the advice of a practical man before he

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spends his money for any part of the construction or finishing or equipping of his residence, store or farm building. The local carpenter and builder is that practical man. His advice is wanted; he can have as much of the building business as he wants or is capable of handling.

This is a great thing for builders; but in order to make good they have to keep up-to-date and keep posted. You will find the advertising pages of the AMERICAN CARPENTER AND BUILDER the most complete and satisfactory directory for all that is new or worthwhile among building materials and builders' tools and supplies of all kinds. Just mention that you are a reader of the AMERICAN CARPENTER AND BUILDER when you write to these companies and they are your friends. They will send you any information you want and will help you in every way they can.

Photos Wanted

WE know you must have some interesting photos (maybe kodak pictures) of some of your recent work, perhaps completed, maybe in process of building. We wish you would look up something nice of this sort and send it along to us. We want to publish it in one of our Fall issues,—especially if you have any views of power woodworkers busy out on the job, or of carpenters' and builders' power woodworking shops. We want to know just how our enterprising readers are using these modern profit makers. We want to let the other readers of the AMERICAN CARPENTER AND BUILDER see just how these are utilized in present day building work.

Heating Plant Competition In October

DON'T overlook the big interesting competition on furnace work and other heating plant problems, as announced on page 33. We are expecting a very lively discussion on basement heating plants in the October number. Let us have a personal letter from you telling how much of this business you do, and some of the experiences you have had in handling furnace work.

Take the time now to contribute your share toward making this helpful and entertaining. We want to hear from all the "heating experts."

Fraternally yours,
Editor AMERICAN CARPENTER AND BUILDER.

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 26. It illustrates and describes the most complete line of Spring Hinges manufactured.

Chicago Spring Butt Company

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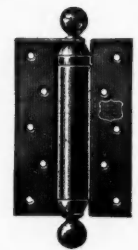
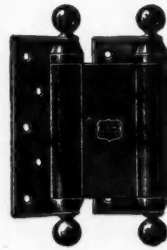
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Quality Goods

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Durable—Neat—Reliable

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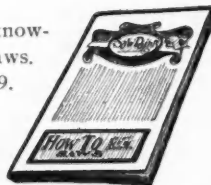
ARE THE BEST

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THIS INVALUABLE BOOKLET FREE

There is nothing of greater importance than a correct knowledge of the proper care and use of tools, among which the Saw, to give the best results, demands the most expert attention.

Our Booklet will give you a better knowledge of the proper care and use of Saws. Send for "Saw Points" Booklet No. 9. *It's Free.*



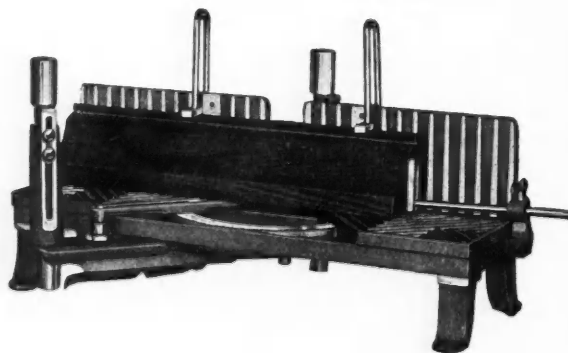
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Make Your Buildings Frost-Proof BY LINING THEM WITH Cabot's Sheathing "Quilt"

See how Cabot's Sheathing Quilt Shepley Ratan & Coolidge Arch's Chicago. "Quilt" is not like common building papers. It is a matted lining full of dead air spaces and keeps out the cold in the same way that a bird's feathers do. It is forty times warmer (or cooler in summer) than the common cheap papers. It costs about 1 cent a foot and will pay for itself over and over again in saving fuel and in protecting stock, poultry or stored fruit, and you and your family from a discomfort and doctor's bills. Send for free samples and name of nearest agent.

SAMUEL CABOT, Inc., Boston, Mass.
350 Dearborn Ave., Chicago 1133 Broadway, New York
Also Cabot's Creosote Shingle Stains, Waterproof Cement and Brick Stains. Conserve Wood Preservative.



Marsh Ayer Miter Box

Ranks highest in quality and improvements. **Length Gauges** for duplicate lengths, **Stock Gauges** for holding crown moulding or irregular shaped pieces are only two of its many superior features.

Send for illustrated circular and learn all about it.

H. C. MARSH CO.
606 RACE ST. - ROCKFORD, ILL.

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<p><i>The</i> World's Greatest Building Paper</p>	<p>Important Notice When your subscription expires, renew at once, using the blank enclosed in your final copy. If it expires with this issue your renewal must reach us before September 25 to avoid missing the October number. Use P. O. or Express Money Order if possible, but bills or 2-cent stamps may be sent at our risk.</p>	<p><i>The</i> World's Greatest Building Paper</p>
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American Carpenter and Builder

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ADVERTISING RATES

Furnished on application. Advertisements, to insure insertion should reach our Chicago office not later than the 20th of the month preceding date of publication.

AMBITION and hard work are a team. Neither makes headway without the other.

How About the Heating Business?

A GOOD many men who bear the proud designation of "carpenter and builder," are not content just to build the shell of a house, but see to it equally that the houses they build are also properly equipped for modern human habitation. They either put in the heating plants themselves or they are selected and installed on their recommendation.

This is as it should be, for there is no one—especially in the smaller cities and towns—so well qualified and equipped to handle the furnace business as the carpenter and builder. Others may say differently; but the average owner likes to have all his work under one contract—handled by the builder he has learned to have all confidence in.

Many of our readers are actively interested in this heating proposition. They find there are profits and satisfied customers in it for them. Others are still standing back waiting.

We want a good, frank discussion from every carpenter and builder, who has had experience in this line, or who has decided views on the subject.

BIGGER BUSINESS PRIZE CONTEST FOR OCTOBER.

\$10 for best letter } on either the following subjects:
\$ 5 for second best }

"The Chance Is Mine as a Carpenter and Builder to Handle Furnace Work—Shall I Do It?"

"Some Difficulties I Have Met in the Heating Business, and How I Overcame Them."

This contest closes Sept. 5th. Write at once. Prize winning and other letters will be published in the October AMERICAN CARPENTER AND BUILDER.

IT is a short-sighted man that can't see the necessity of earning more than he is getting.

Do it Now

OUR esteemed lumber contemporary of name similar to our own has the unusually happy and rare faculty of combining sound business sense with sweet sounding verse.

The following from the "American Lumberman" will be appreciated by all those who ship goods or who use goods shipped by freight. Some may be able to follow

A Suggestion

The man who buys in carload lots from widely separated spots (expecting clear and getting knots), has troubles ever present; and everyone is mighty glad a better summer he has had—that building has been quite a fad and living rather pleasant.

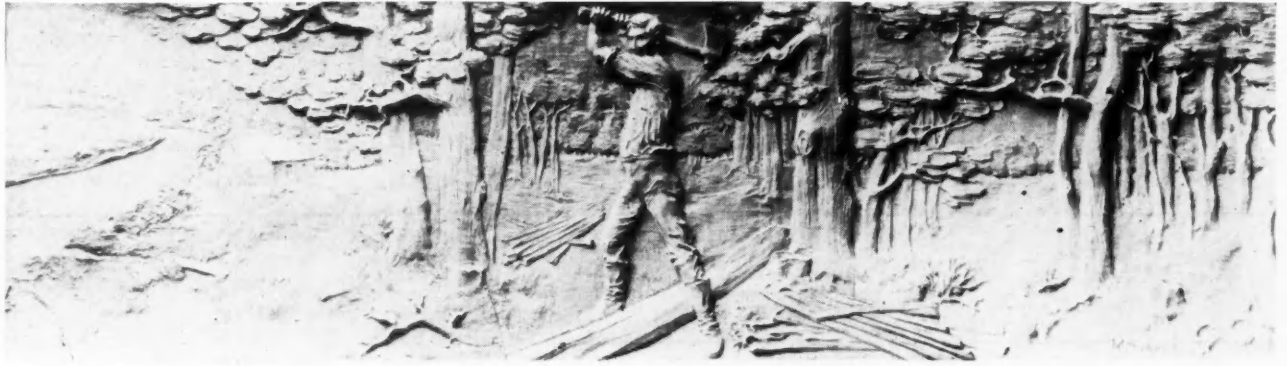
The farmer's crops are good and big, there's corn enough to feed the pig, and Si sells off the one-horse rig and for an auto blows him. He greets the dealer with a smile and even thinks (while profits pile) if things keep this way for a while he'll pay him what he owes him.

But there's a rift in every lute, the strongest mule an ugly brute, the tightest fit the Sunday suit, and thorns the rose encumber; and here's the worst of bumper crops: that when they start to ship the hops and corn and wheat then traffic stops for folks who handle lumber.

So, Mr. Dealer, pardon, please, for spilling gloom in days like these, but take advice at once and seize the chance that now is slipping and, if you think you likely will require some lumber from the mill, get busy now and alleys fill while there are cars for shipping.

Life of Lincoln in Sculptured Terra Cotta

By Bernard L. Johnson



Lincoln Splitting Rails on the Banks of the Sangamon—The First of the Ten Terra Cotta Panels, Designed by [Karl] Schneider and Executed by the American Terra Cotta and Ceramic Co., Lately Installed in Lincoln Memorial Hall, University of Illinois

TERRA COTTA, the versatile, has developed a new usefulness in building. Architects are using it for sculpture—where formerly marble and granite held undisputed sway.

Terra cotta, just baked clay, has been selected by architect W. Carbys Zimmerman of Chicago for the Central feature of the new Lincoln Memorial Hall at the University of Illinois, the ten sculptured panels picturing the ten epoch moments in the life of that mighty pioneer, statesman, President and martyr, Abraham Lincoln.

Long after the printed page of history shall have become yellowed with age and illegible, this record of Lincoln's life, interpreted by a great artist and transcribed in deathless terra cotta, will remain strong and clear. Terra cotta, itself the product of the furnace's fiercest heat, is proof against fire. Frost has no effect upon it. And the bombardment of the elements which in time

forces the surrender of practically all other materials that builders use, bounds back here, impotent to harm.

Lincoln Hall, at the University of Illinois, is an imposing three story structure—a class room building for the departments of economics and political economy. The Lincoln panels are the spandrels between the second and third story windows on the outside front.

While much credit is due the architect of the building for his conception of the use of terra cotta sculpture for this memorial, we must give equal credit to William D. Gates, president of the American Terra

Cotta and Ceramic Company, and to Karl Schneider, his chief designer. They gathered together all the known material of the life of Lincoln, events both large and small, well known and some 'most forgotten, and fused them together in the atmosphere of those stir-



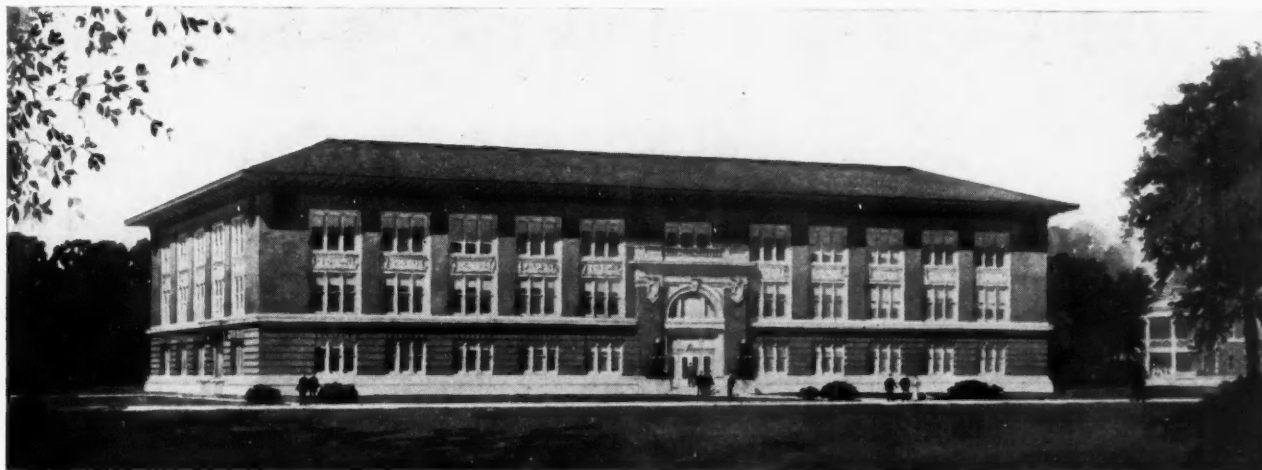
GENERAL GRANT
One of the Terra Cotta Medallions



Entrance to Lincoln Hall, Showing Two of the Life of Lincoln Panels in Place at the Left Between Second and Third Story Windows



ADMIRAL FARRAGUT
One of the Terra Cotta Medallions



Architect's Perspective of Lincoln Memorial Hall, University of Illinois, Urbana, Ill., W. Carlys Zimmerman, Architect; Life of Lincoln Sculptured Terra Cotta Panels Form the Ten Spandrels Between Second and Third Story Windows Along Main Front

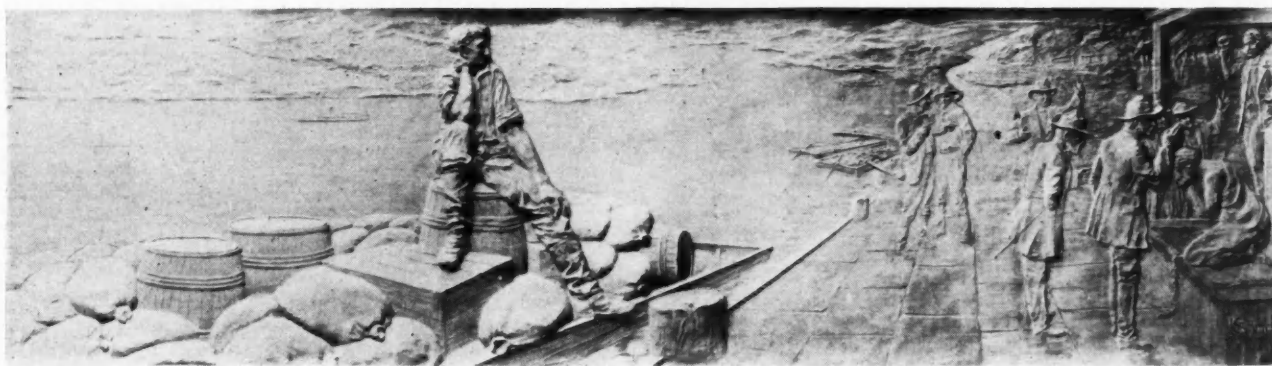
ring years from 1840 to 1865.

The result is more than architectural ornamentation. It is true history, recorded permanently in a way that will inspire generation after generation yet unborn, of young men and women.

The history starts in panel No. 1 with Lincoln as a rail splitter amid the timber on the banks of the

market such as Lincoln is said to have looked upon on one of his trips down the river.

Panel No. 3 shows Lincoln as a circuit rider. In the background Judge David Davis, an historic figure in Southern Illinois, is seen riding up to the quaint building in which the session of court is to be convened. Lincoln, a lawyer now, is listening to the



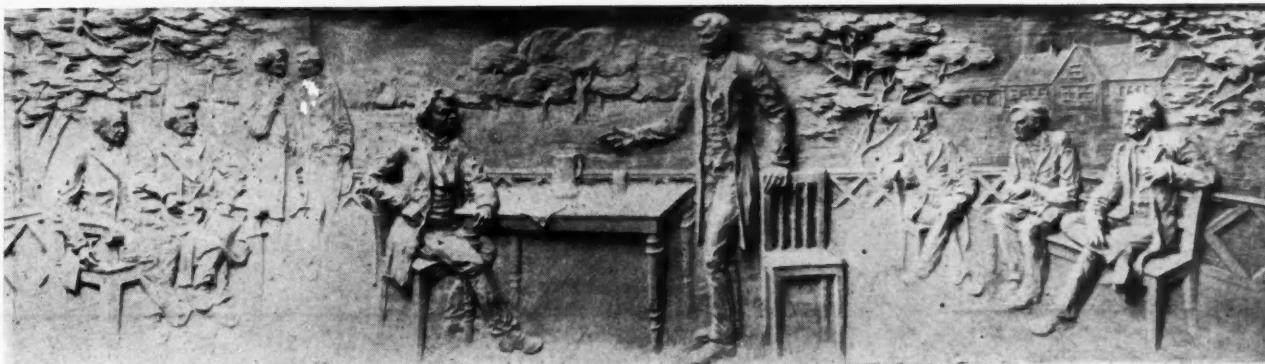
Abraham Lincoln During His River Boatman Days

Sangamon. The atmosphere is striking; the spirit of the land, the field, the forest and the stream pervades the entire scene.

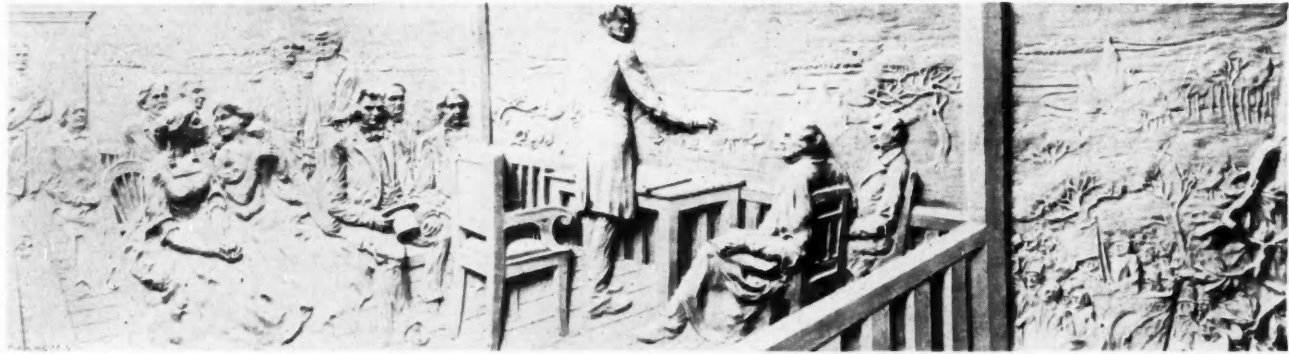
The second panel shows Lincoln as a river boatman sitting on his loaded bateau close by the landing of a Mississippi town. Facing him in the foreground of the panel is an impressionistic picture of a slave

plea of an aged widow who has been defrauded by an unscrupulous lawyer, a case which Lincoln took into court against her former lawyer and won for her. (This panel is not illustrated here.)

The Lincoln and Douglas debate at Freeport, Ill., is shown in the fourth panel. The scene is vibrant with strength, showing Lincoln the masterful debater



"The Lincoln-Douglas Debate"



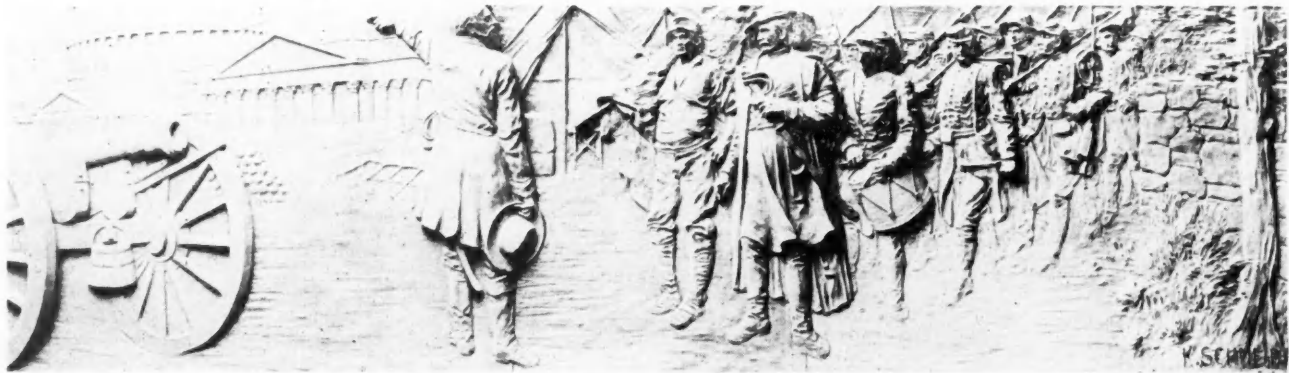
"President Lincoln's First Inaugural Address"

as he puts his question—"Can a house divided against itself long stand? Is it possible for a nation to endure one-half slave and one-half free?"

Lincoln's first inaugural address forms the theme for the fifth panel. This panel also shows President Buchanan, whose term had just expired, seated near the rail at Lincoln's right. To Buchanan's left sits Chief Justice Taney, who administers the oath of

with rapt attention at Lincoln, who points across the Potomac to the rising sun of hope and freedom.

The series now passes from the emancipation to the world-famous scene on the battlefield of Gettysburg. At Lincoln's right sits a man named Burke, who had lived in Gettysburg and who, when the Union soldiers came marching by, seized his rifle and joined them without the formality of enlisting. With them



"We are Coming, Father Abraham, One Hundred Thousand Strong"

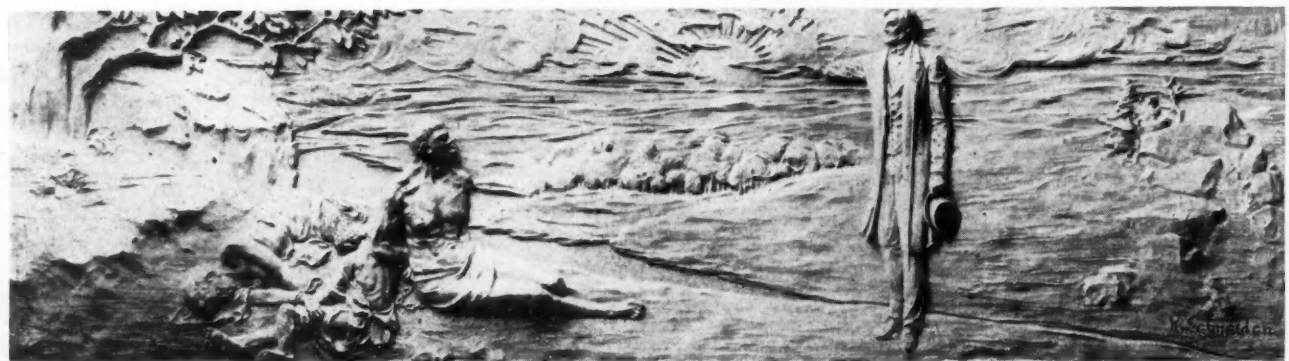
office. To the left of the central figure next the rail sits Edwin Baker, and next to him sits Lincoln's old adversary, Stephen A. Douglas.

"We are coming, Father Abraham, one hundred thousand strong," is the subject of the sixth panel. It shows the Twenty-fourth Massachusetts regiment just arriving ready for the defense of Washington.

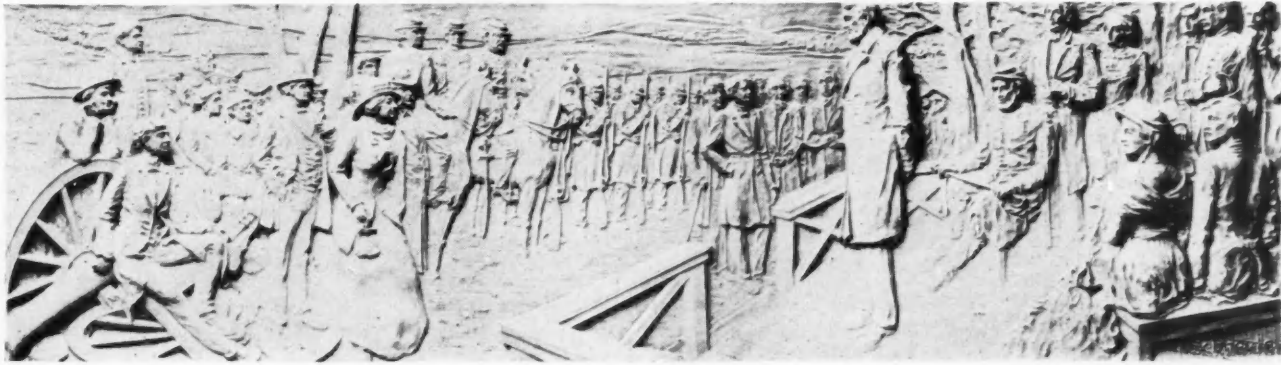
Panel No. 7 is symbolical. On the ground to the left of the picture lie a negro woman and child. The negro man has risen to a sitting posture and is gazing

he plunged into the engagement and was wounded. When Mr. Lincoln heard of it, he insisted upon his occupying the place of honor upon the platform.

The ninth panel—the surrender of Appomattox court house—is another one in which the figure of Lincoln is missing. Ulysses S. Grant, the general who had the President's unswerving support in the face of clamor and abuse, appears as Lincoln's personal agent in bringing to a close the terrible war. With firm grip he clasps the hand of the defeated



"Abraham Lincoln, the Savior of the Slave"



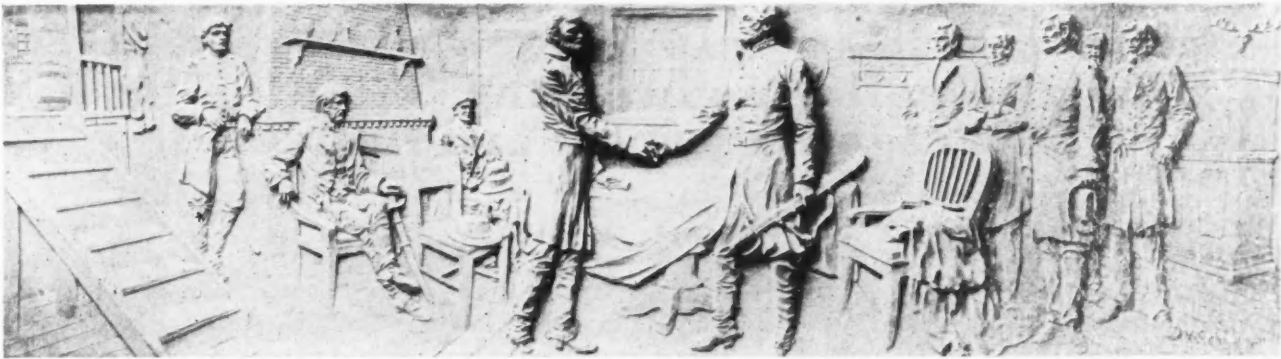
"The World-Famous Scene on the Battlefield of Gettysburg"

Lee, holding with keen eye the gaze of his southern adversary.

As the series begins with the spirit of the land, so, in "The Soldier's Return" it closes. The aged mother clasps her son once more in her arms. The oxen halt in the furrow, as the old father with one hand on the plow turns for his share in the welcome greeting. Gazing at the group from a little distance

Admiral Farragut, Stephen A. Douglas, Charles Francis Adams, Samuel Chase, Lyman Trumbull, General John A. Logan, General Grant, Charles Sumner, Gideon Wells, Judge Davis, Governor Palmer, Joseph Medill, Turner, Koerner, Owen Lovejoy, Henry M. Stanton and Horace Greeley.

All these marvelous details, historically accurate, in large part have been worked out in broad strokes.



"The Surrender of Appomattox Courthouse"

stands a young woman, a sister or a sweetheart. The mighty Lincoln is departed but peace broods over the rolling prairies, the spirit of calm and strength which Lincoln typified, striving and dying that he might restore it once again to the land from which he sprang and which he loved.

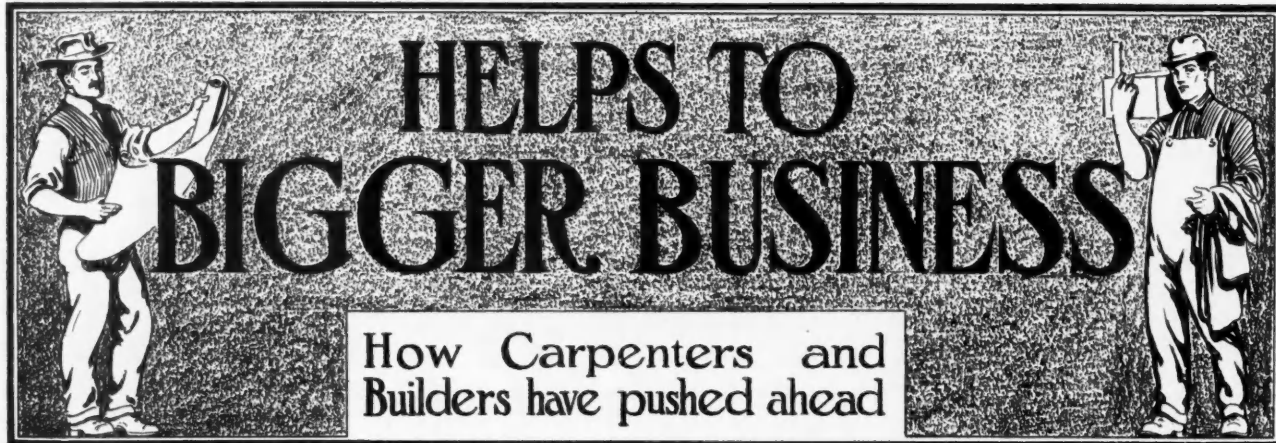
No less remarkable than the panels are the medalion heads interspersed among them. Illinois' two war governors, Richard Oglesby and Richard Yates, occupy prominent places, as do William H. Seward,

Little fine "tool" work was done, but on the contrary the strong features of face and figure have been emphasized with a view to making the likeness correct when seen from 20 feet below, rather than from near at hand.

All in all the series of panels is one of the most pretentious decorative undertakings of recent years, and coupled with its historic value in the portrayal of actual events, the work is one which might be duplicated with profit to the public at large.



"The Soldier's Return"



We take great pleasure in presenting these designs, articles and personal experience letters concerning power woodworkers for carpenters and builders. It is an evidence of loyalty on the part of our readers that so many of them have taken their time in such a busy season to write us their endorsement of the power woodworker idea for builders. And it is also a proof of progressiveness that they own and operate power machines in such numbers.

The Shop Design this month is for a small woodworking and carpenter shop. This is within the reach of practically every builder. Next month we will show a design for a larger shop, fully equipped with the most frequently used woodworking machines.

If you have not yet told us YOUR experience with power shops and woodworkers, write now (please) and send us a photo of your machine at work.—Editor.

Model Small Woodworking Shop for the Average Carpenter and Builder

PRIZE WINNING SUGGESTIONS GLEANED FROM THE PRACTICAL EXPERIENCE OF WIDE-A-WAKE BUILDERS TOGETHER WITH RECOMMENDATIONS BY LEADING WOODWORKING MACHINERY EXPERTS

THE Observer has always envied the carpenter with a snug, warm and dry shop.

If it were always August weather, like we are having just now, it wouldn't matter much. Most any

place is good enough for the Observer, or for any other carpenter, to work, especially if it is in the shade. But alas for builders, these bright summer days don't last forever. The cold rains come and the ground freezes



NEAT BUSINESSLIKE SHOP WHICH ANY CARPENTER AND BUILDER CAN PUT UP ON THE REAR END OF HIS LOT AND MAKE IT PAY HIM GOOD PROFITS THE YEAR AROUND
Working Plans and Equipment Diagram on Opposite Page

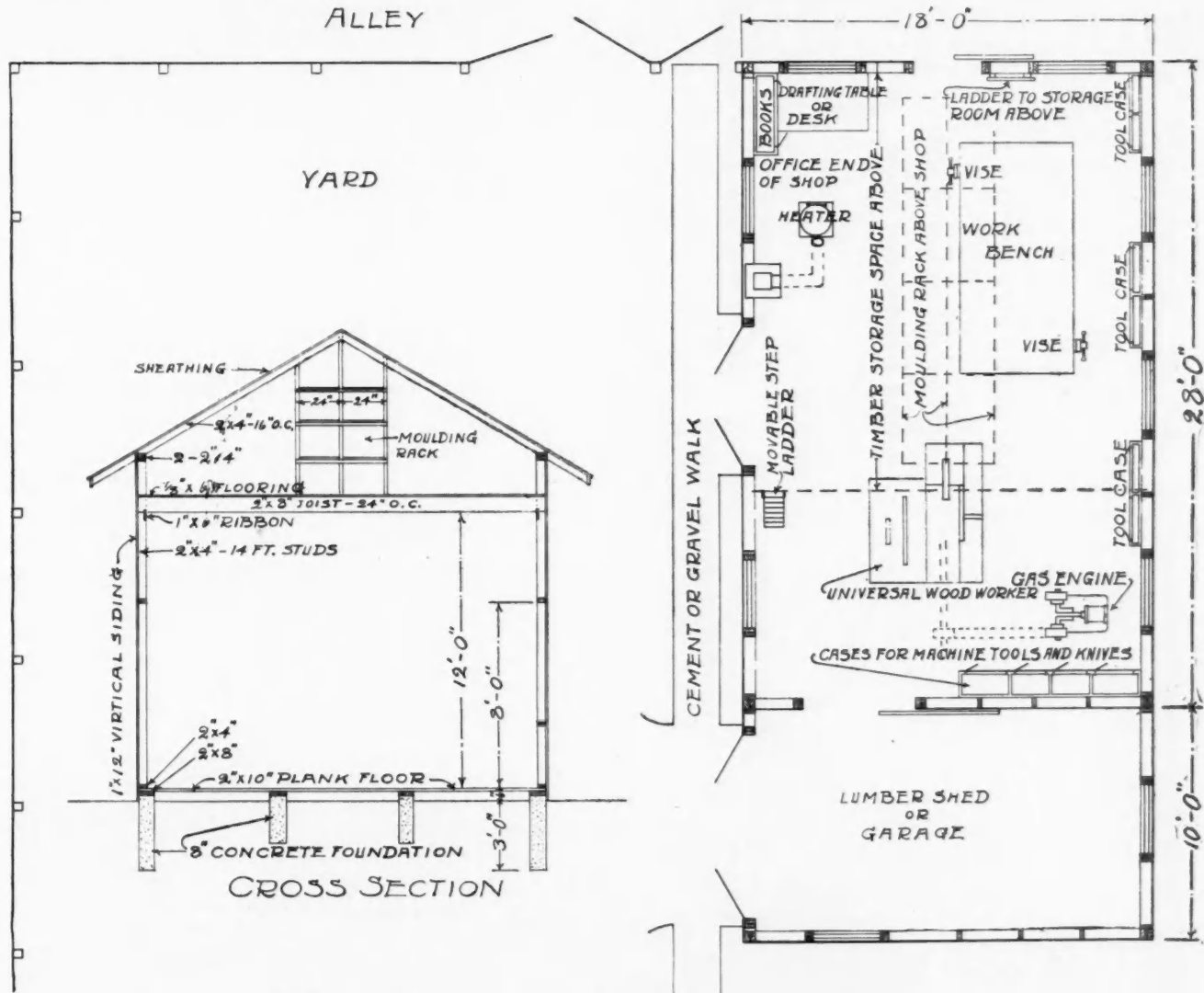
up, and unless we happen to have "inside work," we are in the same fix as old Half-time Mike.

Now to have a woodworking shop makes this some different. To be able to show the regular profit or earnings on rainy days the same as fair, and to be able to work right through the coldest winter weather in comfort and at a profit,—these are what a shop means to a carpenter and builder.

Location of Shop

Any carpenter and builder can have a shop if he only thinks so. Build it out back of the house on the

the busy building season, with weather fine and all things lovely, he has waited and waited—and then waited—for mill work that didn't come. The profits went glimmering and the owner got sore. Then he longed for a shop with a little power woodworker in it, so that he could be independent of the mill. And also he has tried often to pursue his trade of builder right through the cold weather, just as though nothing was happening (and nothing much was, but freezing fingers). And then he longed for a shop with a stove in it—a woodworking shop where a practical builder



PLAN AND CROSS SECTION OF MODEL SMALL WOODWORKING SHOP

Shop Proper, 18x28 ft.; Lumber Shed or Garage 18x10 ft.; Storage Space for Mouldings etc. Over Shop, 18x18 ft., Shop Equipment, Double Face Work Bench, Drafting Table or Desk, Variety Woodworker With Gas Engine or Electric Power; Tool Grinder; Cases for Tools; etc., etc.

rear end of the lot; if there is an alley—so much the better. This doesn't require any financing; and for the average carpenter and builder it is just the thing. Little expense for building—no expense at all for lot. Keep the fixed charges as low as possible,—then if the equipment does stand idle over a holiday, you don't feel that it's eating its head off by way of interest charges and other expenses.

As already mentioned, the Observer has often longed for a snug, inexpensive little shop. In the height of

can keep busy at this and that; and keep the income coming in.

What Should Such a Shop Consist of?

It doesn't need to be very large. In fact, just large enough to handle 16-foot lumber inside without having to back the stick out through the window, turn it around outside and back it in again.

It should be the builder's headquarters; when not out on some contract there he does his work and is

to be found. It should therefore have a drafting table-desk, where planning and figuring can be done.

As it is a carpenter shop, it should have a good large work bench, with full cabinet of edge tools—all nicely arranged and in the best possible working order.

It should have at one end a power woodworking machine; perhaps a portable woodworker, perhaps one set stationary in the shop; maybe a combination machine, maybe one or several specialized machines—all depending on the nature of the work that is to be done. Usually a small gasoline engine would furnish the power—and very cheaply too. However, in many places an electric motor could be used with greater convenience, no doubt, though at somewhat greater expense.

A suitable supply of lumber, moulding, and other building material would be carried in stock.

The shop would be clean and neat, inexpensive in exterior appearance, but nicely painted and with a good, business like sign over the door. Inside there should be plenty of light—plenty of window space. And last, but by no means least, a good little stove, soft coal or wood burning to keep the place comfortable.

Small Shop Design Offered

For a small shop, such as the average carpenter and builder can easily establish and keep going at a profit, the design herewith is offered. It contains some good ideas, results of the combined experiences of a number of successful carpenters and builders. If all goes well the Observer will build him a shop like this, this fall. Therefore, if you see anything that is not right, or could be improved, send him word at once, in care of this magazine.

The outside dimensions are 18 by 28 feet for the main part; with a lumber shed or garage at one end, 10 feet wide; an overhead loft or attic above over about two-thirds of the shop. This is for the storage of lumber, mouldings and other materials. A moulding rack extends down the middle of this loft space; and there is a door in the gable end so that lumber can be loaded right into this space without going through the shop first. At one end the shop is not sealed over, thus giving a high, free space for working with any extra high pieces or long material of any kind. A movable step ladder leads up to the attic storage. The rack is long enough for 16-foot stuff, and such long pieces can be easily gotten out.

The woodworking machine is placed with from 5 to 7 feet clear space all around it, which should be room enough for handling ordinary lumber through the machine. For working 16-foot pieces the sliding door out into the shed would have to be opened. Or working it the other way, the double doors out into the yard would be opened while the 16-foot stuff was going through.

A double face work bench is provided, 5 feet wide and 10 feet long. This stands out 3 feet from the wall. Two men can work at this bench and get all around it, which is a great convenience in finishing

up heavy or large pieces of mill work on the bench.

The office end of the shop has a drafting table or desk, while within handy reach in the corner is a bookcase for catalogs, plan books, and building trade reference books.

The beauty of a woodworker's shop is order. That everything may be kept orderly there should be a place for everything. Accordingly there are wall cases for tools, cases for the knives and extra attachments for the woodworker, a case for the gasoline engine supplies and a case for blue prints and drawings.

Combination Woodworker or Special Machines?

This is a question on which there is bound to be an honest difference of opinion, and like so many of these questions, the answer after all depends on the work that is to be done, the size of the shop and the general requirements of the work. The combination woodworker seems to have the advantage in the amount of space occupied; on the other hand, the specialized machines have been perfected to do their particular kind of work in the most efficient way. The combination machines are apt to be also portable machines, so arranged that they can be taken right out onto the work during the busy building season; then returned to the shop for operation in the winter. This is an advantage.

The opinions of two prominent woodworking machinery men will serve to indicate in a general way the line of reasoning on either side of this question. One writes "As we manufacture portable woodworking machines our experience is entirely the result of the use of these machines. We find that the majority of the machines that we sell are used entirely on the job. The contractor in the majority of instances erects a temporary shop, in which he installs the machine. This places his power where it is of the utmost service to him. There is no argument as to the value of power over hand labor, either in saving of time or accuracy of work, but in order to make this count in the dollars and cents column, the closer the power is to the work the greater the profits. To this end we have devoted our attention entirely to the production of the portable machine to be taken on the job."

The other writes "Our recommendation to carpenters and builders is to buy two machines, a jointer and a combination saw table. We have always claimed that the trouble with variety woodworkers is that they take too long to make changes, and a great many of the attachments that are used are more or less in the way; in fact, always in the way when the machine is wanted to be used for sawing and jointing. These are the principal operations that a contractor has to perform."

In this shop design this month, we have provided for a large combination woodworker—some nine machines in one. Next month we will present a design for a model shop containing a number of special woodworking machines to do the work of a builder who has enough business to keep a fair sized planing mill and sash and door factory busy.

First Prize Letter—How I Use My Power Woodworker on the Job

By Floyd E. Peck,

Contractor and Builder, Topeka, Ind.

Editor AMERICAN CARPENTER AND BUILDER:

AS I have been a reader of your valued paper and have looked forward to its coming for several years, I am inspired at this time to contribute a little of my experience—perhaps to the benefit of other brothers.

In the first place, I look at the calling as one of honor, remembering that the Savior of men took part in it, as we do. With due respect to farming, and all other honest and honorable pursuits in life, I decided some eight years ago to leave one of the most desirable farms of this northern Indiana industrial section.

Beginning as an apprentice at \$1.50 for 10 hours, I worked two years under a competent boss, securing some helpful building books; studied them and put their ideas into practice—surprising my boss at the knowledge gained. Today I do a fine business in the contracting line, allowing that nothing is too large or too small to attract my consideration.

At this writing I am going to deal with the power woodworker as an investment, its advantages, and how I use it. In beginning I want to say that I am the inventor of the arrangement I use, and fuller information will be given any one interested.

Why I Invested

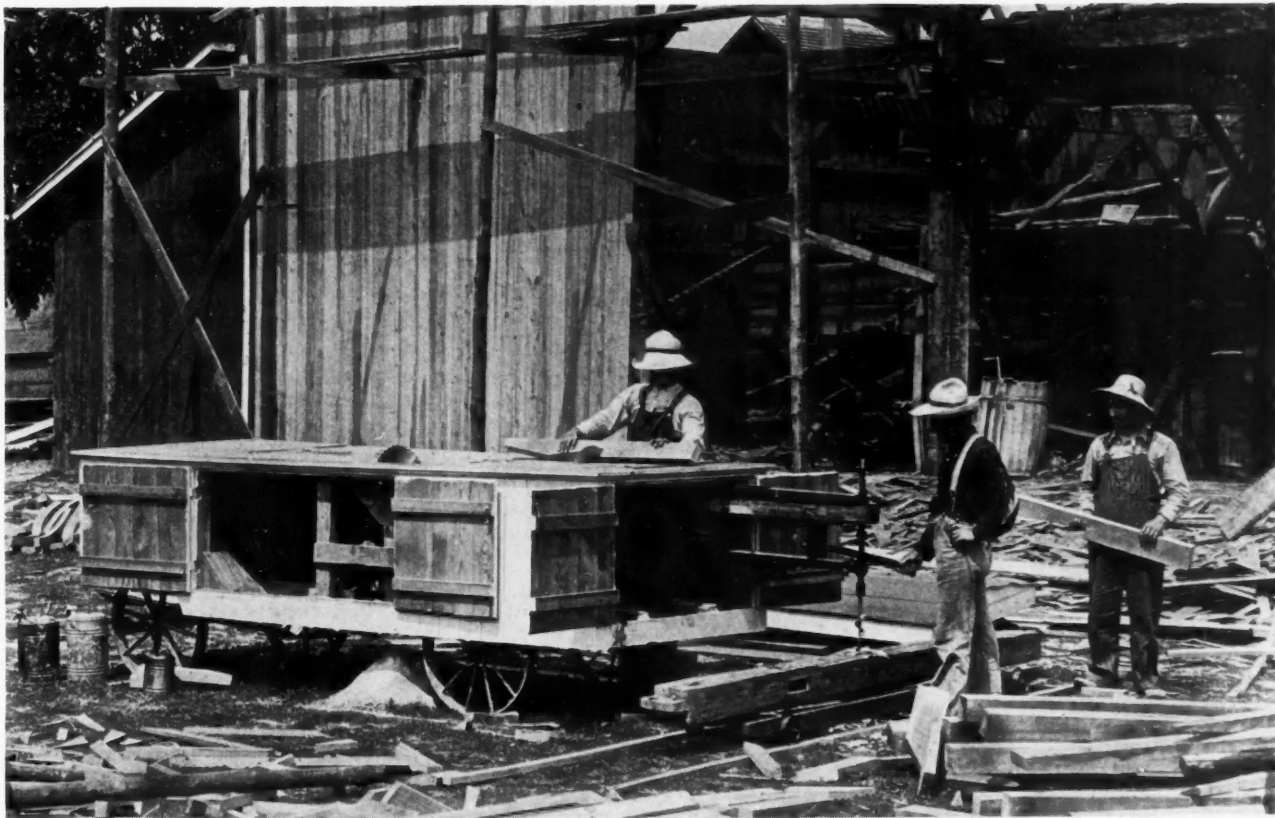
To be progressive and to be all that we should be, every builder must have a power woodworker. Anything that can be done with it is done better than can be done by hand. It is also done quicker, which is of no small consideration to the building owner, and a money maker to the contractor.

Brothers, this contracting business is like anything else—if you don't put anything into it, how can you expect anything out of it?

How I Use My Machine

My machine, as you can see, differs from any other on the market today. It is not a machine exposed to the weather, but affording shelter or shop room for other small tools; it has a top to work on of 5 by 12 feet mounted on steel wheels. This top is the height of a work bench. When not in use a lid of light material, covered with felt, sheds the storm.

When I am on a barn job of mortise and tenon work, I first level machine and lay track for car, twice the length of my longest timbers. After the mortises and tenons are scribed the timbers are placed on car and moved along under the 2-inch auger bit that runs at a speed of 200 rev. per min., enabling me to bore a



CONTRACTOR PECK AND MEN FRAMING BARN TIMBERS IN THE MODERN PROFIT WAY
This Portable Woodworker is Boxed in Protecting it Perfectly from the Weather. Note Small Car on Track for Handling Heavy Timbers Under Borer

4-inch mortise $4\frac{1}{4}$ inch deep in 1 minute less 5 seconds. After the mortises are bored the timber is rolled along to another bunch of men who finish the mortises and tenons. After all are finished and the 2-inch bit is done, bits for draw boring are inserted and the timbers are quickly finished.

The braces are all made on the saws, where I have a sliding table with a right and left adjustable miter. These braces are finished complete without applying the square. One man finishes from 18 to 20 per hour. Nail ties are made in the same way. Likewise rafters are sawed. Of course you all dread that, especially on a large building. On one building using 80,000 shingles, we sawed 190 rafters.

I space rafters as accurately as studding; by so doing

I am able to saw all the roof lath on the machine.

On house work I remove the cut-off saw and apply a dado head, enabling me to cut gains for joist bearer, planing window sills, etc. The carborundum grinder is also put in motion by shifting the belt, enabling us always to have sharp tools.

Much more could be said of the power wood worker. This much I will add, that without it you have a life of drudgery for yourself and helpers. The help appreciate its service—you bet. I am a man for power and have it on concrete mixer and hoisting derrick.

Hoping that this will inspire some one to higher ideals which always bring greater success.

FLOYD E. PECK,
Contractor and Builder.

Second Prize Letter—My Experiences with a Portable Combination Woodworker

By Paul N. Holm,

Carpenter and Contractor, Maquoketa, Iowa

EDITOR AMERICAN CARPENTER AND BUILDER:

DOES it pay to own a power woodworker? I think it does. I wish to tell you how I use mine. One year ago last May I bought one of the portable combination woodworkers advertised in the AMERICAN CARPENTER AND BUILDER, and I think it's the finest invention ever made. Why, I don't see how I could get along without mine now.

One man and myself got out 21 window frames and put them together in 10 hours. We made all the parting stops out of the rippings of the jambs. Just the other day I cut to length and gained in for the ribbing 104 studdings in 4 minutes. Sounds kinda' fishy, doesn't it boys? but I can prove it by the man I am building for. He claims that this machine does more work than five men will do in the same time!

Last year I had a building started for a farmer before I got this machine. I was telling him about it one evening; and he said, "You can't bring that thing on this place." I spoke up and said, "Mr. S., if I can't bring my tools to work with, I can't build your house."

He saw I meant it and said, "Bring it along."

It just happened I had so much work shortly after that, that I had to split the gang, so I said to one of my men to pack the machine for shipment; when Mr. S. said, "That machine don't leave the place until you're done."

Now, what do you think of that? I think that is enough to prove that it is a paying proposition.

I charge 60 cents per hour and one man's time against the machine. It paid for itself in 7 months. This machine will do any kind of work, from raising panels to ripping. I am now working on a \$12,000 house. I am going to mill all the interior finish on this machine.

On this same job, on the rough work, this machine

ran eleven days in 5 weeks, netting me \$66.00; and on the stucco window frames I saved him over \$80.00.

I wish to say to those contemplating buying a woodworker, not to hesitate but buy right away. Don't buy less than six horsepower. I only got the 4 h. p. and I find it's a little light for as large a business as I have. It would be O. K. for a small gang.

PAUL N. HOLM,
Carpenter and Contractor.

Letters from Builders about Power Woodworkers

Built up Big Business with Saw Rig

Vacaville, Cal.

EDITOR AMERICAN CARPENTER AND BUILDER:

I have been using a portable rig for some time. There is no doubt in my mind but that it has increased my trade and the quality of my work; for a man cannot always get first-class men to do the work.

My machine is always in first-class condition and does first-class work.

I may state that if a man once has one of these machines, he will be lost without it. Without this machine I could not have kept up with the work that was brought in to me. I am therefore greatly in favor of the power machine.

M. T. JEWELL,
Contractor and Builder.

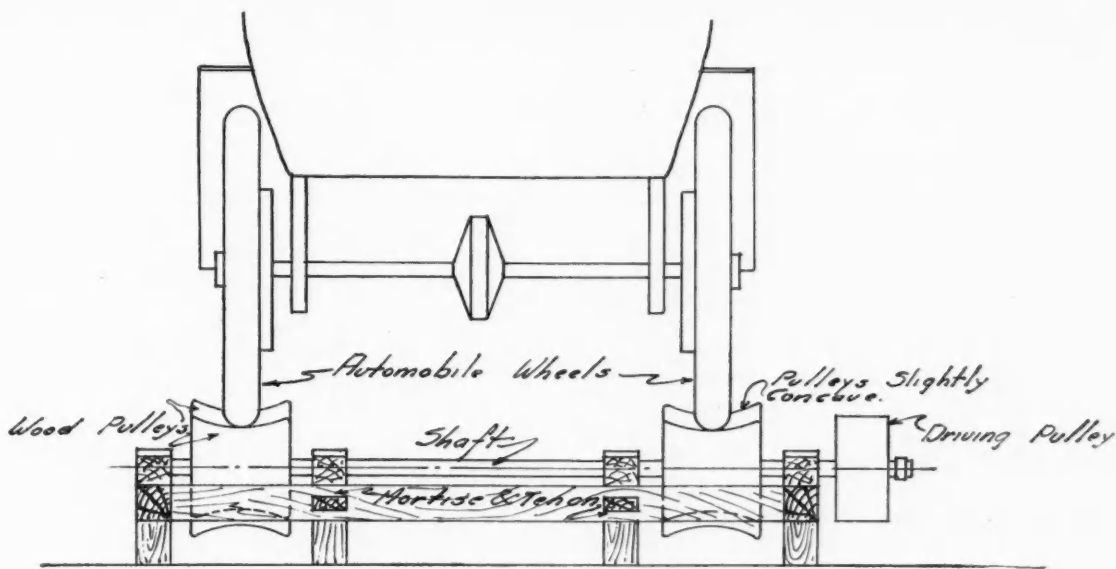
Rig to Utilize Automobile Power

EDITOR AMERICAN CARPENTER AND BUILDER:

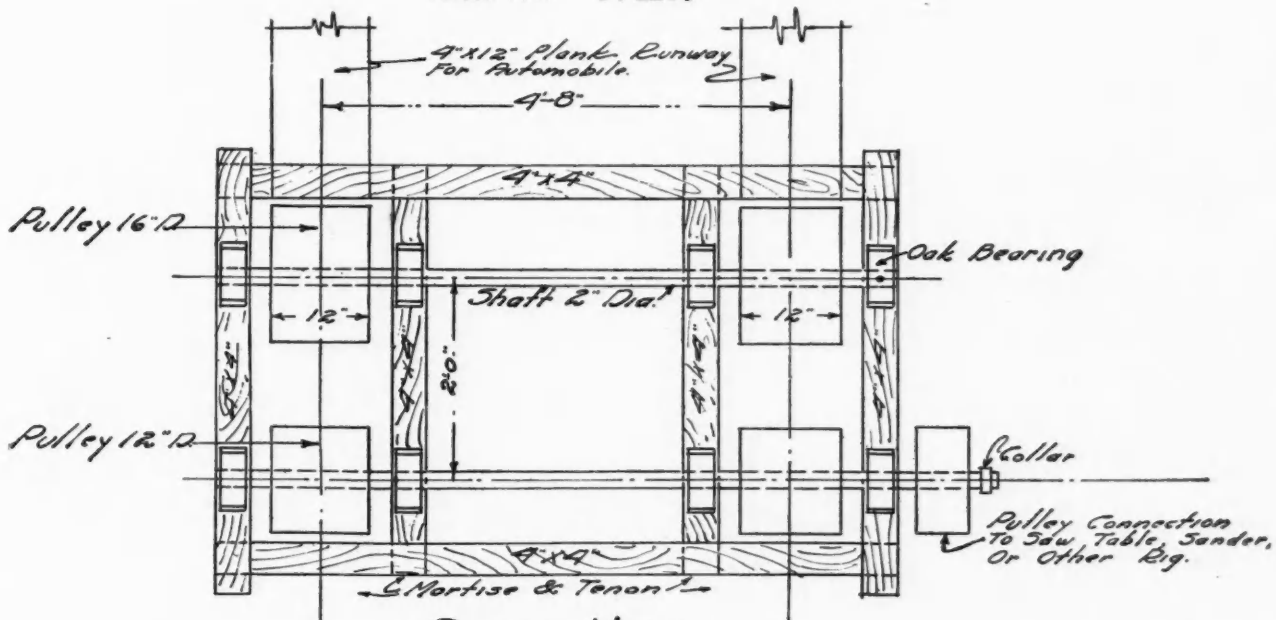
San Diego, Cal.

I would like to build a sander and maybe a saw table, operating them by automobile power, if I can arrange a satisfactory device. I thought of building a square frame work as per enclosed sketch so that I could run the back wheels of my auto up onto the frame work so the back wheels would run on the pulleys which would connect with the woodworking machine by belt.

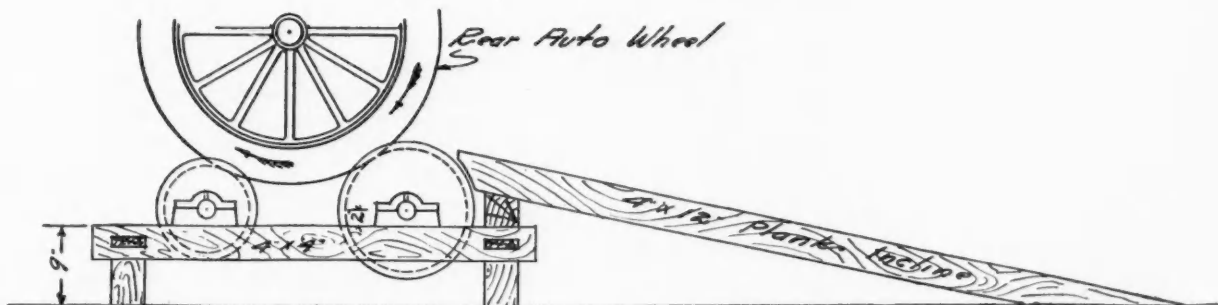
I would like some suggestions on building it, and an idea



REAR VIEW



PLAN VIEW



SIDE VIEW

TREADMILL FOR AUTOMOBILE; TO DRIVE WOODWORKING OR OTHER [SHOP MACHINERY WITH AUTO POWER]

Frame is Built of 4 by 4 inch Timbers and Rollers are Built-up Wood Pulleys With Slightly Concave Faces

as to the power developed in that way by 10 h. p. Stanley Steamer. It seems to me it would be a convenience to many contractors who have autos. Would one run a small woodworking machine?

EMERY J. EASTMAN.

Answer. There is no doubt but that you can operate one or several woodworking machines with the power from your automobile.

Your idea is similar to the old treadmill scheme, but brought up-to-date. We have added some features to your diagram; and a study of the drawings herewith should make the construction of this frame work and the method of operating it, perfectly clear.

The full rated horse power of an automobile engine should be developed with a rig of this kind. By proportioning the driving pulley and the driven pulley on the woodworker, you will be able to obtain just the speed you need for any work.

EDITOR.

Made His Own Power Woodworker

Calhoun, Mo.

Editor AMERICAN CARPENTER AND BUILDER:

Being a subscriber for the AMERICAN CARPENTER AND BUILDER for some time, I had felt the need of a small, portable saw rig. Not being able to buy one, as the cheapest I could find would cost me \$165, I bought a three-horse-power gasoline engine. Although it was second-hand it had been run but just a little. I bought it for \$20.00, just about half price.

With this I rigged up a machine on which I can do a wonderful lot of work in a very short time. I do all my ripping, boring, plowing, dadoing, and sill beveling.

My machine is very easy to move from one job to another, as it weighs altogether about 200 lbs. The engine which runs 1400 revolutions per minute, is very small, weighs 84 pounds.

I will now give a list of the cost of my machine. Any poor boy who is a mechanic can build one.

Engine	\$20.00
Saw and mandrel	4.20
Belt .....	.75
Boring bits .....	.50
Spark coil plug and batteries	6.80
Machinist labor and material	5.00
Blacksmithing	1.00
Lumber for frame and table	2.50
	\$40.75

Forty dollars and seventy-five cents paid for my machine (not counting my own work), and I would not sell it for less than \$100.00.

HUGH RANDEL.

Some Early Woodworking Machine History

Smithville, N. J.

Editor AMERICAN CARPENTER AND BUILDER:

We observe your request in your August issue for letters showing the advantage of machinery and power in carpenters' and builders' shops. Replying, would say that the advantages are very great and too numerous to enroll, and we know of no disadvantages. The same is true in all manufacturing industries where power and machinery can be used. Think of what textile machinery is turning out every day with which to clothe the millions, and of the farm and mill machinery required to prepare food with which to feed them.

This subject carries us back into the early fifties in Ohio, when we were building houses and barns by hand, that is to say, the frames of buildings were generally made of white oak, mortised, tenoned and pinned together, so as to defy a hurricane. The weather-boarding was generally of poplar, hand planed, and the flooring was generally of dry white oak as hard as bone, and tongued and grooved by hand. We remember one lot of flooring which was so hard that it took two strong men to work it, and it took them a week when a modern flooring machine would do it in an hour, and make a better job of it.

Of course in cities at that time there were some shops that had some little machinery, but there was a prejudice against it, that is, the workmen thought machinery would interfere

with their jobs. But the reverse was true; it was found that the machines furnished the *brute force* and did the *hard work*, while the workman simply directed them and got more wages for his brain work.

Our personal knowledge extends back into the early forties when H. B. Smith was a wood turner and cabinet maker. At that time he used foot power for his lathe and the rest of the work was done by hand. About this time he had occasion to visit Boston and saw them make blinds by hand. He saw that it was a slow process, because one end of the blind rail was mortised for stationary slats and the other bored for rolling slats. After giving the matter some thought he conceived the idea of a power machine which would mortise and bore these rails very rapidly, in fact a machine would do the work of twenty men and do it better. This machine was perfected and patented in 1847, and it revolutionized the manufacture of blinds all over the country. A little later, in 1852, he patented a door mortiser, a tenoner and a molder, and put them on the market, and some of these early machines are still in use to this day. It was upon the success of these machines a large factory was erected for the manufacture of woodworking machinery. The machines were first manufactured at Lowell, Mass., but early in the sixties Mr. Smith removed to the present site and the village which has a fine water power, was named Smithville in honor of H. B. Smith.

Now, as regards the effect of machinery, it is true that products have been much improved and greatly cheapened, and at the same time the wages of the intelligent operator directing the machines have been increased, hence both labor and products have been benefited by the use of machinery, and large industries have grown up for the manufacture of woodworking machinery, which give employment to large numbers of mechanics.

It would now be as impossible to do without woodworking machinery as it would be to abandon machine shops, engine builders, railroads, street cars in large cities, the telegraph, the telephone and any of the other thousand and one conveniences and implements which the people now demand.

Our education and mode of living require modern appliances and there is no longer any conflict between labor and machinery and implements which lessen the burden of labor.

WM. S. KELLEY, Vice-president,
H. B. Smith Machine Co.

Recommends Electric Power for Shop

Wilburton, Okla.

Editor AMERICAN CARPENTER AND BUILDER:

I have found that the use of power equipment in my shop has been profitable; besides, it makes the work more pleasant. As to the kind of a rig to buy, it depends on the uses to which it is put. For shop and general cabinet work, one of the *first-class* portable machines advertised in the AMERICAN CARPENTER AND BUILDER, with jointing and other attachments, will do splendid work *if the machine is kept in good order*.

For shop work exclusively, I prefer electric power on account of convenience. Cranking an engine for only a few seconds work gets monotonous. It will cost more for current than for gasoline, but the convenience will offset the difference.

For general contract work there is no better machine than one of those advertised in the July number. This machine can be changed instantly from rip to cutoff, and vice versa. It is a fine dado machine, as the table rolls, insuring accuracy. By using the extension table provided with stop gauges, general house framing can be done very rapidly.

I mounted my machine on skids, and take it out on the job; run it with 5 h.p. portable gasoline engine on the job and electric motor in the shop. I use 8-inch jointer with extra long bed. Can make glue joints by feeding slow.

To get best results, run your machine at the speed recommended by the maker. See that all nuts are kept tight, for they are dangerous if allowed to get loose. J. P. McLARTY.

The Contractor and the Motor-Cycle

DID YOU EVER WANT TO BE IN TWO PLACES AT THE SAME TIME?—RAILTON DID. NOW HE CAN BE—ALMOST

By **Guernsey Van Riper**

Ass't. Chairman Federation of American Motorcycleists

WHEN one contractor can do the work of three or four—then real efficiency and profits begin.

The problem, therefore, is to find a method by which one man can do the work of three or four.

John H. Railton, a contractor of Galveston, Texas, was face to face with this problem. He stood exactly where thousands of other contractors and builders are standing today. He could handle just a certain amount of work—and give it his personal attention. He knew that he could increase his business materially if he could be in more than one place at the same time.

He knew, as other contractors and builders know, that things "go" better, that there is more accom-

making the trip from one to the other quickly and comfortably, no matter how far apart they were.

It did not take Railton long to add more business. And he kept on "adding"—meanwhile buzzing around from one to the other on his two-wheeler.

Railton made another discovery—a "by-product."

He found that the riding brought him increased health. Then he began indulging in Sunday rides on his machine, taking Mrs. Railton with him. "Health and prosperity"—that is what Railton thinks of the motor-cycle, for that is what it brought him. The cost of operation was small. It was merely nominal. For, a motor-cycle costs nothing to operate unless it is "working"—and when it is working it is earning its owner big returns.

Modern business demands speed. Things must be done quickly. This is where the motor-cycle helps. It makes it possible for a business man to transact business more quickly—and that means that he can transact more business.

The experience of H. R. Rupp, time-keeper for the A. S. Bentley & Sons Co., of Toledo, Ohio, further illustrates the advantage of a motor-cycle to contractors and builders. The Bentley concern is one of the biggest in the building line in Toledo. Rupp was their time-keeper and because of widely scattered jobs, could visit each but once each day.

His employers thought he should get there oftener—and they bought him a motor-cycle. Since then he has been on each job twice a day. He is now covering 75 to 80 miles each day and the firm's business has grown to a point where three additional motor-cycles are necessary.



Uncertain

"Have you purchased your new car yet, Mrs. Noorich?" asked the visitor.

"No, Mr. Smithers, I ain't. I can't make up my mind whether to get a gasolene car or a limousine car. Maybe you can tell me—does limousine smell as bad as gasolene?" inquired the lady.—*Harper's Weekly*.



Cause of Many Mixer Troubles

"To a large extent, mixer troubles are journal troubles," said a well-known mixer manufacturer, in a recent discussion. Excessive wear of shifting of journals makes the gears mesh improperly, and in time causes traction rings to corrugate or cup. This last is one of the most serious of mixer troubles, and it is invariably due to play in the journal boxes. This same corrugation is observed in the rails of trolley lines, etc., and has been traced to play in the journals. "Look after your journals," said this manufacturer, "and your mixer will never cause serious trouble."



John H. Railton, a Contractor of Galveston, Texas, who has Discovered the Motor-Cycle's Value

plished—when the contractor covers the ground each day himself and personally keeps his eye on his jobs.

Railton could get around each day to a certain number. If it were possible to visit a larger number of jobs each day it meant more business and more profits.

A motor-cycle solves Railton's problem—just as it has and is solving the same problem for hundreds of other contractors.

It did this for Railton: It increased his business more than 50 per cent.

It increased his capacity. It did not quite make it possible for him to be in two places at the same time—but it enabled him to go from one place to another so quickly that it served his purpose just as well.

Thus Railton's capacity was increased. This made it possible for him to increase his business—and that meant larger profits. With a motor-cycle he could personally supervise the work on additional contracts,



Noon Hour Talks by the Boss Carpenter

Talk No. 2

THE BOSS TELLS OF OTHER POINTS WHICH MAY DETERMINE THE SIZE OF A BEAM TO CARRY A GIVEN LOAD

AT noon on the day following the voluntary formation of the "calculating squad," the Boss and his class joined the dinner brigade as usual and entered into the general conversation. When dinner was over and the squad got together for business a new member was present. Instead of one of the young men of the gang it was one of the oldest men, both in years and experience. As a reason for entering the squad at this time, our friend said: "Boss, as you probably know I have had a lot of good, practical experience, and believe that I can give the ordinary technical man a run for his money when he is running in my field of work and experience. I overheard you say something yesterday about knowing why you do things in a certain way and getting into the game for yourself. Now my plan is this: I am going to learn what you have to say about the technical end of the game

sisting of quite a number of large sheets of ordinary wrapping paper fastened together at one side, and explained that instead of drawing sketches and writing formulas on separate pieces of board or paper, each sketch and formula would be made or written direct in this large book; then given a number and kept for future reference. This scheme would save writing or explaining the same formula or method more than once. The sketches, formulas, and calculations of the previous day were already copied on the first sheet of the book.

"Did any of you fellows find out anything about the probable sag in that 2 by 8?" asked the Boss. One of the men produced a statement of a rule which he had seen in a building paper, but the terms used were so mixed up and the constants given were so uncertain as to origin that the Boss rejected the rule as unsafe.

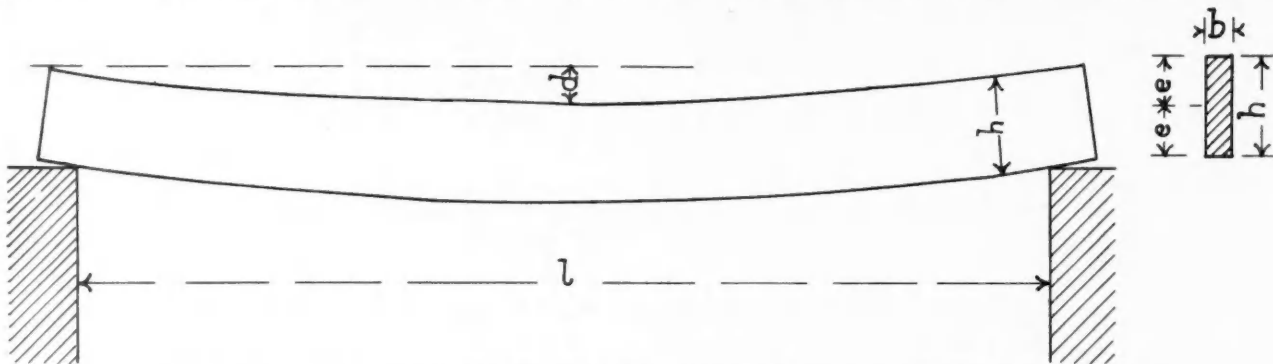


Fig. 3. Bent Beam, Side and End Views; Showing Location of d and Other Letters in Beam Formulas

where I am weak, put this knowledge with my years of practical experience, hang out my own "Carpenter and Builder" sign painted in fast colors with *Confidence* and sanded with the real kind of *Grit*, and dare any of these young strappers here to unhang it."

"Fine business," said the Boss. "Come in and get what you can today, and come over to the house tonight and I will fix you up on what we talked about yesterday."

The Boss now produced a roughly made book con-

In explanation he said: "I do not say that this rule is wrong, but it is not clear as to the reason why it should be given in the form in which it is printed. The rules which we will discuss in all of our talks and work are standard in form and have a clear derivation based upon the principles of mechanics. We will not tackle the derivations, but you can satisfy yourselves as to their existence, or read them if you desire in any of the books on Applied Mechanics or Strength of Materials. The main value of these standard types

of formulas is that we will always be able to tell what formula to use for a given standard condition of loading, and what each letter in the formula really means."

None of the other men had any information to offer, so the Boss made a sketch like Fig. 3 on a new sheet of the book. Fig. 3 was intended to show the general location of the dimension letters used in the formulas of this talk and the previous one, and consisted of a side and end view of a bent beam.

"Now men," said he, "we found that the size of our beam for the necessary strength in bending only was 2 by 8 inches when the material used was yellow pine. As I told you yesterday, we must now determine as to whether this size of beam will be sufficiently stiff, or have such a small amount of deflection, or sag, when fully loaded, that a plastered ceiling below will not crack, due to the sagging. It is commonly agreed among builders of experience that a sag or deflection of 1/30 of an inch per foot of length of beam will be a fair limiting value. Another way of stating this same thing is to say that the greatest deflection, or value of d in Fig. 3 shall not be greater than 1/360 of the length of the span, or value of l . Since the units used in calculating deflections are generally in inch terms, it is safer always to use deflections and lengths in measurements and calculations for deflection as inch quantities.

"It is now up to us to see if this 2 by 8 inch yellow pine beam 15 feet long which we calculated yesterday is sufficiently stiff to fall within the above-named limit. If it is not, we will have to change some dimension of the beam, or change the loading. Since the loading is a quantity which we are providing strength to hold in place and is not to be changed; also, since the length of the beam is governed by the distance apart of the supports which may be walls, partitions, girders, or some part of the structure which is not easily changed for one reason or another, it seems that the easiest thing would be to change the depth or thickness of our beam, and possibly in some cases it may be necessary or policy to change both of these dimensions. I will show you later why it is most economical to change the depth of the beam instead of the thickness."

The Boss now wrote under Fig. 3

$$d = K \frac{Wl^3}{EI}, \text{ (Formula No. 2)}$$

and stated that this was the fundamental shape of the formula which might be used for determining the de-

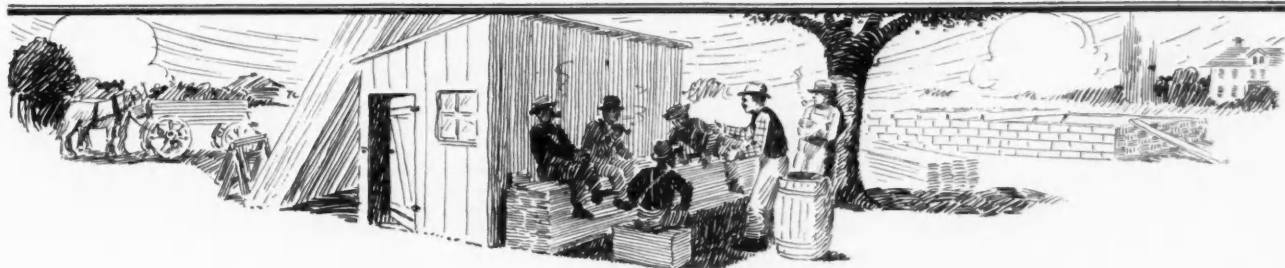
flection in the various cases of beams and cantilevers which he would bring up at other times. He explained that K stood for a *constant*, or fraction with a given value, which was different for different methods of loading the beam, and also for different methods of supporting the ends of the beam. For the *same* method of loading and for the *same* way of holding the ends of the beam, K always has the *same* value no matter if the amount of load changes, the length of the beam or size of beam changes, or, even if a different material be used for the beam. He wrote the value of K as 5/384 for the beam which the men were considering, and explained to them that this value was always to be used when a beam carried a load which was *distributed uniformly* along its length, and when the ends of the beam were *freely supported*, or merely resting on their supports as in ordinary construction.

He again referred to Fig. 3 and showed them that with the uniform load shown in Fig. 1, the greatest deflection, or value of d , would come at the middle of the beam. The quantities W , l , and I were again explained to be the same values used in Talk No. 1, and to stand for *total load on one beam in pounds; length of a beam, in inches, and moment of inertia of a rectangular cross-section of beam as explained, in inch dimensions.*

The quantity represented by the letter E was called the *modulus of elasticity*, and is found by that name or indicated by E in nearly all hand books. The value of E varies with the kind of material and with the quality of material, and is expressed in *pounds per square inch*. In the case of the problem in hand, the value of E for yellow pine is taken as 1,200,000 pounds per square inch. A table of values of E for different materials will be given in a later talk.

The Boss now turned back to the sheets in the book which were filled with the calculations of Talk No. 1, and gave the men a chance to consider the meaning of the various letters used in Formula 2. He explained again that a letter or number with a small number above it, such as l^3 , meant that the big number or letter was to be multiplied by itself as many times as the small number indicated. For example, l^3 means l times l times l .

"Now," said the Boss, "I am going to fill in this Formula 2 with the proper values and see what deflection we would have in the case of our 2 by 8. We will take our values of W , l , and I direct from Talk No. 1 so as not to have to calculate them again. Lets see; W was equal to 800 pounds, l was (15x12), or 180



inches, and I was given as the thickness, 2 inches, multiplied by the depth three times and then divided by 12. This would make the value of

$$I = \frac{2 \times 8 \times 8 \times 8}{12} = 85\frac{1}{3}$$

Using K as $5/384$ and E as 1,200,000, we will have

$$\text{deflection} = K \frac{W \times 1 \times 1 \times 1}{E \times I}, \text{ or, deflection (in inches)} = \frac{5}{384} \times \frac{800 \times 180 \times 180 \times 180}{1,200,000 \times 85\frac{1}{3}}$$

Cancelling out five ciphers from both above and below the line, and dividing the 8 down into the 384, we have deflection (in inches) = $\frac{5 \times 1 \times 18 \times 18 \times 18}{48 \times 12 \times 85\frac{1}{3}}$.

This may be simplified further by cancellation if you desire, or solved by multiplying together, the parts above and below the line, and then dividing the part above the line by the part below the line. Either procedure will give as an answer:

$$\text{deflection (in inches)} = \frac{6}{10} \text{ (nearly).}$$

"Now let us see how many inches $\frac{1}{360}$ of 180 inches would be," said the Boss. "That will be 180 divided by 360, or $\frac{1}{2}$ inch. Since $\frac{6}{10}$ of an inch, the actual deflection is greater than $\frac{1}{2}$, or $\frac{5}{10}$, of an inch, it shows us that our 2 by 8 inch beams are a little light for safe construction as far as deflections are concerned. While they might prove satisfactory in many cases, especially where the loading was not likely to all come on the floor at the same time, it would be better design to be a little liberal and use a 2 by 10 instead of a 2 by 8."

"How could we determine as to just how this new size would affect the strength and deflection of our floor," asked one of the men.

"Well," said the Boss, "we know that a 2 by 10 will surely be strong enough if a 2 by 8 will do, and we can find our new deflection by filling in Formula 2 again and solving. The only value that would be changed in filling in the formula would be I , that is, if the spacing of the beams is still left at 16 inches centers, so as not to change the value of W . The new value of I would be

$$I = \frac{2 \times 10 \times 10 \times 10}{12} = 166\frac{2}{3}$$

"Formula 2 would then be:

$$\text{deflection (in inches)} = \frac{5}{384} \times \frac{800 \times 180 \times 180 \times 180}{1,200,000 \times 166\frac{2}{3}}$$

"By examination we see that this equation is just like the companion one above, except that one has $85\frac{1}{3}$ below the line, and the other one has $166\frac{2}{3}$ in

the same place. Since $166\frac{2}{3}$ is roughly twice $85\frac{1}{3}$, we could easily estimate that the new deflection, using 2 by 10 inch beams, would only be about one-half of $\frac{6}{10}$ of an inch, or $\frac{3}{10}$ of an inch. This value is way below $\frac{1}{2}$ of an inch and should be ample to allow for irregularities in the quality of the timber."

"You said something awhile ago about its being cheaper to increase the depth of the beam than to use a thicker beam when you wanted more strength or greater stiffness," said one of the men. "Why is this so?"

"Well," said the Boss, "if you will look at both Formula 1 and Formula 2, you will see that each one contains the value of I , and the results of these formula's depend upon I . Now, looking at the formula for I , we see that the value of I is made up by multiplying the thickness *only once* by the depth *three times*. That shows us that a *small* change in depth will be a great deal more effective in changing the value of I for use in our formulas than would quite a *big* change in thickness."

As the other men on the job had begun to move around and get ready to begin work for the afternoon, the Boss called the session to a close. He finished his talk by inviting the men to try to work out a similar problem at home and talk over the results with him.

"Try for yourselves, men," said he, "as that is the best way for you to find out whether you understand what we are doing or not. Get busy tonight, as tomorrow I am going to show you one more kink that you have got to keep an eye on. This new one may explain what some of you have thought were season cracks in heavily loaded beams."

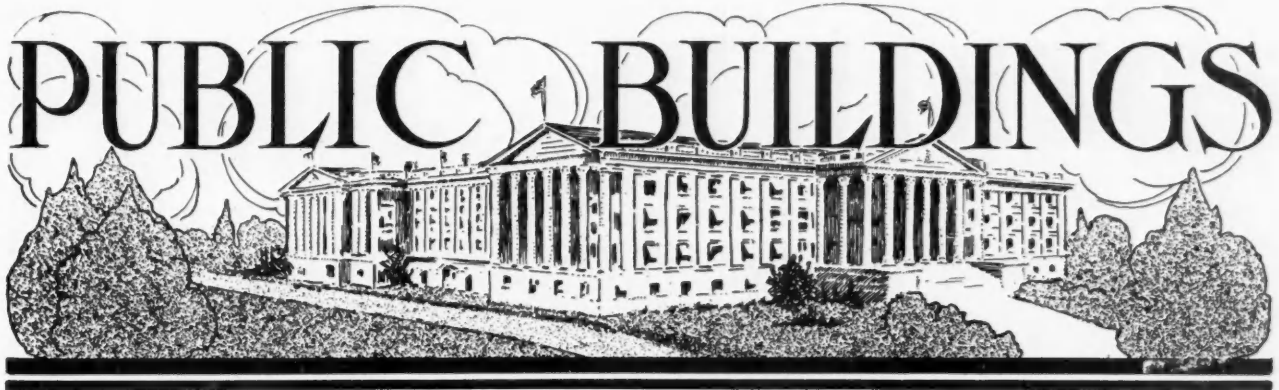
"I will hang our sketch and calculation book here in the shed where you can all get at it tonight, if you care to copy any of this stuff out to take home with you."



The Why of Opaque Windows

The building contractor let loose some of his most emphatic phrases when he found that the man who had been hired to daub whiting all over the windows had not half done the job, recounts the *New York Times*.

"That man doesn't seem to understand what the windows in a half-finished building are whitened for," he said. "He don't plaster them over with chalk to prevent the public from seeing the unfinished condition of the interior, but to keep the workmen from battering out the glass. Transparent glass looks just about as transparent air to the man who is moving a wooden or iron beam in a hurry, and he is likely to ram the end of it through an expensive window, but when the glass is coated with white it becomes visible and the workmen hand their material in through the door."

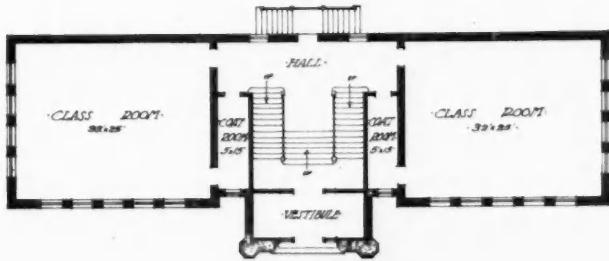


A Four Room School House

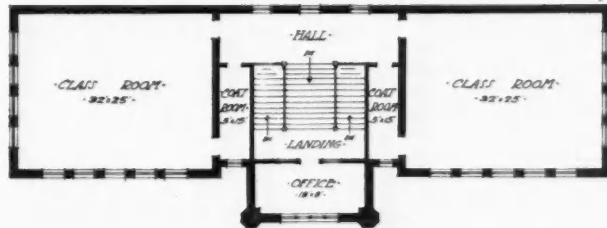
PERSPECTIVE AND FLOOR PLANS OF PRACTICAL SCHOOL BUILDING DESIGN

HERE is shown a type of school building entirely suitable for either high or grammar school use. It is a design by the well known Chicago architect, G. W. Ashby. Each floor of this

brick building provides two large well lighted school-rooms, each of which has direct connected cloakroom. Hall and stairs are readily accessible from every room. Office has been planned to be over vestibule and opening from stairway landing between floors.



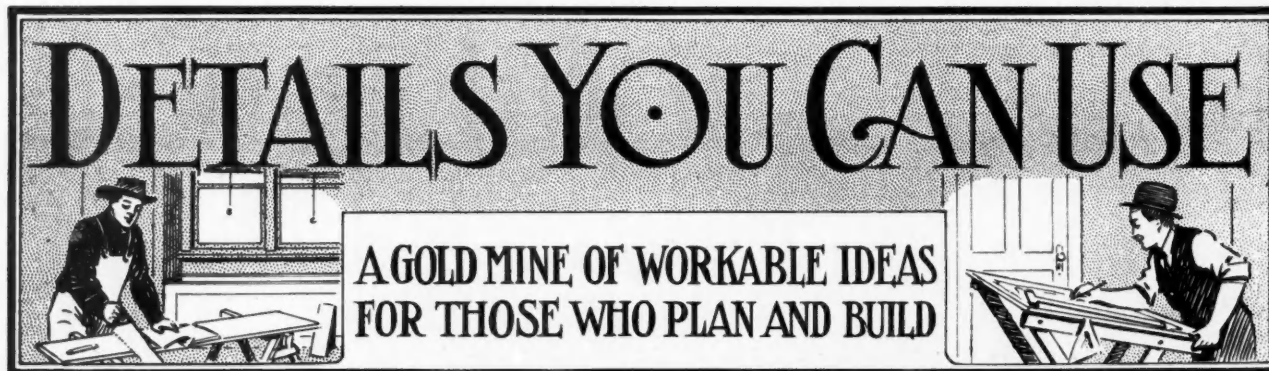
First Floor Plan



Second Floor Plan



Small Public School Building of Scholastic Gothic Design



Colonial Stair Hall; Built-in Seat; Simple Kitchen Cabinet

SCALE DRAWINGS PLAINLY SHOWING DESIGN, DIMENSIONS AND CONSTRUCTION OF ATTRACTIVE PIECES OF INTERIOR FINISH ILLUSTRATED IN PHOTOGRAPHS

THE Colonial style makes much of the stairway and stair hall; and properly so, too; for there is no other part of the interior of a dwelling so important with respect both to appearance and household convenience.

Plenty of room should be allowed for the entrance hall, and plenty of room for the stairs as well. Let them be wide and generous, with easy climbing treads. Nothing is more short-sighted nor fatal to satisfaction in a residence than a skimped, cramped stair. There are three things that always seem to distinguish a Colonial stairway. First, the curved arch, either circle or ellipse, for doorways; second, white enamel finish; and third mahogany trimmings — hand rail, stair treads, shoe mould, and doors (if any). It is a combination hard to equal for dignity and beauty.

The stairhall illustrated exhibits some distinctive features. Notice how the risers are returned clear back to line up with the second riser above. The built-in seat has good lines. This is something that is very often wanted in reception halls. This one is strongly built. It could be employed

independently of the balance of this design. Scale drawings showing details of design and construction of this stair-hall are shown on the next page.

Kitchen Cabinet

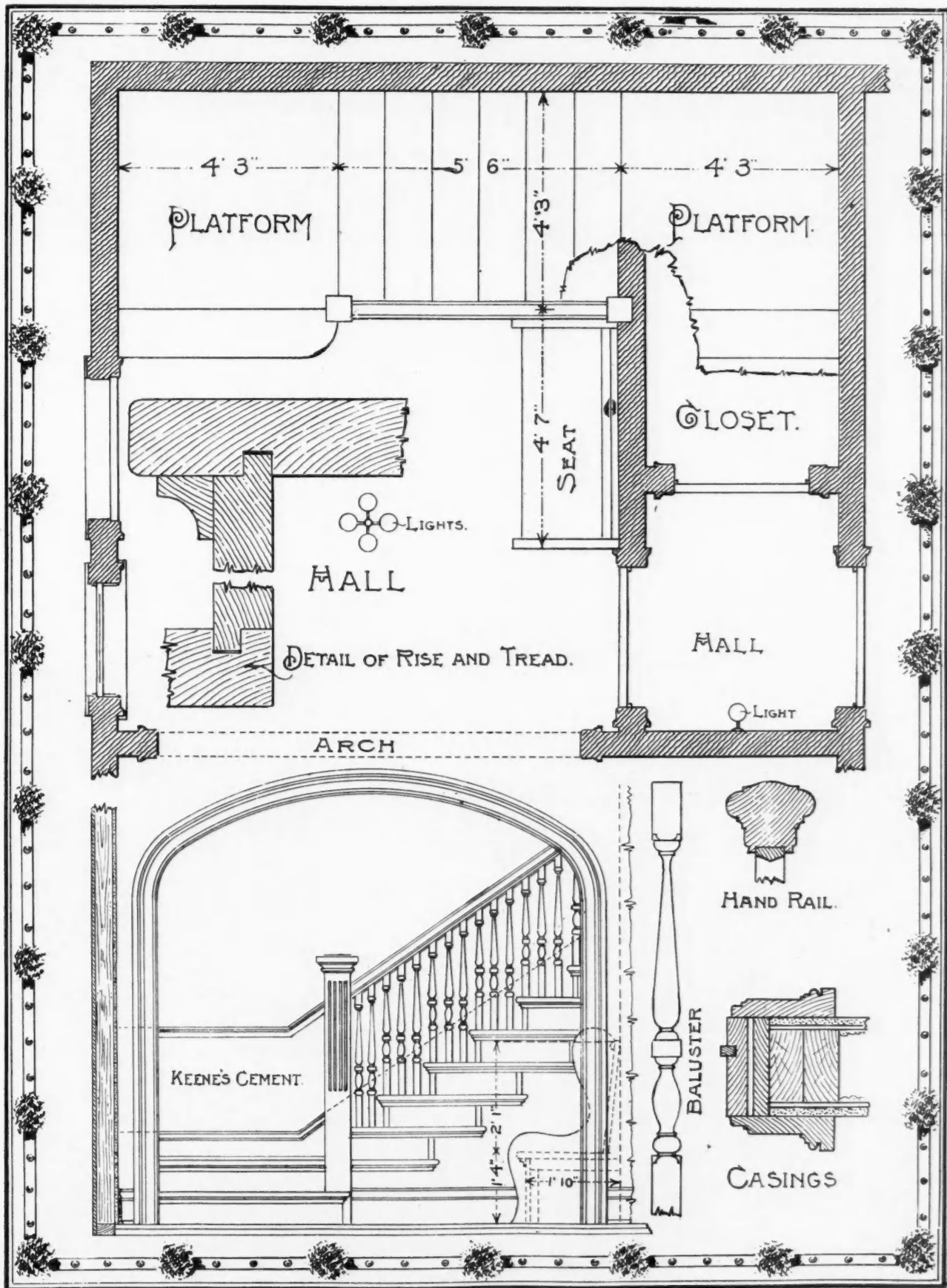
On page 62 are photograph and scale drawings of a simple kitchen cabinet. One of the photos shows the piece of built-in furniture in process of construction. The other shows it finished and in place. Without being elaborate or costly, this cabinet furnishes a great many conveniences; and any carpenter building one

of these into any of his small size kitchens, would win the undying gratitude of the house wife. Full details and dimensions are given.

A piece of this kind may have the work shelf built-up of hard maple and left unfinished; or it may be of some cheaper wood more roughly made and covered all over with sheet zinc, nicked iron, or copper. With a little ingenuity the carpenter can arrange this so it will pull out—an extension work shelf—much the same as the elaborate boughten kitchen cabinets have. All such little extra improvements make customers “come again.”



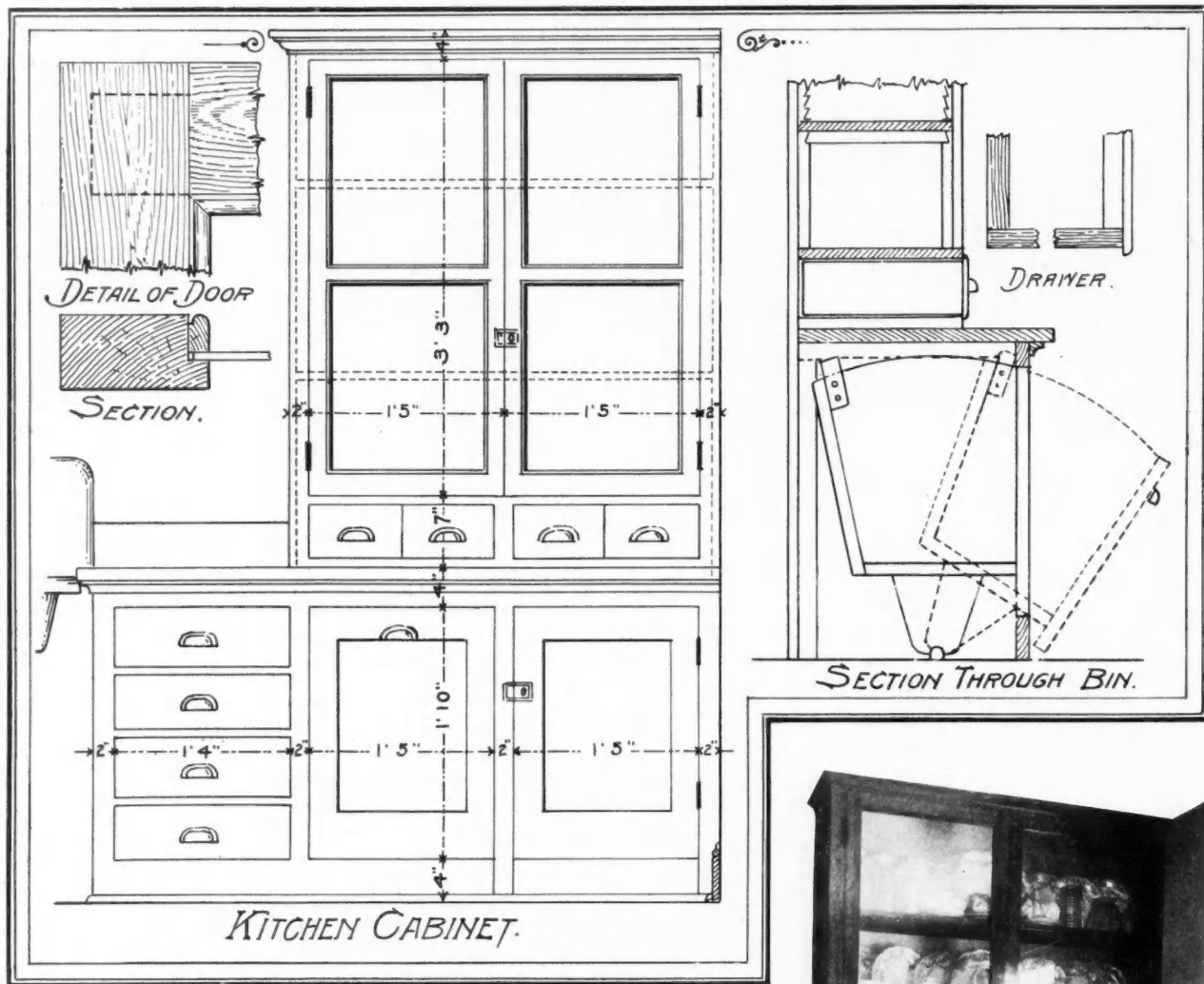
Beautiful Colonial Stair Hall Exhibiting Several Good Ideas for Builders
(For Scale Drawings See Opposite Page.)



SCALE DRAWINGS OF COLONIAL STAIRWAY, BUILT-IN SEAT, ARCH OPENING, ETC., SHOWN IN PHOTO OPPOSITE

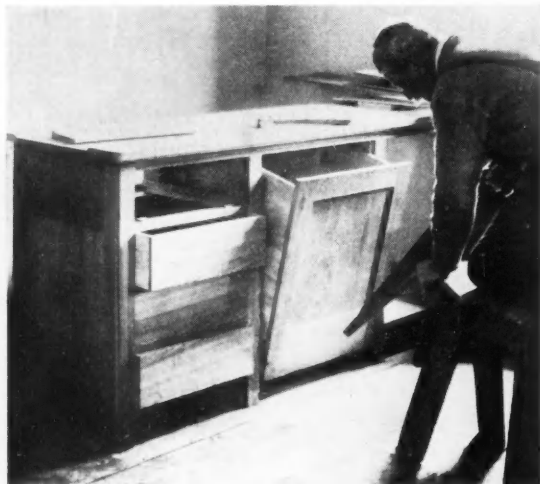
Scale $\frac{3}{4}$ "=1'-0", Details $1\frac{1}{2}$ "=1'-0" Except Tread and Riser Detail $\frac{1}{2}$ Full Size

Making a Simple Kitchen Cabinet

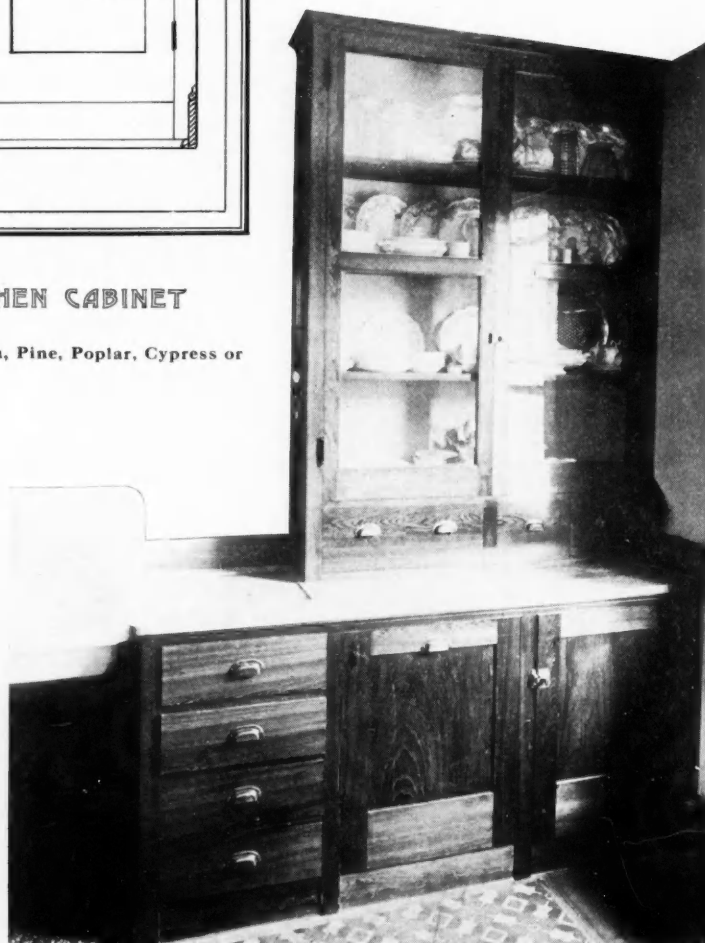


DIMENSIONED DRAWINGS OF KITCHEN CABINET SHOWN BELOW.

Scale $\frac{1}{2}$ - 1'-0", and $\frac{1}{4}$ Full Size. Material for Cabinet, Birch, Pine, Poplar, Cypress or Gum; Work Shelf Maple



Kitchen Cabinet Being Built



Finished and in Place; a Kitchen Convenience



More Shop Kinks

THE OLD EXPERIENCED WOODWORKING SHOP FOREMAN RELATES SOME PERSONAL ANECDOTES AND TELLS HOW SOME KINKISH THINGS ARE DONE

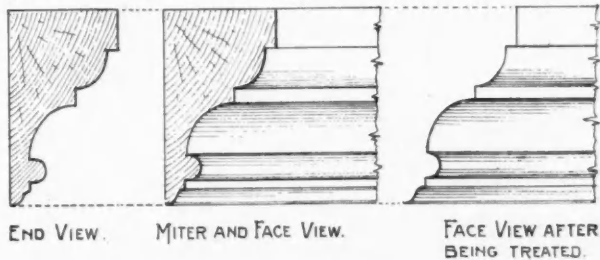
By Wm. C. Jasbury

HERE are some more snappy squibs for millmen and cabinet makers—just to keep my franchise good.

Speaking about Mouldings, every mill man will admit the feeling he experiences when a moulding machine throws a cutter. The head then being out of balance, rumbles like a quake. This is a very dangerous occurrence. My brother once had a cutter fly out of a moulding machine, cutting the rim off his hat as clean and straight as though it had been done in the regular way. I knew a bench hand who got struck in the jaw with a wild cutter, breaking his jaw and giving him a scar for life.

More than once I have seen cutters fly out of a moulder and land on the opposite side of the street. It is often said to the shop apprentice, "Mind the machine, and if you get cut it is your own fault, for the machine cannot follow you around the shop and hurt you"; but the moulding machine has a bad habit of sending out disaster agents.

Coping Mouldings. Many times a piece of moulding will have to be, or rather would be better, coped against another. The proper way to do this is to



Scheme for Coping a Moulding

first cut a miter on the end, then follow the contour of its members with a coping saw until the point has been removed, as shown by the accompanying illustrations.

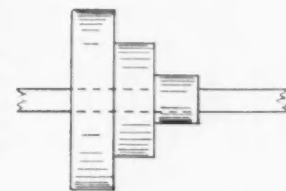
Better to Do Some Work by Hand: Speaking about the handy tool, the adze, I know a German carpenter who is now working in a mill as a bench hand. He uses the adze to do beveling and for many other purposes that another man would do on the

jointer. He is no machine man, hence he will not take the time of one of the machine hands, so goes ahead with his Mr. Adze and does his job as good as is required, and not so far behind at that. Along this line, I can call to mind some men who will even come down stairs with a piece of material under their arm and wait their turn at a machine, when the job could be done in about one-half the time by hand on the bench. I know some foreign cabinet makers who can do a hand job quicker than some of the would-be machine men can get ready.

Some of the other-side men use what is called a Raze plane, *i. e.*, a plane about 1½ inches wide, 8 inches long and 2½ inches high, and similar to a smoothing plane, only the bit is slightly rounded instead of square across and has no bit cap; the cap is knocked out an eighth of an inch or so in order to cut off a deep gash. These are used ahead of a jack plane or spoke shave, that is, where there is a quarter to a half inch to be removed. I have never seen these planes advertised, although I have one. They are made in Austria of white beech. The American cabinet maker does not use this tool. He would rather stand and wait for a machine; it takes less energy.

I know a Hungarian cabinet maker who has two buck saws; he made the frames and uses regular blades for the purpose. He has no regular American hand saws; but has one rip and one cross cut (buck) saw. And *believe me*, he is some mechanic. I know a German cabinet maker who has the smallest kit of tools I ever saw used in a mill. He gets his work done on regular schedule time, same as the high fadutin fellow with the nickel plated display. It all goes to show how many ways there are to arrive at the same point.

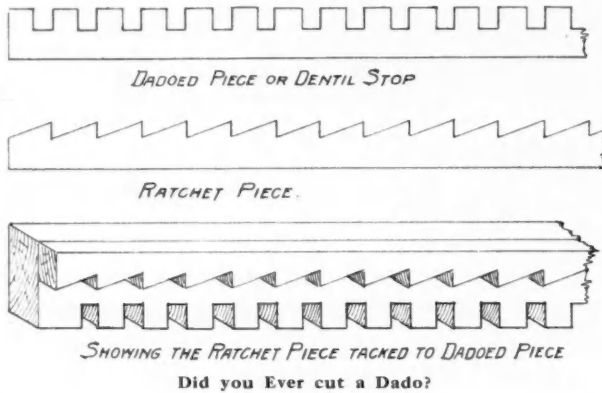
Arrangement for Several Speeds. I worked in a mill once where they had only one turning lathe, which was used for the large and small work; as to the speed, they had three



Multiple Speed Pulley for Lathe

pulleys on the drive shaft and three on a jack shaft between the main line and the lathe. With the aid of cones on the lathe proper, you see most any kind of an old speed could be had for the same piece.

To Cut Dadoes. In cutting dadoes across a piece of stuff on a saw, such as dentil stops, pigeon hole sides, etc., I think it a good plan to cut a ratchet piece and tack it on the side of the piece to be dadoed.

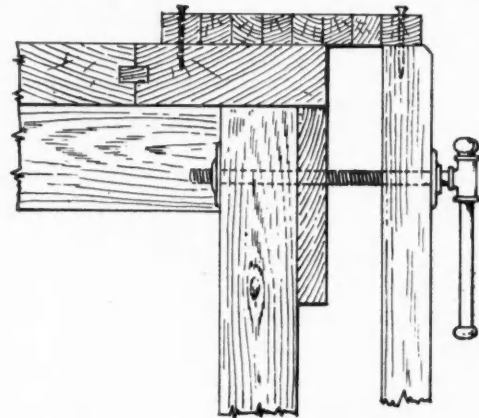


Stop the ratchet notch to a nail in the saw gauge each time; when done, remove the ratchet stop and set it at another. Not much of a sketch, but the stunt works alright. If I was anything of an artist I wouldn't be in a planing mill.

In Getting Out Stairs: I know a Jewish cabinet maker who steams and bends nearly all of his mouldings instead of getting them out of the solid material. In the first place, it makes straight grain, same wood (color) as straight mouldings; and the operation is quicker, because they are run on the moulder with the original straight lot. Of course he clamps

them up until they are dry, then smoothes them up, and a mighty nice job he does. I am beginning to think there is no limit to some men's ingenuity. It only proves that where a person sees wood working done, there is sure to be some peculiarities in the handling of same; and in the end the results are usually the same no matter what system is used.

A Carving Trick. In carving several small pieces at the same time, I have nailed a piece of stuff on the top of a bench, another on the top of the vise; then



Bench With Holding Rig for Small Pieces

fill in between and clamp them up all at once. The illustration shows the blocks nailed on.

Leather Belts. Many times I have seen leather belts that were too wide, ripped down on a saw to the required width. It makes the shop smell as though some one had thrown a Chicago shoe into Vesuvius, but that remains only temporarily and the belt will still stay.

Dimension Stuff

By J. Crow Taylor

Care of the Power Saw

If you have a saw driven by power, either out on the job or in the shop, that bucks and balks, pinches and cuts up instead of slipping through its work smoothly and easily, as a good saw should, just stop and think about it a minute before you start in condemning things. Think of this saw just as you do of your hand saws, when they get going bad, for the same principles apply to both. When your hand saw runs heavy and cuts slow, you know it's dull and needs the file; when it dogs and pinches, you understand readily that it is time to get busy with the set, and when it chatters in the cut, dancing all around, but not making much headway through, you know it has too much set.

Well, the same reasoning applies to the power driven saw. Like the hand saw, sometimes when it is pulling hard a bit of oil will help along, and always when it gives trouble, or fails to give satisfaction, you can reason out and correct the trouble on practically the same lines as the hand saw. Get the whole thing in

this light once and the power saw will not give you much trouble to keep it in the right shape for satisfactory work.

When to Cull Out Lumber

If lumber comes onto a job not up to the grade your order calls for, the time to cull it out and lay it aside is before you do any work on it. Mistakes on this point lead to loss of standing when there is trouble that goes into court. There is a case in mind that illustrates. The builder had a lot of joists on the job that were off grade. But he cut them to length and shape, and had put some of them in the building when the architect came along, made him take the defective ones out, and condemned a lot that were cut but had not yet been put in. The builder sent for the lumber yard man, and then the yard man sent for the representative of the mill that had shipped the lumber. The mill man admitted that part of the stock was off grade, and they had a right to cull it

out, but he made the point that it should have been culled out sooner, and that the cutting of it to shape constituted in the eyes of the law, acceptance of it. He was right, technically, too, and it is well to keep this in mind, and to go through your lumber and pass judgment on it before cutting, even squaring to length.

Mitred Casing (Jambs in Two Pieces)

Mitred casing on the inside of doors and windows makes a mighty neat job, especially when it is a hardwood trim, and it looks like an easier proposition than the regulation heads, stools and plynth blocks. But it is not, for mitering calls for nice joinery, and when the casing has to be fitted against plastering that is not straight—which is no unusual thing—it is almost impossible, unless one first does considerable work at straightening up the plaster face all around the opening.

Some of the neatest work of this kind the writer has seen lately was done in the shop, the casing being put on all the interior jambs before they were put up. This is done by making the jamb in two widths, joined together in the center with a tongue and groove, so that the jamb with the casing on it can be put in place after the plastering is all dry. This kind of a jamb, you should understand, is somewhat different from the regulation plowed jamb. It has the stop planted on afterward, and this covers the joint between the two halves so that if they do not come together snug there is really no harm done. It is the easiest and seemingly the best way to do a fine job with mitered casing. That seen by the writer was veneered mahogany jambs, solid mahogany casing, and was being put into one of the fine office buildings of the year.

Preserving the Polish of Tools

Condensation of moisture on the surface is what takes the polish off of tools and makes iron rust. Preventing it is simply a matter of keeping the surface coated with some varnish, resinous or oily substance. If tools are carefully cleaned every night and then gone over with an oily rag, they should keep in very good shape; that is, if they are in use every day so that this oily coating has a frequent renewing. A heavier coating for tools that are to be put away for some time, and one that can be cleaned off readily, can be made by melting together 7 parts of tallow and 1 of resin, stirring the same till it cooks. Apply in a half liquid state, thinning to the right consistency with either benzine, gasoline or coal oil.

To Preserve Doors and Sash

When you have extra doors or sash left over from a job, or on hand from any cause, their value for use on some other job is going to depend a whole lot on how well you take care of them. If they get coated with dirt or soiled in handling, it is very difficult to make them look nice enough again for natural finish. Indeed, even the sun shining on them will take the life

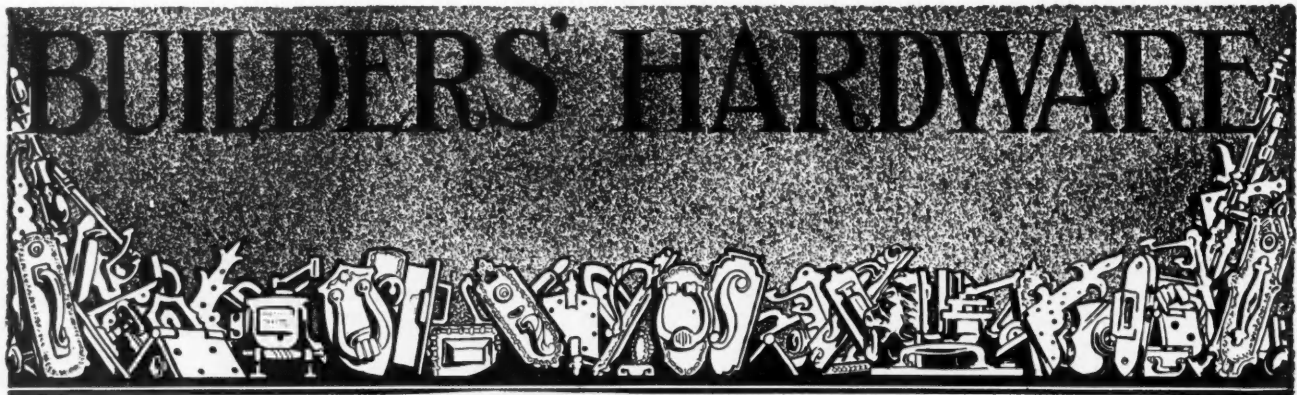
and brightness out of the wood. Have some sort of a clean, dark closet or bin about your shop to keep these in. That's the way the sash and door people keep them bright—in dark warehouses and dust proof bins. Also, they take pains in handling them, so as not to soil them, and when they are shipping single doors out, the careful ones cover them with paper. That is a pretty good thing for you to do, cover the surface over with paper, either pasting or gluing it to the edges, or tack a lath on the edge, drawing the paper under it. Heavy, brown paper is best, but even old newspapers will beat no covering at all. And don't let these doors stand around loose in the shop to get soiled and messed up; make it a practice to put them away right when they are brought in. It is the only way to preserve their full value and get all you should out of them.

Gluing Dowels

The right way to glue dowel pins into their holes when you are using them in joinery, is to put the glue in the holes, not on the pins. When you put glue on a pin and drive it into a tight hole, the outer edge of the hole scrapes the glue off, and it messes up the surface instead of serving the purpose for which it was intended. Where they make dowel doors in quantity they have a series of little tubes up which they force the liquid glue and over which the holes of the stock to be glued are slipped to get the glue inside. For shop work you can make a little swab brush that will go into the holes. With this in hand, turn the piece on its back, with the hole up, swab in the holes with glue, then turn over so that it will run well down toward the outer edge, then drive in your pins without any glue on them and you will get a glue job that is both clean and good.

Preparing Glue

You probably think you know all that one ordinarily needs to know about how to prepare glue for use. But do you know that it is easy to spoil glue by overheating even if you are preparing it in a water jacketed vessel? The right temperature for what we call cooking glue is from 150 to 160 degrees F. That, if you will just stop to think a minute, you know is considerably below the boiling point of water. To prepare glue with water at the boiling point is to kill off just about half its strength. Cooking is a misnomer for glue; it should not be cooked, but soaked gently in cold water, say over night before you use it and then when ready to use heat it to a temperature not exceeding 160 F. Also, and this is about as important as the heating, mix up only what you need for the day, because glue mixed up goes stale rapidly, and any residue left over not only loses value, but injures fresh glue that may be added next time. Clean out your glue pots and throw away any left over glue and you will have a whole lot less trouble with and more satisfaction out of your glue joints.



Accordion Folding Doors or Partitions

FOLDING PARTITIONS AS IN CHURCHES, SCHOOL HOUSES AND ASSEMBLY HALLS—HOW THEY SHOULD BE ARRANGED—HARDWARE FIXTURES REQUIRED

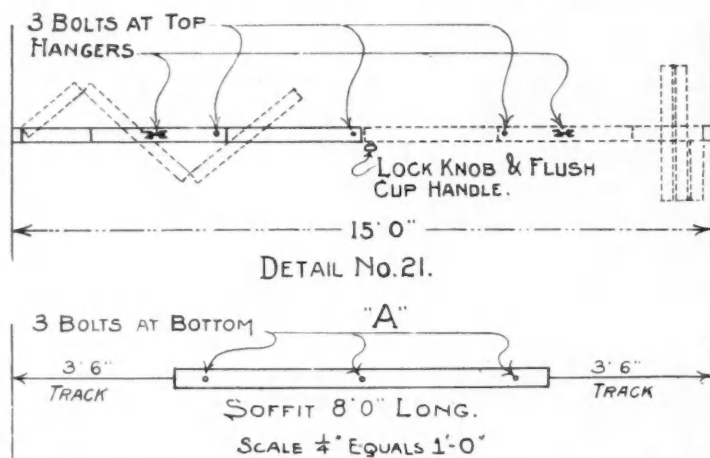
By Our Hardware Expert

THERE is nothing in the building line which puzzles the millmen, the carpenter, and the hardware man so much as accordion folding partitions.

The architect, poor fellow, is the one who is cussed.

cup handle cannot be applied in doors thinner than $1\frac{3}{4}$ inches.

Note: Two hangers only are required for this number of doors; hangers are applied to the doors next to half doors.



Detail No. 21. Accordion Folding Doors—Directions for Ordering:—Track, 2 Pieces $3\frac{1}{2}$ ft. Long; 3 Brackets for Each Piece. Two Hangers are Required, one for Each Door Next to Half Doors

He is blamed by all who have anything to do with them. The architect is supposed to be possessed with universal knowledge of everything.

The manufacturers of accordion hangers should treat more fully on this subject. They should place in the hands of the architects full descriptive matter, also half size or full size drawings with the hardware in place. Then the architects can show the carpenter how it is done and also show the hardware man what items he has to furnish to make a perfect workmanlike job.

Detail Number 21 shows four full width doors and two half width doors.

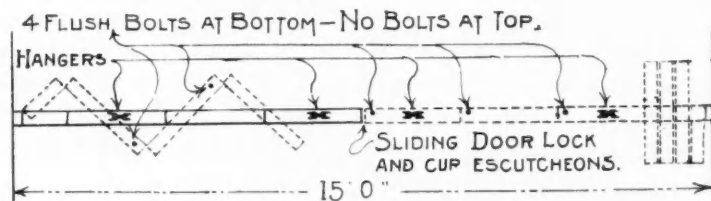
Note: Care must be taken to make these half doors about 2 inches narrower than half width. Doors should never be made thinner than $1\frac{3}{4}$ inches, because a lock knob and flush

Detail A shows that two pieces of $3\frac{1}{2}$ -foot track are needed. Track is not required full width of opening.

Note: A soffit 8 feet long is inserted in the top jamb, closing up the slot; so three flush extension bolts can be used at the top of the doors. The inside two doors have no hangers; it is designed that these two doors are to be operated like a regular pair of hinged doors, having bolts, top and bottom of the standing leaf, and a lock knob and flush cup handle on the active leaf. Three flush extension bolts are also needed at the bottom so that the doors will line up and not buckle.

The above items and measurements apply to a 15-foot opening, a narrower or wider opening will require track and soffit of different lengths. This can readily be determined by the exercise of the gray matter contained in all well developed top pieces of those persons having a mechanical turn of mind.

Detail Number 22 shows six full width doors and two half width doors.



DETAIL NO. 22.
SCALE $\frac{1}{4}$ " EQUALS 1'-0"

Detail No. 22. Accordion Folding Doors—Directions for Ordering:—Track Should be as Long as Opening is Wide. Brackets Should be Placed 2 to 2 $\frac{1}{2}$ ft. Apart. One Hanger is required for Every Other Door, Beginning With Door Farthest From Half Door. Doors Should not Exceed 3 ft. in Width

Mr. Carpenter and Mr. Hardwareman, you have here a different proposition. You have a sliding door proposition because the hanging of the doors forces you to it.

You must supply a hanger for the door farthest from the half door, and a hanger for every second door from this.

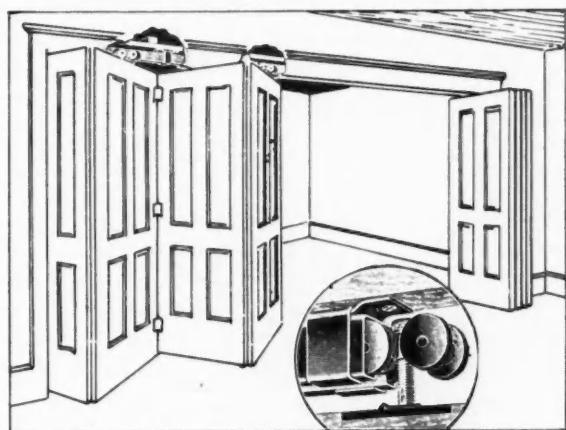
You can readily see that the track is full width of the opening. You must use a sliding door lock with the regular flush cup escutcheons. You should use four flush extension bolts at the bottom. You cannot use flush bolts at the top because you cannot apply the strikes or keepers to the top jamb; *there is a slot in the top jamb.*

You can omit the use of the bottom bolts, but it is not good practice, because the doors will buckle and you have no other method of keeping the doors rigid at the bottom when same are closed.

A metal lined slot in the floor and a roller attached to the bottom of the doors directly below the hanger, has been tried, but it was found to be impractical.

If you wish to use eight full width doors and two half width doors you must use the same number of hangers as shown in Detail No. 22, but these two extra inner doors must be treated as shown in Detail No. 21, viz., operate same as regular pair of hinged doors with a soffit closing up the slot in the top jamb and bolts, lock, knob and flush cup handle.

The writer suggests that the sliding door lock proposition, as mentioned in descriptive matter applying to



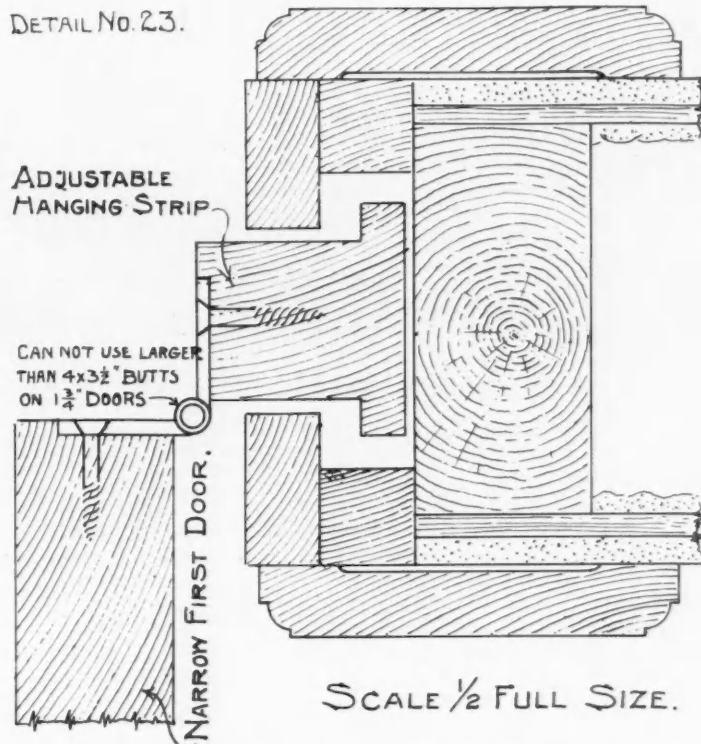
Sliding Accordion Doors With Enlarged View of Hanger

Detail No. 22, is not as good in actual practice as the lock, knob and flush cup handle.

Not one job in ten will be supplied with doors which will not shrink, be they ever so well seasoned and kiln dried.

A sliding door lock will refuse to be locked if the doors do not at all times work perfectly. A lock and knob proposition will work under conditions that are not perfect.

DETAIL No. 23.



SCALE 1/2 FULL SIZE.

Detail No. 23. Half Size Detail of the Narrow Door Attached to Adjustable Hanging Strip

The writer suggests that architects lay out their doors as shown in Detail No. 21, using four full doors or eight full doors. Boycott the six full door layout for the reasons mentioned above.

Now, to obtain a good workmanlike job of folding partition doors, the writer suggests the use of the adjustable hanging strip as shown in Detail No. 23.

If the doors shrink (Mr. Millman, you know doors will shrink), the flush bolts can be shot into their keepers. All makers of hardware furnish keepers or strikes with oblong holes in them (because they know doors will shrink), hence the strikes or keepers need not be moved.

The writer thinks he has convinced everyone interested in this proposition that the lock and knob should be used in preference to the sliding door lock.

There is nothing in a building that the architect, the carpenter and the hardware man takes so much pleasure in showing off to the owners, as a set of perfectly operating accordion folding doors.

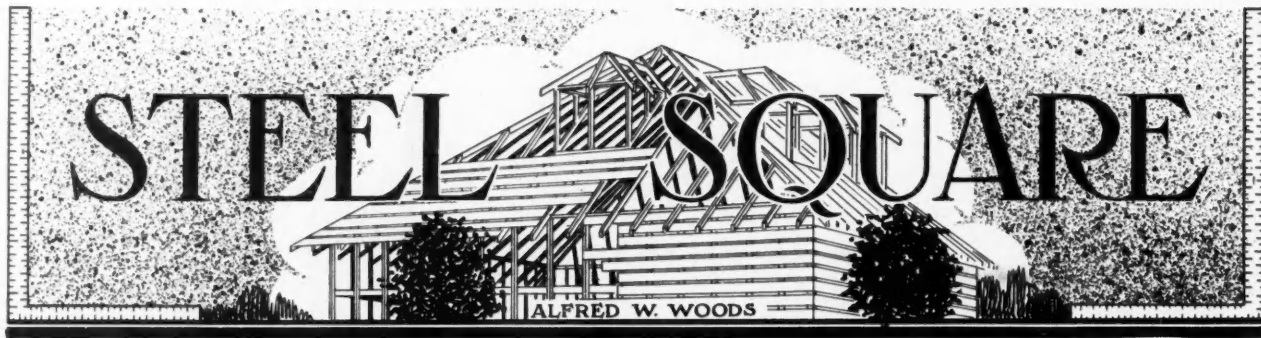
I have told you all about it, it is now up to you to do it.

Bobby—"O-oh Mamma! Here's a little green snake!"

Mamma—"Keep away from it, dear. It may be just as dangerous as a ripe one."—*Life*.

Regular Customer—"I shall want a large quantity of flowers from you next week for my daughter's coming out."

Flower Woman—"Yes, mum. You shall 'ave the very best for 'er, pore dear. Wot were she put in for?"—*Punch*.



Possibilities of the Steel Square

ILLUSTRATING THE UNDER PITCH AND THE PARTS TO TAKE ON THE STEEL SQUARE TO OBTAIN CUTS NOT GENERALLY UNDERSTOOD IN CONNECTION WITH THAT INSTRUMENT

FOR our object this month, we are going to take up what we will call the under pitch. We say, under pitch, because the proportions to take on the steel square are determined by lines under the roof proper and are among the things unseen, and we might better say in a large sense unthought of. Yet it is one of the common things that enters into every hip and valley roof.

Now, the question naturally arises, how do carpenters get along without knowing these parts? The answer is, they don't do it on the square; they get around it some other way, and go about their work and think nothing more about it. Now, we hear the croaker say: "If it is not any more important than that, what is the use of talking about it?" Only this: It is our mission to talk on the square; that is what we are paid for, and as this is one of the common unseen things that comes in the range of the common steel square we thought it a good subject to talk about. Therefore, for the want of a better name, we will call it the under pitch. It is generally supposed that all of the points needed in framing the roof are located above the plates, but here are two cuts that are not,—namely, the tail end cut of the hip and the cut of the fascia boards at the corner.

Now, by referring to Fig. 1, you will see the plan is shown in the upper part of the illustration, while just below it is shown the elevation of the rafters and also that of the under pitch. From this, it will be seen that the latter is at an angle of 90 degrees from the common rafter, though it could be more or less, but as the end of the common rafter is usually cut off square, it brings the under pitch at right angles from the given pitch of the common rafter, as shown. And the corresponding under pitch for the hip must necessarily run to the same point on a continued line of the rise, as shown at E, and the angle for the tail end of the hip is as shown at D. Now, the question is, what are the parts to take on the steel square to obtain this cut? It is this: It partakes of parts both above and below the seat line and is therefore a combination of the two; that is, the seat cut of the real pitch of the hip and the same of the corresponding under pitch, as D B C for the first and D B E for the latter. This

is better illustrated in Fig. 2. D B represents the seat cut for the hip, while the angle formed by the lines D B and D E represent the part that must be added

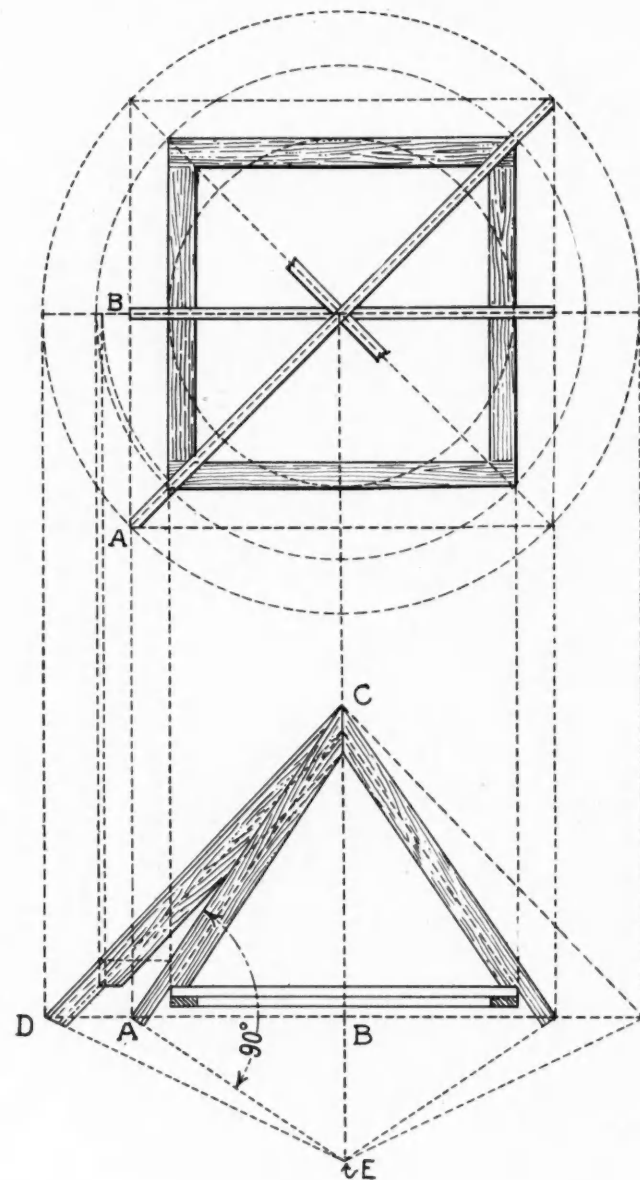


FIG. 1.

Plan and Elevation of Rafters

to it (the seat cut) to form the end cut of the hip to coincide with that of the common rafter. Therefore, the combination of the two parts taken on the steel square to form the seat cut of the two pitches, will give the desired cut, though it requires two applications.

Now, we will pass on to the cut of the fascia board to fit to the end cut of the hip. This is simply nothing more nor less than the common hopper cut with the pitch of the hopper same as that of the under pitch. Now, stop and look at it; forget all about the rafters in connection with same and see it in its true light. Turn it up side down and look some more. The real pitch then becomes the under pitch and the under pitch in the first case becomes the real thing.

If the pitch of the common rafter is 45 degrees, the under pitch would also be 45 degrees and the proportions to take on the steel square would remain the same in either case, because the parts are equalized.

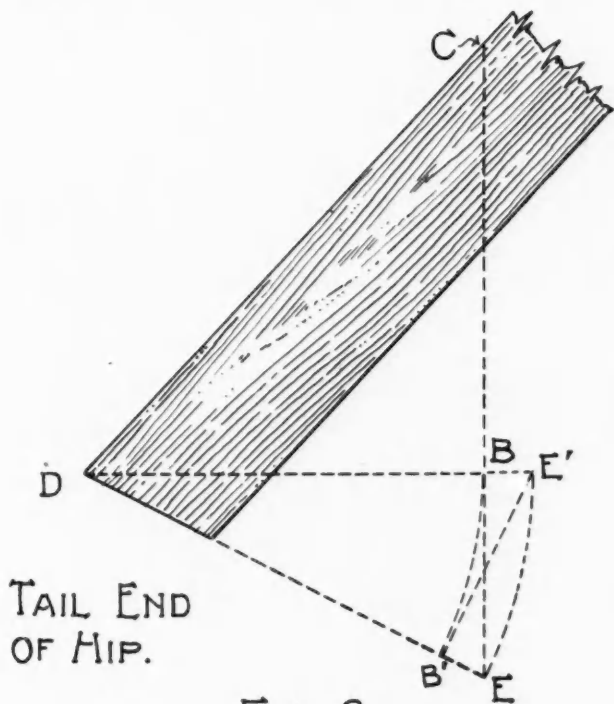


FIG. 2.

Cuts for Hip Rafter by Under Pitch Method

That is the reason that one set of figures will give the face cut, the miter cut and the butt joint cut for a one-half pitch hopper. For proof, take 12 and 17 or their proportions and try it.

In the above, it will be seen that the proportions are taken from the full size dimensions of the roof, but this is not necessary as the proportional parts can be taken from the slant of the fascia board itself, as shown in Fig. 3. Here ABC and ABE represent like parts, as shown in Fig. 1.

The gutter board is shown in connection with this illustration and by comparison, it will be seen that it rests at right angles to the roof boards just the same as does the fascia. Therefore, the proportions remain

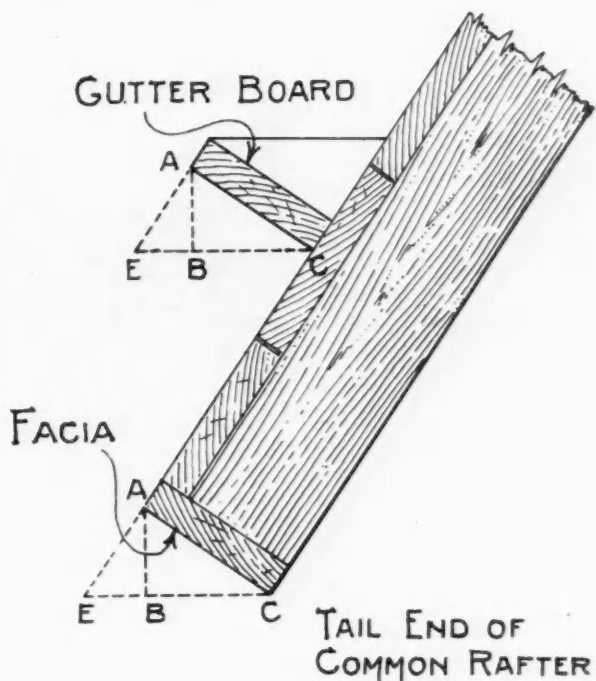


FIG. 3.

the same. If set to a different angle, the formula would remain the same, but would require different proportion on the steel square to obtain cuts.

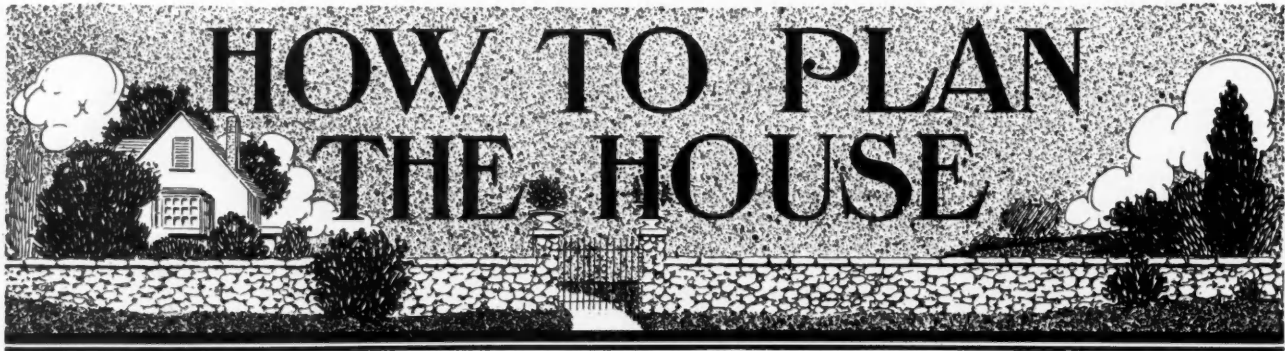
Note: In the case of the fascia or hopper cut, AB is not used because it represents the run, but because it is equal one-half the length of the side as at AB in the plan of Fig. 1, which applies to any shape corner the building may have.



Hints on Insulation

Being once called upon for advice about the insulation of a stone building for the storage of apples, it was first recommended that the walls first be dried and plastered smooth, then coated with hot asphalt, then studding set up against the walls, boarded and papered on their inner edge, and shavings filled between. This would make a good and cheap insulation. The party to whom we gave this advice thought he would get good insulation by carrying out part of the advice, and after asphaltting the walls, making them air and moisture proof he thought he had insulation.

Insulation does not consist in mere air-proofing. If this were the case we could line a building with sheet metal and be sure we had fine insulation. Thorough insulation means a myriad of very small spaces containing air, and no other suitable means of insulating has been found, except the vacuum, which is entirely impracticable at this time. How to get this myriad of air cells of suitable character for the various purposes for which cold storage insulation is used is a story which would take many pages in the telling. —Cold.



A Modernized Colonial Type

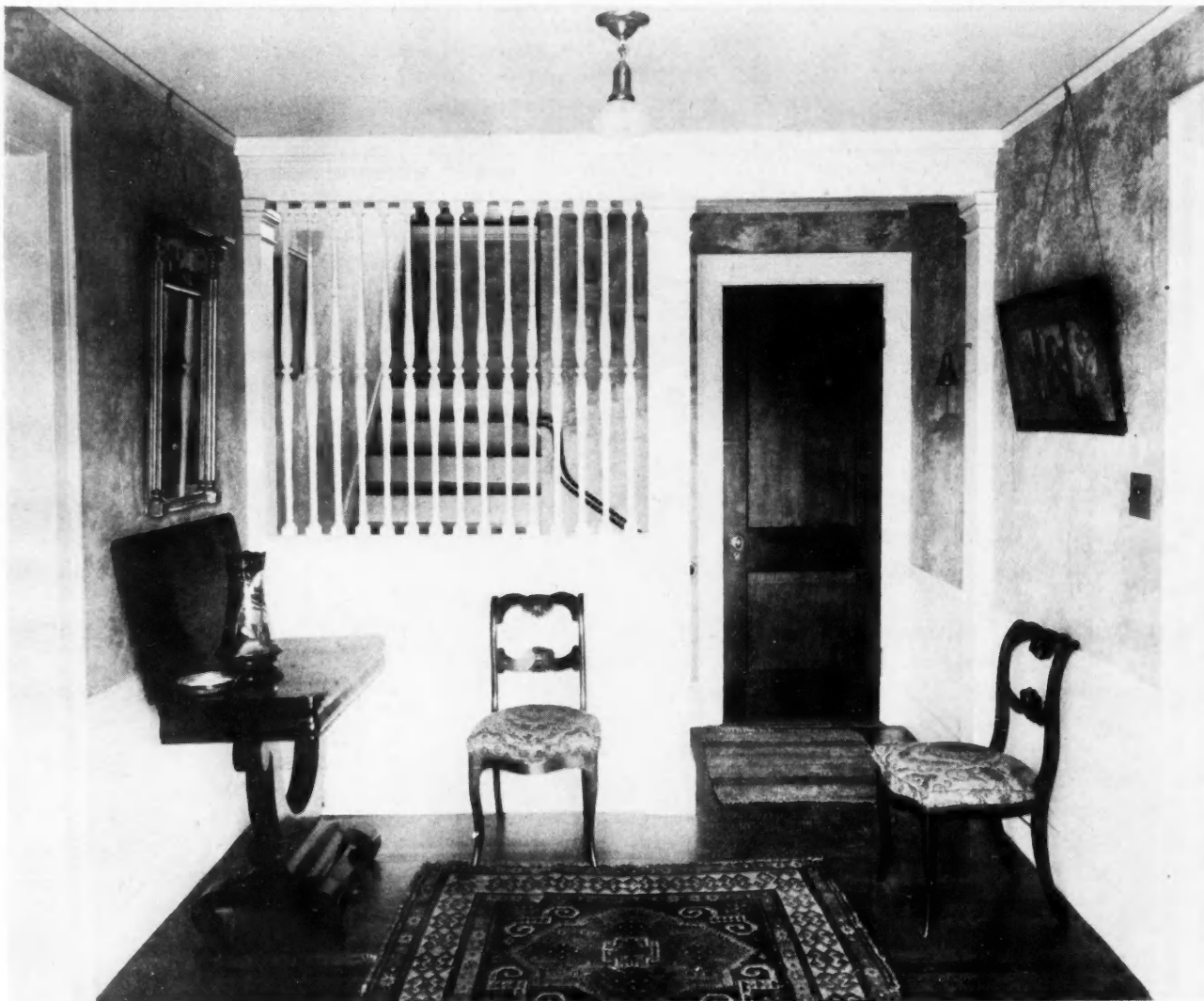
INTERIOR AND EXTERIOR VIEWS AND FLOOR PLANS OF DECIDEDLY PLEASING, THOUGH UNIQUE, DESIGN

IN the accompanying illustrations and floor plans are seen the embodiment of the Colonial idea in both design and construction, tempered, however, by an amount of modernization in both plan and building as to render it really a nameless style.

A study of the floor plans of this home, which was designed by architect Ralph S. Vinal for Mr. Henry

S. Chapman, of Winchester, Mass., reveals an entirely commodious and exceedingly practical and homey interior arrangement.

A step up from the brick approach is the small brick stoop, upon either side of which are placed solidly built high back Colonial type wooden benches. From the stoop, entrance is into a large hall at the rear of



Reception Hall With View of Screened Stairway—Residence of Mr. Henry S. Chapman, Winchester, Mass.



Residence of Mr. Henry S. Chapman, Winchester, Mass.; Ralph S. Vinal, Architect

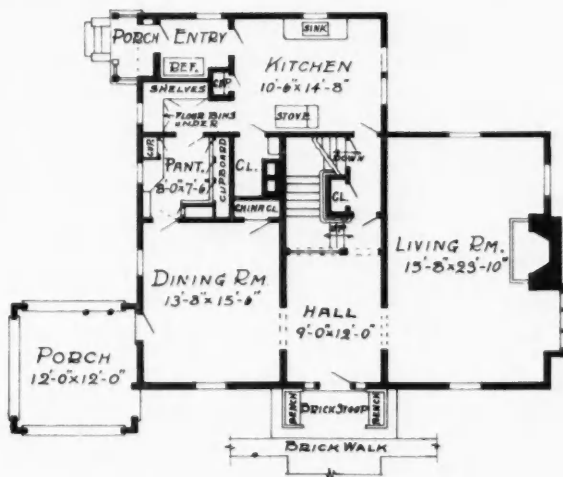
which are found the stairs.

The photograph of end of hallway reproduced here shows in detail the design and construction adopted for this point. Spindles running into solid end piece practically shield stairway. This stairway is of the two platform landing type. Closet is built in under the stairs.

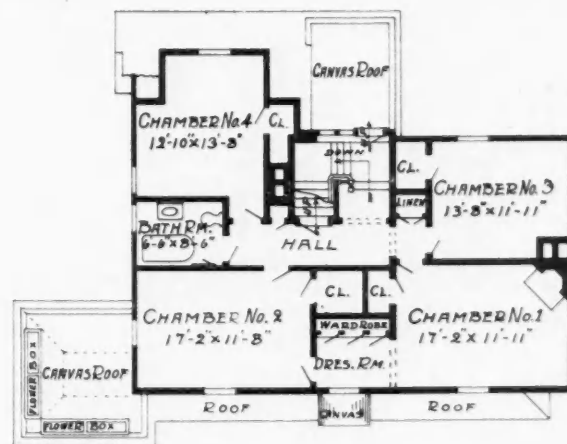
practically arranged. Between rear porch and kitchen is entry way, in which refrigerator is placed.

Upstairs are four bedrooms and bath. The two front bedrooms are direct connected through dressing room, in which is built-in wardrobe.

Note that the roofing of porch off of dining room is canvas, as is also a part of the roofing over kitchen.



First Floor Plan

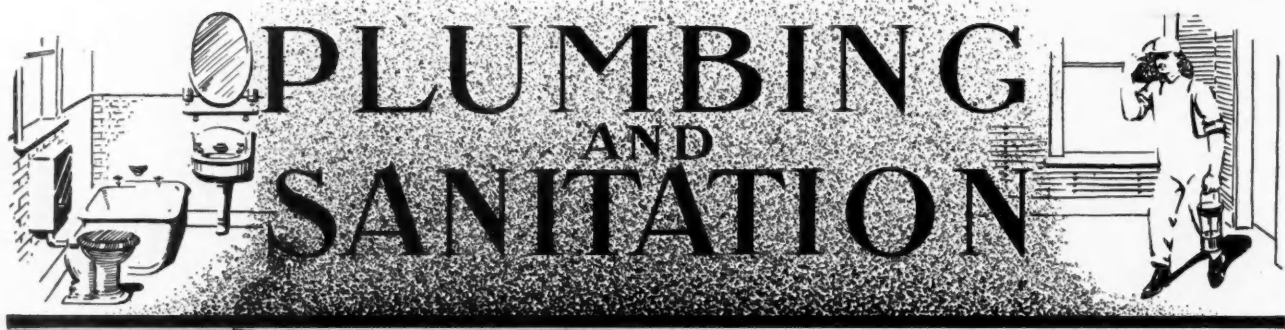


Second Floor Plan

Opening from the right of hall and extending the width of house is living room. To left of hall is dining room, back of which is pantry with ample cupboard, shelving and bin space. China closet opens directly from dining room. The kitchen is large and

Exterior finish of this home is clapboarding with shingle roof. Extending across front of house is a shingle roofed window and stoop shelter.

The cost of this seven room house is said to have been \$6,000.



Sewage Disposal for Country Homes

SEPTIC TANK MAKES MODERN CONVENIENCES POSSIBLE—DESIGN AND DISCRPTION BY THE AMERICAN ASSOCIATION OF PORTLAND CEMENT MANUFACTURERS

THE general use in country homes of the modern conveniences of the bath and toilet has made necessary some effective and inexpensive means of disposing of the sewage. Otherwise the drinking water will be polluted and the health of the family endangered. Entire satisfaction is obtained by the use of the septic tank, which is nothing but a long water-tight cistern through which the sewage passes very slowly and evenly. Located underground, it is warm and dark—ideal conditions for the development of bacteria, little germs which eat up the sewage and render it harmless in much the same manner as another kind causes cider to ferment. The purified sewage, then merely clear water, may be discharged into an ordinary farm drain tile.

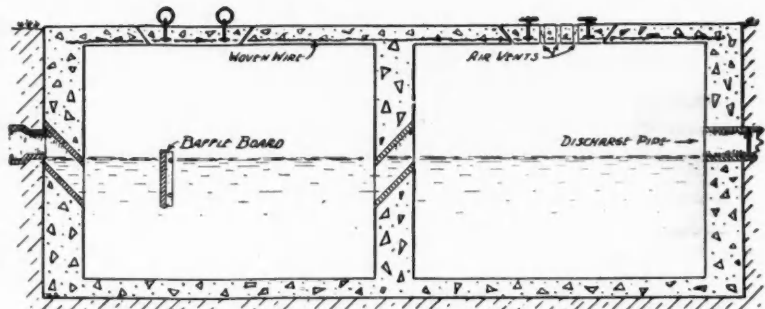
Size of Tank Required

Although the odor from a small septic tank is practically unnoticeable, yet it is best to locate it at least a hundred and fifty feet from the house. Choose a spot where it can be sunk to ground level and will be out of danger of flood waters. The tank should be large enough to hold the entire sewage for one day. For a family of eight to ten, plan a concrete tank of two compartments each 4 by 4 by 5 feet long. Since the top and bottom are each 4 inches thick and

the division and sidewalls 8 inches, dig the pit 4 feet 8 inches deep, 5 feet 4 inches wide and 12 feet long.

Making the Forms and Pouring the Concrete

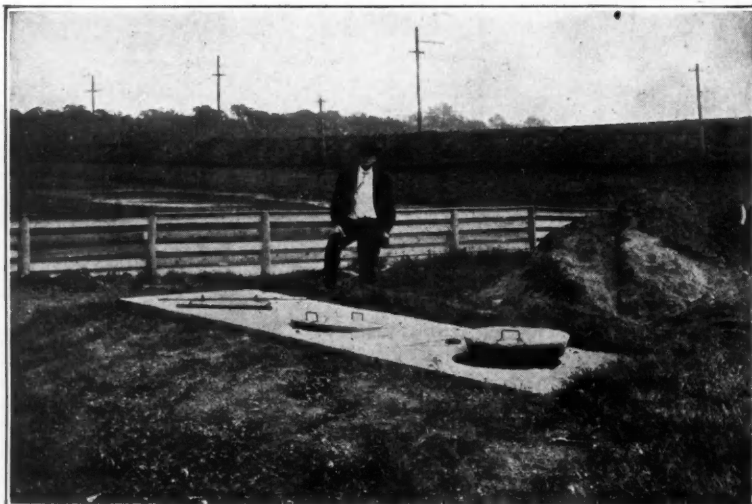
If the ground stands firm, only inside forms will be needed. Make two, each 4 by 4 by 5 feet long. Old 1-inch lumber will do for the siding. The compartment into which the sewage first enters is called the



Lengthwise Section Through Concrete Tank

“charge tank.” In each end of the wooden form for this tank cut openings for a 5-inch tile with the lower edge of the hole 16 inches above the bottom of the form. Through each of the sidewalls of this same form, 18 inches from the inlet end and $1\frac{1}{2}$ and 2 feet above bottom, bore 1-inch holes and insert in them greased wooden pegs extending 4 inches into the future sidewalls. Likewise, in the other form for the discharge tank, cut openings for a 5-inch tile, this time with the lower edge of the hole 2 feet above the bottom.

Mix the concrete one part Portland cement to four parts sand to four parts crushed rock, or one part cement to four parts pit gravel. Place the 4 inches of concrete in the bottom and trowel to an even surface. Immediately set the forms in place so as to leave room for 8-inch division and sidewalls. Fill the forms with mushy wet concrete. At the proper heights insert the 5-inch drain tile through the holes in the forms. Be careful that the outside end of the inlet tile to the charge tank is 2 feet and its other end 16 inches above tank bottom. The pipe leading from the charge tank is also set at the same sharp slope.



Concrete Septic Tank for Country Home

The outlet tile from the discharge tank is 2 feet above bottom and with both ends level. By this arrangement of pipes, the sewage is kept in the tank to the depth of 2 feet and the ends of the tile in the charge tank are trapped or air-sealed, which aids the activity of a certain kind of bacteria. Likewise, other bacteria are developed in the discharge tank by means of the free circulation of air through the discharge drain tile and holes in the manhole cover.

Reinforced Top and Manhole Covers

After the sidewalls are three days old, floor over the top of the forms and prepare to lay the 4-inch concrete top. As molds for the manhole covers, have the tinner make two round bottomless dishpans, 18 inches in diameter at the bottom and 24 inches at the top. Grease these tin molds and set one on the wooden floor over each compartment. Bore six 1-inch holes in the floor inside the one manhole mold over the discharge tank and insert in them greased pegs projecting upward six inches.

Place one inch of concrete over the entire floor and at once lay on it, crosswise the tank, strips of heavy woven-wire fencing 5 feet 2 inches long, or $\frac{3}{8}$ -inch rods running in both directions and space one foot. Likewise reinforce the manhole covers. Immediately place the remaining 3 inches of concrete and do not stop until the tank top and manhole covers are finished. Provide two lifting-rings for each cover by setting in them halves of old bridle-bits, or hitching-post rings, fitted with knobs of wire or with nuts and large washers. If a square wooden manhole mold is used, the concrete cover cannot be cast at once. In such case, carefully remove the wooden manhole form five hours after the top has been finished. Three days later mold the cover the same as for the tin form with this important exception—place heavy paper or cardboard around the edges of the opening to prevent the fresh concrete of the cover from setting to the old concrete.

When the top of the tank is ten days old, lift off the manhole covers, saw openings in the wooden top and remove the forms. In the hole made in the side-wall by the greased wooden pegs, insert $\frac{1}{2}$ -inch bolts and set them with mortar. To these bolts fasten the 1 by 12-inch wooden baffle-board which extends across the tank and breaks up the current of the inflowing sewage. To carry the sewage from the house to the tank, use 4-inch sewer pipe laid with tight mortar joints. Connect the discharge end of the tank with a string of drain tile.

The materials required for the tank described above are $5\frac{1}{2}$ cubic yards of crushed rock, $2\frac{3}{4}$ cubic yards of sand and 9 barrels of Portland cement. If good pit gravel is used, no additional sand will be required.

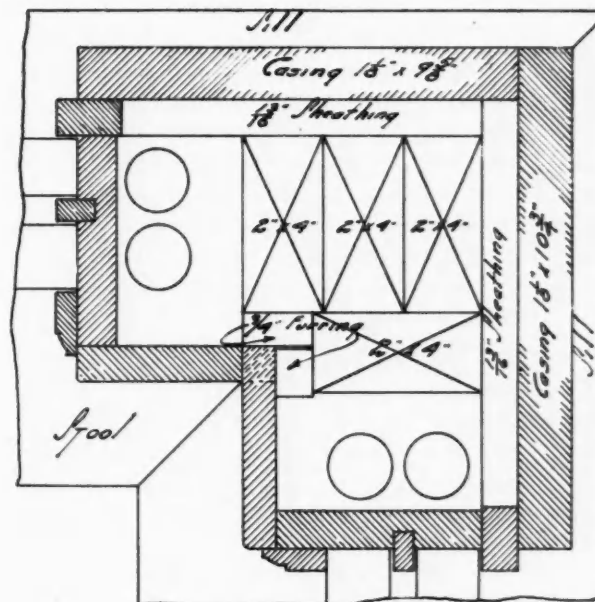
When the septic tank is two weeks old it may be put to use. It will need cleaning at intervals of two to three years. By its use the health of the family will be protected and life in the country home will be made much more comfortable.

Construction of a Mullion Corner

My sketch illustrates in cross-section the way to dimension the various parts of window frames coming together in the corner of the building, writes Emil Werke in *Woodcraft*.

We can see by the figure that the studs are 2 by 4 and the outside sheathing $\frac{13}{16}$ inch. The inside is lath and plaster and the $\frac{3}{4}$ -inch thickness of these is taken up by the two narrow furring strips just inside of the finished casing.

Of course the width of the pulley-stiles of the frames is determined by the thickness of the wall, the same as in any frame, but the widths of the outside casings are determined exactly by the width of the inside casings. The drawing shows the two mullion casings at the inner angle to have $3\frac{1}{2}$ -inch faces, but it can be understood that if they had $2\frac{1}{2}$ -inch faces instead, it would take an inch off of each of the corner casings



Framing for Corner Windows

at the outside of the frame, and it will become apparent that the only way to reduce the size of the mullion corner is to narrow up the inside casings.

So far as the wall is concerned, this may be done until the two window stops join in the corner, but in that event there would be room for but two studding and no room for weights. As this kind of a corner must bear the weight of the upper part of the building, it is just as well to use the four pieces as shown unless the regular casing for the inside is narrower than $3\frac{1}{2}$ inches and in that case the mullion casings can be made the same width as the others.

When billing out the outside casings we must not forget that one casing laps by the other unless the corner is to be filled with a $\frac{1}{4}$ round.

The mullion end of these sills must also be left long enough to miter at the corner when the frames are set and the same is true of both apron and cap, if there are any.



Practical House Painting—The Priming Coat

By R. H. Forgrave

This is the First of a Series of Practical Articles by a Practical Painter, who will Tell in Order All the Things Every Carpenter and Builder Should Know About Painting.—Editor.

THE theory that anything is good enough for the priming coat has been exploded so often, and is so generally condemned by practical painters that it seems a waste of space to write about it; yet, there are many property owners, and, indeed, some architects, either through ignorance, or a false notion of economy, insist and specify material that is unfit because it is cheap. Many an otherwise good job is spoiled by the architect substituting something in place of what was originally specified, perhaps, reducing the number of coats in order to bring the cost of the job within a certain figure.

The writer has followed the painter's trade for many years as a means of livelihood, and, at the same time has made a study of the paint question both practically and scientifically. Hence, the conclusions that follow are the deductions of this experience and experiments and also of the experience of others, and may be regarded as conclusive.

Priming Coat Most Important

The priming coat is the most important part of a job of painting. Like the foundation of a house, it is the structure on which all subsequent work rests, and, without it possesses certain dominant features, such as firmness, adhesiveness, affinity for subsequent coats, the job will be defective.

White Lead and Oil Best Primer

Practical painters are agreed that white lead and oil make the best primer for outside work. There is some difference of opinion as to how it should be mixed. Some claim it is best to mix it with equal parts of raw and boiled oil. Boiled oil has only one characteristic not found in raw. It will dry a little quicker. My best success has been with raw oil. Perhaps, if we were sure we were using boiled oil, it might be better, but, so much of the so-called boiled oil is boiled by the dealer adding turpentine japan to raw oil, that it seems better if painters would make sure of it by using raw oil and adding the dryer themselves, otherwise they are apt to get too much dryer, which often causes sealing. Dryer never did

paint any good, and as a priming coat of lead and oil dries in a couple of days in warm weather, why use it at all. I prefer the primer without it. I am certain that paint hardened by the use of a dryer is not as tough and firm as when it is not.

How Much Pigment is Best for Priming Coat?

Ever since people began to paint their houses, it has been customary to use a small per cent of pigment in the priming coat. Merely enough to color the oil somewhat. There was, perhaps, a reason for this in an early day. It is said there was more oil used then than now, which was no doubt due to the vast amount of work required to prepare the paint, as all paint had to be ground by hand, by rubbing it between two flat stones, a large and smaller one. Even the hand mill was slow work to what it is now. Hence, I think the use of so large a percentage of oil is due to long continued habit, the result of primeval conditions of the trade more than to any claim for good work by so doing.

Oil, alone, does not make a good first coat. It is too soft. It does not fill the pores of wood as they should be, and it is more liable to be affected by moisture than when a certain quantity of pigment is mixed with it. Everybody knows that white lead ground in oil makes a good cement for fixing broken china, etc., that it is strong and tenacious. Its greatest degree of usefulness is when there is a sufficient quantity of pigment in the oil to insure its greatest tenacity, to partly fill the pores of the wood, and at its highest point of hardness and firmness, and have its greatest affinity for subsequent coats. Now, the best primer for outside work (new), according to my experience, is white lead in raw linseed oil, of that consistency which results by taking one hundred pounds of white lead and mixing it in five gallons of raw oil with no dryer. Do not understand me as condemning good dryers. They are alright in their place, but their place is not in the priming for outside work. If you must have it dry sooner than it would naturally do, use a good turpentine japan, not more than a gill to a gallon of paint.

Danger of Grain Raising

It requires no more paint to do a job in three coats than in two. If there is not much lead used in the priming coat, there must be more used in the next; then, why not put more in the priming coat? You will find, when the surface is fairly well covered with the first coat, the second and third coats will spread so much nicer and the result will be a smoother job. Nearly all oil in the priming coat has a decided tendency to raise the grain of the wood, but, if there be considerable pigment in it, the grain will not show even if the oil does raise it.

Always insist on the work being dry before priming it, and as you value your reputation as a mechanic, never put a coat of paint on another that is not dry. This causes more jobs to go wrong than anything else.

Procedure in House Painting

Brush the paint out carefully, aiming to get the film of the same thickness throughout. Avoid brush marks, which are likely to occur next to corner strips and casing. Arrange the work so as to leave as few laps as possible; always finish a course across a side before stopping for any length of time. On a two-story frame house, the width of the top course should be from the cornice to the bottom of the upper window. The next, from there to the bottom of the lower window, that is, when the windows are of size and the usual style. This should be followed throughout all three coats. Use the same priming for the cornice, casing, etc., although they are to be painted in a different color. When the paint is mixed stout, there are seldom any fat edges if brushed well, still, it is better to be sure by straddling the edges the last thing before beginning another lap. Always paint the under edges of door and window sills, etc. Many painters fail to do this. Don't miss any exposed part because it cannot be seen. Window and door sills often decay before their time for this very reason, particularly when close to the ground, or extend over a step.

Yellow Ochre or Whiting for Cheap Priming Coats

Yellow ochre was, at one time, extensively used as a primer when finished with white lead coats. It makes a first class primer, but for one fault, and a prolific one, too. It seems to have no affinity for white lead, in as much as the lead coat often scales from the ochre coat. If I am to use a cheap primer, I prefer whiting to ochre. Always mix a little lead (about one-eighth) in the whiting, and mix well. Yellow ochre, by itself, makes a lasting paint. I have known jobs that were primed with it which have stood for several years without further painting, and the priming looked about the same as when first applied.

If I were going to paint a house for myself, I would use red lead for a primer. It should be mixed stout and brushed out well. Like white lead, it makes a better cement when mixed stout. The reason people don't use red lead more is because they don't know it. They think, too, that two coats of white or light-

tinted paint won't cover it properly. That is only a notion, for two coats of good white paint will cover paint much darker than red lead, if put on right. As I said in a former article, red lead in raw oil makes a tough, hard, water-proof cement which seals up the wood, rendering it impervious to moisture. It saponifies the oil perfectly. On the other hand, the saponification of white lead is imperfect, giving rise to what is known as chalking, a characteristic never known in red lead. It has the same affinity for white lead as white lead itself. They are both made from lead metal. One is the carbonate, the other is the oxide. The metal is first corroded into white lead which, in turn, is oxidized into red lead.

Don't Economize on the Priming Coat

I heard an old painter once say, "Let me put on the priming coat, and I don't care who paints the balance." He was about right. A good, substantial priming coat goes a long way toward preserving subsequent coats. Many persons think because the priming coat is covered up that they are economizing by using anything so it is cheap.

I would advise the reader to use lead priming in all cases, even when it is intended to finish with prepared paint. As to using ready mixed over white lead priming, there is seldom any bad results, if it is good paint, as the base of all standard brands of mixed paint is white lead. However, ready mixed paints are intended for repainting more than for new work.

The Way to Mix Lead and Oil

Mixing lead and oil is a simple operation. Still, there is a wrong way. For instance, take a hundred pound keg ground in oil. Put in the mixing bucket. A candy bucket will do in its place. Pour in about a gallon of oil, and break up the lead, stirring until the whole mass is of the same consistency throughout. If it does not seem to be uniform, pour in another gallon and stir well. When it is smooth add four gallons more of oil. Stir until the lead boils up through the oil and until it is of the same consistency at the top as at the bottom. It is now ready to prime, according to my idea.

Dryers

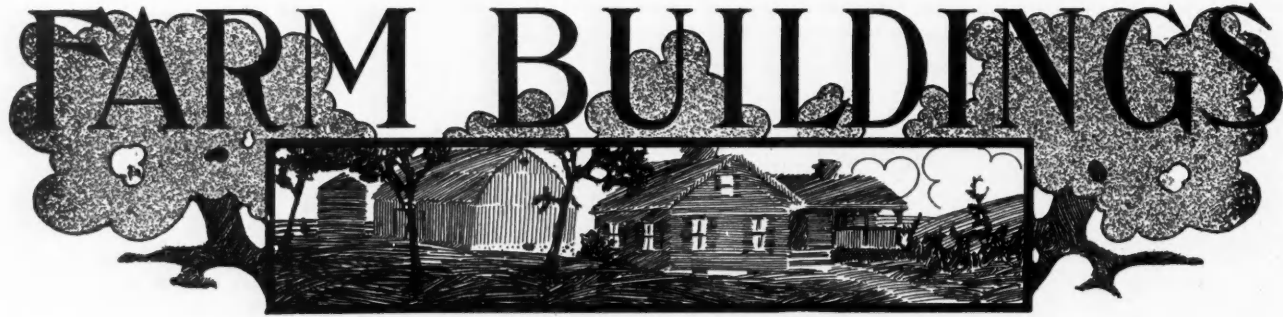
I do not advise the use of dryer in the priming coat. However, if the state of the weather compels you to use a dryer, get turpentine japan, and do not use more than a gill to one gallon of paint. If you should use red lead, never use a dryer, no matter what the conditions. Red lead itself is one of the strongest dryers.



Under the Union Rate

While an Irishman was gazing in the window of a Toronto book store, the following sign caught his eye: "Dickens' Works All This Week for Only \$4.00."

"The divvle de does!" exclaimed Pat in disgust. "The dirty scab!"



How to Build a Stave Silo*

By B. H. Rawl and J. A. Conover

Of the Dairy Division U. S. Department of Agriculture

THE silo should, if possible, be located so as to open into the feed room. If such arrangement is impracticable, it should be located near the barn at some other point and connected with the barn or with the feed room by a covered passageway.

The Foundation

To lay out the foundation, drive a stake in the ground at the center of the proposed silo. Saw off this stake at the height desired for the foundation wall, which should be at least 1 foot above the ground on the high side if the ground is sloping. One end of a straight 2 by 4 inch scantling, a little longer than is necessary to reach from the center of the silo to the outside of the foundation wall, should be nailed on top of the stake with a 40-penny spike. The spike then marks the exact center of the silo. From it, measure off on the scantling the distance to the inside and outside of the foundation wall, and, having nailed on markers, as shown in Fig. 1, lay off the foundation.

The thickness of the wall should vary from 10 to 18 inches, depending upon the size of the silo, the

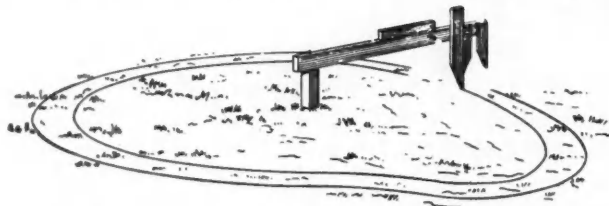


Fig. 1. Laying off the Foundation on Sloping Ground

material of the foundation, and the ground on which it is located. The inside of the foundation wall should be at least 2 inches nearer to the center of the silo than the inside of the staves. Where the ground on which the silo is to be located is not level, the markers can be lengthened by holding a longer board against either marker, moving it up or down to keep it touching the ground while the scantling is held level. If the ground is very uneven it may be difficult to make the line continuous, in which case points can be marked every few inches and these joined afterwards.

The material of the foundation may be stone, brick or concrete. Concrete is preferable under most con-

ditions. Where stone or brick is to be used, the earth in the bottom of the silo, except where the center stake stands, may be dug out before the wall is built, thus giving additional silage space and allowing greater convenience in building the wall. The earth should not be dug out deeper than 4 inches above the bottom of the wall. With a concrete foundation this excavation must not be made until the wall has been

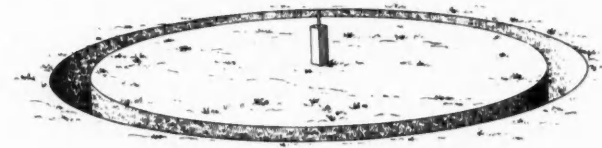


Fig. 2. Ditch for Concrete Foundation

finished and the position of the staves marked on the top of the wall.

Stone.—Stone may be conveniently used when the foundation will not extend more than 1 or 2 feet above the surface of the ground. It should be laid in cement mortar in such a manner that the inner surface will be smooth and the top level.

Brick.—Where hard-burned brick can be secured cheaply, they can frequently be used to advantage for a foundation. They should be laid in cement mortar, with the inner surface of the wall smooth and the top level. If the wall extends more than 1 foot above the surface it should be reinforced by laying a No. 9 wire, or its equivalent, on every second course of brick above the surface of the ground.

Concrete.—For a concrete foundation, a ditch must be dug before any of the earth in the center is removed (see Fig. 2). The earth between the two lines that mark the inside and outside of the foundation should be taken out until firm ground below frost line is reached, care being taken to cut the sides of the ditch down straight and to leave the bottom level.

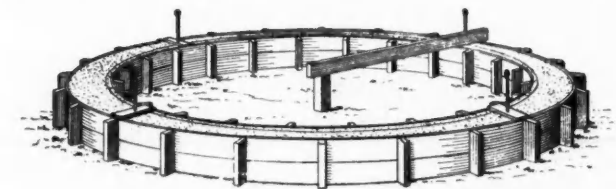


Fig. 3. Form Filled with Concrete Showing Eyebolts and Slats in Place and Circle to Mark Position of Staves

*Portions of Circular 136 Bureau of Animal Industry. Circulars giving directions for building other types of silos are in preparation, and when issued may be obtained on application to the United States Department of Agriculture, Washington, D. C.

The concrete should be made of one part cement, three parts sand, and five parts broken stone. The broken stone may be of all sizes up to pieces that will pass through 2-inch ring. Washed gravel, broken brick or screened cinders may be used in place of the

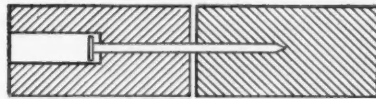


Fig. 4. Cross Section Showing how two Adjoining Staves are Spliced Together

broken stone. If the gravel contains sand the amount contained should be estimated by screening some of it, and the proportions of gravel and sand should be so adjusted as to conform approximately to the above formula.

Building Forms

After the ditch is filled to the surface of the ground, drive 2 by 4 stakes half an inch from the foundation on the inside and 2 feet apart all the way round. With a straight-edge placed level—one end on top of the center stake and the other against the side of the form stake—mark on the form stakes the height that the wall should be, as previously determined. Mark thus on every second stake. Take pieces of lumber $\frac{1}{2}$ inch thick by 6 inches wide, preferably green, with straight edges, and bend around outside of these stakes, nailing the boards to the stakes above the boards. (The necessity of this sawing may be avoided by driving down the stakes beforehand to the exact height.)

After the space from the top board to the ground has been boarded in, drive stakes in a similar manner for the outside form half an inch from the concrete. Drive these stakes so that the scantling, resting on the center stake and the inside form, as shown in Fig. 3, will just clear the tops. Board up these stakes on the inside, making the top of the outer form level with that of the inner. At several places nail slats across the top of the form to keep the inner and outer circles the proper distance apart.

Four or five eyebolts half an inch in diameter and from 20 to 24 inches long, with a hook or elbow on the lower end, should be placed 6 inches from the inside of the foundation and held in a vertical position by boards fastened across the top of the form.

These bolts should extend 8 or 10 inches above the top of the wall. The concrete will be filled in around them. After the silo is completed the staves adjoining the eyebolts will be securely fastened to them.

If the wall extends more than 1 foot above the surface of the ground, it should be reinforced by embedding in the concrete, every 8 inches above the surface and near the outer edge, two or three strands

of wire with ends tied together. After ramming each 6-inch layer of concrete, work a spade between the concrete and the form to force the coarser materials away from the boards, thus leaving smooth-surfaced walls.

When the concrete is within one inch of the top, finish with mortar made by mixing one part of cement and 3 parts of sand and strike off level with the top edges of the form.

After the concrete has set and before removing the center stakes mark a line with a nail, pencil, or crayon

entirely around the top of the foundation wall 3 inches from the inner edge to show where the inside edge of the staves will come. (See Fig. 3.)

Next dig out the dirt inside the foundation to 4 inches above the bottom of the wall.

Concrete Floor.—If the earth in the bottom of the silo is firm and comparatively dry, no provision need be made for drainage, and a concrete floor is unnecessary. Still, such a floor makes the silo easier to clean, and makes it impossible for rats to burrow underneath the foundation wall and gain access to the silage. If, however, the earth in the bottom of the silo is inclined to be seepy, a tile drain should be laid in it and a concrete floor should be laid above the tile. The tiling should open into the floor at the center, and the floor should be made to drain to it. The tiling should extend beyond the silo wall and have its outlet lower than the floor. The entrance of the tile drain should be stopped with a wooden plug before the silo is filled and should be opened after the silo is empty.

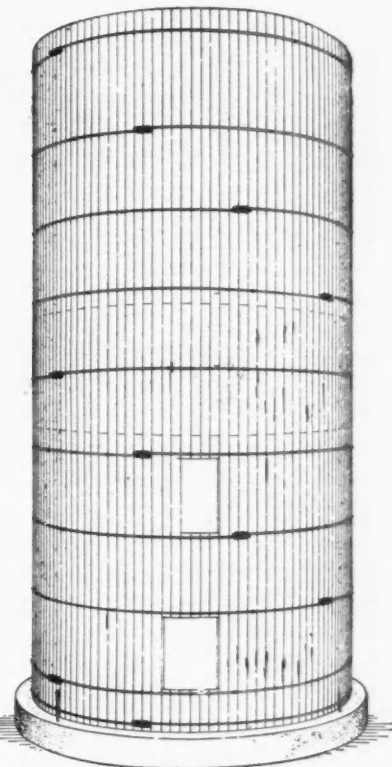


Fig. 6. Sawing out the Door

The Staves

Lumber.—Cypress, long-leaf pine, white pine, cedar and California redwood are good materials for silos. It is important that the staves be straight, and free from sapwood, loose knots, and waney edges.

Preparing the Staves.—Staves should be made of 2 by 4 or 2 by 6 inch scantling, the latter being preferable, particularly for the larger silos. They should be of the same width and thickness and should be surfaced on one side and on both edges, the edges being left square.

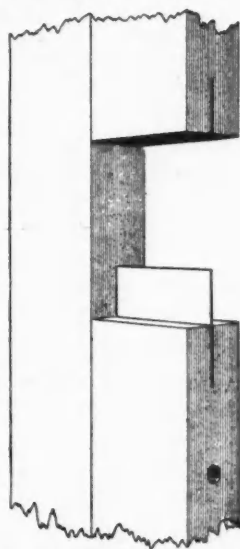


Fig. 5. Showing How Sections of Stave are Spliced Together Endwise

After the staves are squared at the ends, holes should be bored in the edges from 4 to 6 feet apart with a $\frac{1}{2}$ -inch bit. These holes are made on one side only of each stave, and must not be in line in adjoining staves. They should be about 1 inch deep in staves 4 inches wide, and about 3 inches deep in staves 6 inches wide. One of these holes should come within a foot or less of each end of the stave. Care should be taken to bore the holes perpendicular to the edge of the stave, to avoid having the silo thrown out of plumb. The

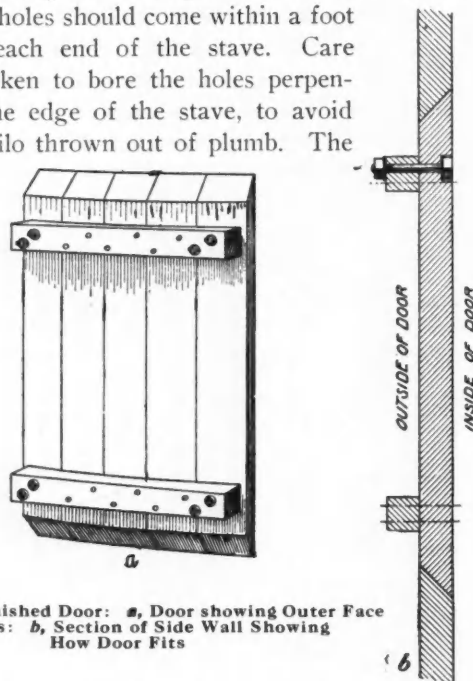


Fig. 7. The Finished Door: a, Door showing Outer Face and Cleats; b, Section of Side Wall Showing How Door Fits

purpose of these holes is to allow spiking the staves together when set up. The spike is driven into the bottom of the hole, and into the adjoining stave, as shown in Fig. 4.

Care should be taken not to put any spikes in those portions of the staves which are to be cut out for doors.

It is preferable that each stave be in one piece, but where this is impossible the staves should be of two pieces of different lengths, splined together by making in the ends to be joined a saw cut 1 inch deep and parallel to the sides of the stave and inserting a sheet-iron spline (preferably galvanized) as shown in Fig. 5.

Cutting the Door Stave.—Before the staves are put up it is necessary to decide how many doors the silo should have, that a door stave may be prepared. Doors are usually $2\frac{1}{2}$ feet high. When the number of doors and the distance between them have been determined, the location of the doors is laid off on a stave and saw cuts are made half way through it. These are for the entrance of the saw in cutting out the doors after the staves are set up. The cuts should be made at a slant of 45 degrees on the edge of the stave, but horizontal on the front. (See Fig. 7, b). The object of the slanting cut is to make the doors removable only toward the inside of the silo, and so that when it is full the pressure of the silage will hold the doors in place. The cut for the bottom of each door should slant downward from the outside to the inside of the stave; and the cut for the top of the door should slant upward.

To prevent this stave from breaking while it is

being handled, a slat should be nailed on one side of it. This slat should be removed after the stave has been put in position.

When the staves are being put up the door stave should be located at one side of the place where the doors are to be cut. After the hoops are put on the silo, a handsaw can be inserted in the saw cuts of the door stave for the purpose of sawing out the doors.

Setting Up Staves.—In order to nail the staves together at the top when they are being put up, it will be necessary to provide a scaffold. Where the silo is not to be over 25 feet high, a stepladder may be used. As the staves are put up, the ladder can be moved along and kept in the right place from which to work.

The first stave should be placed with its inner face on the line, 3 inches from the inner edge of the foundation. It should be plumbed in both directions and securely fastened at top and bottom. For this purpose use braces nailed to stakes driven firmly in the ground, or to some adjacent building. If this is not done the silo will be out of plumb.

The next stave is then set up and nailed to the first with 30- or 40-penny spikes. These spikes are started in the holes previously bored (Fig. 4) and driven home with a driftpin. The spikes must not be driven at an angle up or down, for either of these will throw the silo out of plumb.

Other staves should be put up as above described

until the place is reached where the doors should be. The door stave cut as previously described, should then be nailed in position and the remaining staves set up. In setting up spliced staves the longer and shorter staves should alternate. (See Fig. 6.) Ordinarily it will only be necessary to have staves of two lengths, as for instance, 16 feet and 12 feet for a 28-foot silo.

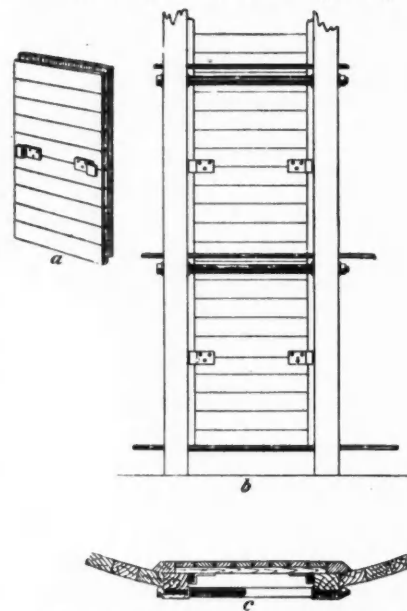


Fig. 8. A Continuous Door: a, a Section of the Door; b, Door Frame With Doors in Position; c, Cross Section Showing Door and Frame

instance, 16 feet and 12 feet for a 28-foot silo.

The Hoops

The hoops should be made of $\frac{3}{4}$, $\frac{5}{8}$ and $\frac{1}{2}$ inch rods, in sections from 10 to 14 feet in length. The ends of these rods should be threaded for 6 inches so that they may be joined together by means of lugs. For silos 14 by 30 feet the lower $\frac{2}{3}$ of the hoops should be of $\frac{5}{8}$ -inch rods, the upper $\frac{1}{2}$ -inch rods.

Putting on the Hoops.—Two hoops should be placed below the first door, two between doors all the way up, and two above the top door, if this space is more than 2 feet. Three or four hoops should at first be put on at the bottom and tightened up. Planks can then be thrown across the top of the silo to serve as a scaffold, so that the top hoop may be put on and tightened. The other hoops should then be put around the silo loosely, within reach of the ground, after

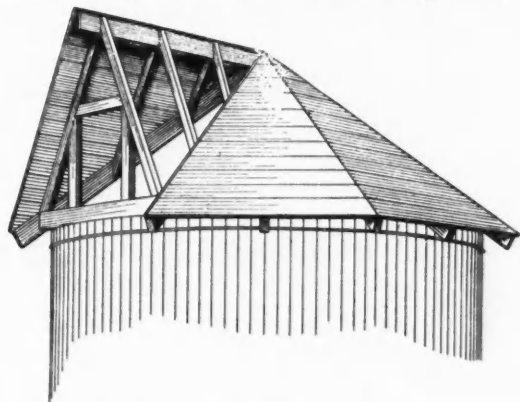


Fig. 9. Roof With Door in Gable

which they are pushed up to the proper position with slats, and made fast by stapling them to the silo from ladder. When all the hoops are in position they should be tightened until the staves are pressed close together. Staples should then be driven over each hoop 2 or 3 feet apart so as to hold the hoops in the proper position in case they get loose.

The Doors

Sawing Out and Making.—After all the hoops are tightened, saw out the doors, beginning with the stave previously cut. The illustration (Fig. 6) shows the lower door completely cut and the second one partly cut.

The doors should be about 20 inches wide and 30 inches high. The exact width will of course be determined by the width of the staves.

Two cleats, 2 by 3 inches, with one edge cut to the circle of the silo, should be nailed and bolted on the outside of each door (Fig. 7) with the nuts on the outside and the boltheads sunk flush with the inner surface. The bolts should be $\frac{3}{8}$ by 5 inches. Four bolts in each cleat (two at each end) will be sufficient. The cleat may be nailed to the other strips. After the doors are cut, bolt the silo to the eyebolts shown in Figs. 3 and 6.

A Continuous Door.—Sometimes a continuous door in the silo is desired. This door is a little more convenient than doors at intervals, but produces no better results and is decidedly more difficult to construct. In putting a continuous door in a stave silo, a door frame should be made of 4 by 6 inch timbers which are kept 20 inches apart by means of pieces of pipe and are fastened together by means of bolts passing through the posts and pipes, as shown in Fig. 8. Iron washers should be placed between the ends of the

pipe and the timbers to prevent the pipe from sinking into the timber. Washers should also be used under the boltheads and nuts.

When the door frame is complete it should be put in position, plumbed, and securely braced, after which the staves should be put up, as previously described. The doorposts should be flush with the staves on the inside. On the outside they will project beyond the staves, and holes should be bored on these projections to permit the hoops to pass through.

Doors for this frame are made of two thicknesses of tongued and grooved flooring with tarred paper between, and inside flooring running vertically and the outside horizontally. The doors are held in position by means of iron straps, one at each side, which project over a slat nailed to the doorpost. When the silage is being used, instead of the doors being removed from the frames, they are slid up out of the way and held by a pin in the doorpost. The topmost door will have to be taken out, and this will make room for the other doors to be raised one at a time enough to give an opening.

As shown in Fig. 8, the doors are so made as to overlap where they meet, and thus make a tight joint. Patented doors with suitable frames can be purchased, but their advantage is not in proportion to their cost.

The Roof.—It is not necessary for the keeping of silage that the silo be roofed, but a roof adds to the appearance and life of the building and to the comfort of men getting out feed on stormy days. Fig. 9 shows the framing and boarding for a good type of roof, with the door for filling the silo in gable.

Fig. 10 shows the same roof, but with a trap-door for filling, in place of the door in gable.

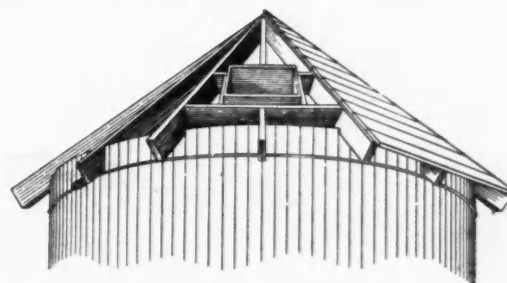
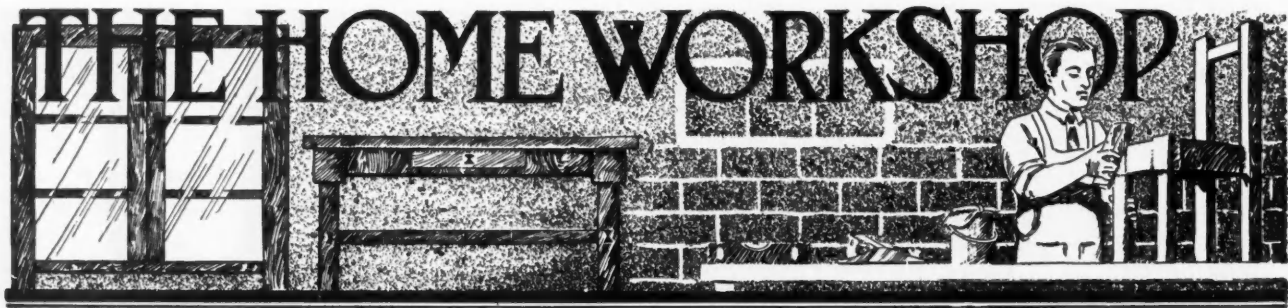


Fig. 10. Roof With Trapdoor for Filling Silo

Ladder and Chute.—A ladder should be attached to the silo at one side of the doors, and a chute, through which to remove the silage, should be built so as to inclose the ladder and the doors. This should be large enough to permit a man to climb the ladder conveniently. In case the continuous door is adopted, the ladder may be dispensed with, as the hoops will serve for steps.

Painting.—Before the silo is filled it should be painted on the inside with coal tar thinned with gasoline. Every two or three years a fresh coat of this paint should be put on. When the timber in the silo is thoroughly dry, the outside of it should be painted to conform with the surrounding buildings.



Lawn or Porch Furniture

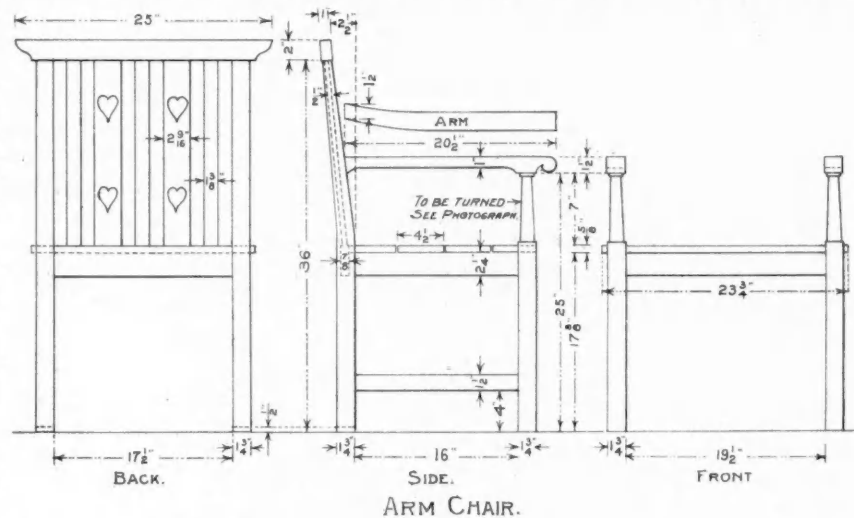
HOW TO MAKE AND FINISH THE ARM CHAIR AND THE SETTEE SHOWN IN THE PHOTOS—MISSION STYLE PASSING

By Ira S. Griffith

PHOTOGRAPHS by Mary H. Northend of three very unique and attractive pieces of lawn furniture are shown this month. Furniture such as this should be made of a wood that is light and which will take a paint, as finish which will withstand the weather. Probably as suitable a wood as any that can be got will be yellow poplar. This wood is close grained, is capable of taking and holding paint and is light, making it possible to move the furniture about easily.

The designs are of especial interest to the editor of this department, because they illustrate well the present tendency away from the severely plain designs, such as the Mission. The severe designs had a mission to perform; they were a reaction against the involved forms which had become so fussy and superficial that nothing but a severe design would sat-

isfy. One does not have to think back very many years to recall the chairs with such fancy curves and of such spindly forms and such weak joints that one feared to sit upon them. Little or no respect was given the pecu-



ARM CHAIR.



Arm Chair for Lawn or Porch

liar properties of the materials used. Wood was curved, twisted, carved across grain and shaped as if it were a metal. Ornaments were superficial, glued on so that they peeled off upon the slightest provocation. Finishes were of such a nature as to completely conceal the beauty of the natural grain and were so unsuited that slight wear soon rendered the chair unsightly; witness the gold chair of French design, pleasing to look upon so far as its lines were concerned, but of no value as a chair.

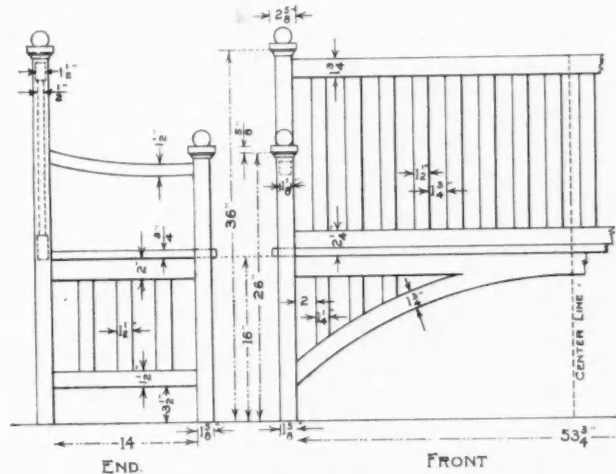
Consider these extremes, and one ceases to wonder at the popularity of the Mission designs. A cultured people, however, could not be expected to be satisfied always with the purely Mission design of massive frame and straight line only, and it is not at all surprising to see the efforts at design tending toward lighter forms and forms in which the curve and turned forms appear. So long as these curves bear suitable relation to the material used and the lightness of form does not impair the utility of the piece of furniture, the movement is most commendable. The forms shown are thoroughly commendable. The curves are appropriate and the turned forms on the chair especially well

wrought out. The lines of the pierced ornament on the back slats of the chair might have been better arranged, but even as they are they add interest.

STOCK BILL FOR CHAIR.

Front posts, 2 pieces, $1\frac{3}{4}$ by $1\frac{3}{4}$ by 26 inches, S-4-S.
 Back posts, 1 piece, $1\frac{3}{4}$ by $5\frac{1}{2}$ by 37 inches, S-2-S.
 Seat rails, 2 pieces, $\frac{7}{8}$ by $2\frac{1}{2}$ by 18 inches, S-2-S.
 Seat rail, 1 piece, $\frac{7}{8}$ by $2\frac{1}{2}$ by $21\frac{1}{2}$ inches, S-2-S.
 Seat rail, 1 piece, $\frac{7}{8}$ by $3\frac{1}{8}$ by $19\frac{1}{2}$ inches, S-2-S.
 Lower rails, 2 pieces, $\frac{5}{8}$ by $1\frac{3}{4}$ by 18 inches, S-2-S.
 Seat, 4 pieces, $\frac{5}{8}$ by $4\frac{3}{4}$ by 24 inches, S-2-S.
 Arms, 2 pieces, $1\frac{1}{2}$ by 3 by 21 inches, S-2-S.
 Back, 1 piece, 1 by $2\frac{1}{4}$ by $25\frac{1}{2}$ inches, S-2-S.
 Back slats, 2 pieces, $\frac{1}{2}$ by $2\frac{3}{4}$ by 19 inches, S-2-S.
 Back slats, 3 pieces, $\frac{1}{2}$ by $1\frac{5}{8}$ by 19 inches, S-2-S.

There is nothing unusual in the manner of construction. Shape the back posts as indicated in the drawing. Turn the front posts as shown in the picture. Square up the rails and lay out the tenons upon their ends. Lay off and work the mortises in the posts to correspond with the tenons. Shape and mortise the back rail which is to serve as head piece. Square the back slats to size and mortise them into the back rails.



SETTEE.

Assemble the back and then the front of the chair, and, while the glue is setting on these parts, get the arms ready. Shape them as indicated in the drawing.

After the glue has set on front and back, remove the clamps and insert the side rails and again clamp up the frame. Attach the arms and then fit the seat boards.

LAWN SETTEE.

Back posts, 2 pieces, $1\frac{5}{8}$ by $1\frac{5}{8}$ by 37 inches, S-4-S.
 Front posts, 2 pieces, $1\frac{5}{8}$ by $1\frac{5}{8}$ by 27 inches, S-4-S.
 Caps, 4 pieces, $\frac{5}{8}$ by 3 by 3 inches, S-2-S.
 Ball, 1 piece, $1\frac{3}{4}$ by $1\frac{3}{4}$ by 10 inches, S-4-S.
 Moulding, 4 feet of $\frac{3}{8}$ inch, as shown in picture and drawing.

Back rail, 1 piece, $1\frac{1}{4}$ by 2 by 56 inches, S-2-S.
 Back rail, 1 piece, $1\frac{1}{4}$ by $2\frac{1}{2}$ by 56 inches, S-2-S.
 Back slats, 16 pieces, $\frac{1}{2}$ by $1\frac{3}{4}$ by 16 inches, S-2-S.
 Front rail, 1 piece, 1 by $2\frac{1}{4}$ by 56 inches, S-2-S.
 Front arch, 1 piece, 1 by $6\frac{1}{2}$ by 27 inches, S-2-S.
 Front slats, 2 pieces, $\frac{3}{4}$ by $1\frac{1}{2}$ by 8 inches, S-2-S.
 Front slats, 2 pieces, $\frac{3}{4}$ by $1\frac{1}{2}$ by 6 inches, S-2-S.
 Front slats, 2 pieces, $\frac{3}{4}$ by $1\frac{1}{2}$ by 4 inches, S-2-S.
 Side rails, 2 pieces, 1 by $2\frac{1}{4}$ by 16 inches, S-2-S.
 Side rails, 2 pieces, 1 by $1\frac{3}{4}$ by 16 inches, S-2-S.



Lawn or Porch Settee of Strong and Graceful Lines

Side slats, 6 pieces, $1\frac{3}{4}$ by 10 inches, S-2-S.
 Seat, 1 piece, $\frac{3}{4}$ by 17 by 59 inches, S-2-S.
 Arms, 1 piece, $1\frac{1}{8}$ by $4\frac{1}{2}$ by 16 inches, S-2-S.

The manner of constructing the settee is not dissimilar to that of the chair.

Where these pieces of furniture are to be allowed to remain in the open, the joints should be reinforced by pinning the tenons to the mortises.

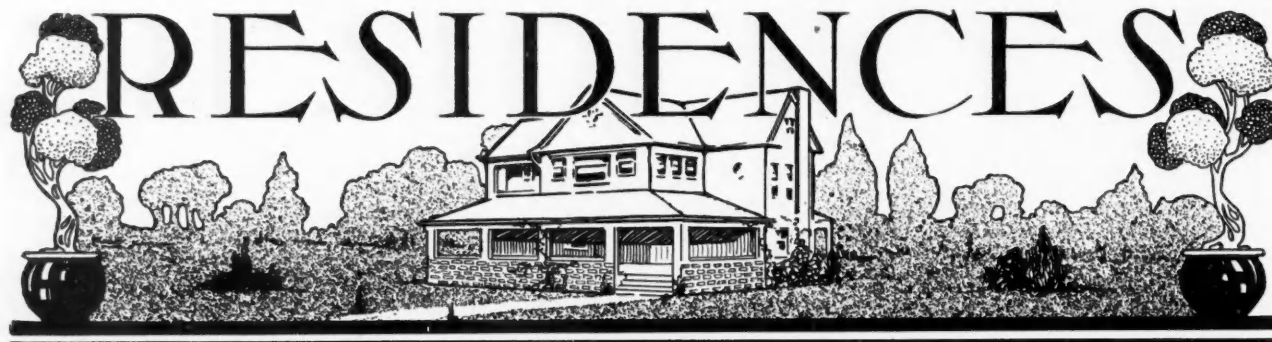
For a finish, thoroughly sandpaper all the various parts of the frames, then apply a priming coat of white lead and oil. See that any imperfections in the wood are properly treated. After the priming coat has set, apply two or three coats of some good water proofing paint. Make certain the paint is suitably provided with driers so that the various coats will set properly and leave the final coat free from any tendency toward stickiness.

A third piece is shown. Lack of room prevents detailing it, but the worker will have little difficulty in determining from the photograph the manner of constructing.

The pieces illustrated were finished with two coats of white enamel paint. Many would want a darker treatment than this—a deep green or bright yellow.



A Novel Hooded Settee Which Offers Good Suggestions to the Home Craftsman



Pleasing Design for Narrow Lot

ARCHITECT'S PERSPECTIVE, AND COMPLETE SET OF WORKING DRAWINGS OF ATTRACTIVE HOME BUILT IN LA GRANGE, ILL.

THIS homelike seven room gambrel roof house, architect's perspective and complete set of working drawings of which are shown on the following six pages, was built for Mr. W. F. DeGroot at La Grange, Ill.

Particular note should be taken that this house was planned for, and constructed upon, a 30 foot front lot.

This feature deserves considerable attention because so many of the houses erected upon comparatively narrow lots offer nothing pleasing either in exterior appearance or interior arrangement.

As can readily be seen the design here submitted is quite the contrary in the above respects. It is attractive to look upon and the interior arrangement is both highly effective, convenient and homelike.

From the porch entrance is had into front hall.

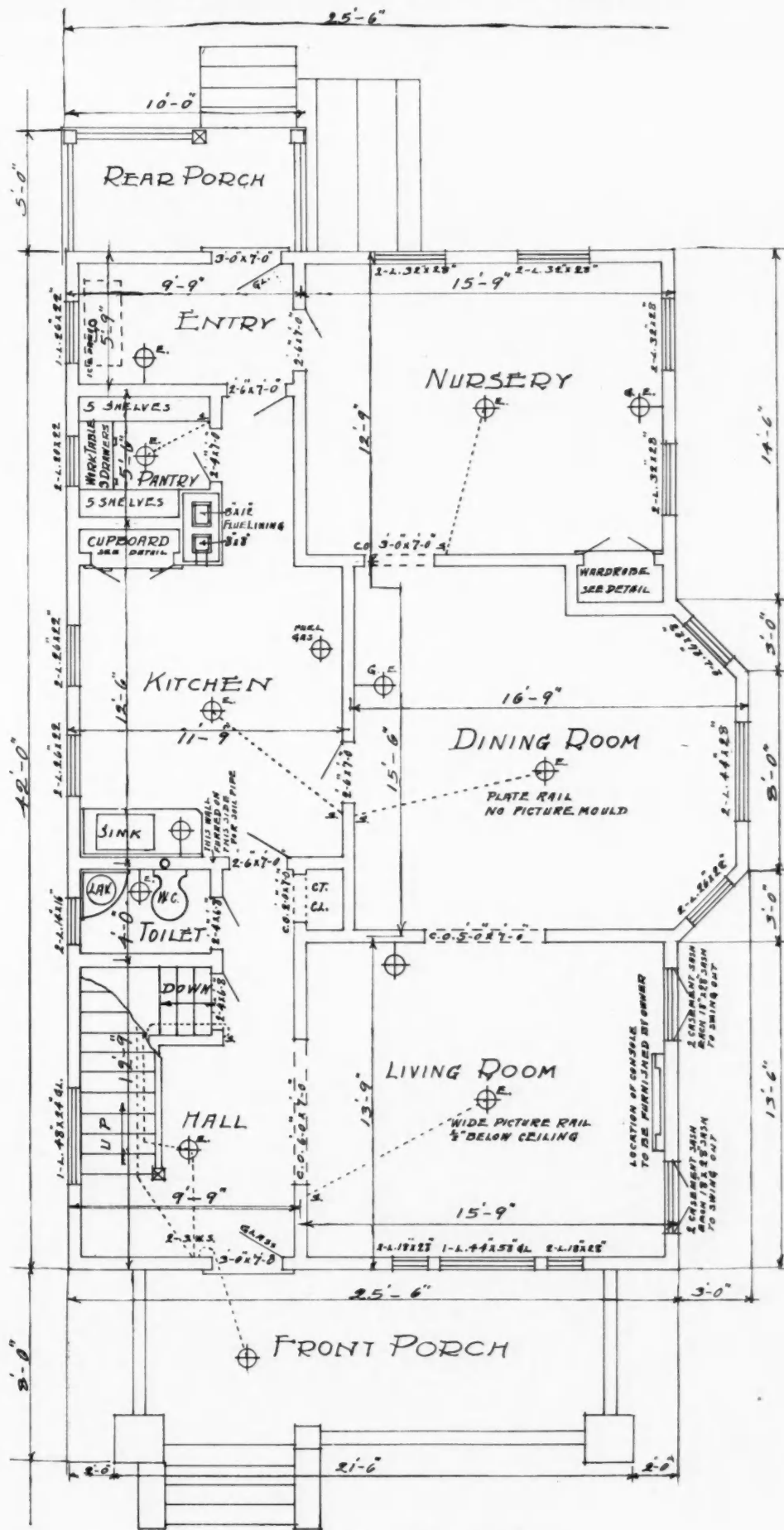
A large well lighted living room opens to the right of hall. The dining room is amply large. A bay window design is effectively employed here. Back of dining room is the nursery. The kitchen, back of the front hall and off of dining room affords plenty of room and all necessary cupboards, pantry, shelves, etc., are provided.

Upstairs all rooms are well lighted, large and provide exceptional commodious closet space. Small toilet is arranged on first floor and bathroom on second.

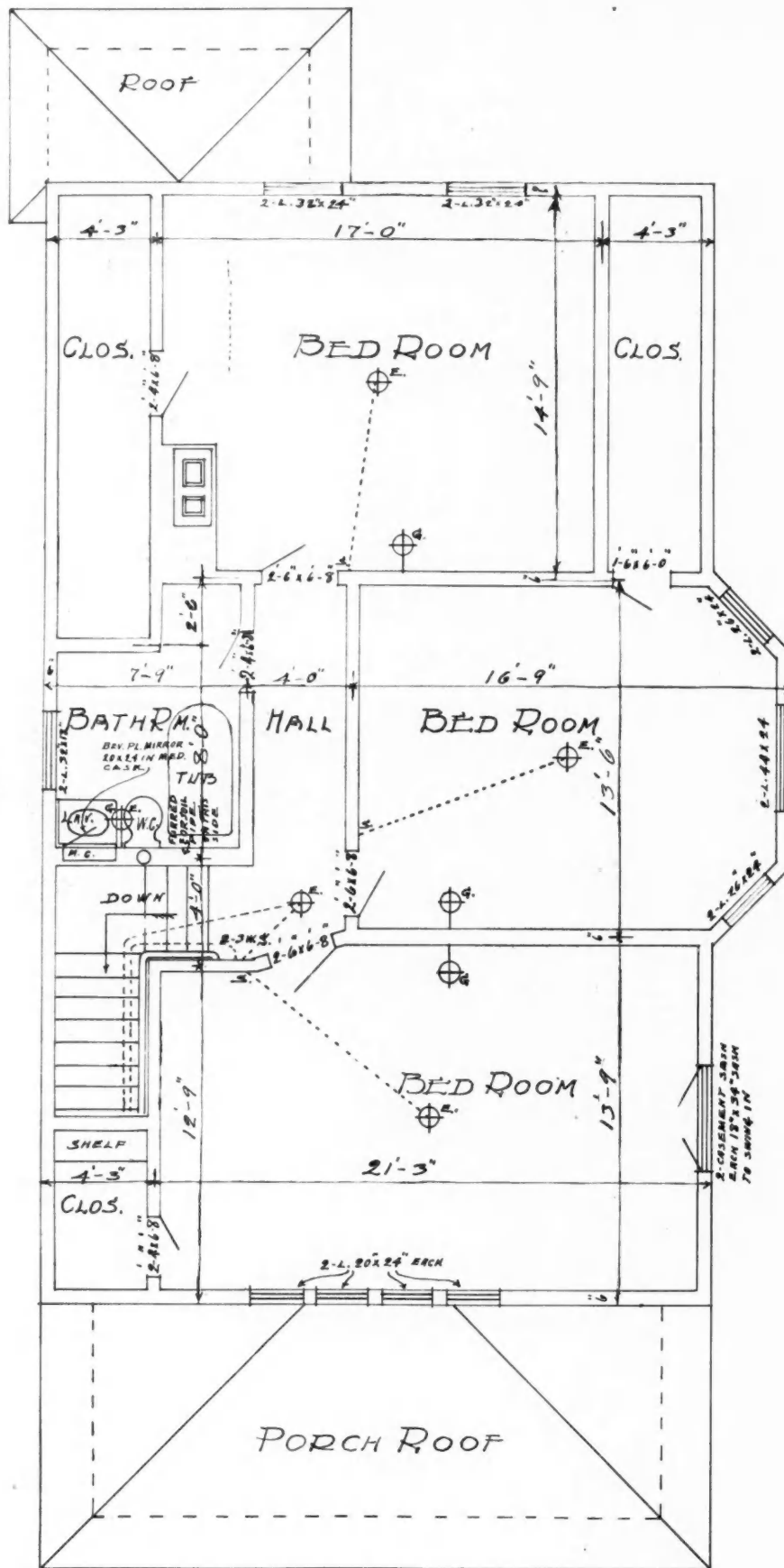
The plate of details of inside trim indicates complete styles and construction of the kitchen cupboards, built in wardrobe in nursery, plate and picture rails. Note that in the living room space has been allowed for console, upon each side of which will be casement windows.



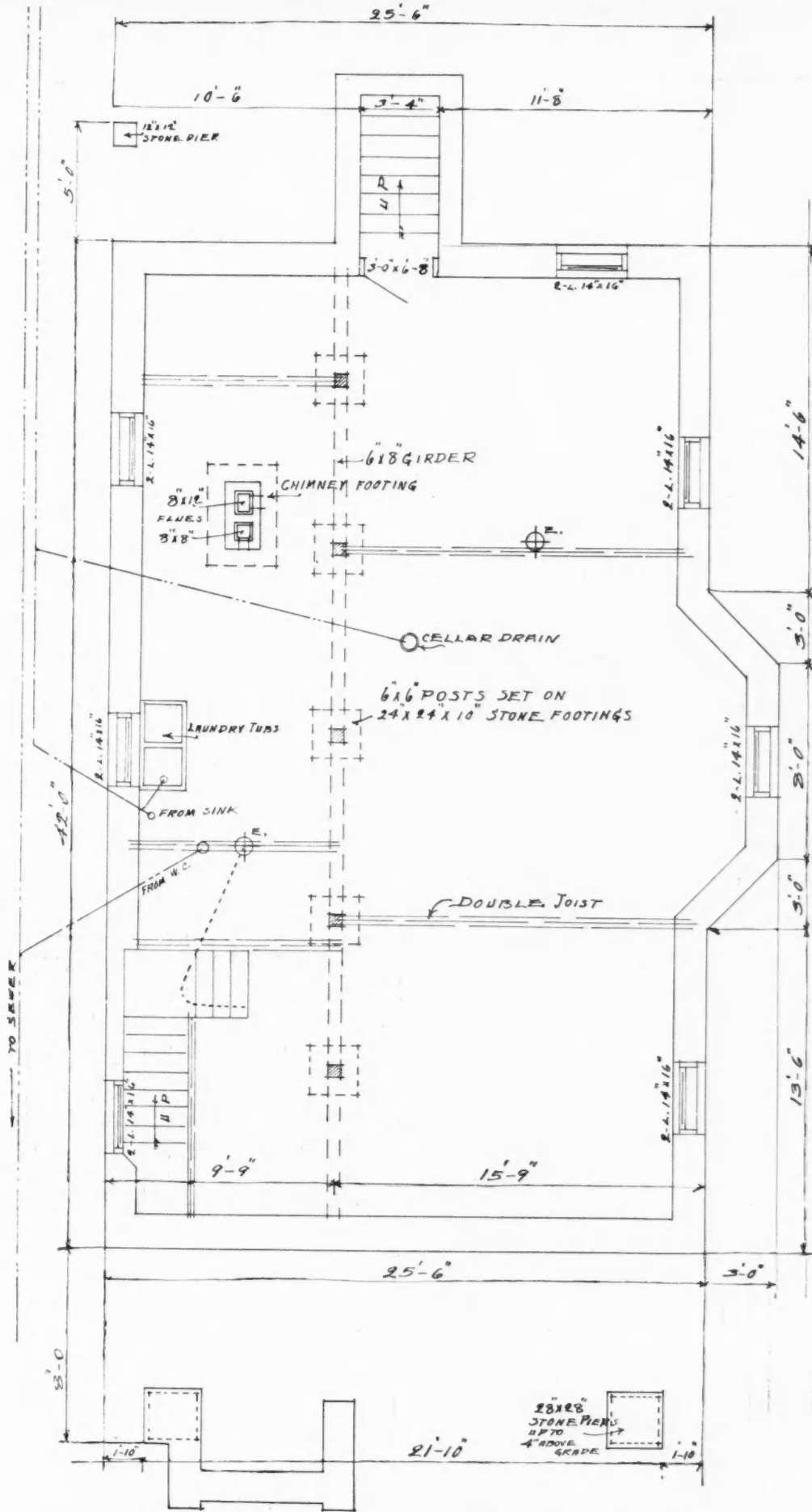
Homelike Gambrel Roof House of Seven Rooms, Designed for Mr. W. F. DeGroot, La Grange, Ill. COMPLETE WORKING DRAWINGS FOR THIS HOUSE ARE PRESENTED ON THE 6 PAGES FOLLOWING



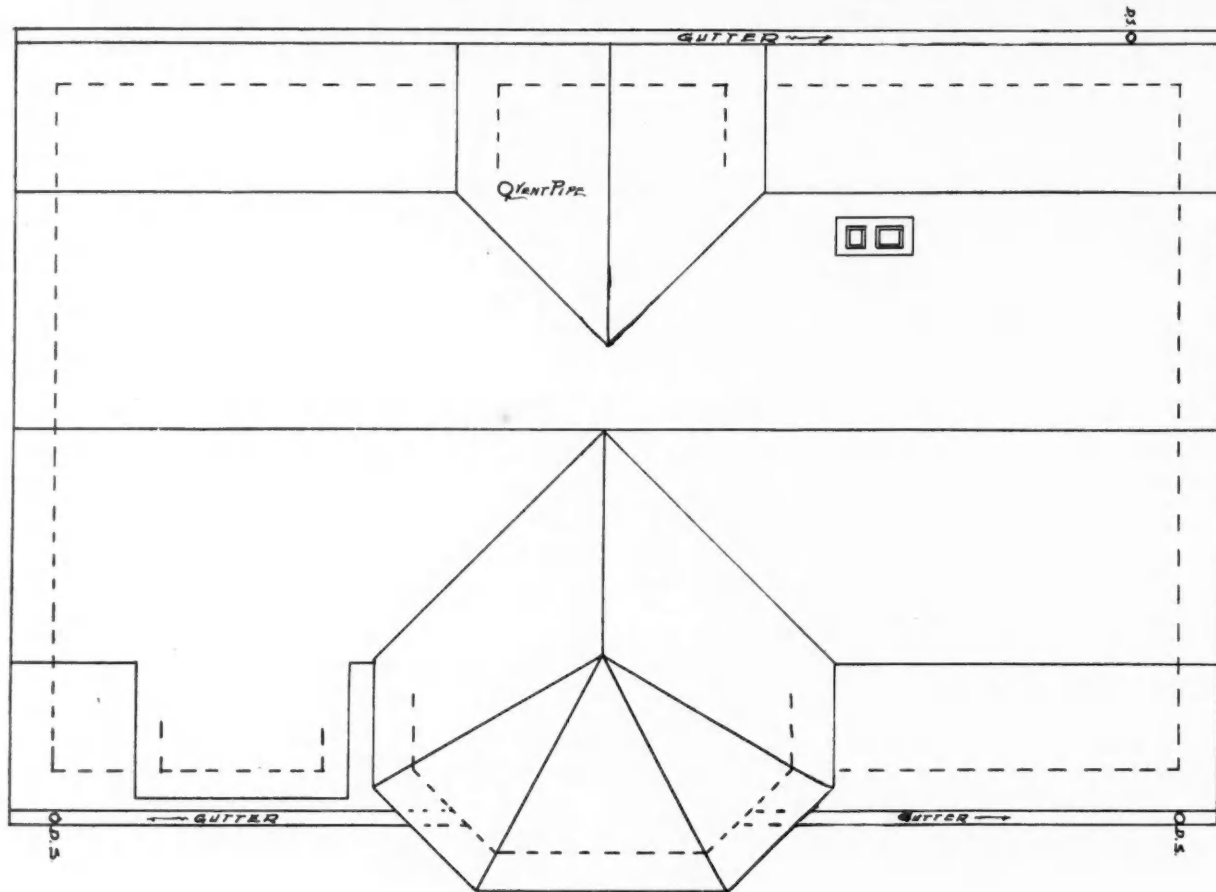
FIRST FLOOR PLAN
(House on Opposite Page)



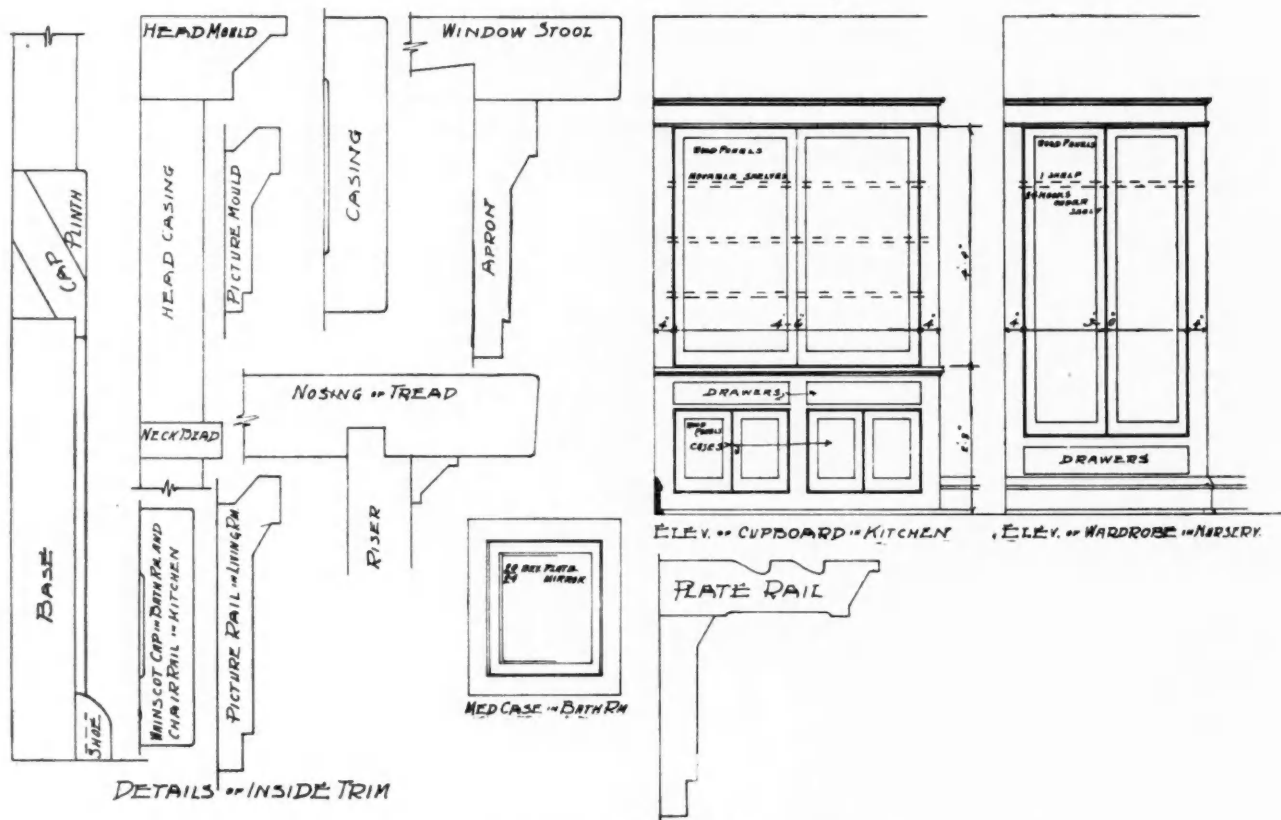
SECOND FLOOR PLAN
(House Shown on Page 72)



FOUNDATION AND BASEMENT PLAN
(House Shown on Page 72)



ROOF PLAN



DETAILS OF INTERIOR FINISH
(House Shown on Page 72)

Passing of the Pine Shingle

The days of the pine shingle are numbered, so far as being manufactured from Michigan grown pine. Today stock that was rejected in the early days of their manufacture in this state is now being used, even to stumps, for in the early slashings lumbermen left their wages behind them in the ruthless slaughter. Some idea of the enormous cut of shingles during the past

land they were all made by hand labor. The logs were cut into bolts by hand, rived with a frow, and the shingles were shaved with a drawing knife, the only other machine being a "shaving horse," a contrivance for holding the shingle while the manufacture went on. The rustic shingle maker was an expert in his line and was supposed to be able to tell from a pine tree's general appearance whether it would "rive." He



RIGHT SIDE ELEVATION

quarter of a century may be gleaned from the fact that 85,000,000,000 have been marketed from Michigan, Wisconsin and Minnesota pine. The evolution of the shingle is interesting from the first that were split and shaved to those that are turned out by modern machinery today.

When the first settlements were made in New Eng-

land was at liberty, however, to test any tree he pleased by "blocking" them—cutting a large block out of the side of a standing tree to sample its splitting properties. If it did not suit he passed on, leaving the blocked tree a prey to the next forest fire that would ignite the resin which accumulated in and about the wound.

The introduction of shingle-making machinery put a



LEFT SIDE ELEVATION

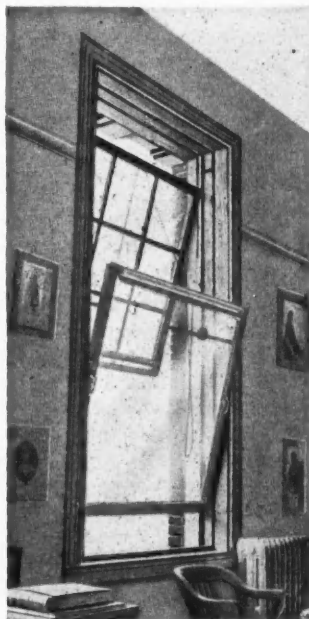
(House Shown on Page 72)

The Editors Drawer

New things worth while

Windows Hung on a New Principle

Australia has contributed a worth while building principle; which is just as good in this country as on the smallest continent. Carpenters and builders here will be quick to take up this idea and make use of it in their work wherever possible. In fact during the short time



Window Partly Open Giving Ventilation Top, Middle and Bottom

that the fixtures required have been easily obtainable in this country, the idea has spread wonderfully.

This innovation from our sister commonwealth of the Pacific has to do with double sash windows. It is so revolutionary that with it there are neither cords nor weights, yet the window is easily opened and stays put in any position desired. When closed the window is perfectly tight,—weather and burglar proof. Opened, effective ventilation is secured, yet without direct draft.

The accompanying illustration gives an idea of how this type of window works. Window shades are fastened to each of the sash. Among other advantages of this type of window is the fact that both sash can be cleaned on both sides from

within the room without inconvenience or danger of accident.

It seems certain that these windows will come into wide use just as soon as carpenters and builders generally are acquainted with them.

Pneumatic Wood Carving Tools

In all industries the past decade has witnessed wonderful improvements in processes and machinery tending to lessen the cost of production. The application of pneumatic tools has been most striking along this line. It is well known that except for the pneumatic tool, the stone industry would not have reached its present point of development. The most delicate and difficult designs in marble and granite are now produced by a pneumatic carving tool with facility impossible to equal by hand except at a prohibitive cost. A recent development in tool making now gives wood-workers similar benefits. A line of pneumatic wood carving tools has been perfected.

It is said that there are over 25,000 standard stone working pneumatic carving tools now in use; and it seems certain pattern making and general woodworking offers

so much larger field that there will soon be thousands of these pneumatic wood carving tools in use.

The illustration shows a pattern maker relieved of a good deal of hard work and able to work faster by using



Air Driven Chisel in Pattern Shop

an air driven chisel. In many shops air pressure is available, being already used for other things. In such cases the investment to equip the carpenters and cabinet makers with pneumatic tools would be very slight.

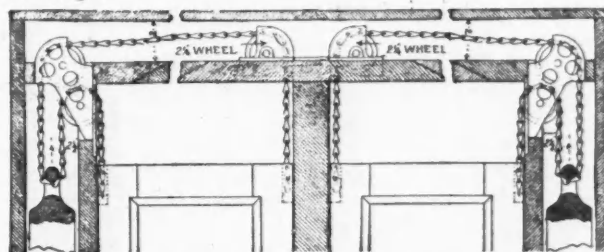
Mullion Window Pulleys

How many times have you wanted to hang a pair of windows right up close together, separated only by a mullion, but have not been able to because of the window weight proposition?

A window has to be weighted at both sides or it will not operate smoothly; and window weight boxes take up a lot of space.

So if you start out to have a pair of mullion windows, before you get through you have them separated by a wide double box for two window weights. Either that or the windows are only weighted at the outside edges, which is not satisfactory.

An invention which will interest all carpenters and builders is illustrated herewith. These drawings show the Gardner Patents for mullion window sash pulleys. As will be seen, these are designed for use on frames where weight box is to be on one side only. Although this is a new thing it has already proven its worth. We understand that the Supervising Architect has approved of mullion window pulleys for post offices and federal buildings.



Pair of Mullion Windows—No Weights in the Middle

Only one weight is required for each sash. These pulleys can be put into place either at the mill or where sashes are hung. Carpenters and builders will be interested in posting up on this improved style of hanging window weights.



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

We Cannot Answer Anonymous Letters

FROM time to time the Editor receives communications that are unsigned, some of them are requests for information; some comment intended for publication in these columns. We cannot publish anonymous communications; and as we don't know the writer's name and address, we cannot send the information requested direct by mail—as we would like to do.

If any correspondent wishes that his name be not published, all he has to do is to say so in his letter and we will respect his wishes, supplying initials or any pen name he may choose, but we have to know who the writer is. Then if the question is not of general interest, we are able to send our suggestions direct by mail.

EDITOR.



What is a Bungalow?

To the Editor: Waco, Texas.

I was just about ready to write you some twenty pages—more or less—in answer to your inquiry, "What is a Bungalow?" when I came across the following piece of poetry which I think describes a bungalow, one cut from the tall timbers, to a T:

THE BUNGALOW

The ants are in the butter dish, the flies are in the cream,
The only water we can get is carried from the stream;
The farmers will not sell their eggs, they say they salt them down
And all their fruit and vegetables they send away to town.
The planks beneath our rugs are full of cracks, both deep and wide,
And snails, and slugs, and crawling bugs come creeping up inside.
I found a caterpillar once encamped upon my toe,
But that is what you must expect when in a bungalow.

We cannot sit upon the porch, a hornet's nest is there,
At every sound they all come out with fierce and angry air;
The shingle roof is leaky, too, you wake and find the bed
Is soaking from the shower bath in action overhead.
My face and arms are all tattooed with raw mosquito bites
And concerts by the owls and frogs make horrible the nights;
But when we write to city friends we say: "Why don't you go
And buy an acre in the woods and build a bungalow!"

Respectfully,

JESSE P. MONTZ,
Building Contractor.

"Fine Bungalows a Specialty."



No-Slip Hammer Handles

To the Editor: Santa Fe, N. M.

I have been a reader of the AMERICAN CARPENTER AND BUILDER for the last four years, and think it is about time to contribute a little toward the Correspondence Department. I notice an article in the January number by J. B. Robertson, regarding a no-slip hammer handle. I tried his method once, but the corrugations or ridges always felt uncomfortable to my hand. So the way I do is to take 3/4-inch black tape, such as is used by electricians, and wrap about 1 1/2 inches on the end of the hammer or hand ax handle, keeping about 1 1/4 inch from the end and wrap back and forth until the tape is about 3/8 of an inch thick at the center of the wrapping and taper both ways. I find in this way, I always have

a smooth handle and can get out to the end and do something when I hit a nail. I also use tape on chisel handles instead of ferrules.

For the benefit of those who have trouble in keeping the head on the handle, I use about three or four, one and a half No. 8 or 9 screws instead of wooden wedges. I always notice the other fellows in different parts of the country having more or less trouble in keeping the hammer on the handle, but I am not bothered in that way, and I live in a high, dry climate, 7,000 feet above sea level, where wood is always shrinking. Try that stunt on your hammer and hand ax. I use a two-pound and two-ounce hammer with a 16-inch handle, and cannot faze it at all. THOMAS J. MANSFIELD.



A Gold Quartz Fireplace

To the Editor: North Stoughton, Mass.

The illustration herewith shows a fireplace made of gold quartz, a very unique and interesting fireplace indeed. The material was obtained from an old mine in New Hampshire and shipped to the Massachusetts town in which the house where the fireplace stands was built. The work was done by an Italian of resource and skill; and represents many hours of patient labor.

Rose quartz was used principally in the fireplace, but the trimmings are white crystal quartz. Pompeian brick from the



Fireplace Built of Gold Quartz

hearth and the interior of the fireplace; and the chimney, which is built outside the house, is made of field stones.

Of course, a fire place of this sort is not to be enjoyed by the average man and his wife, and in many rooms it would be far from ornamental, but it illustrates the possibility of expressing individuality through the fireplace.

E. I. FARRINGTON.



Hot Shot from a Purist

To the Editor:

Brooklyn, N. Y.

I note on page 54 of the August number that Mr. Ira S. Griffith in his article on "How to Make a Drafting Table" uses the term "Munting."

We have confusion of terms in the carpenter business badly enough without having any more; and I had hoped that your paper would help towards a solution of the trouble without adding to it.

I first got the word "muntin" from my father, and was satisfied that the term was quite proper, and went along using it until I had a boss who called these particular pieces "mullions" and I had to be careful to call them mullions when he was about; but by a slip I used the word muntin to him in talking about some work. He was quick to note the strange (to him) term; and I had, like Galileo, to admit that I was wrong in fear of losing my head, I mean my job. For experience has taught me that the more ignorant the boss the more careful has the workman to be not to rub it in.

However, to come back to "muntin;" the above incident caused me to look up the term, but the dictionaries that I consulted, the best and latest I could find, did not have the word. I turned to the Encyclopedia Britannica and although the edition I consulted was the latest, the article on Joinery was a very old one. But I got some satisfaction, for they used the terms "upper and lower middle stiles, sometimes vulgarly called muntins." I have also consulted Peoples' Carpenters Hand Book, Radford's Cyclopedia of Construction, Kidder's Building Construction, The I. C. S. Reference Library, all of which have the word "muntin" and not "munting;" and all of which are good enough for me.

Whether the fault is Mr. Griffith's or that of the printer does not seem to me to matter. It is up to the editor to see that such things do not occur. Probably nine-tenths of the people that note the use of the word will without further research conclude that "muntin" is wrong and "munting" right and so we have the beginning of more confusion.

Lysander Lennon's splice is an excellent time killer. It is but a slight modification of another excellent splice but not nearly so good. It probably originated with him and more probably will die with him. Should a boss catch a man making such a splice he would be justified in firing him on the spot, as it would be a clear case of soldiering. I cannot conceive such a splice being required in any but the roughest work, and any old thing does such as halve the timbers and bolt them, or by "fishing" them.

As they say "There are more ways of killing a cat than choking it with butter." See what a lot of fun I get out of the "Worlds Greatest Building Paper." Who would have thought it?

With best wishes,

ROBT. STEWART.

Answer:

Wow! *Except* for the few things you mention it seems we're alright! What?

Now let's see about this *munting* business. With you permission, good old Webster will be good enough for us. Webster's International Dictionary, Edition of 1907 gives:

Munnion, n. See Mullion.

Muntin, Munting, n. (Arch.) Same as Mullion; especially used in joiner's work.

Mullion, n. (A Corruption of Munnion). (Arch.) (a) A slender bar or pier which forms the division between the lights of windows, screens, etc. (b) An upright member of a framing. See Stile.

Stile, n. 2. (Arch.) One of the upright pieces in a frame; one of the primary members of a frame, into which the secondary members are mortised.

In an ordinary door the principal upright pieces are called *stiles*, the subordinate upright pieces *mullions* and the cross-pieces *rails*. In wainscoting the principal pieces are sometimes called *stiles*, even when horizontal.

The piece referred to by Mr. Griffith as a "Munting" was the secondary vertical member of a paneled cabinet side. He might have called it a "mullion" and have been entirely correct—or "munnion," or "muntin," or even (if in a sash and door factory) a "munt!" But being an educator (and a good one, too, in manual training and vocational shop courses) and having had his troubles trying to get the rising generation to sound their final g's, he very naturally chooses the optional form and calls it "munting."

Who will say that it is not within his rights to do this? Custom and usage govern such things; and we all know that both these vary in different sections of the country.

EDITOR.



How to Frame the Purlin

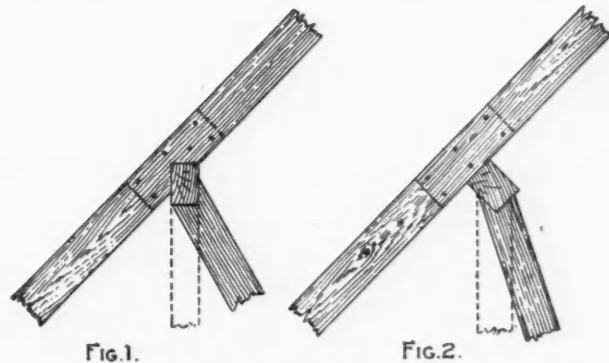
To the Editor:

Alton, Ind.

Would like to know through the pages of the AMERICAN CARPENTER AND BUILDER, the proper slant for purlin posts for barn roofs, and best way to fasten the rafters to the purlin.

CHARLES WOOD.

Answer: So far as we know there is no standard rule for the slant to give purlin posts. It depends on the construction of the roof as to size and pitch. The main thing is to have a solid bearing under the post so as to avoid chance of settlement; and if the frame work is arranged to form a good



Two Methods of Setting Purlins and Purlin Posts and Fastening Them Together

tie to keep the building from spreading, the posts can just as well be set plumb to catch a solid bearing below. If a better bearing can be had by slanting the posts a few feet, frame them that way, using, of course, common sense judgment as to what the slant should be.

As to the best way to fasten the rafters to the purlin, would say, frame the rafters to the purlin just the same as if it were a plate, letting the rafters lap and nail them together, also toe nail to the purlin, as shown in Fig. 1. Some prefer setting the purlin at right angles to the pitch of the rafters, as shown in Fig. 2, letting the rafters lap, nailing them together and also toe nailing; either method is good construction, if done properly.

A. W. WOODS.

Average 1 Blow Per Second for 10 Hours

To the Editor:

Attleboro, Mass.

I have been somewhat interested in the controversy about shingling, and note that the eastern carpenters question as to how it can be done.

In the July number, Mr. S. N. Harris, attempts to show how a professional shingler can put on 10,000 shingles per day.

Now shingles are counted to average 4 inches wide, and if two nails are put in each shingle, it would take 2,000 nails per 1,000 shingles, or 20,000 nails for 10,000 shingles. Now he strikes each nail at least two blows; one to start it, and one to drive it home. Hence, he will strike 40,000 blows in nailing 10,000 shingles.

Assuming that he will average 1 blow per second for 10 hours, he will strike 36,000 blows, or 4,000 less than required number. Now it does not seem possible for a man to carry up his shingles and handle them in laying, and average 1 blow per second.

Of course, shingles may average wider than 4 inches but any shingle 7 inches wide or wider should be split with hatchet, and have extra nailing.

C. C. GRANT,

Grant Brothers, General Contractors and Builders.



Didn't Expect Them to Believe It

To the Editor:

El Centro, Cal.

I have read with much interest the comments, in the AMERICAN CARPENTER AND BUILDER, about fast shingling, for instance, the one by Mr. Chesley Presswood of Reliance, Tenn. Mr. Presswood can brand my statements as lies, yarns, or whatever he pleases, but it does not change the truthfulness of the statement.

In describing the methods of fast shingling we did not expect it to do people of the Presswood type any good. The old adage runs "There are none so blind as those who will not see." There are some people today doing things just like their forefathers did, for instance, they lay shingles with a straight-edge or chalk line because father and grand father did. They are existing in an age of progress and advancement, but they have set their heels and are wearing out the wrong part of the harness, determined not to advance with their fellow-man.

If people of this type will climb up out of the ruts and mire and wipe the scales from their eyes and get out on the firing line where things are being done they will catch a new vision of this life, and I think they would be greatly benefited.

S. N. HARRIS,

Contractor and Builder.



Uses a Nailing Machine

To the Editor:

Cambridge, Wis.

Now that I have renewed my subscription to the AMERICAN CARPENTER AND BUILDER for another year, I can voluntarily voice my sentiments of satisfaction and agree with the many brothers that your publications are a great help and a necessity to the building profession.

A charter member loaned me copies of the AMERICAN CARPENTER AND BUILDER. I thought then it would help me along some. I see now that I could not get along successfully without them.

Like the many thousands of your readers, I am eagerly awaiting the next month's copy. With such of your publications as "Radford's Steel Square," "Practical Carpentry," "Practical Homes," "Radford's Practical Barn Plans," "Framing" and "Details of Building Construction," all of which I now possess, and with a Nicholls' framing square, I become more and more interested in the profession.

In the August number I note with interest Mr. H. M. Thomas' timely suggestion; and hope some of our best build-

ers will come to the front, telling us their best methods to build a house.

I have tried to "follow" Mr. Woods' theorems on the steel square and find him a high master. As to the fast shingling, I do not doubt but that these men are able to do as they say; as they are perhaps adepts in this line and employing a new and quicker way.

I use a nailing machine with some speed. With two men to lay the shingles on a straight edge it is possible to shingle a large area in a day.

I wish the AMERICAN CARPENTER AND BUILDER success, hoping to see it grow in the future as it has in the past.

CARL O. LARSON,
Carpenter and Builder.



Trouble Cleaning Old Floors

To the Editor:

Marion, Va.

I have been a subscriber to your paper for only a few months, but wish to say, that I enjoy reading its pages very much, especially the correspondence department.

Now I have a question that I would like to submit and will be glad to get some information from the readers of this paper, as I feel sure that others have met with similar troubles. Several parties have asked me to clean floors for them. Some of these floors have been filled and varnished; and they want the old filler scraped off, and the floors sanded and finished natural. I find it's a tough job to get the old varnish and filler off with a floor scraper.

I will be very glad to hear from someone who has met with success cleaning old floors.

J. F. CRAETREE.



The Hood Rafter Again

To the Editor:

Gypsum, Kansas.

Enclosed find drawings for a hood rafter to go over hay door. I wish to find the cut at C, as shown in the drawing. Suppose the projection is 6 feet and to run down on the main or common rafter 7 feet. Of course, 7 and 6 will give the edge or top cuts of the hood and the lower face cut is simply a square cut; but what gives the face cut at the top is the question that sticks me.

GEORGE M.

Answer: Last month we answered this question by treating it the same as a valley; because from an architectural standpoint, we believe that is the way it should be; but the

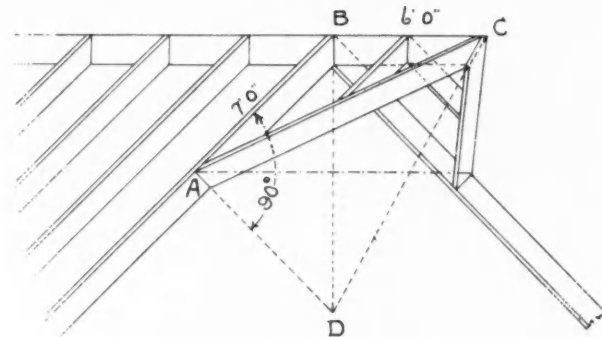


Fig. 1. Framing for Barn Hood

question asked by Mr. M. calls for the unbacked hood to rest in the same plane as that of the common rafter on the main building. Now, we will answer by showing the proportions to take on the steel square by isometrical perspective, as shown in Fig. 1. AB and BC give the edge or top cuts of the hood as described by Mr. M., which clearly explains itself, and DA and AC give the cut in question; the side of the square on which the latter is taken giving the cut.

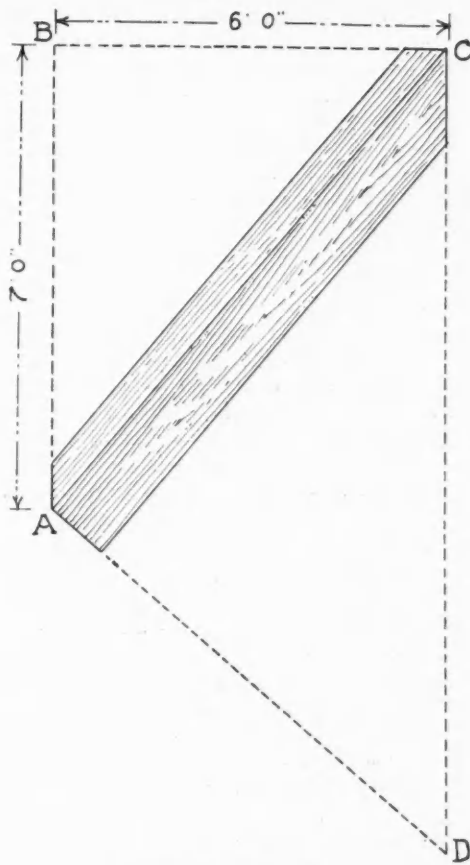


Fig. 2. Hood Rafter Framing

Fig. 2 illustrates the parts in the stretchout clearly defining the cuts; and by folding on the line AC so that AB and AD will be at right angles to each other, will show the cuts in their true position.

Mr. J. E. F. of Lamoille, Nevada, will also find his question answered in the above.

A. W. WOODS.



Will Soon Need a Cradle

To the Editor:

Winslow, Ariz.

I have been one of the bunch now for eleven months. I have read and re-read every one of our great "pals" since that time; the AMERICAN CARPENTER AND BUILDER is the best thing I have ever spent money for. Whenever I get it, all the fellows in the shop stop work and want to see what's in it this month.

I have gotten married since then. And now I want to know some of the brothers' ideas on cradles. I want to make one that will collapse or fold up, because my 2 by 4 cabin wouldn't stand for anything else.

CHAS. CHRISTMAN.



Reconverted

To the Editor:

Elwood, Ind.

I once was a reader of the AMERICAN CARPENTER AND BUILDER, but (as one brother chip said) had back slid; but have started out on the right path again. Will say that the AMERICAN CARPENTER AND BUILDER is the best journal in its line I ever read and I have read several papers on the same subject; and will say that it has helped me a great deal in giving me the names of firms where I could get better tools; also giving me some new ideas of shorter rules of doing different kinds of work. In short it is a wonderful help to all who work at the trade, being a great instructor in its line.

JOHN KURTZ.

Offers \$20 Reward

Hanford, California, July 12, 1912.

Editor AMERICAN CARPENTER AND BUILDER:

Please state over my signature, That I will pay \$20.00, to any one successfully inscribing a rectangle containing 3 by $12\frac{1}{2}$ units within another rectangle containing 81-3 by $12\frac{1}{2}$ units with the sides of the inscribed rectangle being other than parallel with the sides of the larger rectangle. No objections if the inscribed rectangle overruns in measurement, but it must not underrun in measurement. Close does not count. A mathematical solution of the "Russell carpet problem" free to the purchaser of my method of "angle trisection."

C. W. TALBOT,

Master of Angle Trisection.



Better and Faster Work

To the Editor:

Oakdale, Calif.

Why is it that so few carpenters ever endeavor to increase their ability and efficiency? I have seen men who have been in the business for ten years who were just as slow at hanging a door or casing a window as they were within two years after beginning. They seem perfectly satisfied with the ability to do a good job, no matter how long it takes to do it. It seems to me that if every carpenter would try to do each successive job just a wee bit faster, as well as better, than the preceding one that it would do away with a lot of this talk about "bum workmen." My hobby is, "The most work with the least possible energy." If I can do a job just as well seated as standing, I usually sit. Take the mortising of doors for locks. I always have an empty nail keg or a box to sit on while cleaning out the mortise. And no foreman has ever yet kicked about it either. At the end of the day I am fresher, consequently have kept up a better gait, than if I had nearly broken my back stooping all day. This refers only to the chiselling, of course, and not the boring. No man can bore doors while seated, as easily as standing.

Another way that much time is wasted is by having the saw horses too far away from the work. If anyone has any doubts as to this let him place a saw horse fifteen or twenty feet away and walk back and forth to it at his ordinary gait, stopping and turning each time. Remember that the average carpenter does this very thing from twenty to a hundred times a day. Again, always lay your planes on the same spot on the bench and it will save much time. One can always reach for them without first stopping to look around and see where they are. It is the little things that count.

One of the greatest time losers in all our trade, however, is trying to work with dull tools. If one has a good emery or carborundum stone and a good oil stone, it does not usually require more than three minutes to sharpen a plane bit. And a man will lose more time than that in a half hour's work with a dull plane. And above all things a carpenter should keep his saws sharp. The Disston people issue a little book that will give a man a complete course in the "art of saw filing." It is worth any man's while to send for it. That will give him the theory of it and then all he need do is to file until he gains the knack of it. It took me about six years to learn it well enough so that I could be sure of myself. So you see I am talking (or writing) from hard experience. What little I do know has been knocked into me right on the job, it is not theoretical only. But there is not one man in fifty who can file saws successfully unless he has theory as well as practice.

When I worked in San Rafael we had Saturday afternoon off, and the crankiest lot of foremen I ever saw, regarding sharp saws. And no saws were filed on the job either. Only

one contractor there, as far as I know, who ever allowed his men to file on the job. I am in doubt as to whether men should file on the contractor's time, but for my part I insist on my men keeping their saws in A1 condition. If one strikes a nail and knocks his saw out bad I tell him to go and file it. For I am satisfied that I gain by it.

While I am a contractor, I still handle the saw and hammer and I like to turn out a good, honest day's work, whether for myself or for someone else. And I love to see a good carpenter pick up his square with confidence and precision and go at it as though he knew just what he were going to do. And then when it is laid out I like to see his saw cut, not worry, through it.

Let's join hands, Carpenters, and pledge ourselves to increase our ability and efficiency, until we can see and feel at least a little improvement on each successive job. Let us do it better every time!

H. J. BLACKLIDGE.

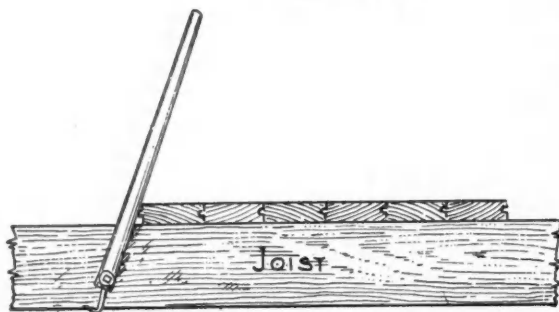
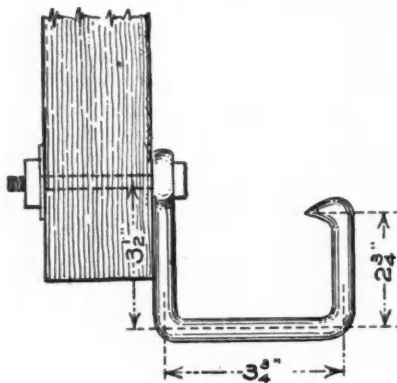


A Handy Hook

To the Editor:

Santa Fe, N. Mex.

I am sending you a sketch for a handy hook, which is useful in laying flooring, putting on close sheathing, drop siding or ceiling where the material runs crooked or is not milled uniformly. The hook should be made of round 1/2-inch



Iron Hook with Handle— and How it is Used

soft steel, bolted to a hard wood handle about 30 inches long; a part of an old buggy shaft or long spoke makes a good handle; drill a hole about 2 or 3 inches from the end and bolt hook to it and it is ready for use. Hook over joist or studding, as shown; and go to it.

T. J. MANSFIELD.



Door Hanging System

To the Editor:

Los Angeles, Calif.

I have been reading the article entitled "Speeding Up," by H. J. Blacklidge in your August number, regarding hanging doors; and as my method is quite different from his, I will give a little description of it, and tell why I do it this way.

I get out all of my jambs at one time, straighten them up, gauge the margin for casing on edge of jambs, and mortise or

gain out the jambs for the hinges right on the bench, where it can be done quicker and better than any other place. In setting the jambs I block behind the hinges on the hinge side, and on the other side put one block at top and bottom and one 3 feet from floor behind keeper.

I plumb one side jamb and square the top and use a spreader as wide as the jambs on the floor to keep them the proper distance apart and square with the opening. I measure the doors and make all inside openings as wide and 3/8 of an inch longer than the doors, so that I will have a small amount of dressing to do, and so my door will hang 3/8 of an inch off the floor, as we do not use any thresholds here except on outside doors.

After all other work in the room is done I square off all the top and bottom lugs of all the doors at the same time and place the doors in the rooms where they belong. I fit the door so that a dime will go between the door and jamb at both sides and top. If hung this way, it won't rub off paint or varnish; and you won't have to go back and overhaul the doors.

I hang doors after other work is done, so that we don't need to be opening and closing them or swinging it back and forth out of the way while working near it; and there is no danger of getting damaged in bringing in material or by blowing open and shut.

If Mr. B. will go to an up-to-date hardware store he can get a gauge that will mark the jamb after casing is on. I place the hinges 7 and 11 inches from top and bottom of ordinary doors; and use a rack to hold door while dressing. It projects a foot in front of door at bottom, so that it can be put against wall any where and door can be dressed without danger of hitting wall with plane.

I also have a tray large enough to hold all necessary tools on a sawhorse, so that stooping to pick tools off floor is unnecessary. I endorse Mr. B's statement: Eliminate unnecessary motions, and add: Have a system for doing work.

I subscribed for the AMERICAN CARPENTER AND BUILDER about six months ago and will say that it is the best building paper I have seen. It is full of good things.

If this letter appears in print, will try and come again; and if any of the carpenters want to know about this part of the Golden State, will try and answer their questions.

W. E. HORNBECK.



The In or Out of Moulded Sash Doors

To the Editor:

Pekin, Ill.

As I am a reader of your great Instructor, the AMERICAN CARPENTER AND BUILDER, I am taking the liberty of asking a couple of questions which I should be pleased to have answered in the next issue.

There has been some argument here as to which is the outside or weather side of a moulded sash door. The question is, should the loose stop be on the inside or the outside. The party who advanced the question holds that the loose stop should be on the outside as he claims the sweat running off the glass on the inside penetrates in behind the stop and rots it out.

This may be true but it seems to me that the same thing could happen if the moulded side were to the inside. However, I argued that the loose stop should be on the inside as most of them can be pried off with a pocket knife so that access to the lock would be an easy matter.

The same party also claims that a tin roof should be laid so that the water runs against the solder. This party is a good mechanic and claims that he has seen practical tinnery lay roofs in this manner. I have been at the building trade for the past fifteen years but never saw the like.

I have been reading your valuable paper for the past three years and think it the best building periodical on the market.

M. L. SNYDER.

Finds Builders Need Special Journal Just as Do Other Professional men

Bogata, Texas.

Editor AMERICAN CARPENTER AND BUILDER:

In all the professions of life the need of higher and broader education is the greatest factor that makes our success what it should be, for by broadening our minds by association with other great minds we reach a degree of efficiency that is nearer perfection than could possibly be attained through our own efforts.

A physician must constantly and incessantly study medicine and medical journals and attend medical lectures and apply his mind to the study of the profession to be a success. What is true of the physician is true of all professions, and more especially the mechanic must apply his mind to the study of his chosen profession to make good in the world of competition. A man may be a good mechanic and get into a set of well trodden ruts and be pulling a heavy load, trying to carry on his own business by his own ideas, when if he applied a little of his time to the study of modern methods as taught in his trade journal his road would be made much easier, his profits become greater and his customers be better satisfied. I am and always have been a student of modern methods and spend a good part of my time in reading and studying my trade journal—which is the AMERICAN CARPENTER AND BUILDER—and I often find the way made easier and plainer, and often new thoughts and suggestions that help me in the battles of life. I would recommend this splendid journal to all mechanics of all ages and stations as a means of advancement. I would especially recommend the department of the "Steel Square and Its Uses" to all young men just starting in the trade. Take these lessons and study them and master them. I learned my square from the school of experience, which is a hard road to travel, and if I could have had the advantage of and help of the AMERICAN CARPENTER AND BUILDER when I was learning my trade I am sure I would have been higher up the ladder than I am now.

Aside from the lessons and helps laid down, the correspondence columns are also good. And add to this the greatest advertising medium in the country, which gives us the advantage of keeping up with the leading tools, machines and materials of the building world, the value is still increased.

By all means let us study the AMERICAN CARPENTER AND BUILDER and thereby make our road easier to travel; be a benefit to others and then we will have accomplished some good in the world and climb to the top of the ladder instead of being the under dog all our lives. JOHN M. SMITH,
Carpenter and Builder.

Fire Stop That Costs Little

To the Editor: San Diego, Calif.

In regard to the article by C. W. Older on page 47 for June, in regard to firestop.

The San Diego building law requires a 2 by 4 spiked horizontally between the studding half way up the walls. When the building is plastered the plaster falls down onto this and also onto the lower plate. This prevents any draft, and is practically as fireproof as the strip of tin would be, and with practically no cost and little labor. EMERY J. EASTMAN.

Wants Carpenter's Dictionary

To the Editor: Niagara Falls, Ont.

The letter of Mr. S. E. Miller in the July number of the AMERICAN CARPENTER AND BUILDER was on a subject that has often occurred to me, viz:—the need of a thoroughly reliable, concise, up-to-date dictionary of terms used in the carpenter and allied trades. I think there is a fine opening for some

enterprising individual who has the ability to do so, not only to supply a long felt want, but to make a nice penny in doing so.

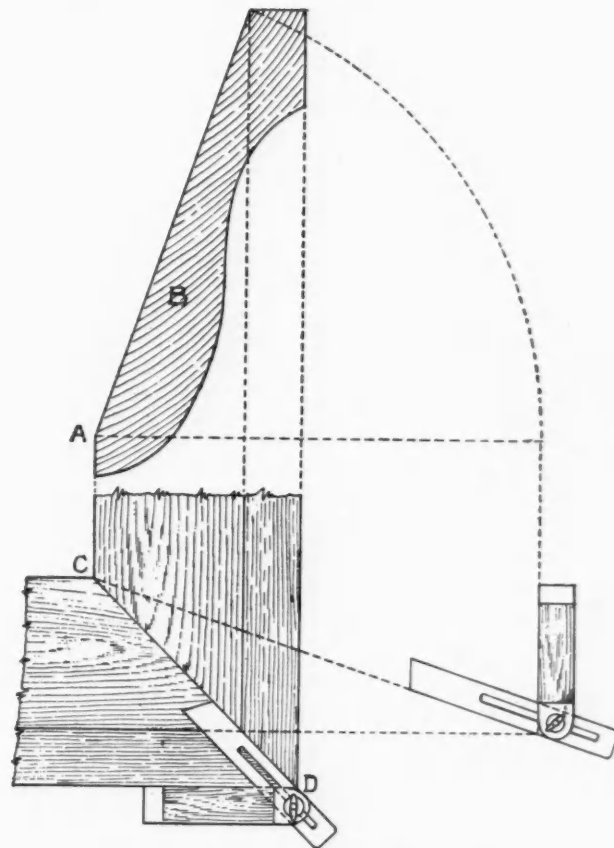
I believe every carpenter has at some time in his career felt the need of a reliable book of definitions of such terms as are used in connection with wood working. There is no doubt that if such a work appeared on the the market at a reasonable price it would find a ready sale.

I take this opportunity, Mr. Editor, to congratulate you on having so many bright correspondents. It is a source of pleasure as well as profit and amusement to read the pithy letters that appear from time to time in your splendid paper. Long may it flourish if but to demonstrate the literary abilities of its correspondents. W. D. CASKEY.

To Find the Miter

To the Editor: Fall River, Mass.

I enclose a drawing which I believe will be very useful for my fellow carpenters and hope will find a place in your



Mitering Mouldings with a Bevel

valuable paper. It is for finding the miter on mouldings, that is at an angle of 90 degrees.

Draw the plan of mouldings, as at B, then set the bevel on line CD. From A draw the arc, continue the lines and set the bevel for the face cut, as shown.

JOHN HINDER.

Ordinary Carpenters Can Make Good on Hardwood Floor Work

To the Editor: Waveland, Ind.

Hardwood floor laying in our cities and large towns is in a class of its own. In the small towns of our country, carpenters are often called upon to lay a hardwood floor. It is often very inconvenient as well as expensive to send to the

city for a man to do this class of work.

To the country carpenter this article is especially directed. I do not mean a "saw and hatchet" man; a good, clean, honest and careful workman comes in this class. If you are asked to lay a hardwood floor, and have never had any experience in that line, don't turn it down, but say: "Yes, I can lay it." Then get to work and do it. Show them that your work is the equal of any city man who makes that a specialty.

If there is a class of work which will try your skill, and prove whether or not you can do nice work, this is it. You should not hesitate an instant about accepting a job of this kind. When you have completed it, and have a neat, clean and smooth piece of work, it will be worth a great many times over, to you, the money you get for it.

I did some building for a neighbor this summer. A big dealer in mill work in a near-by city furnished the inside finish. A friend of my employer said to him: "I suppose you will have a man from the city come and lay your floors." "No," Mr. C— said, "the man who has done the other work can do this." And I did. I had no great experience in that particular work, but people who know, said that I did a very fine piece of work. It was corner blocked to the field. As I claim only to be a practical carpenter, these expressions of approval made me feel very proud of my work.

Now, there are a number of things which are essential to a job of hardwood floor laying that is right. First, get your sub-floor in good shape. This demands more or less work, of course, depending on whether old or new work. The high joints and rough places must come out. The more work you do in this regard, the less you will have to do later on. Second, start right. If a straight floor is to be laid, start *straight*. If your floor is to be blocked, start *square*. Third, use plenty of nails. Use enough nails so that you will be sure that there will be no places where it will crack when stepped on. Above all, when you are nailing, if you discover a place which is a little low, by all means, put a nail there. High places don't need nailing. I am going on the theory that sometimes little depressions and elevations are to be found, even after patient preparation of your sub-floor. Fourth, always tighten your floor the second time. While apparently a tight joint, you can see it hug a little closer when you drive the second time. This second tightening to be done after the nails are set. Use a piece of like material for driving it together, being careful to keep it flat on the sub-floor to prevent bruising surface of hardwood. This piece should be never less than a foot long, so that the shock of the blow is generously distributed. I have seen persons use a piece only 3 or 4 inches long for this purpose, thereby ruining a board. Fifth, the dressing. This is *very* important.

A machine is the best and most satisfactory method, and also a great labor saver. The right kind of a machine will have a heavy blade, a lighter one and a sander. To know when you have finished a floor must be left to the operator's judgment. A very safe rule to be governed by is, that when you think you are through, *go over it again!*

To lay a beautiful hardwood floor requires only good tools, carefulness, and good, common sense. If a carpenter of the rank and file has these specifications, he can make good in the business.

E. H. CLARK.



Didn't Knock

To the Editor:

Post, Tex.

Just a word to say I sure thought the letters from the building trade were fine. Good words and fine things said. Did you notice that the man that made the success was the busy man and didn't have time to knock on the trade of building?

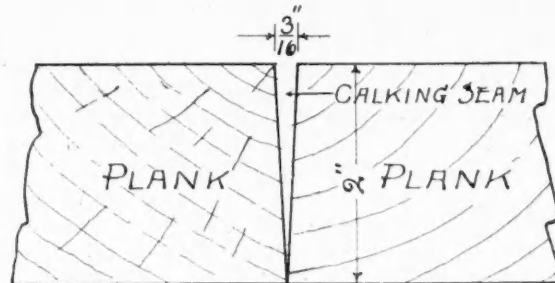
I will say that I have received many valuable things from the AMERICAN CARPENTER AND BUILDER. Let's get in the push for better carpentry and deliver the goods. J. B. WHITE.

Boat Seams and Cows' Hides

To the Editor:

Gravenhurst, Ont.

In answer to your correspondent from Sutter, Cal., regarding calking seam, would say, make it as per sketch inclosed or somewhere near. It will vary more or less, no doubt, but do not get it much over or it will not hold your oakum or other calking material. If the seam is less or tight the calker will have to open the seam with a seam iron; and every blow he strikes is that much lost time to you; because, if the seam was O. K., he could dispense with this laborious piece of work. However, better a little tight than too big. Be



Seam for Calking

sure and have your planking tight on the inside. You should not be able to see out if the job is well done.

Now for the Belt Man from Buffalo, N. Y., and in answering I would like to ask one question: When God made a cow did he put the hair side out or in? Why, out of course. Did he know what he was doing? Well, I guess so. Now, that is what I go by, but I might state I have seen them run both ways, and personally I think hair side out will run longest and stand most abuse. However, a belt wants care and attention or it will not run long either way.

JASPER FENNELL.

To Avoid Cutting the Stops

To the Editor:

Bushnell, Ill.

I notice in the January issue, E. S. Mekeel, of Buringhan, N. Y., asking how to avoid cutting the stops in sliding doors for the escutcheons. This can be overcome by using astragal strips on edge of doors.

J. B. ROBERTSON.



Arranging Sliding Doors

To the Editor:

Centralia, Ill.

In answer to questions asked by E. S. McKeel in the January issue, regarding stops on sliding doors, I will tell him how we generally do: Get an astragal, either single or double, as may be required, wide enough to show same thickness on each side of door, as a window stop, and showing the same mould. Run astragal full length of door on front edge. Put a window stop on back edge and cope window stop between on top edge, showing the same margin all around from stop. It will make the door thicker, but that doesn't matter, as it will not show when door is either opened or closed all the way.

The advantage is, that it will give ample clearance for the plates, and in case the door draws or warps, will give it more clearance and not drag against the side stops. The side stops can be set closer; as you have only the front and back edge to contend with.

On double doors it might be well to run the window stop along the bottom, as the astragals will show rather prominent without when doors are closed. Window stop could be used on front edge but will show joints on the face edge when door is open.

Hope this will help him and others in same fix.

AUG. C. SCHNAKE.

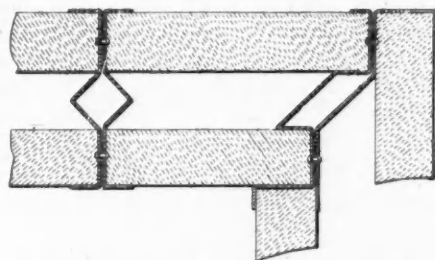


Conducted by Watson & Boyden, Patent Lawyers and Solicitors, Washington, D. C.

Concrete Building Construction

1,003,607. Patented Sept. 19, 1911, by Harry Irwin Jeffers, of Fort Smith, Ark., assignor of one-half to William F. May, of Fort Smith, Ark.

By means of the improved construction, clearly shown in the illustration, slabs of concrete or the like may be supported



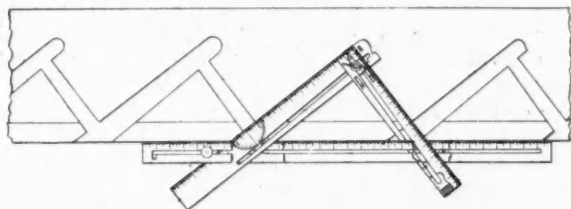
Steel Holders and Spacers for Concrete Slabs

and held together without the use of nails or bolts and may be spaced apart so as to form a double wall having an air chamber within the same

Stair-Gage

1,006,815. Patented Oct. 24, 1911, by William H. Wiegman, of Fort Wayne, Ind., assignor to Wiegman Stair and Roof Gage Company.

The inventor says concerning this tool, "It is well known that in stair construction the opposite ends of the tread and the riser of each step are fitted into intersecting right angular grooves in the inner adjacent faces of the opposite parallel stringers, and tightly wedged therein without nailing; that these recesses must be wedge shaped, and the recess for the tread must be of a different width than the recess for the riser. It is also well known that the usual way of laying out such stair work is to employ either a common square or a



Adjustable Gage Laying off Stair String

"pitchboard," and two wedge-shaped pieces of proper width to outline the recesses for the tread and riser respectively for each step; and that by this method great care and considerable skill is required to secure the necessary accuracy and uniformity, as a deranging mistake is easily made. It is also well known that the work of laying out of rafters for a roof in the usual way by an ordinary square to secure the desired rise and run, or the proper lines for the ridge and

plate cuts requires considerable care and skill to avoid a serious error.

"The object, therefore, of my present invention is to provide a convenient and easily operated adjustable gage which is not only adapted to be employed in stair construction and for the laying out of rafters by an operator of ordinary skill, but which is also adapted to be used with equal facility as an ordinary steel-square, as a bevel-square, as a sliding rule, and as a means for laying out segments for the top of window frames and the like.

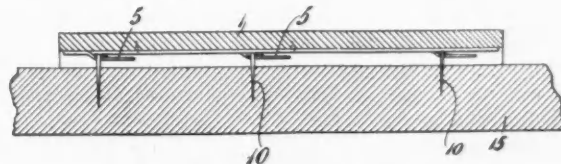
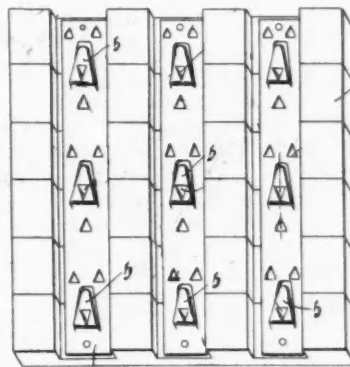
"My invention consists of three cooperative parts: a square whose parts are pivotally connected at their meeting ends, and are pivoted with longitudinal slots, and a graduated two-part straight edge with which the sections of the square are adjustably connected."

The illustration shows the device used in laying off stair work.

Parquet Flooring—New Idea for Laying

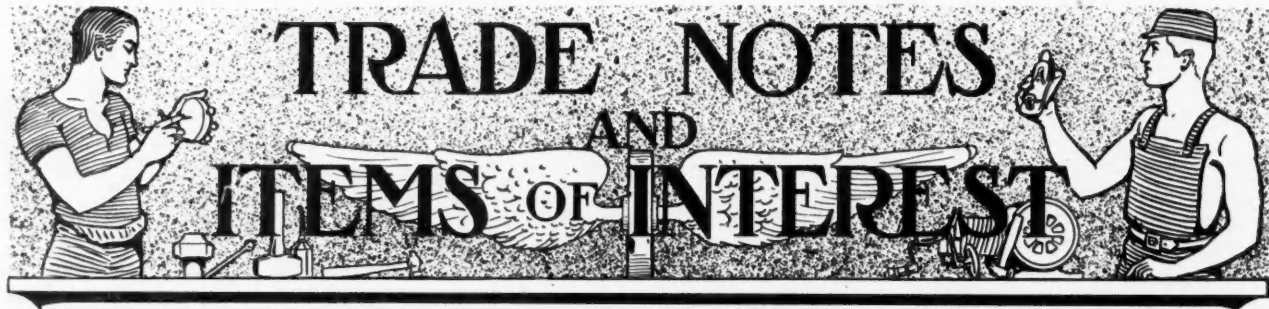
977,796—Patented Dec. 6, 1910, by William A. Hall, of Cincinnati, Ohio.

This invention relates to parquet flooring in which the short, wooden strips may be permanently bound together before they are located on the floor so that the tendency to warp shall be avoided and also to provide convenient means for attaching



Cross Section and Under Side of Flooring

the blocks in place. To this end the sections are secured together by means of metal strips (4) secured in grooves at their back; such strips having tongues (5) adapted to receive staples (10) as clearly shown in the illustrations. 15 represents the sub-floor and 1 the parquet blocks.



Primitive Working Methods and Tools in China*

By F. A. Foster

INSTRUCTOR IN THE ENGINEERING COLLEGE, TANG-SHAN, NORTH CHINA

During a visit to the interior of China, I was particularly interested in watching the natives at their work, and in the tools and methods employed. In some places I was fortunate enough to get photographs; in others, I made sketches for future reference.

In most of the workshops visited, it was too dark to get good photographs. The shops are small, and the tools and methods are those used for centuries.

Many of the things done or used here seem so directly opposed to what we have at home that one is inclined to call this "topsy-turvy land." In a way, this applies to all of this part of the world, Japan included.

Pullee, No Pushee

While in Japan, I was interested to see their carpenters sitting on the ground with a heavy plank as a bench and

casions. The steel seems to be excellent.

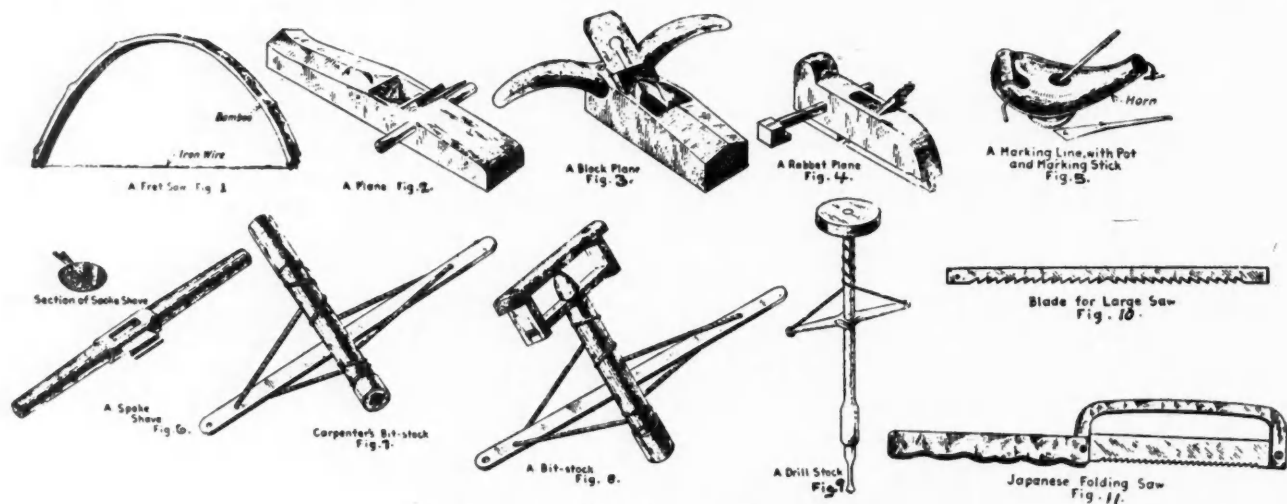
In Japan, as well as in China, the usual way of sawing logs and timbers into boards and planks, is by means of the large frame-saw. As a usual thing, the boards needed in a building or other structure, are sawn from the log right on the premises where they are required.

Saw Teeth, Layout Lines, Squares and Scales

The teeth of these large saws are pointed in one direction on one-half of the blade and in the opposite direction on the other half. (See Fig. 10.) The log is first marked off with black lines, both on the ends and along the top surface, for the guidance of the sawyers, much as our carpenters use a chalk line. The piece is then placed in a position so that one man is above and another below it.

The object shown in Fig. 5 is the reel used for blackening string for marking long lines on lumber. The string is drawn through the horn, which is filled with some spongy material containing a black liquid.

The wooden marking stick, in Fig. 5, is made with a chisel-shaped end and is used for marking lines along a straight-



Carpenters Tools Used Today in China and Japan

pulling their planes and saws instead of pushing them, as with us.

In the case of the saws it seems a rational way, for the pulling motion produces a straighter cut and a thinner saw can be used. The saws were nearly all of the frame sort, much like our buck-saws.

Folding and Other Saws

On the steamer at Yokohama, I bought a small saw from a peddler. A sketch of this is shown in Fig. 11. It folds up like a knife. The blade is very thin and is used with the pull action. The frame would be better if it were a little stiffer, but I found it quite a useful little tool on several oc-

*We are indebted to the American Machinist for this very interesting article.

edge or square, instead of a pencil. It is dipped into the black sponge in the horn and will make a long mark before requiring to be dipped again. Used on the end of a scale, with the aid of the thumb, it serves as a scratch gage.

Squares are almost always made of wood and are home-made. They also have home-made scales of wood.

Standards of Measurement, also Dovetails

I believe there are nominally, standards of measurement; but their use is not strictly enforced and so there are variations in different parts of the country. Foreign-made rules and scales are much used wherever foreign influence is felt.

Another saw which interested me much, was given to me by a Chinese cabinet-maker whom I had occasion to employ.



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Among other things, I required some tills to go in some drawers: In making these, he made dovetail joints.

When sawing the dovetails, he used a small frame-saw to cut in from the edge of the boards, to the bottom of the joints. In order to cut along the bottom of the recesses of the dovetails he used a saw which he made from a piece of bamboo and a piece of iron wire. (See Fig. 1.)

Having made the bow by fastening the wire securely at each end, so that it was under considerable tension, he laid the wire across the corner of the bench and proceeded to cut fine teeth with his hatchet.

The wire was of a diameter of the width of the saw kerf, already made, permitting the wire saw to be inserted to the bottom of the previous cuts, turned and the cuts along the bottoms of the dovetails made, parallel to the edge of the wood.

His work was truly surprising, and when the sawing was done the work was ready to put together without any further trimming. The teeth on the wire were very small, but cut nicely.

Planes, Spokeshaves, and Drills

Chinese planes are pushed like ours, but they have some different features worthy of note, viz: The handles and the position of the cutting edge. The blade is placed so that the cutting edge is in the middle of the length, instead of forward, as with ours. They are invariably home-made. They very seldom use a "cap-iron."

The handles are of two styles, those having a straight, round bar passed through the body, and those with a handle saddled over the top. These are shown in Figs. 2 and 13.

These handles give a good control over the plane. Instead of having a shoulder in the wood, for the wedge, they

often have a round iron pin driven through the side of the body, as shown in Fig. 2.

The wood used in these planes varies with the local supply. I have seen them made of oak, teak, greenheart, locust and even of rosewood. I have had some made from oak and teak for our college workshops and they give fine results. Fig. 4 shows a small rabbet plane.

A home-made spokeshave from the cabinet-maker's kit is shown in Fig. 6. In the middle of the wooden handle is an iron ferrule, through which the throat is cut and a flat blade, held by a wedge, is inserted. A section through the middle is also shown.

There are two types of drilling apparatus in common use here, both of very ancient type as shown by old pictures and descriptions. One is the "bow drill" (Figs. 7 and 8), and the other has the handle sliding freely up and down the spindle operated by straps attached to a spindle. (See Fig. 9.) This type has a heavy balance wheel at the top of the spindle.



Starrett Company Opens Chicago Store

It will doubtless be of interest to all AMERICAN CARPENTER AND BUILDER readers to learn that the L. S. Starrett Company, of Athol, Mass., the large manufacturers of mechanical tools, have recently opened a Chicago store for the service of dealers throughout the middle west who are handling the Starrett tools.

A booklet, illustrative and descriptive of this new branch, which is located at 17 W. Jefferson Street, this city, is being issued by the Starrett Company. This pamphlet indicates every requirement has been provided in the new branch which will insure immediate attention for all orders. A complete

Quality Is
Economy

*"In No Other Part of a Builder's Work
does Quality Pay Such Big Dividends
on the investment As in The Finish"*

—American Carpenter and Builder.

"Nowhere else does the best grade of material add half so much, dollar for dollar, to the Renting and Selling Values; or half so much to the Occupant's Pleasure, and the Builder's Reputation."

—American Carpenter and Builder.

Murphy Transparent Wood Finish Interior is the inside varnish that stays in fine condition 20 or 30 years.

Murphy Transparent Wood Finish Exterior has held, more than a generation, the Championship for Weather Endurance.

Murphy Transparent Floor Varnish lasts enough longer to make it cheaper than lower-price varnish would be as a gift.

The Varnish
That Lasts
Longest

Murphy Varnish Company

FRANKLIN MURPHY, President
Associated with Dougall Varnish Company, Limited, Montreal, Canada

NEWARK,
N. J.
CHICAGO,
ILL.

When Writing Advertisers Please Mention the American Carpenter and Builder.

CAST IRON COLUMNS

IN ALL LENGTHS UP TO 12 FEET
CARRIED IN STOCK

CHEAPER
THAN WOOD,
STRENGTH
AND
DURABILITY
CONSIDERED



A-5
Special Cap

FIRE AND
WEATHER
PROOF
PRACTICALLY
INDES-
TRUCTIBLE

Immediate shipment will be made on orders for cast iron columns from our stock as follows:

Net Prices F. O. B. Foundry, Coshocton, Ohio

	A-3 Plain Cap and Base	A-4 Moulded Cap and Base
5 inch columns 12 feet long, each	\$ 6.40	\$ 7.10
7 " " 12 " " "	9.60	10.60
9 " " 12 " " "	13.00	14.50

The above prices are given on a column 12 feet long over all including cap and base. For columns of different lengths deduct per foot

5 inch columns	\$.25
7 " " . . . . .	.35
9 " " . . . . .	.50

A-5 Special Cap, each, 5-inch \$1.75, 7-inch \$2.50, 9-inch \$3.25
Prices on larger size columns on application.

A-3 Plain Cap
and Base

A-4 Moulded
Cap and Base

Safe Load in Pounds for Cast Iron Columns

Made Up from Base and Top Castings	5-inch Column		7-inch Column		9-inch Column	
	Cap and Base 10 in. Square		Cap and Base 12 in. Square		Cap and Base 14 in. Square	
Length	Approximate Weight	Capacity	Approximate Weight	Capacity	Approximate Weight	Capacity
6 Feet	135 Pounds	38,400	222 Pounds	71,800	288 Pounds	90,500
6 Feet 6 inches	145 "	37,000	239 "	69,800	310 "	90,500
7 Feet	155 "	35,600	256 "	69,200	332 "	90,500
7 Feet 6 inches	165 "	34,200	273 "	67,600	354 "	90,500
8 Feet	175 "	32,900	290 "	65,500	376 "	90,500
8 Feet 6 inches	185 "	31,500	307 "	64,500	398 "	90,500
9 Feet	195 "	30,300	324 "	62,900	420 "	90,500
9 Feet 6 inches	205 "	29,000	341 "	61,300	444 "	89,100
10 Feet	215 "	27,800	358 "	59,700	466 "	87,400
10 Feet 6 inches	225 "	26,600	375 "	58,100	488 "	85,700
11 Feet	235 "	25,500	392 "	56,500	510 "	84,200
11 Feet 6 inches	245 "	24,400	409 "	54,900	532 "	82,500
12 Feet	255 "	23,300	426 "	53,400	554 "	81,000

JAMES B. CLOW & SONS

HARRISON STREET BRIDGE, CHICAGO

FOUNDRIES: COSHOCTON, OHIO.

NEW COMERSTOWN, OHIO.

SAVE THIS PAGE FOR FUTURE REFERENCE.

OTHER CAST IRON SPECIALS WILL FOLLOW

When Writing Advertisers Please Mention the American Carpenter and Builder.



Vitralite

The Long-Life
WHITE ENAMEL

IN enamel, Vitralite stands for the same as sterling in silver — and gives like results — a finish of utmost distinction combined with long and always satisfactory service. It puts the same final touch to good architecture as fine silver to a well appointed table.

“61” Floor Varnish for floors forms a perfect combination with Vitralite. When rubbed — it gives a subdued finish — beautiful, lasting and sanitary.

Send for Samples, both Liquid and on Wood.

Our Architectural Service is most complete and always at your command. Please feel free, at all times, to avail yourself of this co-operation.

See Pratt & Lambert Specifications, 1912 Sweet's Index, pages 1668-1669, before specifying wood finishes.

Pratt & Lambert-Inc.
110 Tonawanda St., Buffalo, N. Y.

“61” FLOOR VARNISH

PRATT & LAMBERT VARNISHES
AMERICAN FACTORIES ESTABLISHED 63 YEARS FOREIGN FACTORIES
NEW YORK BUFFALO CHICAGO BRIDGEBURG CANADA LONDON PARIS HAMBURG

line of the Starrett Company tools will be carried.

The L. S. Starrett Company mechanical tools are widely known and in extensive use. Inquiry concerning them should be made to your dealer or you can address the company direct.—The L. S. Starrett Company, Athol, Mass., for their descriptive catalogs.

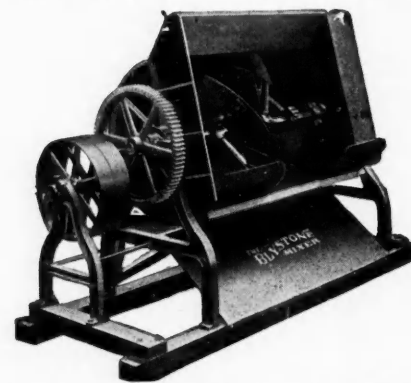


A Concrete and Mortar Mixer

Shown here is the Blystone batch mixer which is manufactured by the Blystone Machinery Company, of Cambridge Springs, Pa.

A particular feature of this mixer and one that should especially appeal to general building contractors is that the mixer is just as efficient for the mixing of mortar and plaster as for concrete.

Other cardinal points of the Blystone include, filling and discharging while in motion, no clumsy charging or discharging apparatus to get out of order, the mixer be-



The Blystone. Just the Mixer for Carpenters and Builders

ing all open and the contents always in view while being mixed, mixer is easily and quickly cleaned and can be easily moved from place to place.

This Blystone batch mixer mixes thoroughly and quickly. The material is turned forty times in one minute. Mixing is accomplished through the reverse spiral paddle system.

Blystone mixers can be furnished mounted on skids or portable hand trucks and equipped for power belt operating, or with gasoline engine power equipment.

The Blystone Machinery Company issue a very complete catalog detailing their mixer in every respect. A copy of this catalog will be mailed upon request. Write the Blystone Machinery Company, 19 Beach Avenue, Cambridge Springs, Pa.



The Hammer with Two Claws

The Double Claw Hammer in Picture and Poem is the title of an interesting little booklet issued by the Double Claw Hammer Company, of Brooklyn, N. Y., illustrative and descriptive of the double claw hammer of their manufacture.

The many practical features of this double claw hammer include the pulling of nails out straight without the use of a block, the easy driving of nails in high up or far across nailing, the clinching of the nail by the double claws and holding nail in position in difficult nailing, the general ease with which it can be used in any work—all of which has thoroughly appealed to carpenters and mechanics as indicated in the constantly increasing demand for this double claw hammer.

By writing to the Double Claw Hammer Company, 453 Broadway, Brooklyn, N. Y., you can obtain a copy of this little booklet together with other information about this hammer.

When Writing Advertisers Please Mention the American Carpenter and Builder.

The "ABC" of BEAVER BOARD Construction

The ninth of a series of twelve monthly talks to carpenters about the practical use of *Beaver Board*, the pure-wood-fibre wall and ceiling material that is durable, economical, artistic; has none of the disadvantages of lath, plaster and wall-paper; and is appropriate to any type of building new or old.*

Beaver Board is essentially a proposition for Carpenters and Builders

CHAPTER IX

Beaver Board in Large Interiors

IN solving the problem of the large (or small) interior it's the man who can say, "I have the material that you need," who gets the job.

It's the man who realizes the many possibilities latent in Beaver Board who is landing all those big building jobs and incidentally, cleaning up on the small ones.

Are you letting slip the hundreds of possible jobs and profits merely because you are not aware that Beaver Board is not "an ordinary plaster board," but a real decorative wall covering—the ideal material for old and new residences, stores, offices, churches, halls, etc.?

**Wherever there is Building or Rebuilding,
there is a Possible Beaver Board
Job Awaiting You**

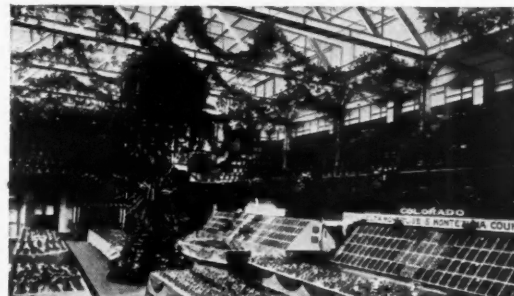
Beaver Board is a carpenter's proposition. Study the accompanying illustrations, study those in your previous numbers of "the American Carpenter and Builder". Convince yourself that others are making a good thing out of Beaver Board. Then send for "Beaver Board and Its Uses" and let us convince you that you can build up a business and a reputation as "the man who puts up Beaver Board".

**These chapters began in the January number; we'll send you any you've missed.*

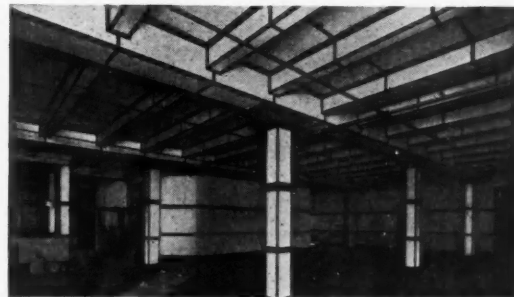
The Beaver Companies

UNITED STATES: 439 Beaver Road, Buffalo, New York
CANADA: 379 Wall Street, Beaverdale, Ottawa, Canada
GREAT BRITAIN: 4 Southampton Row, London, W. C.

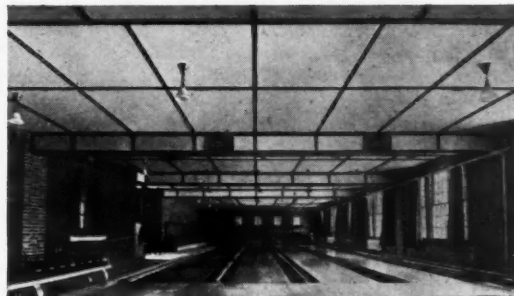
When Writing Advertisers Please Mention the American Carpenter and Builder.



Showing the Beaver Board walls and ceiling in the Auditorium at Council Bluffs, Ia. A difficult problem and its solution.



Showing an attractive Beaver Board job in the Stewart Speedometer Company's factory, Chicago, Ill. The carpenters have just left. Note the absence of the dirt, attendant on plastering.



The bowling alley of the University Club, Buffalo, N. Y. with Beaver Board ceiling.

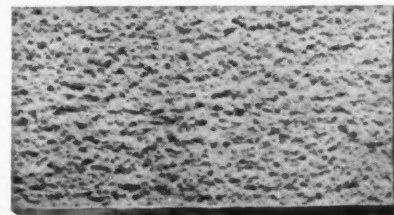
BEAVER BOARD

PURE WOOD FIBER WALLS AND CEILINGS

Trade Mark

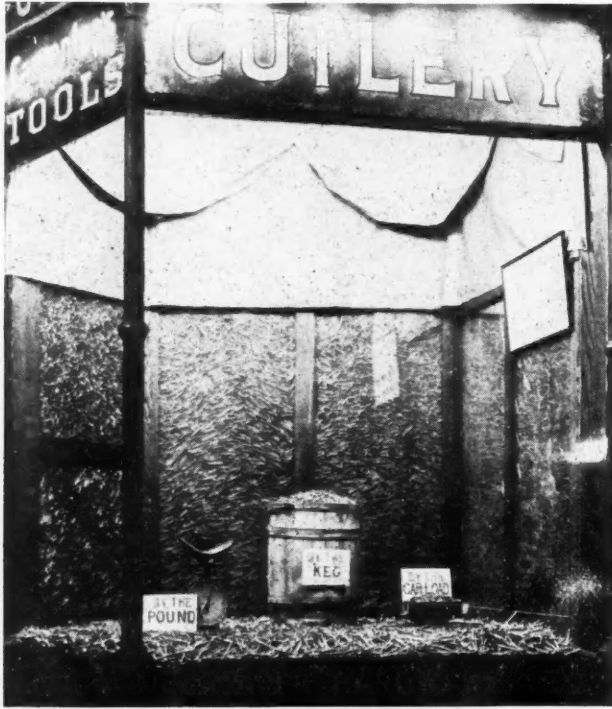


GENUINE BEAVER BOARD has our registered trade-mark on the back of each panel and sample. It has also a light-cream color all the way through, that comes only by the use of sanitary, durable **PURE WOOD FIBRE**. Insist on seeing both trade-mark and color before buying. Note illustration of a piece of Beaver Board below.



Unique Nail Display

Though the accompanying illustration may appear to be a decided novelty in that it advertises nails, yet that is just what the Galey Hardware Company of Chester, Pa., did in one of their recent window displays.



Display of Copper Clad Nails by Galey Hardware Co., Chester, Pa.

The nails featured in this window advertising were the copper clad steel nails which are manufactured by the Duplex Metals Company of Chester, Pa.

It is claimed there is as much profit for the hardware dealer in handling nails as is in the groceryman's handling of sugar. And no groceryman has ever been able to retire through the profits he gained through the sale of sugar.

Nevertheless, profit or no profit, the Galey Hardware people determined to install a unique display and they selected nails as offering one of the hardest lines in their store window trim. That they worked out a novel and pleasing window attraction the photograph attests.

These copper clad steel nails are manufactured from copper clad steel wire, which is composed of a steel core with an outer covering of copper. Molten copper is welded to the steel core by the manufacturer's patented process. It is of sufficient thickness to afford absolute protection from corrosion. The steel core gives stiffness for driving, affords the nail greater holding power, makes the copper clad nail lighter in weight than a copper nail and gives more nail of equal size to the pound. These advantages, with a lower cost and greater economy in handling, are being recognized by contractors and roofers the country over.

For detailed information concerning these copper clad nails readers should address the Duplex Metals Company, Chester, Pennsylvania.



NEW PATENTS

Combined Roof Bevel and Miter

996,451—Patented June 27, 1911, by James Merrick Bragg, of East Hartford, Connecticut.

This invention relates to the class of tools used for marking timber or other pieces to be cut to form a joint, and the



Don't Use Trouble-Making Wooden Seats

You know that wooden seats are made in many pieces and glued, bolted or wired together—that they are constantly warping, opening up and falling to pieces. Wood is porous and absorbs moisture and foul odors, so can never be made sanitary.

J-M SANITOR SEATS

eliminate all these troubles, because they are moulded in one solid, homogeneous mass from specially treated wood fibre. They are absolutely unaffected by moisture, so cannot swell, warp or fall apart like wood.

Are non-absorbent, therefore do not harbor germs or vermin, so cannot spread disease. They are absolutely sanitary.

Finished equal to wood and have a lustre that is far more lasting.

In some places seats made of this material have been in continuous service from 16 to 20 years and are practically as good as new.

Write nearest branch for Booklet and Prices.

H. W. JOHNS-MANVILLE CO.

Manufacturers of Asbestos and Magnesia Products

ASBESTOS

Asbestos Roofings, Packings, Electrical Supplies, 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

For Canada:—THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED,

Toronto

Montreal

Winnipeg

Vancouver
(1204)

When Writing Advertisers Please Mention the American Carpenter and Builder.

Glidden

Green Label Varnishes

*Wear Well Long After Ordinary
Varnishes Are Well Worn*

M. P. Durable Floor

Is the most durable floor varnish on the market. This is due not only to the superior quality of gums and oils used in its manufacture, but also to a special process of blending and manipulating and to the fact that it is thoroughly aged.

Glidden

Endurance Wood Stains

Are rich in shade, pleasing in effect and will give satisfactory results.

In order that you may thoroughly appreciate them, let us send you our color card showing Glidden's Endurance Wood Stains in fourteen shades on the actual wood, and a working sample.



The Glidden Varnish Co.

Factories: Cleveland, Ohio, Toronto, Canada

BRANCHES

New York :: Chicago :: London

When Writing Advertisers Please Mention the American Carpenter and Builder.

Milled to fit - always true.

This long shoulder adds strength.

The strongest, quickest, easiest locking device.

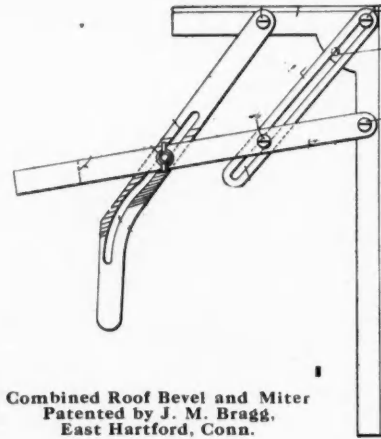
Either Rafter or ordinary markings.

Look on every guaranteed P. S. & W. Hand-tool for this Trade-Mark, "The MARK of the MAKER"

THE P. S. & W. SAMSON TAKE-DOWN SQUARE has great strength; always makes a perfectly tight fit, is easily locked or taken apart, and is furnished in either rafter or ordinary markings and a variety of finishes.

Our line of Guaranteed Steel Squares is very large and complete, and is described, with over 200 hand-tools for Carpenters, Machinists, Electricians and Tinsmiths, in our free "Mechanics' Handy List." This 170-page book also contains many pages of reference tables and useful information, send for your copy of the Fourth Edition.

The Peck, Stow & Wilcox Co.
MFRS. of the Largest Line of Mechanics' Hand-Tools Offered by any Maker
 Address Correspondence 22 Murray St., N.Y. City
 Established 1819 Five Large Factories



Combined Roof Bevel and Miter
 Patented by J. M. Bragg,
 East Hartford, Conn.

object of the invention among others is to provide a tool of this class with which the setting of the parts to produce a given angle will also of necessity arrange them to produce other angles required on the same piece.

The device is particularly useful in determining the proper bevel for rafters in roof construction.

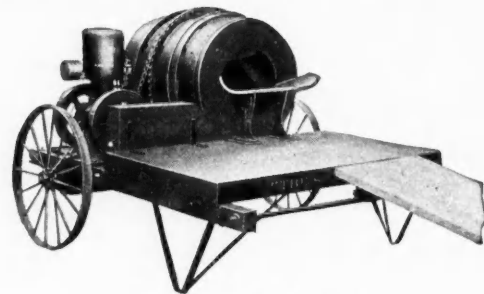


"The Standard" Junior or New Small Size Concrete Mixer

There has been such a demand for a small machine modeled along the lines of "The Standard" low charging batch mixer, that the Standard Scale and Supply Company have now perfected "The Standard" Junior mixer.

This mixer is especially adapted for sidewalks, curbing, small foundations, gutters, culverts, etc. Any contractor who is mixing by hand or with a cumbersome continuous or heavy batch mixer should look into the merits of this machine.

"The Standard" Junior mixer will save the contractor money in many ways, such as, low first cost, low operating cost, better mix with less cement, and in mixing twice as much material with the same amount of labor as hand



"The Standard Junior"

mixing. Any up-to-date contractor can readily see what this saving means to him.

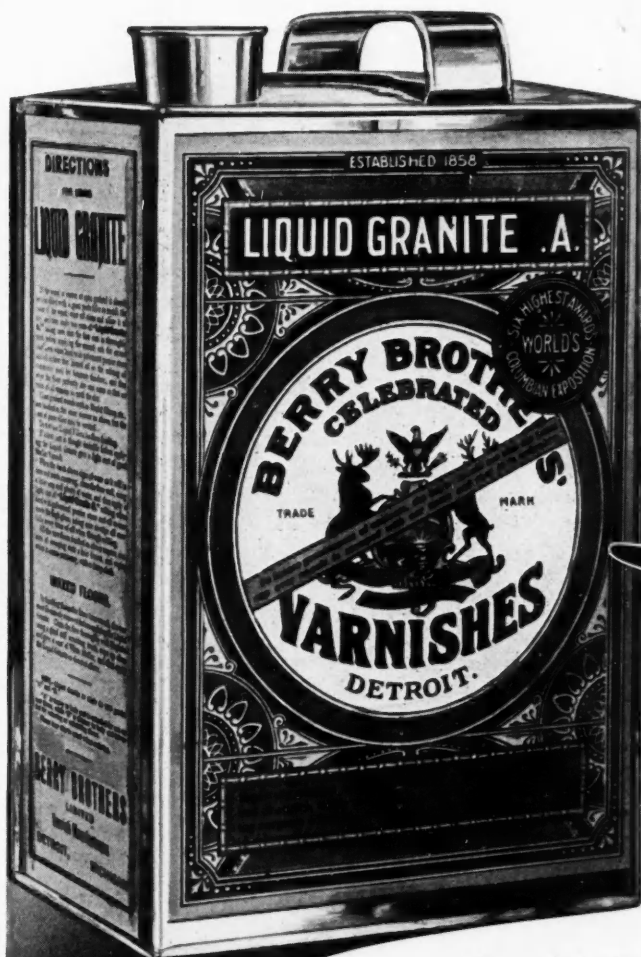
Furthermore, think of the high grade batch mixer, complete on trucks, engine and all, and weighing about 1200 pounds. This means that one man can move it anywhere on the job or can be hitched on back of the tool wagon, doing away with all the cartage that is necessary with big mixers and mixing boards.

"The Standard" Junior mixer is designed so it can often be placed to discharge into the forms and by placing the material near the mixer, the sand, stone, etc., can be shoveled directly into the mixer, thereby doing away with all the wheeling.

The semi-automatic discharge, which is the quickest discharge on the market, can be operated from either side of the drum, doing away with extra man required with other mixers.

Summing it all up, you get a high grade mixer equipped

When Writing Advertisers Please Mention the American Carpenter and Builder.



You know how
to build it—
Do you know
how it should
be varnished?

We believe every good carpenter should know something about good varnish. He should at least know good varnish from bad. He can know more if he will.

**“NATURAL WOODS
AND HOW TO FINISH THEM.”**

Free to all readers of "American Carpenter and Builder."

THIS free book won't make you an expert finisher. That isn't what we want it to do.

But it will give you a good understanding of how best results are obtained.

It will help you give sound advice to your customers, and make them better satisfied with your work.

BERRY Brothers' Varnishes are always good varnishes. You can make no mistake in recommending or using them.

You can always tell them by our well-known label, illustrated above—a trade-mark that will protect you and your customer—the Sign of Honesty.

BERRY BROTHERS, Limited

Established 1858

*Factories: Detroit, Mich., and Walkerville, Ont.
Branches: New York, Boston, Philadelphia,
Baltimore, Chicago, Cincinnati, St. Louis,
San Francisco.*

When Writing Advertisers Please Mention the American Carpenter and Builder.

with engine complete on trucks at a price that almost compels you to buy it. With this mixer you can figure your work lower than your competitor or you can have twice the profit.

Don't forget that this mixer is similar to "The Standard" regular machine, that are so well known; the only difference is that it is smaller. Any additional information can be had by addressing a card to any office of The Standard Scale & Supply Company.

Also, don't overlook the fact that "The Standard" low charging mixers are built in ten different sizes and for any kind of power with a capacity of from 2 to 40 cubic feet per batch.

If you are interested you should also get catalogs and prices on "The Standard" gasoline engines, either water or air cooled—"The Standard" hoists with gasoline engines—"The Standard" pumps with gasoline engines, and mixers with combination hoist, etc.



The General—and His Fall Campaign

Politics? No. Roofing. And it is to be a campaign that will arouse the interest and desire of every one in any way interested in roofing—the man who uses the roofing, the man who puts it on, the dealer and the jobber.

Commencing the first week in September the General Roofing Manufacturing Co., general offices of which are located in East St. Louis, Ill., inaugurate their season's advertising campaign upon their "Certain-teed" roofing.

This big roofing manufacturing company will establish in their national advertising certain principles which are of real interest to both dealers and jobbers.

They will, primarily, stimulate and increase the already heavy demand for their "Certain-teed" roofing, through their general publicity, which advertising is of direct advantage to the dealer and jobber as under their

plan of action the jobber has an active part in their campaign, whether he is handling the "Certain-teed" roofing under his own label or under their mill brand. The dealer likewise profits through the national publicity whether selling the mill or a jobber's brand of the "Certain-teed" rubber roofing.

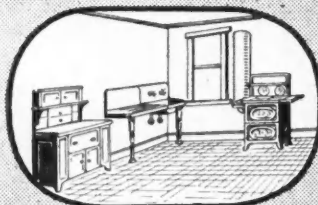
It is the policy of the General Roofing Manufacturing Company to apply their "Certain-teed" label of quality to goods bearing jobber's private brands, as well as their own brand. This solves to a great extent the difficulties that arise around the marketing of goods under jobber's private brands and manufacturers' brands.

This season's "General" advertising will embrace extensive use of national magazines, the farm and trade papers. The demand on the part of the consumer will be created and at the same time a desire on the part of jobbers and dealers to handle the Certain-teed rubber roofing is established.

For the jobbers a circular; a mailing folder and booklet; and a book (this latter to be mailed only upon request); have been prepared by the General Company for circulation among the dealers. The mailing folder and booklet are to be mailed August 26th to 31st. The circular September 2nd to 7th. These pieces are furnished the jobber free, with name and prices filled in, change being made only for postage stamps used.

For the retailers the General Company offer, through the jobbers, posters for bill board use, street car cards, fence signs, electrotypes for newspaper use, moving picture slides, mailing cards and folders, etc., etc.

This extensive campaign presents many interesting features and is a most forceful illustration of a modern, effective method of a manufacturer's co-operating with jobbers and dealers.



Every Room in Your House

Will be handsomer, cleaner and easier to keep in order if the walls are treated with

Johnston's DULL KOTE PAINT

It possesses all the beauty and softness of kalsomine or the finest imported wall paper combined with a tile-like hardness and durability. Walls treated with Dull Kote can be scrubbed with soap and water without impairing their original freshness and beauty.

The large number of colors in which Dull Kote is prepared make it possible for you to produce color combinations of pleasing variety suited to the furnishings and decorative scheme of every room.

Dull Kote wears for years without doing over. It is the most economical wall covering known to the modern decorator and the most satisfactory from the housekeeper's point of view.

All colors in stock. Wholesale and retail. A handsome book, "The Problem of the Wall," free on request.

THE R. F. JOHNSTON PAINT CO.
CINCINNATI, OHIO

And
This
is the
Label



When Writing Advertisers Please Mention the American Carpenter and Builder.

The "adv." below goes before 11,000,000
people in the big August magazines.



NOW, MR. CARPENTER:

Had you realized that in talking WHITE (and Norway) PINE to the *consuming public* WE ARE WORKING UP LARGER BUSINESS FOR YOU?

By telling the great general public (who are the sole source of *your* prosperity as they are of *ours*) WHY WHITE PINE (and Norway) are the wood they should demand, and by telling those classes who KNOW WHITE PINE'S historic merits that *there still is* "PLENTY OF IT"—we are not only *increasing the use* of WHITE (and Norway) PINE but *also* are increasing (or helping to *restore*) the *faith and favor* of the *home building public* in wooden structures.

THIS HELPS YOU.

Do you see it?

Will you help to help?

You know the superiorities of NORTHERN PINE. It's been part of your education all your life to prefer this "wood of your forefathers." You'd rather build of it than of any other kind of lumber. TELL YOUR CUSTOMERS THAT. Tell them that WHITE and NORWAY PINE are the best woods for THEM as well as for you. They'll believe you, because they know you *know*.

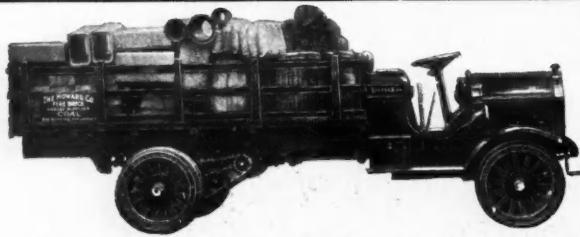
(If you have any troubles about it tell us.)

BUY YOUR WHITE AND NORWAY
PINE AT YOUR LOCAL YARDS

(We don't sell it as an association)

NORTHERN PINE Manufacturers' Association
1119 Lumber Exchange Minneapolis, Minnesota

When Writing Advertisers Please Mention the American Carpenter and Builder.



This Truck Saved \$1,546.12 in a Single Year

The purchase price of this four-ton truck owned and operated by the Howard Company of New Haven, Conn., plus interest, depreciation, overhauling, fuel and driver's salary for one year amounted to \$5,921.88.

It replaced three double trucking teams. The cost of the horses, wagons, and harness, plus interest, maintenance and drivers' salaries for one year amounted to \$7,648.00. A balance in favor of the truck of \$1,546.12—the first year.

KISSELKAR TRUCKS

1500 lbs.—1—2—3—4—5 Tons

A KisselKar Truck is your logical selection because it is the truck of surest economy and slowest depreciation. It is strong, simple and silent. It carries 50% overload, without harm. It consumes the least fuel. It rides easiest.

At the disposal of KisselKar owners is the unrivaled KisselKar service, consisting of completely equipped service buildings at leading centers, where the mechanical end of motor trucks is taken off your hands.

Your copy of the new catalog is ready. Send for it.

KISSEL MOTOR CAR CO.
546 Kissel Ave., Hartford, Wis.

Branches in

New York	Chicago	Los Angeles	St. Paul
St. Louis	Milwaukee	Boston	Kansas City
Minneapolis			Dallas

KisselKar Service Stations
and Agencies at over 200 leading
points throughout United States

Keep the Burglars Out

Only too often is a residence burglarized through the negligence of the house dweller rather than through any exceptional skill on the part of the light fingered gentleman. Very generally it takes a burglar to awaken that sense of caution and protection every family should observe.

Contractors, carpenters and builders can always find in this lack of protection the average family exhibits an opportunity to bring to the attention of the head of the house



Ventilating Sash Lock Holds Sash Secure in any Position

devices for the preventing of door and window forcing and further, to provide in the construction for such equipment.

Among the window protective devices the "Ventilator" sash lock has established that it will render burglar-proof, when closed or open to any extent, either or both sashes. It is portable, inexpensive and unbreakable. It can be used detached or attached to sash. It is simply installed.

This "Ventilator" sash lock is being manufactured by the Security Locks Company, 25 West 42nd Street, New York City, and by writing to them circulars detailing the lock completely can be obtained.



Union Metal Columns

There has been received from the Union Metal Manufacturing Company of Canton, Ohio, a copy of their latest catalog detailing Union Metal Columns for porches, pergolas and interior use.

This catalog is arranged in a very attractive manner, numerous illustrations showing the various designs of Union columns as they have been adopted in the construction of many types of buildings varying from the modest cottage to the most elaborate mansions and public buildings.

Union metal columns have proven to be entirely practicable. They are suitable for use in all climates and temperatures. They have proven entirely safe and through the massiveness of most of the structures supported have established their great load carrying capacity.

In point of design Union metal columns follow the classic order of architecture closely. In certain minor particulars slight departures are necessary in order to secure such features as strength, clean cut appearances, etc., etc.

The steel which is used in making all shafts of Union metal columns is the best high-grade open hearth product. It is specially rolled and is tight coated with special spelter which adheres perfectly to the metal under all conditions, thus protecting the metal absolutely from the action of the elements. The shafts are painted with a coat of high-grade paint especially prepared to adhere to galvanized steel, thus insuring the finishing coats of paint against cracking or peeling off. The cast iron parts of the columns are also given a coat of best metallastic paint.

The seams of all Union metal column shafts are securely locked and are always turned on the inside of the shaft. This

When Writing Advertisers Please Mention the American Carpenter and Builder.



OUR QUICK SERVICE MILL
100 x 200 3 Stories Employs 150 Men

A Free Trip to Cleveland

To convince you of our exceptional facilities and money saving proposition, we offer to all builders east of the Mississippi and north of the Ohio rivers, **free railroad fare both ways** if they will come to Cleveland, go through our mill, warehouses and shops and place an order for millwork amounting to \$100 net or more.

Shops for making art glass mirrors, prism glass and beveled plate.

Four acres of space devoted entirely to building material.

We were the first wholesale house in the East to sell direct to builders at wholesale prices and to specialize for that trade. To do it successfully required a high standard of quality and extraordinary facilities and methods for special work.

With the largest mill in Ohio, with over a million feet of shop lumber always on hand and much of the stock half made up, with follow-up systems on each order and a surplus of power machinery and room to provide for the busy seasons, we have the finest equipment in America for this special service.

Our terms are 30 days net on approved credit, 2% cash in ten days, 5% for cash with order; or we ship C. O. D. with 20% paid in advance and allow 2% cash discount.

Write for catalog H or send list for estimate.



The Cleveland Window Glass & Door Co

CLEVELAND
OHIO

DOORS SASH FRAMES FINISH PORCH AND STAIR STUFF MILLWORK
PLATE WINDOW AND ART GLASS MIRRORS AND PAINTS.

213 CHAMPLAIN AVE



When Writing Advertisers Please Mention the American Carpenter and Builder.

A Revolution in Quick Service on Millwork

QUICK SERVICE LOW PRICES HIGH QUALITY

Most material carried three-fourths made up, ready to finish at short notice.

Forty carloads of sash doors frames and finish carried in warehouse for immediate shipment.

Large stock of plate and window glass and paint supplies.

leaves the outside perfectly smooth with the exception of a very small crack or fissure which may be filled with putty before the finishing coat of paint is applied.

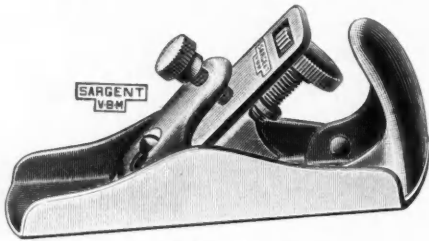
The shafts of all Union metal columns up to and including 14 inches in diameter at the base, are made of one ply of No. 24 gauge galvanized steel, and all shafts over 14 inches diameter are made of two ply of No. 24 gauge steel pressed and fluted together.

The Union Metal Manufacturing Company are also manufacturers of Union lamp standards, the ornamental lamp-posts which are proving so popular and are being extensively used upon the streets of the leading cities. For the new catalog descriptive of their columns and lamp standards write them at 1401 Maple Avenue, Canton, Ohio.



Sargent All-Steel Planes

Two new types of planes which will be appreciated by all mechanics, as well as manual-training instructors and other workers in wood have been placed on the market by Sar-



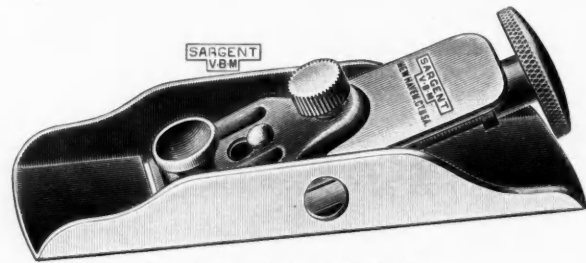
Pocket Plane

be readily carried in the pocket of a carpenter's apron; they are particularly desirable for use in work on scaffoldings, etc. Mechanics will find them substantial, serviceable and handy; they are also particularly suitable for amateur work at home. The Sargent V. B. M. stamp is an indication of their high grade and superior quality.

The pocket plane (No. 2204) is 4½ inches long and has a 1⅛ inch cutter. Pattern makers will find it particularly useful. It is furnished in the highly polished finish.

The low-angle block plane can be obtained both highly polished (No. 4206) and nickel plated (No. 5206). It is 6 inches in length and the cutter is 1⅝ inches wide.

The clamp on both planes is especially powerful owing to the screw construction which takes the place of the cam gen-



Low Angle All-Steel Block Plane

erally used on Block Planes. This is indicated by the fact that it is necessary to loosen the clamp screw before making the lateral or up and down adjustment.

The adjustments are quickly and easily made, the side adjustment by moving the cutter with the fingers and the up and down adjustment by the screw in the rear. On Nos. 4206 and 5206 the head of this screw is made so as to serve as a handle.

gent & Company, New Haven, Conn., New York, Boston, Philadelphia and Chicago.

These planes, which are all steel, are light, unbreakable and indestructible; owing to their shape and size they may

WALL BOARD THAT DOES NOT WARP

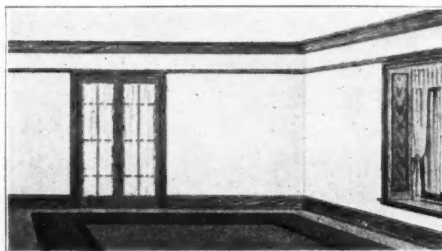
FIRE PROOF

NOT MADE OF WOOD, PULP OR PAPER

THE ONLY SATISFACTORY WALL BOARD

FOR THE
ENTIRE HOUSE

Bestwall



THE MODERN
WALL MATERIAL

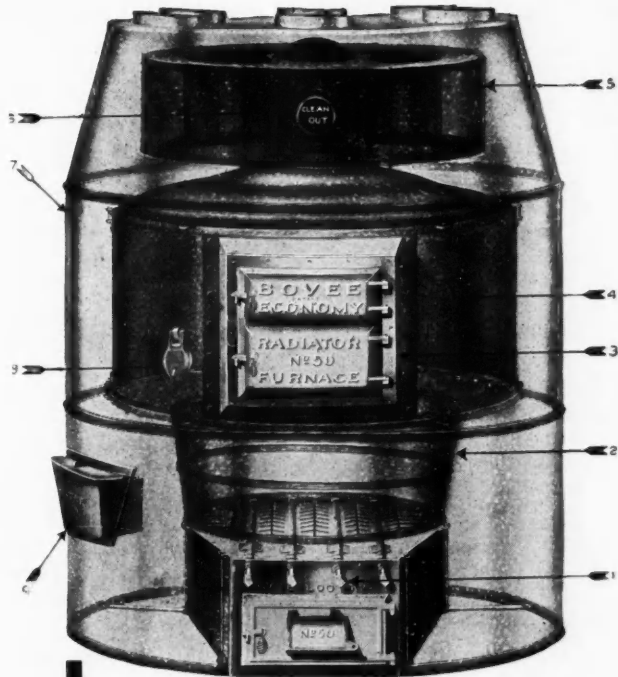
Bestwall

NO STRIPS ARE NECESSARY OVER THE JOINTS
SEND FOR SAMPLE AND DESCRIPTIVE BOOKLET

Bestwall Manufacturing Company

1247 First National Bank Building, CHICAGO

When Writing Advertisers Please Mention the American Carpenter and Builder.



Bovee Furnaces at Manufacturers' Prices

The Bovee Furnace is made of the best material and workmanship. It is in every respect a first-class, high-grade heating plant—THE BEST that can be secured at any price.

Ours Are The Only Furnaces Having a Perfect Ventilating System —

Besides the following Strong Points:

- 1—The independent Rocker Shaking Grates, easy to operate, never clogs with cinders and in mild weather it is only necessary to shake one or two, allowing the ashes to remain on the others, giving the same effect as a small firepot that would only hold a hod of coal. With these grates the fuel burning capacity can be regulated exactly to suit.
- 2—Heavy castiron Firepots, made in two sections—the most durable and largest radiating capacity in use.
- 3—The large Double Doors—only one or both can be opened as desired.
- 4—The large Combustion Chamber, almost a foot larger than the firepots. It is the combustion chamber that radiates the heat and the firepot that burns the fuel, and the larger the combustion in proportion to the firepot, the less fuel will be consumed to produce a given amount of heat.

- 5—The Compound Circulating Radiator—the heat enters this radiator at the center and circulates around both ways before entering the flue, giving a travel to the heat, and securing the utmost amount of heat from the fuel consumed.
- 6—Clean Out—This clean out opening extends through the casing and through it the circulatory radiator can be cleaned in two minutes, without stopping fire. This allows the radiating surface to be kept as clean as clean of soot as when new.
- 7—Large Galvanized Iron Casing, made double and having asbestos between. With this large casing the air never becomes overheated and is balmy as June.
- 8—Hot Blast Ventilating System gives fresh air to every room, burns the smoke and gives a quick, healthy circulation to all the air in the building.
- 9—Water Evaporation Pan supplies moisture to every room in the house; an advantage that cannot be secured by a steam or hot water plant.

WE make the combustion chamber, the return circulating radiator and every part of the **ECONOMY FURNACE** very large in comparison to the firepot. This makes them the most durable and economical of any furnace in use and causes them to supply a perfect, balmy air, similar to May or June. This very large combustion chamber, perfect combustion in burning wood, coke or any kind of coal, the long travel of the heat before reaching the chimney, causes these furnaces to actually require only about **ONE-HALF OF THE FUEL USED BY OTHER FURNACES.**

Don't compare our prices with small, cheap furnaces that do not have one-half the capacity. Measure the firepot, measure the combustion chamber, measure the compound circulating radiator. Note the long travel of heat before reaching smoke pipe. See why the Bovee Furnaces **LAST LONGER, USE LESS FUEL and COST LESS** in comparison with other furnaces of equal size and capacity.

Read what these Bovee Users think

- Eureka, Kansas.
As to the use and well testing of my furnace for the past severe winter, I am very much pleased to write that it has given me most satisfactory results in every way.
B. M. CANNING.
- Harlin, Iowa.
In regard to the furnace I bought from you, will say that it works to my entire satisfaction. During the past winter I have had no trouble to heat all of my house, although it has been 37 to 39 below. I can certainly recommend it to any one wishing a hot air furnace.
H. C. CHRISTIANSEN.
- Washburn, Wisconsin.
Regarding furnace, I must tell you that words are hardly enough for it. That furnace cannot be compared with any other. We had a very severe winter this year, but in our house we hardly notice it, so comfortable we were.
MRS. H. C. FAHRIG.
- Huntsville, Ohio.
The furnace we bought of you gave us excellent service during the extreme cold of last winter. We are very well pleased with it. I think your furnace is equal to the best, regardless of price.
J. B. FORSYTH.
- Hamburg, Wisconsin.
I am very well satisfied with my furnace. Had no trouble to set it up and receive all the heat I need.
FRANK KYSOW.
- Halls, Tennessee.
Your furnace which we have installed in our house has given very satisfactory service and we are very well pleased with it. It is a fuel saver.
C. B. ROOKS.
- Waubay, South Dakota.
Having used your Horizontal Radiator Furnace for two years, I am well pleased with it. I am burning soft coal during the winter and in the fall and spring I burn all kinds of rubbish and find it all right in every respect.
NIELS F. PEDERSON.
- Fulton, Indiana.
Your furnace has done all you claimed, and as we have passed through a very severe winter, it has made our stores very comfortable and has been properly named "Economy."
M. O. ENYART.

SWEDISH LUTHERAN SALEM CHURCH

Peshigo, Wisconsin.
The furnace of your make that was placed in our church has given excellent service and never, even in the coldest weather, failed to evenly fill the auditorium with a pure and pleasant air. You remember that the size was considered rather small for the size of the auditorium, but it does the work admirably. We are all pleased with it.
FRANS E. SARD.

PLANS AND SPECIFICATIONS Send us a rough floor plan of the building you wish to heat and our experienced experts will prepare free of charge a complete plan of your heating plant and give you our manufacturers' prices, which are but little above the actual cost of production in our own factory by the best improved methods.

SHIP CUT TO FIT—EASY TO INSTALL. We ship everything prepared, and any handy man can install our furnaces perfectly. We furnish full directions and illustrations for installing.

FIVE-YEAR GUARANTEE. We use the best material and furnish a five-year guarantee. There is absolutely no risk in buying a Bovee Furnace.

No.	Dia. of casing	Dia. of radiator	Dia. of firepot	Heating capacity up to	Price complete with casing
40	40	28	21	five rooms	\$53.00
45	45	32	23	seven rooms	58.00
50	50	34	25	nine rooms	63.00
55	54	38	29	eleven rooms	68.00

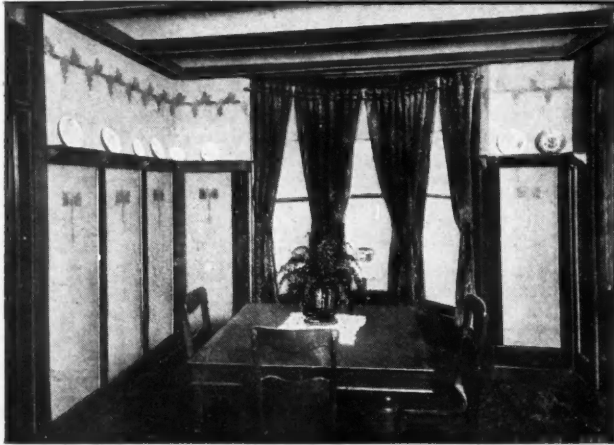
Larger furnaces at equally low Prices

You and your clients will like the **BOVEE FURNACES** just as well as our thousands of other customers

Send for our Free Catalog and other detailed information—**TODAY**

BOVEE GRINDER & FURNACE WORKS 50-Eighth Street WATERLOO, IOWA

When Writing Advertisers Please Mention the American Carpenter and Builder.



A Few of the Many Reasons Why You Should Recommend

Roberds Ideal Wall Board

It comes in convenient lengths and widths—easy to fit any space.

It is easy to handle—does not require an expert workman to apply it.

It is applied quickly—cuts with saw and nails to studs.

It can be applied at any time—weather has nothing to do with it.

It makes no dirt or muss.

It costs less in the first place.

It makes the house warmer in winter and cooler in summer.

It makes the handsomest room—decorated as desired, perfect for paneling.

It makes the most durable wall—never cracks, crumbles, warps or bulges.

It is more sanitary than any other material.

Find out all about Roberds Ideal Wall Board, then decide for yourself. Write for sample, booklet, prices, etc.

THE ROBERDS MFG. CO.
100 Railroad Street Marion, Indiana

Interesting Hurley Catalog

A line of machinery that every building contractor and carpenter should be thoroughly familiar with is that illustrated and described in catalog H of the Hurley Machine Company, the general offices and manufacturing plant of which are located in Chicago.

This catalog is devoted to the Hurley electric laundry equipment and details completely their Thor electric home laundry machines, copper electric washing and wringing machines, bed electric washing machines, Thor ironing machines and Thor solar clothes dryers.

This company are manufacturers of a large and complete line of high grade, economically operated, labor saving devices for solving the weekly laundry problem in private homes, etc.

It is good policy on the part of every contractor and carpenter to keep in touch with such equipment. Laundries can be arranged for making permanent installation of labor saving devices.

This Hurley catalog H is an attractive edition. Any contractor or carpenter may procure a copy through writing the Hurley Machine Company, 37 South Clinton Street, Chicago, Ill.



Motor Truck Notes

The tropical climates generally offer the greatest difficulties to motor trucks on account of the soft soil. It is therefore gratifying to hear that an American truck, the Kissel Kar, is performing a highly satisfactory service in Jamaica. It is a three ton model and is used by Goffe Bros., exporters of bananas.

This firm writes that the truck is frequently called upon to negotiate twenty per cent grades and make a route that no other truck in the island will attempt.

The Redwood Falls annual road tour in Minnesota was held recently under the most unfavorable weather conditions imaginable, many of the roads being in almost impassable shape. Nevertheless some good scores were made. The Kissel Kar, which is used as a press car, scoring an absolutely clean record.

A stunning Kissel Kar is being finished in the Kissel factory for a prominent resident of Sague a la Grande, Cuba. The car is pure white in every exterior part and is upholstered in turkey red patent leather. This car on Fifth Avenue or Lakeshore Drive would certainly create a sensation. It talks.

Covering 886 miles, hauling 192 tons, consuming 254 gallons of gasoline and 21 gallons of oil—that was last month's record of a two ton Kissel Kar Truck used by the Chester Brewing Company, of Chester, Pa. The Company considers this an exceptionally fine showing, especially so considering that more than 70 per cent of the roads traversed are up grade.

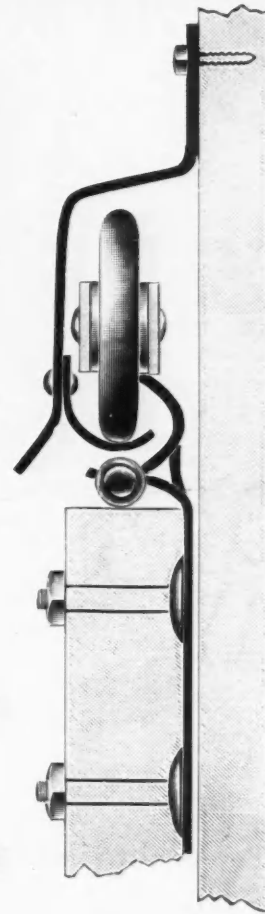
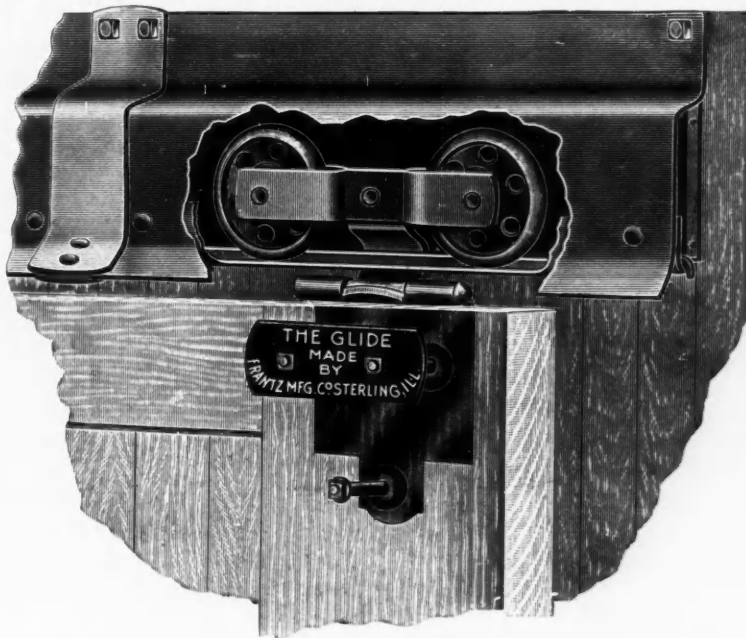
"The advent of the motor truck has not been strikingly different in circumstance from the introduction of any other of the long line of time and labor saving utilities that have become necessities in the last twenty-five years," says President George A. Kissel, of the Kissel Motor Car Company.

"It had the same early imperfections to overcome and later the same prejudices to remove. Mankind is prone to regard with disfavor or suspicion anything that is new—anything that dethrones prevailing custom. Custom is the parent of doubt.

"There are two effective purse appeals. One is the argument to save money—the other is the argument to make money. An article amendable to the former is easiest to sell

When Writing Advertisers Please Mention the American Carpenter and Builder.

QUALITY RATHER THAN QUANTITY



Wood covers over barn door tracks are an abomination.

They are also expensive.

In the "Glide" a perfect combination of both track and cover is obtained.

The cost is less than for the old style track with cover.

The "Glide" Track is *All In One Piece*.

Therefore easier to put up.

Fastened to building every 12 inches.

No brackets required.

The "Glide" Hanger is attached to the *Inside of Door*. Hence any thickness is hung with equal ease.

No adjustments necessary.

Rain Proof, Snow Proof, Bird Proof.

Guaranteed to carry any weight of door up to 2000 lbs.

Hanger cannot be derailed.

Handled by live hardware and lumber merchants.

Just give the "Glide" an opportunity to demonstrate its worth, and you will be convinced.

Never fails to make good.

FRANTZ MANUFACTURING CO.
STERLING, ILLS.

When Writing Advertisers Please Mention the American Carpenter and Builder.

"An article that will save money is susceptible of a much readier and understandable demonstration. If you can say to a prospective customer for instance:

"That dollar you just took out of the cash drawer was unnecessarily spent. I'll show you how my device would have saved it"—

"If you can say that to your man, he'll listen to you attentively.

"On the other hand, you can say: 'Here's something that will make money for you,' and the chances are he'll yawn and hurry the conversation—that is if he'll listen at all.

"Yet improvements and displacements that make money rather than save money, are the most valuable investments made by the business man.

"Ask any intelligent business man what utility he could least afford to be without and he will invariably name the telephone. Yet the telephone is a fixed charge, bringing its indispensable results only through the saving of time.

"So with the typewriter, the adding machine, and other office utilities—all of them money makers rather than money savers.

"The man who does not make his place of business attractive is behind the times and a poor contestant in the commercial race. Modern up-to-date fixtures cost money but they make money because people are drawn to the store that looks most prosperous and enterprising.

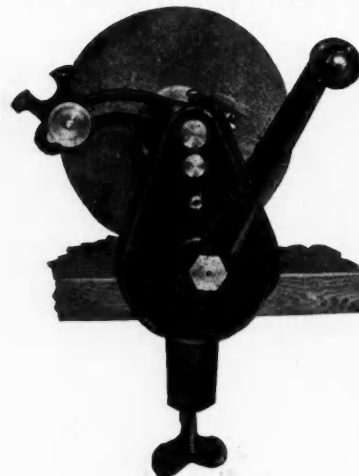
"No one can say that advertising saves money in a literal sense, but no one will deny that it makes money.

"The present wonderful vogue of the motor truck and its still more wonderful immediate future lies in the fact that in a vast majority of cases it saves money while a case where it does not make money by creating new business is scarcely imaginable."

Another New Luther Grinder

In connection with most of the new abrasives now on the market the speed of the grinding wheel has everything to do with a grinder's efficiency. High speed adds to its rapid

cutting quality, length of life, and the smoothness of the finished work. No matter how desirable a sharpening substance is, it cannot be expected to do good work unless it is run at a high rate of speed. High speed is a feature of the Luther grinders, and especially of the new design. The only grinders that can approximate its surface speed are those in the large machine shops. As a matter of fact any high-



Dimo-Grit Grinder

er speed would be dangerous.

This new Luther grinder has a speed of 30 revolutions of the grinder wheel to every turn of the driving handle. At the same time it is easy running, for the gears are exceptionally wide, with long, one-piece bearings. These are cut from solid steel blanks. The entire frame is in one piece, with all machine parts inclosed and dust protected.

Equipped with a four-inch Dimo-Grit sharpening wheel it is known as Luther grinder No. 104; with a five-inch Dimo-Grit sharpening wheel it is known as No. 105. It also has

Paneling is More in Demand than Ever

Our Circassian Walnut Appeals to the Homebuilders—Contractors and Builders—Because it is Both Beautiful and Distinctive

¶ Paneling is being used more and more. It is popular with home owners and home builders for it gives a clean cut, attractive, substantial appearance to any room that is finished with it. Paneling is especially suitable for use in offices, stores, etc., and it is being used extensively in such work.

¶ Paneling offers you—Contractors and Builders—a big field among both new and old buildings. You can secure business through our Built-Up-Veneers. They give your work a certain standing. People see them—admire them—and want them.

¶ Paneling is not hard to install. It can be put into an old, or re-modeling home, as easy as into a new building. And considering the added worth and effect paneling produces, it is not expensive.

¶ You can buy our Circassian Walnut Built-Up-Veneers at a really moderate figure. Our Circassian Walnut Built-Up-Veneers give a dandy effect, too.

¶ Note the accompanying reproduction of a Circassian Walnut Built-Up-Veneer. Note the distinctiveness of this panel—the perfect and pleasing effect.

¶ Our Built-Up-Veneers are made in many highly figured, also domestic and foreign solid effect woods. They are essentially different in their appearance and make-up than any other paneling manufactured. They represent quality all the way through. They are up-to-date in all respects.

¶ We are the largest manufacturers of paneling and Built-Up-Veneers. We can turn out paneling of almost any size desired up to 17 feet in length. Longer lengths are easily spliced.

¶ Send us your specifications and details and we will be pleased to quote and give you any information you may desire.



The F. Eggers Veneer Seating Co., TWO RIVERS, WISCONSIN

When Writing Advertisers Please Mention the American Carpenter and Builder.

Heat Expense Cut $\frac{1}{2}$ to $\frac{2}{3}$ by the UNDERFEED

Write for
FREE BOOK

To Contractors and Builders

YOU will not only add to *your own reputation*, but will confer a life-time blessing upon your customer by *recommending* the Underfeed, because it *does* cut down the cost of heating $\frac{1}{2}$ to $\frac{2}{3}$ and gives the most *most satisfactory* results at the *least expense*. Send us your building plans and we will gladly furnish free engineering plans and advice as to actual cost of installation of an Underfeed. Millions of readers of national magazines have had this question boldly put up to them in our advertising—*Why burn money in excessive coal cost?*

THE PECK Williamson Underfeed FURNACES BOILERS

will cut your coal bill 1-2 to 2-3 every winter. Here are the reasons put in convincing, tabloid form:

In the coal bin

the Underfeed effects its first saving, for it perfectly burns cheaper grades of hard and soft coal—coal which would smother fire in other heaters—thus saving \$2 to \$3 on every ton.

Smoke and gases

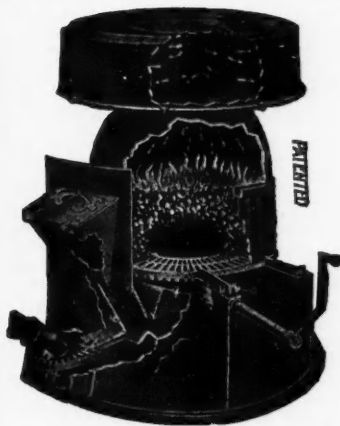
which represents a waste of 25% to 40% in topfeed heaters, pass up through the fire in the Underfeed and are consumed. Result—**more heat, clean heat, as well as cheap heat**—no smoke, no clinkers and but few ashes.

In the Underfeed

coal is fed from below; fire is on top and sides in direct contact with the most effective radiating surfaces. In ordinary or topfeed heaters, fire is on the grates—far removed from the heating surfaces.

Underfeed Systems are adapted for *all* buildings—large and small—Homes, Apartments, Churches, Stores, Theatres, Armories and Halls. Underfeed testimonials are revelations of proved heat economy and efficiency. Here's an example:

The Underfeed Furnace, with casing removed, cut away to show how coal is forced up under fire which burns on top.



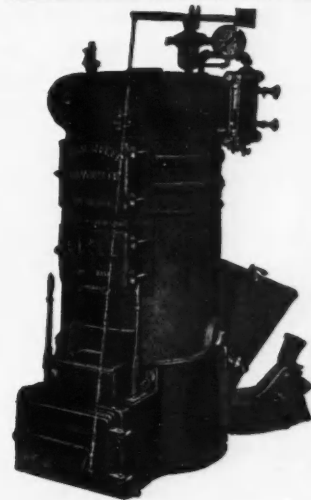
T. A. Mauzey, Juneau, Alaska, writes: "The Underfeed I installed certainly is everything that could be desired in a heating apparatus. With two scuttles of coal, two or three rooms can be kept comfortably warm for 24 hours without any more trouble than making the fire; and with four buckets of coal the whole house is kept warm and comfortable for 24 hours in the coldest weather we have in Juneau."

Every Contractor, Architect and Builder should get acquainted with the Underfeed. Send for the Underfeed Book, which clearly describes the simple construction of the Underfeed and its rational method of coal-burning.

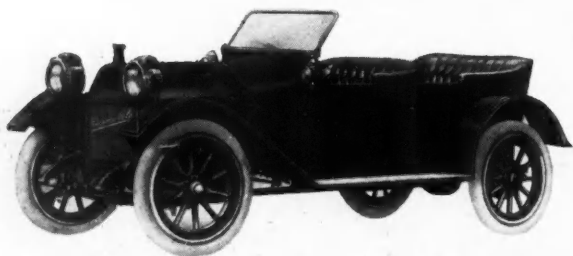
Write TODAY and we will send Free Book and many fac simile letters of appreciation from Underfeed users—all FREE.

THE PECK WILLIAMSON CO., 436 West Fifth Ave.
CINCINNATI - - OHIO

This illustration shows the Underfeed Boiler



When Writing Advertisers Please Mention the American Carpenter and Builder.



Hupmobile Long-Stroke "32" Touring Car, \$900.

F. O. B. Detroit, including equipment of windshield, gas lamps and generator, oil lamps, tools and horn. Three speeds forward and reverse; centre control; sliding gears. Four cylinder motor. 3½-inch bore and 5½-inch stroke. Bosch magneto. 106-inch wheel-base. 30x3¼-inch tires. Color, Standard Hupmobile blue. Roadster, \$900.

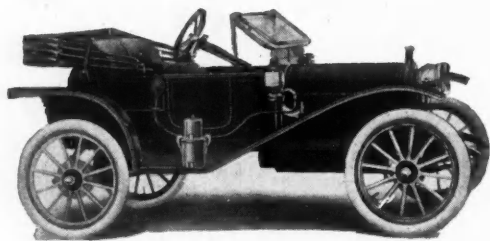
Hupmobile

\$750—\$900

We believe the Hupmobile to be, in its class, the best car in the world.

**Hupp Motor Car Company, 1255 Milwaukee Ave.,
Detroit, Michigan**

Canadian Factory, Windsor, Ontario



Standard 20 H. P. Runabout, \$750.

F. O. B. Detroit, with same power plant that took the world-touring car around the world—4 cylinders, 20 H. P., sliding gears, Bosch magneto. Equipped with top, windshield, gas lamps and generator, oil lamps, tools and horn. Roadster, 110-inch wheel base, \$850.

When Writing Advertisers Please Mention the American Carpenter and Builder.

Luther's patented chisel guide and tool rest, by which a true even bevel can be given to any edged tool.

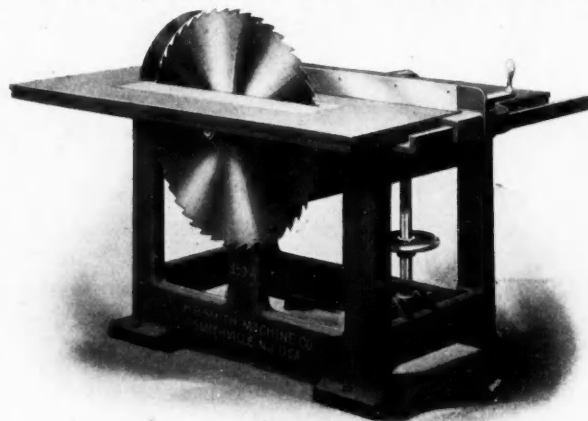
For descriptive matter concerning their grinders address the Luther Grinder Manufacturing Company, 1105 Michigan Street, Milwaukee, Wis.



The Smith Heavy Rip Saw Bench

The new saw bench which is being manufactured by the H. B. Smith Machine Company, of Smithville, N. J., is heavy enough and sufficiently strongly driven to carry and operate a 30" circular saw.

The frame of this new Smith machine is cast whole, having broad panels with deep flanges within the fram-



Front View of No. 359-A, 30" Saw Bench, with Iron Frame and Iron Table, the Latter Having a Parallel Hoist for Depth of Cut

ing. It contains the boxes for the saw-arbor, and supports the mechanism for adjusting the table, in a most substantial manner.

The table is of iron, 38" wide by 60" long and has a parallel vertical adjustment of 4½" for utilizing the periphery of saw or regulating the depth of cut. The throat in the table is of wood 7" wide by 34" long. The table is wide enough to work stock as wide as 25" between the Saw and Guide.

The ripping gauge is 36" long by 3" high. It has a bearing 10" long with a quick cam tightener and slide on adjustable ways which are bolted to the front edge of the table.

The saw arbor is 1¼" where the saw goes and 1¾" in the bearings which are self-lubricating. The saw-checks or collars are 4½" in diameter, and provided with filling-up collars for a dado head as wide as 2". The pulley on arbor is 7" diameter by 7½" face, and should run about 1800 turns a minute. A 30" saw will project above the table 12".

The new parallel vertical adjustment to the table for regulating the depth of cut is very substantial and convenient. It is different from any method hitherto employed. It consists of a rocking bar pivoted in the middle of the upper framing, one end of which is divided and hinged to the discharging end of the table. The other end is fitted with a double threaded nut so that a screw which rests in a single threaded nut below supports the front end of table as it lowers or rises with the other end of the rocking bar, hence when the screw is operated by the hand wheel a parallel vertical adjustment is imparted to the table.

The H. B. Smith Machine Company, of Smithville, New Jersey, will supply detailed particulars concerning their heavy rip saw bench to all asking for such information.

GREENHOUSE TIME IS NOW!

NOTE—Wise, up-to-date **Contractors** and **Builders** **MAKE A HIT** with their best customers by **Recommending CYPRESS, "The Wood Eternal."** Do you?

CAN YOU THINK OF ANY HARDER TEST FOR WOOD THAN GREENHOUSE USE?

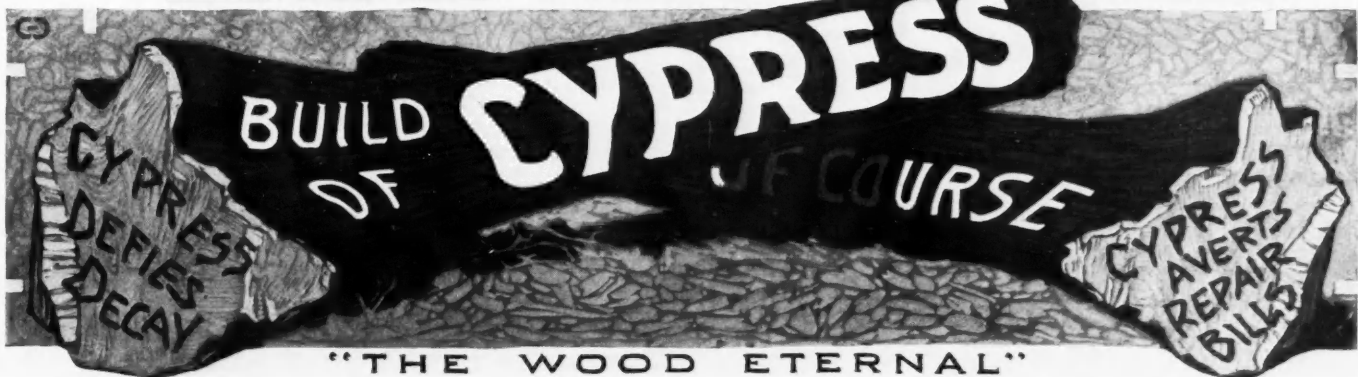
You know ordinary wood in greenhouses lasts *not over 4 years*

Zero on one side, hot humidity on the other, constant contact with wet rich earth and compost, constant sprinkling and sweating, all combine in an invitation to hurry up and rot.

Next to the growth of the plants themselves the busiest thing in a greenhouse is the decay-tendency of the wood it is mostly made of.

THOSE WHO MAKE GREENHOUSES

A BUSINESS



One of the largest greenhouse manufacturers, J. C. Moninger Co., Chicago, says:

"We first began using Cypress *exclusively* for greenhouse construction in 1885, using it previously in conjunction with pine. The greenhouses then built with Cypress *are being used today* by their owners and the wood is found *perfectly preserved and free of any decay or rot.*" *Figure it out yourself.*



WRITE TODAY for **VOLUME 3** of the **CYPRESS POCKET LIBRARY**, with **20 PAGES** of Valuable Guidance for Greenhouse Contractors. (SENT PROMPTLY and no charge.)

"WOOD THAT WILL STAND THE GREENHOUSE TEST WILL STAND ANYTHING"

"The better a builder builds his buildings—or even alterations—the better he builds his own reputation." The better builders all over the country are glad when their customers insist on CYPRESS, "THE WOOD ETERNAL," or permit them to use it. Cypress is best for the owner because it lasts practically forever **WITHOUT DECAY**. (And Cypress is easy to work—**GOOD FOR YOUR TOOLS**.) Take advantage of the **FACTS!**

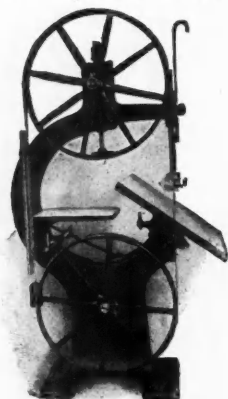
Let our "BUILDER'S HELPS DEPARTMENT" help YOU. Our entire resources are at your service with Reliable Counsel
SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION
 1216 HIBERNIA BANK BUILDING, NEW ORLEANS, LA.

INSIST ON CYPRESS AT YOUR LOCAL DEALER'S. IF HE HASN'T IT, LET US KNOW IMMEDIATELY

When Writing Advertisers Please Mention the American Carpenter and Builder.

Variety Saw Table

The United Machinery Company, of New York, are one of the concerns specializing in the construction of wood-working machinery for carpenters and builders.



Variety Saw Table—Made in New York

In their Variety Saw Table, which is now being made in New York, this company are putting out a most practical equipment for general use in any carpentry, pattern or furniture shop.

This Variety Saw Table is built with the utmost accuracy in every detail. It is arranged for all kinds of mitering and bevel cutting. The machine is built thoroughly throughout and can be operated easily.

The United Machinery Company's band saw, which is illustrated here is furnished in either a 27 inch complete $\frac{3}{8}$ band saw weighing 800 lbs., or a 32 inch complete $\frac{3}{8}$ band saw weighing 1100 lbs. Both machines are equipped with

the Wright Roller Guide.

Full particulars concerning any of the machines of their manufacturing can be had by any AMERICAN CARPENTER AND BUILDER reader through addressing the United Machinery Company, at 86 Centre Street, New York City.

Potter Bros. New Star Scribers

Potter Bros., 612 W. 110th St., New York, have recently brought out a new line of scribers, which are known and sold as the "Star" $3\frac{1}{2}$ inch scribers. These tools are made with either sharp or broad point and have the Potter exclusive adjustment slot, which allows use of $\frac{3}{4}$ inch of pencil

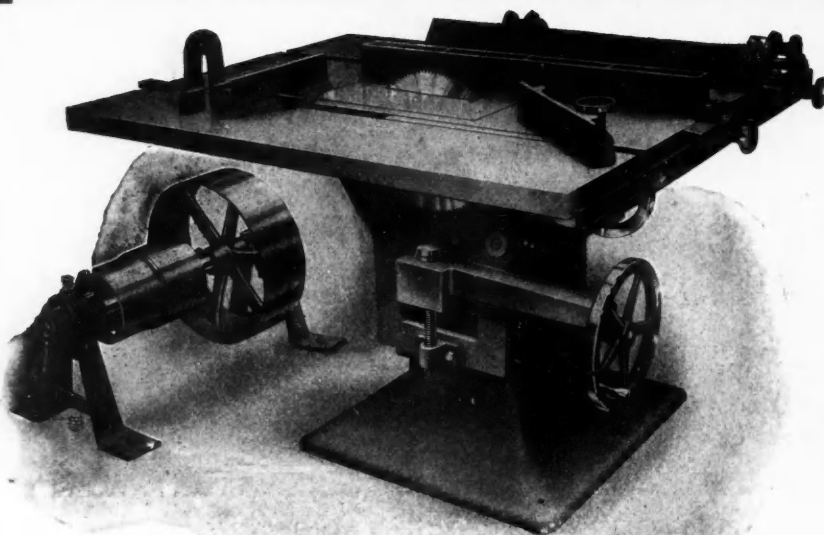


Star Scriber with Broad Point

before readjustment becomes necessary. One of these new scribers is illustrated herewith. They are sold at a comparatively low price and can be furnished with a steel point, which is easily inserted in place of the pencil, if desired.

Potter Bros. also make the well known line of Peerless

Carpenters and Builders! When You Buy Woodworking Machinery—START RIGHT



Install a machine that you will be **proud** of after **5 years continuous use**. Buy a machine that is **built right**, that does your **work right**, and one that is **sold at a reasonable price**. Our

VARIETY SAW TABLE

Combines all these features. Write us for further particulars, prices, etc., before buying any other machine.

UNITED MACHINERY CO., 86 Centre Street, New York

Specialists in Woodworking Machinery for Contractors, Carpenters and Builders

When Writing Advertisers Please Mention the American Carpenter and Builder.

Just a Moment Before You Ring!



Did you notice the unusual beauty of design and grain in that door?

Take a good look—more like a fine piece of furniture than a door, isn't it? That's true of every

MORGAN GUARANTEED PERFECT HARDWOOD **DOOR**

Every one is a picture—worthy of filling the most conspicuous and prominent place in any house. Built for permanence—will look as well after ten, fifteen, twenty-five years as it does today. That's the kind of doors you want. And they are guaranteed with this iron-clad guarantee of perfect satisfaction:

"Every Morgan Door with the Morgan stamp on the top rail, which with proper care fails to give perfect satisfaction, will be replaced free of charge."

Learn all about them in "Door Beautiful," an artistic, illustrated, de-luxe book of authentic, essential information for people about to build or remodel. Write today for free copy.

Morgan Company Oshkosh, Wis. **MORGAN SASH & DOOR CO.,** Dept. B7, Chicago, U.S.A. Morgan Millwork Co. Baltimore, Md.

ARCHITECTS: Descriptive details of Morgan Doors may be found in Sweet's Index, pages 910 and 911.

**Look for the Morgan Stamp on the top rail
Accept no doors without it
Morgan dealers do not substitute**

Every architect, contractor, dealer and carpenter who associates his name with Morgan's builds for himself a reputation that overshadows all competition.

Every home equipped with Morgan Doors and Trim is a monument to the good judgment, integrity and finished craftsmanship of every man who had a hand in building it.

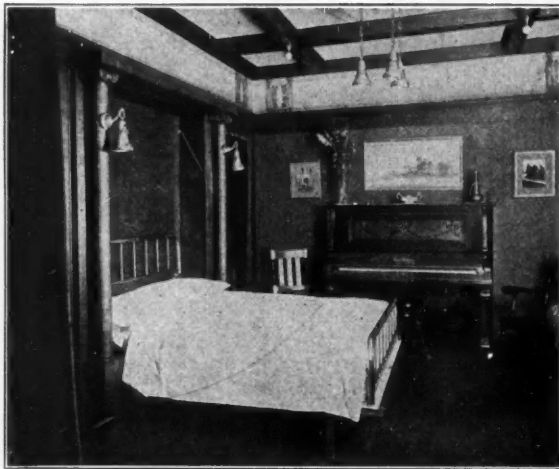
Morgan Sash & Door Company

When Writing Advertisers Please Mention the American Carpenter and Builder.

How to Utilize Every Inch of Space to the Greatest Advantage

PERFECT WALL BEDS

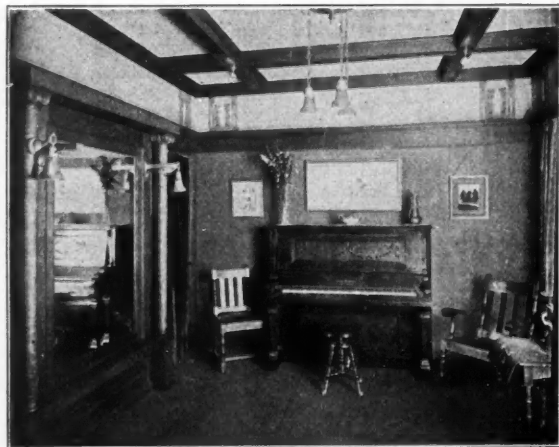
Solve the Space Question



Space utilization means increased area for the builder, consequently increased income. It means that the owner can provide a more attractive and convenient home for tenants with greater profits to him.

Three Rooms Equal to Five

Require less furnishing and are made more attractive by the richly finished console or side board which conceals the bed.



Ample ventilation is provided—More sanitary than the old style bed, for the reason that the space beneath can be kept clean without the laborious moving of the bed.

Prospective tenants will appreciate builders efforts to give them the best.

Builders:— Investigate before building. Let us plan for you how to utilize every inch.

PERFECT WALL BED CO.

430-2 S. Wabash Ave.

CHICAGO, ILL.

scribers and the Peerless bit gauge, for which they have had an unusually large sale. Their line includes at least ten leading specialties particularly designed for carpenters and woodworkers.



Tailor-Made Millwork at Ready-Made Prices

SPEEDING UP THE DELIVERY ON SPECIAL WORK
SO AS TO GIVE PROMPT SERVICE ON ALL
ORDERS

Seven years ago the Cleveland Window Glass & Door Co., of Cleveland, Ohio, decided on a radical and far-reaching change of policy; to change from wholesaling exclusively to dealers, and on their out of town woodwork to extend to all out of town builders the full facilities of their extensive woodworking mill and stock, also to give them net wholesale prices on their entire line of woodwork, glass and paint.

This gave to all builders east of the Mississippi River the opportunity to buy supplies of the highest grade at prices far below those ruling in most of their home markets, and to get service on special millwork in most cases much more promptly than they could obtain through their local mills; and especially so where the home dealers depended on out of town sources of supply.

To accomplish this quick service new methods and systems in millwork had to be invented or adopted.

As far as possible all material was kept partly made up, so that the final operation would require but a fraction of the usual time.

For example; for hardwood veneered doors in oak and birch the stiles and rails were cored, veneered, and edged ready to machine. By this method an odd size hardwood veneered door could on special occasions be finished in a day or two—which would require 4 to 6 weeks in many mills.

An odd sash with this system of having all the parts cut and machined could be finished in an hour that would take days or weeks in the average mill.

Throughout the mill extra power machines, room and stock were provided so as to round out a uniform quick service.

Combined with this was a warehouse 200 by 100, 3 stories, filled to the roof with stock doors, sash, frames, finish, and porch material, together with shops for art glass, mirrors, beveling and prism glass, and full wholesale stocks of plate and window glass and paint supplies.

To make dealing easy to all, liberal terms of credit are extended to all responsible parties with large cash discounts to those who prefer to buy in that way.

The trade sought for and solicited is that of the best class of contractors who demand and appreciate good work, modern designs and prompt service.

To establish personal relations with these customers and to show them what they could depend upon in the matter of quality and delivery of special millwork and all goods used in connection, an offer is being made to all builders in this territory (see their advertisement) whereby railroad fare both ways is paid providing the builder will go to Cleveland and inspect their mill, warehouse and other facilities, and purchase woodwork to the amount of \$100.00 or over. This offer has been accepted by hundreds of builders who have become permanent and enthusiastic customers.

That the liberal dealing, high standards and progressive policy so long maintained by the company are appreciated by the best builders is evidenced by the constant growth of their business and the large territory from which trade flows to them.

When Writing Advertisers Please Mention the American Carpenter and Builder.

ORR & LOCKETT

Established 1872

L HARDWARE CO.

Most contractors and builders doing business in Chicago and vicinity know that they save time, trouble and money by sending us their orders for

Builders' Hardware

But there are others who do not realize what an advantage it is to have the benefit of our service, forty years of experience and tremendous buying power, and this advertisement is intended for them.

In the first place we carry at all times the largest and most complete line of builders' hardware in the country, so we seldom have to hold up an order because something is "out of stock." And this huge assortment (including the well known brands), gives you the greatest possible choice of kinds and prices.

We very seldom fill an order with the goods of any one manufacturer exclusively, but select those pieces which are acknowledged to be the leaders in each manufacturer's line. Thus the entire order contains only the highest grade articles—not a weak link anywhere.

In packing our goods for shipment we sort and label each piece from the specifications so that the workmen on the job lose no time in handling. Any contractor will appreciate the great advantage of receiving his hardware in this shape.

Send us your plans or specifications so we may show you.

ORR & LOCKETT

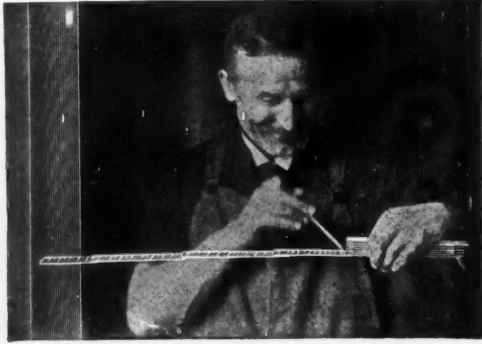
Established 1872

L HARDWARE CO.

14-16 W. Randolph St. CHICAGO, ILL.

The Master Slide Rule

A slide rule which should prove of interest to every carpenter, architect, contractor, mechanic, in fact anyone having measuring work to do, and which is as practical in actual



This illustration shows a mechanic taking inside measurement of a door frame. The Master Slide Rule shows exact dimensions where indicated by pencil—without figuring or calculations. No guess work.

work as it is interesting to read of, is the Master slide rule now being manufactured by the Dahl Manufacturing Company, of New York City.

This slide rule (which is here illustrated, also shown in



This illustration shows a 5-foot Master Slide Rule with lower slide extended 2 1/2 inches, making distance between the two extreme points of the rule 10 1/2 inches.

inside measuring use) is particularly intended for inside measurements. Though it is just as valuable in the measuring of ceilings, walls, pipes, lumber, etc., etc.

This master slide rule is made of boxwood and trimmed with brass plated steel. When extended it is kept in place rigidly, by strong steel springs. This rule can be opened and closed instantly. One side of the rule is marked for inside measuring, the other side similar to any standard rule. The rule measures eight inches when closed. By extending lower slide the exact measurement from point to point is obtained.

The Dahl Company will be glad to supply anyone with circulars descriptive of this rule, the terms of the agency proposition they are offering and various other details. For this information write the Dahl Manufacturing Company, Child's Building, 1 east 42nd Street, New York City.



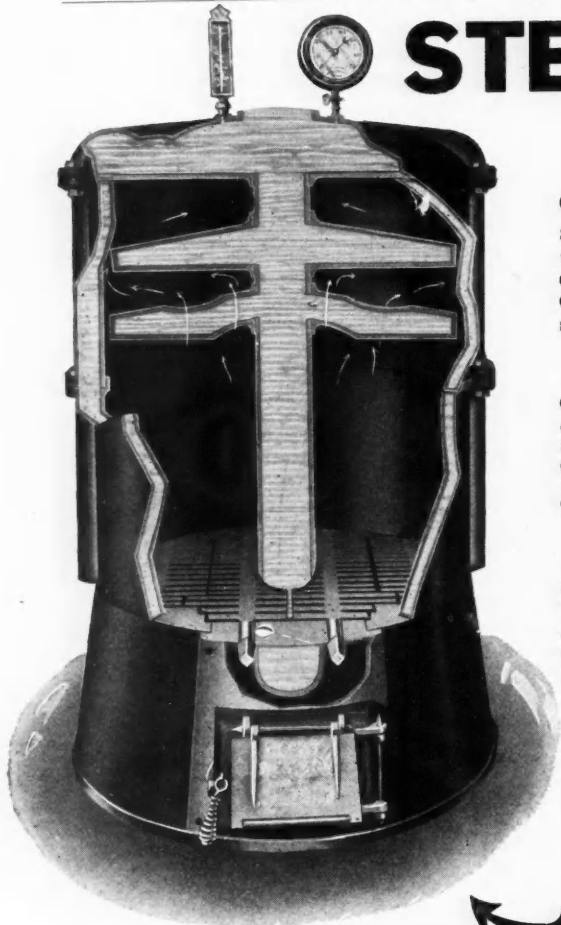
Arrow Head Bits in Envelopes

The next Arrow Head auger bit you buy will come to you put up in a protective, moisture proof envelope.

This form has but recently been adopted by C. E. Jennings & Co., New York, in the putting out of their Arrow Head auger bits and L'Hommedieu ship augers.

The envelope not only does away with the necessity of the merchant wrapping up bit, which is quite a time saver for the dealer, but it affords the buyer and user of the bit added protection in that it keeps the goods bright and fresh. All envelopes bear on their face number and type of bit and other information as to what the bit is particularly designed for.

Carpenters, generally, are very familiar with the Arrow Head line of auger bits. Your local dealer or the C. E. Jennings & Co., 42 Murray Street, New York City, can furnish you detailed particulars, catalogs, etc.



STERLING

HOT WATER HEATER

- ☐ Hot Water is recognized as the very best system for heating any home. True, it costs a mere trifle more to install but it saves that extra cost very quickly in economy of fuel consumption.
- ☐ Hot Water heat is steady, satisfying, clean—and it's healthful, too.
- ☐ The Sterling System is unbelievably simple and this simplicity is a source of great economy to the purchaser.

Not an Expense but Real Economy

- ☐ Durability and up-keep considered, The Sterling System is really cheaper than any hot air or stove heat. That means much to your clients, Contractors and Builders. It means a great deal to and for you, too.
- ☐ Heat economy and satisfaction are wanted in every home. You can be sure of true heat satisfaction in every building in which you install The Sterling System.

Easily Installed in New or Old Buildings

- ☐ Owing to its simple construction it can be readily installed in a building already built. It requires very little room indeed. Anyone, almost, who can handle tools can install the Sterling as we send complete heating plans absolutely Free. These plans are made by competent heating engineers.

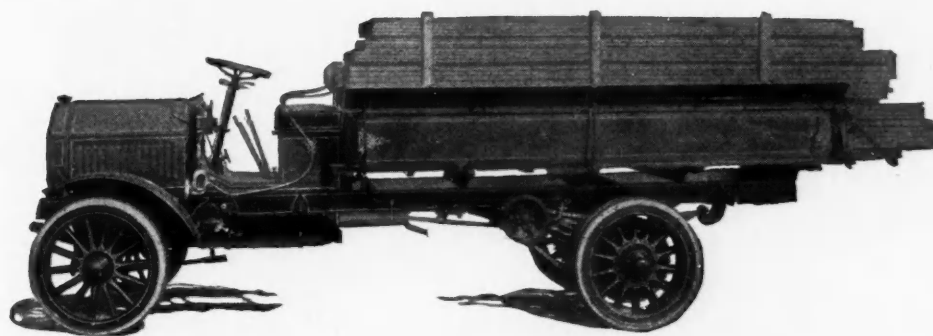
Contractors and Builders

THE STERLING SYSTEM is just what you have been looking for. Our book—"The House of Perpetual Summer"—is something you ought to have. It will pay you dividends. Send for it today. Don't neglect to find out about THE STERLING SYSTEM before installing any particular heating equipment.

CONSUMERS' HEATING COMPANY
MARSHALLTOWN, IOWA

When Writing Advertisers Please Mention the American Carpenter and Builder.

Your Business Demands Better Delivery Facilities



IF there's one business that demands quick hauling of heavy loads, it's yours. Time and again construction work has been held up waiting for deliveries of raw material. Day after day your profits have been eaten up by extra trips that were made necessary through the inability of your horses to haul heavier loads.

Your business demands better transportation:
Present expenses of hauling should be reduced:
Time of deliveries shortened:
Delays and "accidents" avoided:

All the work you are doing now with horses and wagons can be easily handled with the Schacht Auto Truck

**At
20% to 40%
Saving**

In economy of space, in cleanliness, in the rapidity of deliveries, in tonnage carried, in reliability the Schacht Auto Truck is far ahead of its horse-drawn competitors. Besides its greater speed, it has the added advantage of being able to work all day and all night without rest, giving just as good service the hottest days in summer, or the coldest days in winter, at the same time performing work which no animal could stand.

You Had Trouble Making Deliveries This Summer

Of course you did. In New York City, during the hot spell, 1,200 horses dropped dead in harness. In Chicago, 1,600 horses were destroyed in six weeks. In addition, thousands were prostrated by the heat and ruined for service.

With the coming of deep snows and icy pavements the reliability of delivery of building material by animal power is further reduced. On the other hand, bad weather has no effect on the "Schacht." It never falls

and breaks its leg. It will run over the roads when winter snows stop all other traffic. Even under the most trying conditions, the "Schacht" is not likely to be subjected to its limit of endurance.

Schacht
Auto Trucks
Go 15 Miles to a Horse's
Three—With 3 Times the Load

The "Schacht" Way of Delivery is the 20th Century Way that Saves Money.

The other way belongs to the days of the past—is expensive, unreliable and unsatisfactory.

Counting the feeding, shoeing, stabling of horses; harness, help, etc.—you are running your business at a loss every day you delay installing Schacht Auto Trucks. Five heavy trucks can be housed in a garage about 35x60 feet, where it requires four times that space for teams and wagons that do less work. The average is the same for one truck or for ten.

You owe it to yourself, to your business, to look thoroughly into the transportation question. The "Schacht" is made in all sizes for all businesses. It is easily handled and most efficient in low fuel consumption and maintenance expense.

Invest in a "Schacht". It Will Make and Save Money for You

Write us and we will send you facts, figures, and full information, that will show you how you can profit by installing the "Schacht." We'll be glad to hear from you.

Schacht Motor Car Company, 2846 Spring Grove Avenue Cincinnati, Ohio

When Writing Advertisers Please Mention the American Carpenter and Builder.



Get Together

Get on the Profit Side at the Start

UNCLE SAM will help you by bringing you into **DIRECT** touch with the actual **PRODUCER** of lumber and millwork. It is no longer necessary for you to pay the profits of five middlemen on **LUMBER, SASH, DOORS, MILLWORK, HARDWARE, PAINT.**

Never before in the history of the lumber business has it been possible to buy building material really from first hands. **IT IS NOW.** We sell to you **DIRECT**, and by "direct" we mean not from a wholesale yard or jobber's stock but **DIRECT FROM OUR OWN TIMBER TRACTS AND MILLS.** We are owners of billions of feet of finest standing timber in the Northwest. We log it over our own railroad, cut it in our own mill, and ship it direct to the builder.

Shrewd and careful builders seize every chance to save on their material—it's just like **EARNING** money because it's the one **SURE** way to save on building. It's **SURE** because it's simply a matter of keeping the middlemen's commissions for **YOURSELF** by buying direct from the man who owns the resources.

YOU SAVE 40% to 60% and WE GUARANTEE the QUALITY

The difference in the cost of a house bill bought from a local yard and from us has been a marvel to men buying their first bill from us. **WE GUARANTEE** better goods than you can get from a local dealer. By loading a full house bill into one car we can also make you a big saving on freight—**A SAVING THAT BELONGS TO YOU.**

MAKE US PROVE OUR CASE TO YOU by sending for our big price list, or better still, send in your bill and let us estimate it for you. We will quote you a price **DELIVERED TO YOUR STATION.** Our prompt shipments, high-quality materials and bargain prices will be an eye-opener to you.

Just clip the coupon below and mail it today.



Hewitt-Lea-Funk Co.
 HIGH IN QUALITY LOW IN PRICE
 BEST IN SHIPMENT
 623 First Ave Seattle, Wash.

HEWITT-LEA-FUNK Co., 623 First Ave., Seattle, Wash. **Coupon**

I enclose stamps for lumber list quoting price laid down at my station.

Name _____

Address _____

Occupation _____

Lay-Out for Model Woodworking Shop

In connection with the articles on power woodworking shops presented this month in our "Helps to Bigger Business" Department, we are glad to direct the reader's attention to the advertisement of the J. A. Fay & Egan Co.

Many builders appreciate the value of a fully equipped shop or planing mill, and where their work is of pretty good volume, they find it pays best to have a special woodworking machine for each kind of work. The J. A. Fay & Egan Co. have made a study of the requirements of contractor's shops and have developed a number of special woodworking machines exactly suited for contractor's work. In their advertisement this month they show a model lay-out for a carpenter-contractor's shop. The equipment consists of nine J. A. Fay & Egan Machines. They are the machines which experience has showed are most useful for light planing mill and variety work.

This shop, as planned by their expert millwrights, is a building 30 by 60 feet. There is one main line of shafting which drives all the machines. A good deal of valuable information is contained in this drawing since the sizes of all pulleys are indicated and also the speed at which each of the machines should be operated for best results.

The arrangement of the machines is claimed to be the most convenient for putting the millwork through with the minimum amount of rehandling. At the same time plenty of operating room is left around each machine.

The nine machines which this company recommend are the 16" surfacer, variety saw, jointer, mortiser, band saw, tenoner, friezer, hand-feed knife grinder and band saw filer. This is a very complete little outfit and could be installed at a very moderate figure. The entire plant could be driven by a small gasoline engine or electric motor. These are tools which would give highly satisfactory service and last a long time in any contractor's shop.

Builders should look into this matter and find out just what machinery will pay them best returns. Write to J. A. Fay & Egan Co., 545-565 W. Front St., Cincinnati, O., for illustrated circulars describing each of these machines in detail.



Concrete Lighting Standards for Springfield

We are informed that The Pettyjohn Co., manufacturers of Concrete Moulding Machinery and Appliances, Terre Haute, Ind., have just received an order for 300 reinforced concrete lighting standards similar to those which were recently described in these columns. Of this number 220 of the standards are to be used in Washington and Lincoln Parks of Springfield, Ill., while the remainder are to be used in the boulevard system.

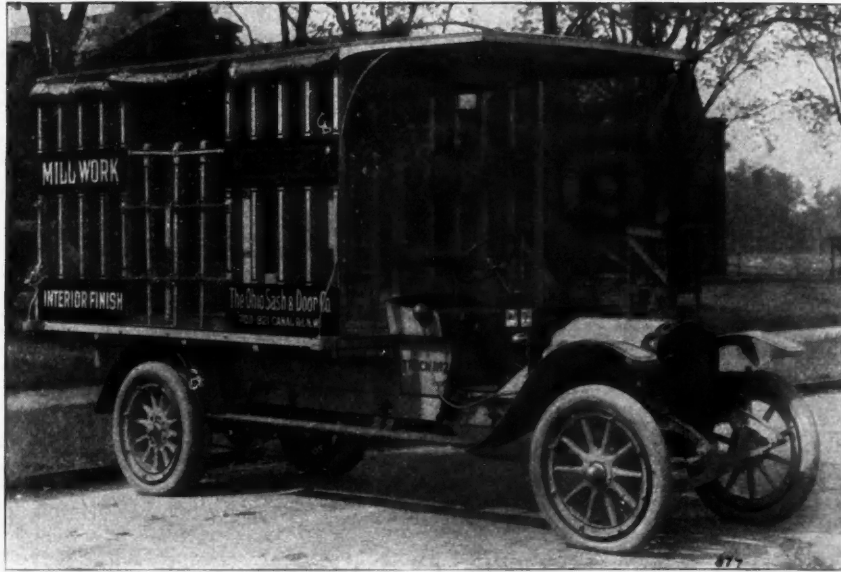
Springfield has unusually large and handsome parks which are the pride of the city, but previously they have been inadequately lighted by lights on iron poles. This order is especially gratifying to the Pettyjohn Co., and should be also of interest to all cement users, in view of the fact, that Springfield has previously used standards made of a combination of cast iron base and sheet metal shaft, while the neighboring cities have been using concrete. The present specifications were definitely for concrete and that in itself speaks volumes.

We understand that The Pettyjohn Company have also received orders for an installation as far west as Dubuque, Iowa, and numerous orders from cities on the Atlantic coast.

When Writing Advertisers Please Mention the American Carpenter and Builder.



WHITE MOTOR TRUCKS



WHITE Motor Trucks are, without doubt, the best known motor truck in the United States today. Among the prominent users of motor trucks in this country, the owners of White trucks are by far in the majority.

In the first place, White trucks are made in capacities of 3-4, 1 1-2, 3, 5 tons, making them suitable for practically every line of business.

Secondly, White trucks are designed and built in the best possible manner for the service they are to perform. They have passed through the real test—the test of service—and have made good.

Lastly, White trucks are manufactured by a company which has had the confidence and respect of the industrial world for over fifty years. The name of the White Company is the best guarantee in the world of the sterling quality of White trucks.

The White  Company

CLEVELAND

MANUFACTURERS OF GASOLINE MOTOR CARS, TRUCKS AND TAXICABS

When Writing Advertisers Please Mention the American Carpenter and Builder.

Will You Read This Book If We Send It Free?



THIS book is the work of expert authorities. It gives instructions how to obtain best results; shows how much material is needed for certain work; lists shades best adapted for different woods; quotes prices on the best wood finishes. It is brimful of information that brings success to every reader. Be sure to get a copy. It is the result of 30 years' expensive experiments and tests. The reason why we give it free is because it tells about

Johnson's Wood Finishes

We want every contractor and builder to know all about our wood finishing materials and try them at our expense, so with the booklet we give you generous samples of Johnson's Wood Dye and Flat Wood Finish.

**Over \$200,000 Worth of Experience Is
Behind This Book—Ask For Your Copy**

We have been manufacturing Wood Finishes for over 25 years and know just what contractors and builders need. Our book and samples will bring you the information you want. Get them today.

S. C. Johnson & Son,

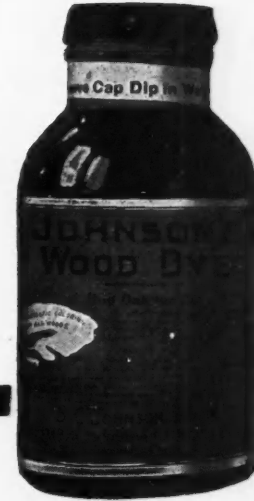
*"The Wood Finishing
Authorities"*

Racine, Wisconsin

Generous Samples FREE

To Builders, Architects, Contractors

LET us send you free samples of Johnson's Flat Wood Finish and Johnson's Wood Dye, also a copy of our Instruction Book. Architects, Contractors, Painters and Home Owners are enthusiastic over the results obtained and the big saving made possible with them.



Johnson's Wood Dye

is made in 15 popular shades as follows:

- No. 126 Light Oak
- No. 123 Dark Oak
- No. 125 Mission Oak
- No. 140 Early English
- No. 110 Bog Oak

- No. 128 Light Mahogany
- No. 129 Dark Mahogany
- No. 130 Weathered Oak
- No. 131 Brown Weathered Oak
- No. 132 Green Weathered Oak

- No. 121 Moss Green
- No. 122 Forest Green
- No. 172 Flemish Oak
- No. 178 Brown Flemish Oak
- No. 120 Fumed Oak

Gallons \$3.00—Half-Gallons \$1.50

Test samples on any work you have in hand. Note how quickly Johnson's Wood Dye dries, so that dust and dirt have no chance to settle in the finish. Observe how it penetrates and brings out all the beauty of the grain without raising it in the slightest degree. In addition to this, the fastness of color, ease of application and practical economy will also appeal to you.

Johnson's Flat Wood Finish

is a liquid—an easy spreading preparation, manufactured especially for finishing interior woodwork of new residences and buildings—as well as furniture—and equally valuable for refinishing old surfaces.

This flat wood finish opens a new field for the contractor and builder. By the use of Johnson's Flat Wood Finish, you can make estimates on hand-rubbed effects that will land the contract every time—give your customer perfect satisfaction—and make you a good profit besides.

Don't fail to secure Instruction Book No. A. C. B. 9 and samples at once. If your dealer isn't supplied, write us and we will send them direct on receipt of postal or coupon.

S. C. Johnson & Son, Racine, Wis.

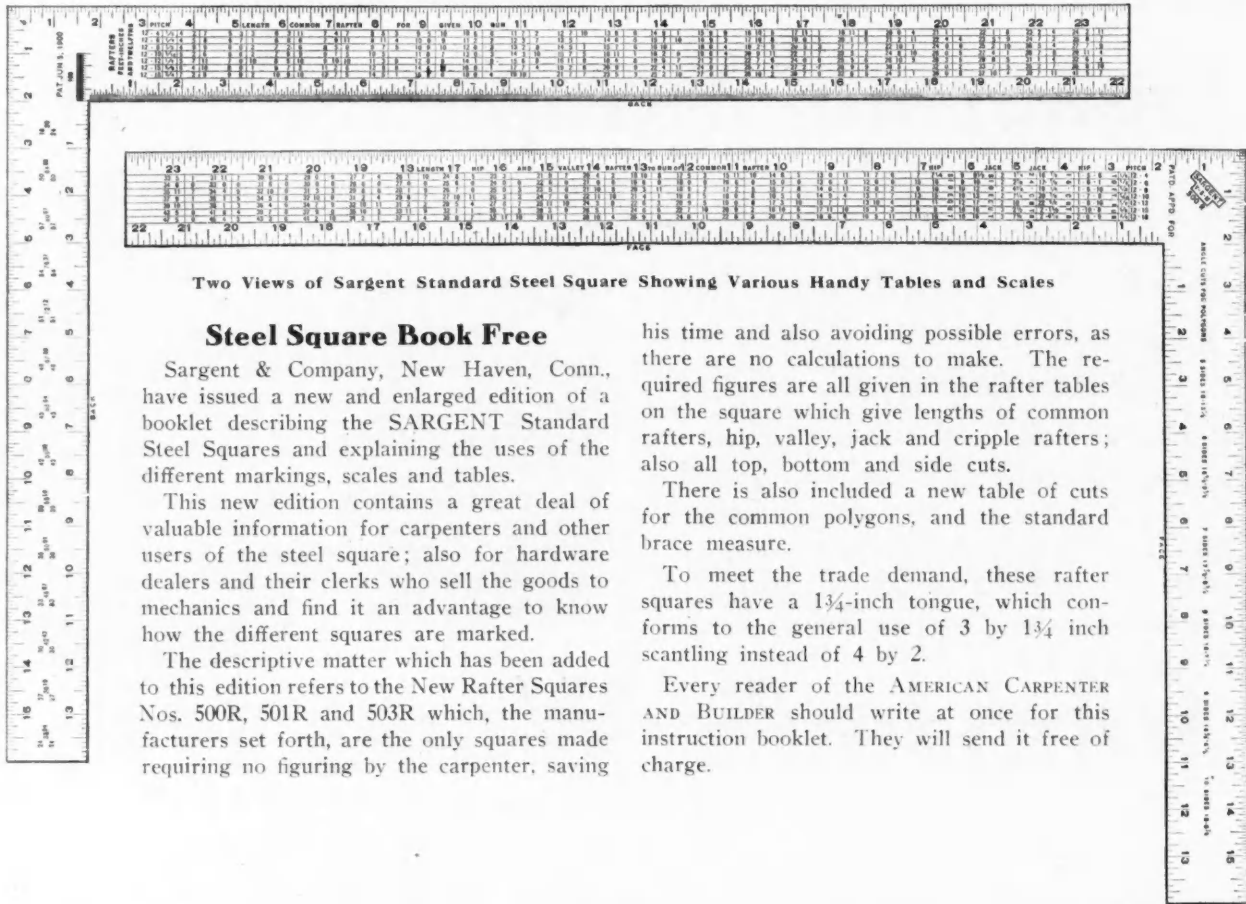
"The Wood Finishing Authorities"

S. C.
Johnson
& Son,
Racine, Wis.

Please send me
free samples of
Johnson's Flat Wood
Finish and Wood Dye
Shade No. Also
Instruction Book A.C.B.9

My Dealer's Name is.....
 His Address.....
 My Name.....
 Address

When Writing Advertisers Please Mention the American Carpenter and Builder.



Two Views of Sargent Standard Steel Square Showing Various Handy Tables and Scales

Steel Square Book Free

Sargent & Company, New Haven, Conn., have issued a new and enlarged edition of a booklet describing the SARGENT Standard Steel Squares and explaining the uses of the different markings, scales and tables.

This new edition contains a great deal of valuable information for carpenters and other users of the steel square; also for hardware dealers and their clerks who sell the goods to mechanics and find it an advantage to know how the different squares are marked.

The descriptive matter which has been added to this edition refers to the New Rafter Squares Nos. 500R, 501R and 503R which, the manufacturers set forth, are the only squares made requiring no figuring by the carpenter, saving

his time and also avoiding possible errors, as there are no calculations to make. The required figures are all given in the rafter tables on the square which give lengths of common rafters, hip, valley, jack and cripple rafters; also all top, bottom and side cuts.

There is also included a new table of cuts for the common polygons, and the standard brace measure.

To meet the trade demand, these rafter squares have a 1 3/4-inch tongue, which conforms to the general use of 3 by 1 3/4 inch scantling instead of 4 by 2.

Every reader of the AMERICAN CARPENTER AND BUILDER should write at once for this instruction booklet. They will send it free of charge.

Exposure — dampness — rain, itself, has no effect on

**NEPONSET
WATERPROOF
Building Papers**

Tell your customers about NEPONSET and have the walls protected as long as the house stands. The extra cost is hardly more than the price of a ton of coal and NEPONSET Papers will save more than this each winter.



Residence, A. C. Maguire, Winnetka, Ill. Spencer & Powers, Architects. NEPONSET Red Waterproof Building Paper Used.

Don't forget the names — NEPONSET Red and NEPONSET Black.

We also make Coted — a waterproof paper which costs only a trifle more than rosin sized. Is absolutely waterproof and very easy to apply. You can save time and money on the job.



Branch Offices:
New York
Washington, D. C.
Columbus, Ohio

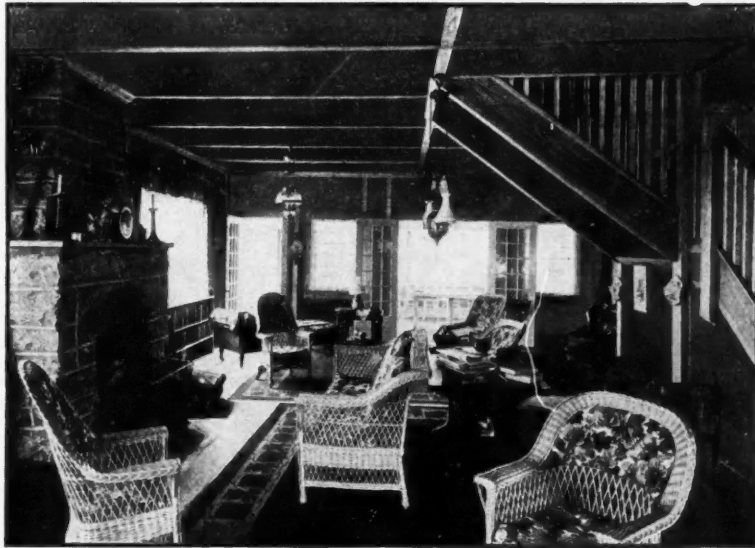
F. W. Bird & Son, East Walpole, Mass.

Established 1795
Canadian Plant, Hamilton, Ontario

Branch Offices:
Chicago, Ill.
Portland, Ore.
San Francisco, Cal.



When Writing Advertisers Please Mention the American Carpenter and Builder.



Never mind what we tell you about **Utility Wall Board**—

We are prejudiced---

Ask us to send you a free sample so that you can see for yourself.

What it is---

Somebody may make a better wall board some day---nobody has done so yet.

UTILITY WALL BOARD

is a very tough, durable fibre-board, that takes the place of both lath and plaster. It is very easy to put on, makes no muss or dirt, doesn't have to dry and once it is on, it is there to stay as long as the house lasts.

Utility Wall Board is moisture proof---is not affected by extremes of heat and cold---will not warp or crack, and may be decorated in any style desired.

But --- Let us send you the sample ---

See for yourself the substantial, moisture proof construction---You'll never again want to fuss with lath and plaster.

SEND YOUR NAME TODAY

THE HEPPE'S COMPANY, 4503 Fillmore St., CHICAGO, ILL.



THE LA PLANT HEAVY HOUSE MOVING TRUCKS

When you get a job with an old building on the lot—move it with the La Plant Trucks to another place—instead of wrecking it. There is more profit in it for you.

La Plant Heavy House Moving Trucks are made of steel—on scientific lines—are interchangeable so they can be worked singly, in pairs or in fours.

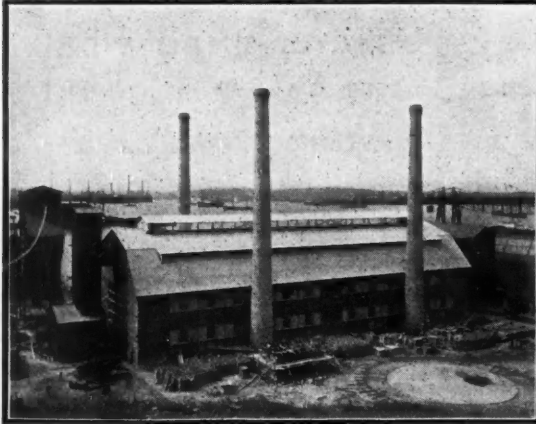
Write for catalogue O and see how easy it is to wheel a building a mile in a day—and how little the cost is for La Plant outfit compared with the profit to be made in moving houses instead of wrecking them.

LA PLANT TOOL CO.

1100 E. Nevada St.

Marshalltown, Iowa

When Writing Advertisers Please Mention the American Carpenter and Builder.



Asbestos Corrugated Sheathing on the Retort House of the Providence Gas Co., Providence, R. I. Engineers and Contractors, Didier March Co., New York. Roofers, C. G. Bruanckow Co., Providence.

Asbestos Corrugated Sheathing

Architects and Builders whose practice demands a fireproof sheathing material, as in roofs and sidings on Elevators, Train Sheds, Warehouses, Rolling Mills, etc., should get posted on Asbestos Corrugated Sheathing.

This sheathing is used with great success on many of the most important buildings of this kind in every part of the country.

Has ample structural strength. Positively fireproof. Cannot rot, rust or disintegrate with time or climatic conditions. Never requires painting.

Write for Booklet B, "Everlasting, 1912", with trade prices and terms.

Keasbey & Mattison Company, Factors
Ambler, Pennsylvania
Branch Offices in Principal Cities of the United States

Do you want to pay \$1.50 or more FOR ROOFING costing less than 45c to make?

You are apt to if you don't know how to tell the good from the bad.

Cheap roofing is always oily, greasy, and dirty-looking. For this reason it is easy to pick out good roofing. But don't be fooled by good-looking samples—insist on looking at the roofing in the naked roll.

Rex Flintkote Roofing is the most economical roofing you can buy. It is clean, firm, and tough—and stays that way way, too, permanently.

We've been making it for nearly 15 years. The first made is still giving good service—never been painted neither.

Even if its first cost is a little higher, its *per year cost* is less.

It is guaranteed as follows:

1 ply—5 years; 2 ply—7 years; 3 ply—10 years.

Write for prices and booklet A. C.—8.

FLINTKOTE MANUFACTURING CO.

88 Pearl Street, BOSTON

From the Cortright Advocate

"Although we are wont to regard architectural forms as stable and their style as fixed, the fact is, building styles change as rapidly and as unaccountably as those in women's dress."

So says the August issue of the *Cortright Advocate*, the attractive monthly publication of the Cortright Metal Roofing Company, of Philadelphia, Pa., and Chicago, Ill. And the Advocate proceeds to prove the correctness of its assertion through the illustration of several houses built within the past decade.

The statement and comparisons are brought out in the demonstrating of the adaptability and consistency in the use of Cortright Metal Shingles on all forms of building.

Their metal shingles are at the present time widely used and doubtless all carpenters, contractors and builders are familiar with them.

The Cortright metal shingles are made of tinplate, painted either red or green; also of hand-dipped galvanized tinplate, also stamped from light coated galvanized sheets.

Particulars about these shingles, catalogs, copies of the house organ, etc., can be had by AMERICAN CARPENTER AND BUILDER readers addressing the Cortright Metal Roofing Company at either their Philadelphia, Pa., or Chicago, Ill., offices.



The Air System of Cleaning

Contractors and builders will do well to note that the broom, carpet sweeper and dusting cloth are facing serious competition and that the causes of this competition should directly interest them.

The vacuum and air systems of cleaning now on the market are proving conclusively the efficiency of their operation, which considered in conjunction with the fact that they require no actual manual labor, that they absorb rather than create dust, that they are adaptable for practically any sort of cleaning works, makes them exceedingly popular with the mistress of the house. The latter is quite liable to demand that some cleaning system be installed in the new home and you want to be prepared and posted upon the various systems now on the market and the salient features of each.

There are at the present time both portable and stationary cleaning systems being manufactured. One of the most successful of the latter type is the Tuec air cleaning system which is manufactured under exclusive patents owned by the United Electric Company of Canton, Ohio.

This Tuec stationary air cleaning system can be easily installed and successfully operated in houses, schools, churches, theaters, hotels, apartment houses, public buildings, etc., etc. The machine itself is installed in the cellar. Piping between the studding or through a closet or obscure hall corner connects it with each floor. To clean any part of the house, building, etc., hose is attached to the opening of pipe on that particular floor, cleaning tool adjusted and power turned on.

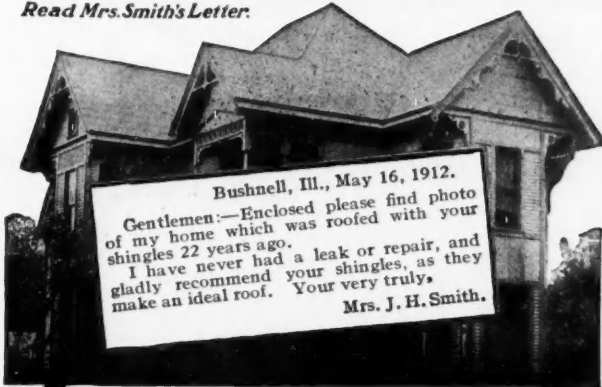
The actual working parts of the Tuec system include a half horse-power motor operating a patent centrifugal fan. When power is applied, fan starts and is quickly revolving at tremendous speed. This creates a continuous and rapid movement of a large volume of air through the pipe at the rate of 170 cubic feet or 300,00 cubic inches per minute. Into the cleaning tool is drawn all the dirt and dust laden germ-infected air, then down the pipe and into the machine. The dirt drops to the bottom of the machine. The air passes through the exhaust into the chimney at outside of building.

The United Electric Company, 30 Hurford Street, Canton, Ohio, have issued an attractive and interestingly instructive little booklet upon their Tuec system and its operation, which any AMERICAN CARPENTER AND BUILDER reader can obtain by writing them at their Canton address.

When Writing Advertisers Please Mention the American Carpenter and Builder.

22 Year Old Cortright Roof "Never Had a Leak or Repair"

Read Mrs. Smith's Letter.



This durability of CORTRIGHT METAL SHINGLES is going to interest the house owner every time, and YOU profit in many ways.

1st—

Cortright Metal Shingles

do not cost any more than slate or wood in most sections of the country.

2nd—Any good mechanic can lay Cortright Shingles and do it in less time than it takes the slate or wood shingle roofer.

3rd—They require very much lighter framing than slate, being one-eighth its weight, and save you a big expense on lumber.

Let us tell you the many other ways you profit with Cortright Metal Shingles, and the big advantage of our special Contractors and Builders proposition.

It will pay you to write now.

Cortright Metal Roofing Co.

PHILADELPHIA AND CHICAGO

Antiseptine

Registered

Shingle Stains

"Wood preserving stains that stay put."

The New Standard in Exterior Stains

Antiseptine Shingle Stains are made of the well known wood preserver Antiseptine in combinations with selected pigments.

Antiseptine cannot evaporate from the wood like creosote and the Antiseptine insures lasting coloring effects by permanently protecting the pigments.

Antiseptine Stains have been welcomed by all who are building reputations as well as building houses, as the first REAL step ahead in exterior stains.

Antiseptine Stains at first cost, cost you NO more than the ordinary kind of stains—and they save you time, labor, money and worry in the long run.

We want to send you sample Antiseptine Stains on wood. You want to get these.

Made only by

American Wood Preserving Co.

1345-1351 North Branch Street

Incorporated 1892 CHICAGO Phone, Dearborn 119

Antiseptine

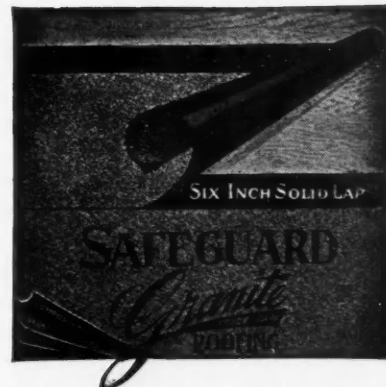
Registered

Shingle Stains

Granite

TRADE MARK

ROOFING



A six-inch lap is better than a three-inch lap. It gives better protection against leaks and permits nailing down on the under sheet only, so that no nail heads appear on the surface. Otherwise this is the same Granite Roofing that we have sold for 26 years for use on great factories. It is immune from damage by coal smoke or cinders, and it has a sea grit surface which makes painting entirely needless. Behind it is a reputation that has Passed the Quarter Century Mark.

EASTERN GRANITE ROOFING CO.

Chicago 19 Battery Place, New York Pittsburgh

When Writing Advertisers Please Mention the American Carpenter and Builder.



MR. H. B. MUNGER
President Chicago Millwork Supply Co.

House Plan Book that will Save You Money—Free

Located in Chicago is a millwork supply company whose every business action inspires confidence. This company has been manufacturing millwork and selling it to the retail lumbermen in every part of the country for over twenty years, during which time they have established for themselves a wide reputation for square dealing and liberal treatment.

But confronted more and more by the steady increase of prices which the retail dealers and jobbers were forcing upon the consumer, and realizing that such a state of affairs could not long exist—that the consumer whether he be home builder, contractor or carpenter would ultimately rebel and buy direct from the manufacturer—the Chicago Millwork Supply Com-

pany determined to take sides with the users of building materials—to give at once the consumer the benefit of honest prices. The success they have attained is national.

In connection with the remarkable development of this company it is interesting to note their advertising matter, as it is undoubtedly this coupled with the quality of the material they sell and their manner of doing business that has aided in building up their present immense business.

At present the Chicago Millwork Supply Company issue two attractive catalogs. One—their "Guaranteed Millwork and Building Material" book includes in illustration and description everything in building material and furnishings it is possible to need in the building and furnishing of any home. Their other book is "Plans of Modern Houses." This book



Big Illustrated Plan Book Which Will be Sent Free to all our Readers Requesting it

shows perspectives and floor plans of many residences, farm and barn buildings, all with exact price stated at which the company can furnish all material complete to build and finish. Detailed description of the materials they furnish, with cost

WHY CHEAPEN

a good building by roofing it with inferior material?

COPPER BEARING Open Hearth Terne Plate

will add to its permanent value. This is a point which the careful builders and property owners should not overlook. Now made exclusively by this Company.

Write for full information and quotations on MF and other high-grade Terne Plates, Continuous Roofing Tin, Apollo Galvanized Sheets, Black Sheets, Formed Roofing and Siding Products, Metal Lath, Etc. Every builder should have our Pocket Reference Book.

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, Los Angeles, Portland, San Francisco, Seattle

When Writing Advertisers Please Mention the American Carpenter and Builder.

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**



Specify Electric Lights in the Homes You Build

The Gray Complete Automatic Light Outfit enables the farmers—and anybody living where electric lights are not available to have electric lights at a very slight cost.

Contractors and builders can make a nice profit, by specifying and selling the outfit to be installed in new buildings. It is an exceptionally simple system that is very easy to install and a system that anybody can understand and operate.

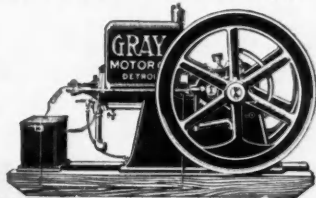
Power For Your Shop

We also manufacture a line of 4-cycle engines that are especially well adapted to the need of the carpenter and builder. Excellent engines for running the wood-working machinery in your shop or portable outfit to take out on the job.

If interested in a gasoline engine for your own work write and get a copy of our Engine Book "S," or if you wish full particulars about Electric Light Outfit ask for Catalog "5" and be sure and state whether or not you are interested in handling these outfits in your locality.

Gray Motor Company

961 U. S. Motors Building : Detroit, Mich.



Thousands of Carpenters Apprentices, and Laborers Have Salaries Raised

You can be safe in judging what a man can do by what has been done—past performances—past records. In the files at the International Correspondence Schools are more than 27,000 letters that are witnesses to the marvelous results accomplished by students of the International Correspondence Schools. These letters came from all sorts and conditions of men who started with no more opportunities than you have—no more money—no more education, but today we find them in positions of responsibility and power.

A recent tabulation of the records of 1,000 students shows that the average salary at the time of enrolment for I. C. S. Courses was \$54 per month, but today, or at the time the letters of indorsement were written, the salaries have increased to an average of \$183 per month.

Such results are not due to chance. They are the reward of conscientious effort, and they should appeal to the ambitious, comfort-loving element of laboring people.

There is not in all the world a greater force than the I. C. S. to put new hope in the hearts of laboring men and teach them to attain success.

The I. C. S. are ready and willing to help you. Are you willing to be helped? Then determine what you want to be and

Mark and Mail the Coupon NOW

International Correspondence Schools

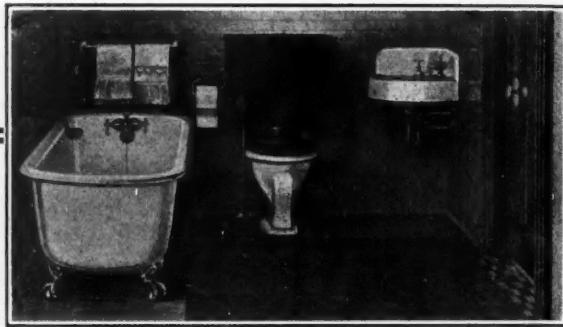
Box 910, SCRANTON, PA.

Please explain, without further obligation on my part, how I can qualify for a larger salary and advancement to the position, trade, or profession before which I have marked X.

Architect	Estimating Clerk	Automobile Running
Arch't Draftsman	Civil Engineer	Foreman Machinist
Contract'g & Build.	Surveying	Sh.-Met. Pat. Drafts.
Building Inspector	Mining Engineering	Textile Manufact'g
Structural Engineer	Mechanical Engineer	Bookkeeper
Structural Draftsman	Mechanical Drafts.	Stenographer
Plum. & Heat. Con.	Stationary Engineer	Advertising Man
Supt. of Plumbing	Electric Engineer	Window Trimming
Foreman Steam Fit.	Electric Lighting	Commercial Illustrat'g
Plumbing Inspector	Electric Railways	Civil Service Exams.
Heat. & Vent. Eng.	Concrete Construct'n	Chemist

Name _____
 Street and No. _____
 City _____ State _____
 Present Occupation _____

When Writing Advertisers Please Mention the American Carpenter and Builder.



This bathroom outfit at wholesale price, \$35. Description below.

Plumbing Supplies at Manufacturers' Prices

We will extend to you our wholesale prices on all plumbing supplies purchased from us direct, including bathroom outfits, heating and water systems, pumps, piping, fittings, valves, tools, etc. You can save the jobbers' and dealers' profits, which range from 30 to 60 cents on each dollar. You can save enough to underbid your competitors. We guarantee satisfaction or money refunded, including freight both ways.

Complete High-Grade Bathroom Outfit, \$35

Bath tub full size. Tub and lavatory of good quality White Porcelain Enamel over grey cast iron, Faucets heavily Nickel Plated; Closet of Vitreous China, Seat and Copper-lined Tank of Seasoned Oak. Complete, Handsome, Substantial and Sanitary, \$35.

Pneumatic Water Supply System, \$40

Black steel tank, 145 gallon capacity, 2½ inch Double Action Combination Air and Water Pump, brass lined, pipes, valves, gauges, fittings complete.

Heating Plants, \$95 Up

Send us plan and description of the building and we will be pleased to furnish a detailed estimate for the complete job, and save you 30 to 60 per cent.

Our outfits and supplies are ready for immediate shipment. Get our complete wholesale catalogue and use it as a reference in bidding, as well as for ordering.

Chelsea Manufacturing and Supply Company

135 West 24th St. Dept. F. NEW YORK CITY

**UNION
METAL
COLUMNS**

**Union
Metal Columns**
follow the classic designs of ancient
Greece and Rome.

In the substitution of steel for wood not an atom of charm or beauty is lost—but a new element of value is added.

Union Metal Columns are indestructible—used in Porch, or Pergola, they will outlast the structure in which they are incorporated.

Specified by the most eminent architects and designers of America, these columns have earned an enviable repute even among those who deprecate the slightest departure from ancient forms.

The catalogue which we will be glad to send you upon request, illustrates the artistic use to which Union Metal Columns have been applied in beautiful homes and buildings throughout the country. We have a special proposition for Builders and Carpenters. Write to-day.

The Union Metal Manufacturing Co.
1404 Maple Avenue
CANTON, OHIO

When Writing Advertisers Please Mention the American Carpenter and Builder.

of same, is given for each design.

Attention is asked upon the quality of their goods, the very reasonable prices at which their material is sold, their direct service and modern methods.

Every phase of the great business of the Chicago Millwork Supply Company is colored by the frank and honest personality of their president, Mr. Munger. He has been a prominent figure in lumber and millwork circles for years; and it has always been said of him that he delivers absolutely what he promises.

The users of building materials may feel assured they gained a friend and partner worth having in Mr. Munger when he swung over to them from the old extravagant middleman system of marketing building materials.

Both of the big, finely illustrated catalogs of the Chicago Millwork Supply Company will be gladly sent to any reader of the AMERICAN CARPENTER AND BUILDER who will write for them; address the firm at 623 S. Dearborn Street, Chicago, and ask for Plan Book No. 53 (House and Barn Plans) and Catalog No. 43 (Building Material).

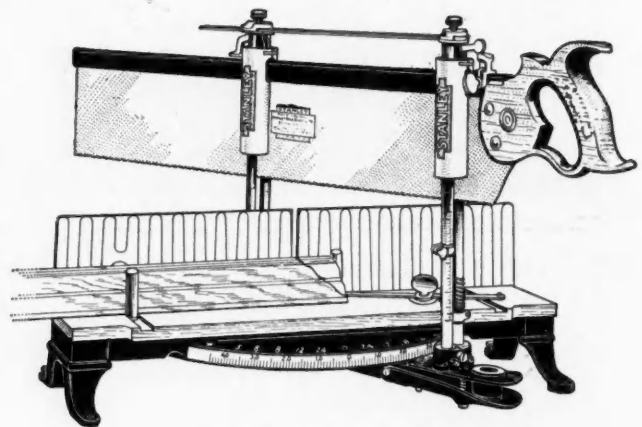


The Stanley Mitre Box

A mitre box is practically a necessity to all workers in wood. With no other hand tool can the workman make such perfect joints in so short a time and with so little labor.

The important features demanded in a satisfactory mitre box include accuracy, strength, durability and compactness. When using a mitre box you want to know positively that when one part of the proposed joint is cut the other part will match. And the mitre box must be strong enough to take and hold steady large pieces of hard wood, even under the most trying conditions.

The improved Stanley mitre box seems to meet the most rigid requirements in every respect. Although this mitre box has been on the market several years the Stanley Rule and



Stanley Mitre Box

Level Company, manufacturers of this box, are continually making improvements which add materially to the tool in question.

As now made these Stanley mitre boxes may be adjusted to counteract a saw that runs out of true. The uprights, both front and back, are now graduated in sixteenths of inches so that the user can set the movable stops provided, to the depth of the cut desired. The rear legs are now filled with cone-pointed leveling screws to prevent the box from sliding when in use.

The Stanley people have but recently issued a circular illustrative and descriptive of their mitre box, which they will mail to any interested reader upon request. Address the Stanley Rule and Level Company, New Britain, Conn.

FREE BUILDING PLANS FOR CARPENTERS

Sears, Roebuck and Co.

Offers To Give Away
FREE a Complete Set of Building Plans to Every Reader of This Magazine. This Offer Is Good Only Until October 1st.

Simply Write For Our
Wholesale Lumber Price List

and we will also include our BEAUTIFUL BOOK of MODERN HOMES, and COMPLETE BUILDING PLANS for any one of our houses. Everything sent Free and Postpaid

Special Bargain Lot of STAR A STAR RED CEDAR SHINGLES

40c Per Bundle **\$150** Per Thousand

This Bargain Fully Explained in Shingle Circular Which Is Sent With Our WHOLESALE LUMBER PRICE LIST.

Special Offer to Contractors and Builders

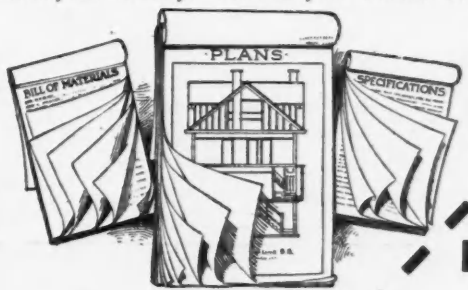
To convince every contractor and builder that we can save him \$100.00 on the average house bill of lumber, we offer to give away entirely **free with every request for our Wholesale Lumber Price List** a complete set of building plans, typewritten specifications and an itemized bill of materials for any house illustrated and described in our Book of Modern Homes. **All you have to do is to fill in and mail us the coupon printed below.** We will also send you, free and postpaid, our Book of Modern Homes, from which you can make your selection of a house. When you write and tell us which one of our Modern Homes you are interested in we will mail you, **free and postpaid**, the complete plans, specifications and bill of materials, worth from \$75.00 to \$150.00.

This is an opportunity no contractor, carpenter or builder can afford to overlook. You should have our Wholesale Lumber Price List to keep yourself posted on the very lowest saw mill prices. You should also have in your possession at all times a good reliable set of building plans for the type of house most in demand in your vicinity. Here is your chance to get them free of charge.



This Book Shows Over 100 Designs of Up to Date Houses.

These Plans, Specifications and Bill of Materials Are Yours for the Coupon.



Mail Us the Coupon and We Will Send You Free:

1. OUR WHOLESALE LUMBER PRICE LIST (Delivered Prices)
2. OUR BEAUTIFUL BOOK OF MODERN HOMES
3. COMPLETE BUILDING PLANS for any one of our houses

Building Plans Coupon.
Sears, Roebuck and Co., Chicago, Ill.

Wide awake practical contractors and carpenters are saving lots of money by purchasing lumber and other building material from us. In signed letters they tell us that we save them from \$100.00 to \$150.00 and more on the average house bill. **Send us your bill of lumber and mill work and let us make you a bid, freight included, to your station. Our estimators will figure it for you free of charge.** You will lose good money this season if you do not take advantage of our offer and write at once for our Wholesale Lumber Price List and Book of Modern Homes. Do not forget the coupon. We will keep this coupon on file until you have selected the house for which you require the plans. No plans will be sent out without this coupon. Fill it in now. Clip it and mail it to us at once.

Gentlemen:—Please send me free and postpaid a copy of your new Wholesale Lumber Price List and Book of Modern Homes as per your offer in the American Carpenter and Builder. This coupon entitles me to a free set of plans.

Sears, Roebuck and Co. Chicago, Illinois

Name _____
 Postoffice _____
 R. F. D. No. _____ State _____
 P. O. Box No. _____ Street and No. _____

When Writing Advertisers Please Mention the American Carpenter and Builder.



Part of the Contesting "White Squadron" at the Start of the Russian War Office Trials

White Cars and Trucks Lead all Competitors in Exhaustive Russian War Office Trials

A worthy forerunner to the American victories in the athletic world at Stockholm was the performance of the "White Squadron" in the motor vehicle trials conducted by the Russian War Office during the month of June. To determine the adaptability of motor vehicles for army service in all of its branches, the Russian Government held a reliability run which for difficulty and exacting conditions has never been approached.

The route covered started at St. Petersburg, circled around through Moscow, and then returned over a different course

to the Russian capital, the entire distance traversed amounting to about nineteen hundred and sixty English miles. The road conditions were indescribable. In many places there were no roads at all, the course being across sand hills, over fields and ploughed ground, and through forest trails. The best idea of the traveling conditions can be gained from the fact that it was necessary to precede the tour by a detachment of army bridge-builders in order to make it possible for the cars to get through at all.

Forty-five cars and trucks started from St. Petersburg on June 6th. The flower of European motor vehicle production was represented by Mercedes, Benz, Napier, Saurer, Adler,

CARPENTERS BUILDERS CONTRACTORS



This Is The Rule You Want To Use

This illustration shows a five foot Master Slide Rule with lower slide extended 2 1/2 inches—making distance between the two extreme points of the rule 10 1/2 inches as indicated by the arrow.

Here is a positively accurate slide rule—this Master Slide Rule—that you can use in taking any measurements—whether inside or outside—of doors, window trim, ceilings, walls, piping, lumber, etc., etc. This Master Slide Rule is made substantially of selected boxwood and trimmed with brass plated steel.

Here is a mechanic taking inside measurement of a door frame. The Master Slide Rule shows exact dimensions—where indicated by pencil—without any figuring or calculations. Absolutely no guess work.



Send Your Order For A Rule—TODAY

We make this Master Slide Rule in lengths of 2 to 6 feet. On receipt of 15 cents per lineal foot a 4, 5 or 6 foot rule will be mailed to you prepaid. You need a rule of this sort—you can make constant use of this Master Slide Rule. Mail us **YOUR** order **NOW**.

We will send you our Master Slide Rule circulars, detailed particulars, our agency offer, etc., for the asking.

DAHL MANUFACTURING COMPANY
Childs Bldg.—1 East 42nd St. New York City



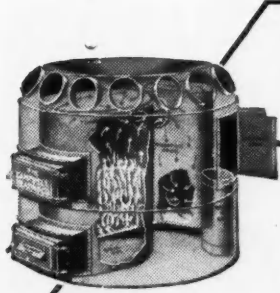
The Marvel locks shut automatically, is burglar proof, and ornamental. Is made of heavy wrought steel plates.

Circular for the asking.

INTERSTATE MFG. CO.
OSKALOOSA IOWA



When Writing Advertisers Please Mention the American Carpenter and Builder.



Winter's Coming

Get ready for it. Whatever troubles you had last year—the money, time and comfort lost, may be avoided—absolutely—by the use of the Campbell Heating System—supreme in economy, reliability—efficiency.

In the first place unless we know we can heat your house we will not undertake the job at all. If we do install our system we guarantee heat to 70 degrees.

CAMPBELL'S WINTER CHASER

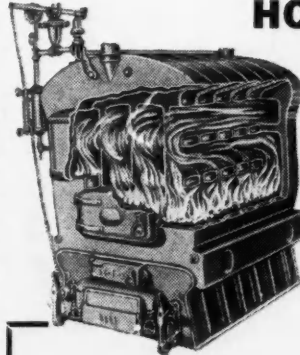
can be put in your new or old building, large or small, promptly, without delay or fuss. Don't waste time with makeshift heating plants that send most of the fuel up in smoke, and threaten health and life itself. Get the system with the inventor and maker back of it.

The larger firepot and water reservoir—mean economy of fuel, and the moist heat is healthful, and best for furniture. The larger air chamber and entrance door in jacket insure cleanliness, too.

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And it delivers the heat from every pound of coal. Won't you give us a chance to tell how and why?

CAMPBELL HEATING COMPANY
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HOW TO INSTALL Modern Heating Plant in Your Home

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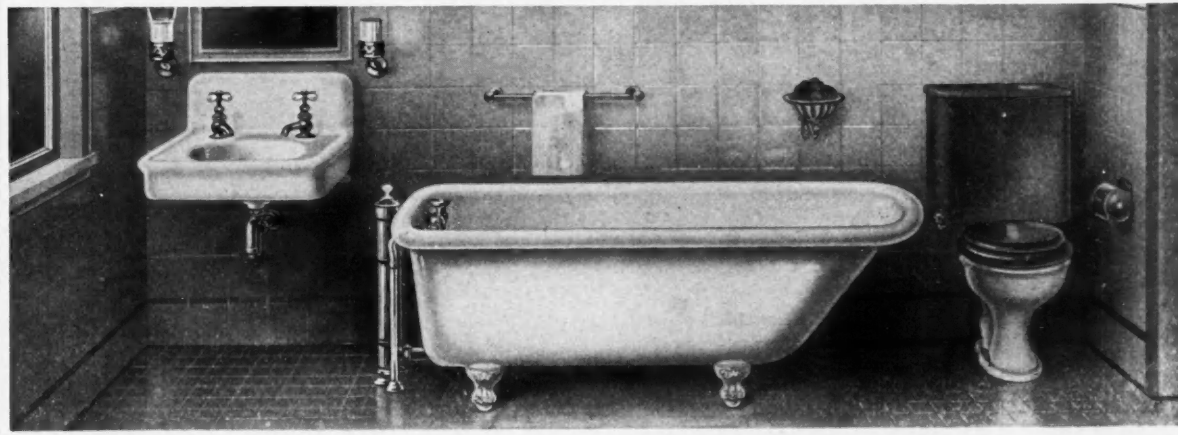
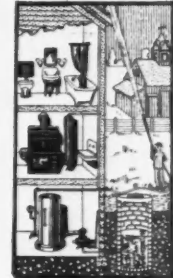
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The worries from "assembled" plumbing, contrasted with the perfect service of the all-built-by-one-house Wolff Plumbing, makes it easy for the architects to use Wolff specifications.

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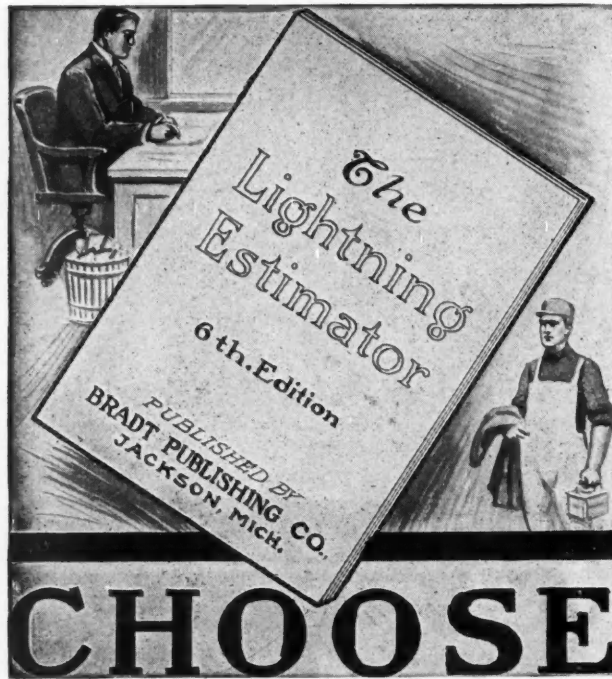
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1260 Michigan Avenue

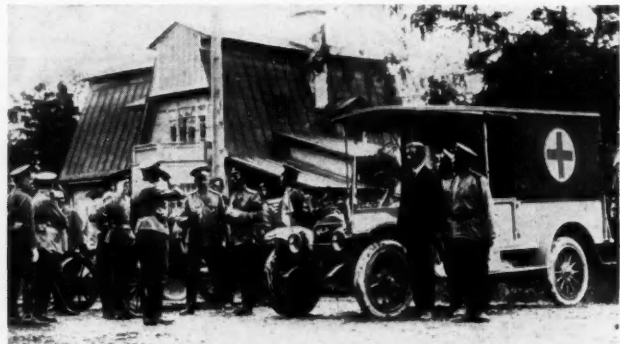
JACKSON, MICH.

Clement, Lancia, Berliet, Charron, Laurin, Buire, Vauxhall, and others. The American "White Squadron" was made up of two five-passenger thirty horsepower touring cars, two thirty horsepower field ambulances, using the regular White three-quarter ton capacity truck chassis, and one one-and-one-half ton capacity thirty horsepower truck, fitted with tank body for carrying the fuel supply for the tour.

The trials ended in St. Petersburg on June 23rd, after seventeen days of the hardest service to which motor vehicle have ever been subjected. The last three days' run was made at high speed over hard, rough roads, and was extremely exacting. Thirty-five cars finished the trip, among which were the five White contestants, with the record for a lower consumption of gasoline and oil than any of the European cars.

All five Whites went through the entire trip without mechanical trouble of any description, and created the most enthusiastic admiration among the Russian officials who supervised the trials. At the close of the run, all of the surviving contestants were assembled at Peterhoff, where they were personally inspected by the Czar of Russia, the Minister of War, and the high officials of the Russian army. The "White Squadron," on account of its magnificent performance, came in for the lion's share of the Emperor's attention, and he inspected all five cars in detail with the greatest interest.

After the royal inspection, all of the contesting cars were completely dismantled and every part was subjected to the most careful scrutiny for wear and deterioration. The commission of experts who conducted this examination reported that every one of the five White cars and trucks was in absolutely perfect condition. This report was followed by the



Czar Nicholas II of Russia inspecting one of the White Ambulances at Peterhoff, at the Finish of the Trials. The Czar is Standing Just at the Right of the Telegraph Pole. The Third Figure to the Left of the Pole is General Suchomlinoff, Minister of War. The Officer Standing at the Czar's Right is General Dobrecshin, who was in Command of the Trials.

report of the Army officials that the White cars were highly suitable in every respect for the requirements of the Russian army service, and recommended that the entire five cars be purchased by the War Department. The next day the victorious "White Squadron" became the property of the Government of Russia.

The result of the trials and the subsequent action of the Russian Government is naturally very gratifying to the White Company, whose cars won out in the most severe test ever imposed in motor car history against the representative cars of Europe.

One of the significant features brought out by the competition is the fact that the White car, conforming closely in general design to European ideas and practice, has, by the combination of American genius and American advanced methods of manufacture, reached a degree of perfection not yet attained by the very cars from which it was originally designed.

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Yellow Pine
3/4 x 1 1/2 in.
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per 100 lin. ft.

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Antique Copper
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You take no risk. We issue a Legal Binding 360 Day Bond that guarantees the delivery of plenty of heat wherever heat is needed, at a minimum cost for fuel. We furnish full directions for installing, prepay freight charges and make prompt deliveries.
Our Catalog explains the proposition in detail and tells why it is worth your while to specify the Jahant.

The Jahant Heating Co., 85 Mill Street, Akron, O.

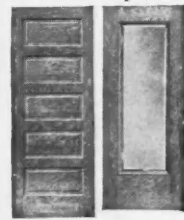
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Perfect guaranteed house paint—Single gallon cans only



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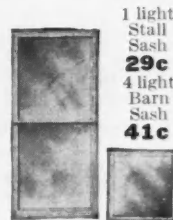
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Chicago Millwork Supply Co.

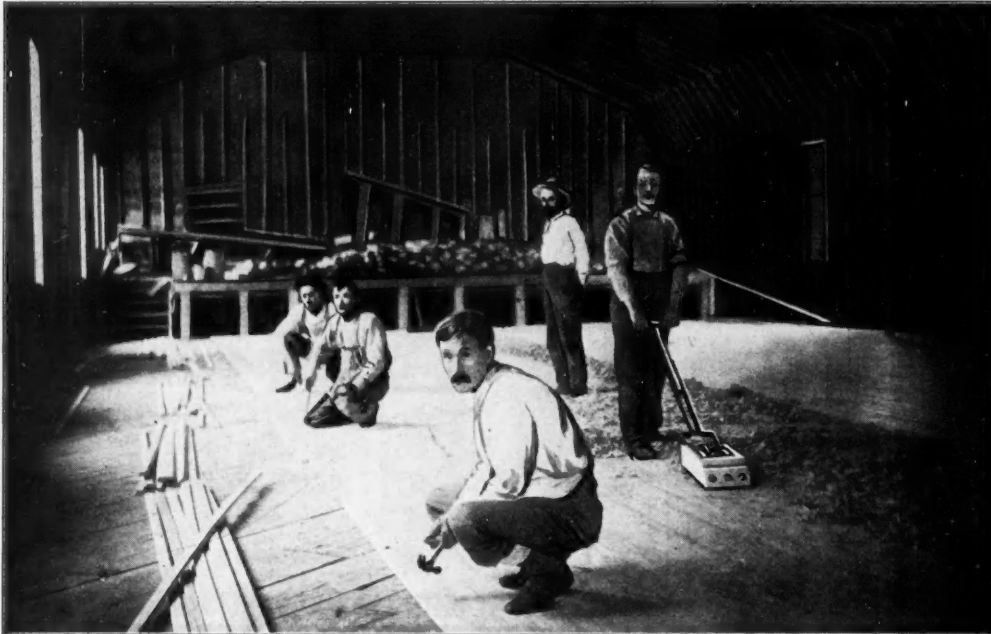
623 W. 37th St. CHICAGO

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Laying a Dance Floor Hall

To lay a perfect floor and finish it quickly was the task demanded recently of Mr. J. M. Philpott, of Loyal, Wisconsin. The new Opera House was in the course of construction



While Three Men Laid the Floor Contractor Philpott Scraped it

and the association decided to hold a dance on the Fourth of July. This picture shows Mr. Philpott and his assistants at work hurrying to finish the job.

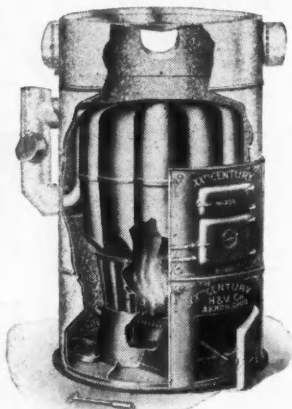
Mr. Philpott selected a Fox Floor Scraper as the machine best suited for quick, perfect work; and he kept two men

busy laying the floor, while he used the scraper. The pile of shavings shown in the photograph illustrates that he did some scraping, and the smooth appearance of the floor where he has gone over it, is proof of the high class work this machine will do.

The Auditorium floor is 40 by 68 and the stage floor 22 by 40. It is said to be the best floor in that part of the state, and Mr. Philpott has received many compliments on the high quality of his work. He says he is well satisfied with the "Fox."

The manufacturers of the Fox Floor Scraper feel that this is indeed a good recommendation for their product. It demonstrates conclusively that a high-grade machine can be built to sell at a price so low that no carpenter can afford to be without one.

The Fox Scraper has met with a remarkable demand. It is made in the largest factory in the world devoted exclusively to the manufacture of floor scrapers. Practically all of the leading wholesale hardware houses list the "Fox" in their catalogue. It also can be purchased direct from the manufacturers, The Fox Supply Co., of Brooklyn, Wis.



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Every Pound of Fuel is Made to Produce the Maximum Amount of Heat Units—No Heat Units Wasted

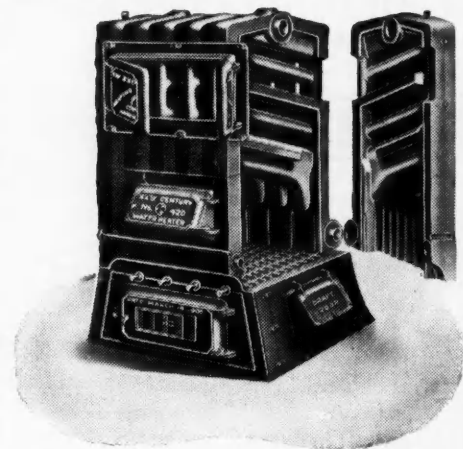
Builders: should ask for our catalogue and prices—the most sensible features ever embodied in heaters and boilers that have stood the test for years. Write us.

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That, after all, no house is ever satisfactory unless it can be the most evenly, cleanly, perfectly and economically heated that is possible. Whether the heating be of Steam, Hot Water or Warm Air, it matters not. The very building of that house demands the best possible consistent with cost of installation, maintenance and operation.

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as perfectly, cleanly, and easily, and at a much lower cost and with perfect satisfaction with



The XXth Century Heating and Ventilating Co.

Akron, Ohio

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We defy any house in America to equal our stupendous offers. You can see for yourself what an elegant rocker this is. It is made in American quarter-sawn oak finish—Has high back cleverly ruffled with rosettes. Handsomely upholstered in the best grade Boston Leather. Padded seat with ruffled and rosette edge. Profusely carved back and front posts. Order by **No. A1291**. This rocker is a big bargain—but there are thousands of others! Send today for our big bargain list.

Easy Payments The great house of Straus and Schram, with a proud quarter century record, endorsed by the greatest bank, will trust you and allow you to buy any article on easiest monthly payments. If you want anything in rockers, chairs, bedsteads, carpets, rugs, curtains, washing machines, crockery, silverware, baby carriages, go-carts, Men's, Women's and Children's apparel, stoves, ranges or any other article of housefurnishing, don't fail to get our sensational easy terms.

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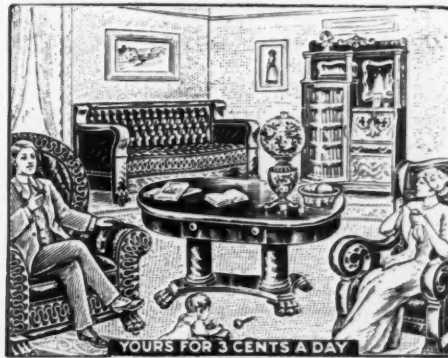
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This is an offer never made before, and never to be made again.

We want you to send for our Fall Home Lovers' Bargain Book before you do any fall buying. So we offer you this:

If you write us before October 1 we will mail you the Bargain Book free.

And we will send with it a Dollar Certificate.

This will be good for \$1 on any order for \$20 or over. Or for 50 cents on a \$10 order. It is good for one-third your first payment.

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This new Bargain Book pictures 4,528 things for the home, many in actual colors. It shows the largest exhibit ever brought together in

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Every article is offered at from 30 to 50 per cent below store prices. These are surplus stocks—enormous purchases—bought at sacrifice prices, and sold to you direct on a very small margin. We guarantee to undersell any house in America.

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We will sell to all customers on a new kind of credit—on open charge account. You pay as convenient, a little each month, by saving a few cents a day.

There is no interest, no security, no red tape or publicity. Just an open account. A million people have such accounts here now.

All goods are sent on approval. You use them a month before deciding to buy. Anything not wanted can be returned, and we pay the freight both ways.

You will be delighted with our credit plan when you find it out.

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To get this Dollar Gift you must send for our Big Bargain Book before October 1. If you want our new Fall Stove Book, too, simply ask for it—both are free.

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From Architect to Carpenter and Home Owner
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The moisture proof and fire retarding qualities of Plastergon are unequalled by any other board, for Plastergon is the only chemically treated pulp board manufactured. It resists heat and cold; is vermin proof and makes a perfect sound retarder.

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The exclusive features of Compo-Board make it the most satisfactory wall lining. The basis of its construction is a wooden slat, arranged so the grain of the wood runs in different directions, making it non-warpable. It is non-porous and air tight—hence impervious to cold, heat, moisture and vermin. Can be papered, painted or kalsomined more satisfactorily than plaster, with or without panels. Write for sample and interesting booklet containing many money making hints for contractors, builders, architects and home owners.

Northwestern Compo-Board Co.
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Making Carborundum a Live One

SOMETHING ABOUT THE WAY A BIG COMMERCIAL SUCCESS WAS HELPED THROUGH ITS EARLY TROUBLES AND PUT ON THE BUSINESS MAP IN LARGE, EASILY READ CHARACTERS

By William S. Power

The romance of Carborundum is not all wrapped up in the incident of its unique discovery.

Twenty years or more ago when Edward Goodrich Acheson was fussing around in his little shop at Monongahela, Pa., in an effort to accomplish in a few short hours what it had taken nature 100 centuries to complete, he actually did turn out a little bunch of crystals that had on them all the earmarks of real diamonds.

That was the beginning of the romance, but like a good many other romances, it came mighty near developing into a tragedy when an effort was made to commercialize the discovery and turn it into the golden harvest that its inventor felt confident was tied up in it.

That first little bunch of crystals was sold to a diamond polisher at 40 cents a karat. The new product proved to be as hard and as sharp as the diamond itself and the possibilities of an abrasive material embodying these properties were big enough to make even some hard headed business men see visions.

Forty cents a karat meant about \$1,760,000 a ton. You can readily see the possibilities of it yourself.

It was only when the problem of manufacturing this wonderful new abrasive came up for solution that the real trouble began.

The first little bunch of crystals that were given the name of Carborundum by their discoverer were produced in a little electrical furnace made of three or four bricks. The total capacity of this furnace was probably half an ounce or so, and the increasing of this output to real commercial proportions proved to be a problem that ate up money so rapidly that the hard-headed business men who saw visions in the beginning commenced to fear that their dreams were going to develop into a good husky specimen of nightmare.

This is where tragedy seemed to be very rapidly usurping the place of romance.

Just about the time, however, when the heavy villain of disaster seemed to be getting in his deadly work most efficiently, a new hero was introduced into the play and the music of the orchestra changed almost immediately from a dirge to a two-step.

That was about fourteen years ago.

Frank W. Haskell, who took hold of the executive reins of the company at that time, and later became its president, had been connected with the Frick interests in Pittsburgh for some years and had demonstrated his executive ability on more than one occasion.

Things commenced to happen around the Carborundum plant which had been erected at Niagara Falls almost immediately after Mr. Haskell's arrival, and it was a wonderfully brief space of time, comparatively, until the industrial world commenced to sit up straight and take very decided notice of the new abrasive for which so many wonderful things were being claimed.

The old-timers in the field of emery, of course, stoutly asserted that no manufactured abrasive could ever take the place of or equal in efficiency the natural mineral product. A touch of humor has been added to the later developments of the romance of Carborundum by the unanimity with which these same competitive interests have fallen in line one after another in recognition of the ability of mankind to improve on the product of nature.



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945-949 N. Halsted Street
 Chicago, U. S. A.

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BOWLS

Ceiling number 16

ROCK WALL BOARD

For

Walls, Ceilings, Partitions

"Rock" stands for firmness and durability. In using ROCK WALL BOARD you are getting a material of *quality* and *durability*. It has a splendid surface for decorating and can be finished in the most artistic manner. Possibly you have an attic or room you would like partitioned off; this is the best material for the purpose.

ROCK WALL BOARD is the modern material for remodeling or partitioning every room in any kind of a building. It is easily applied, sanitary and economical.

ROCK WALL BOARD is made in panels 32 and 48 inches wide by 6, 7, 8, 9 and 10 feet long.

Write us for further information, samples and "Rock Wall Board" booklet beautifully illustrated.

Rockford Paper Box Board Co.

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Using G. R. (Grand Rapids) Plasters means money in your pocket. Our Climax Wood Mortar and Hercules Wall Plaster will give you better plastering jobs—work that will need no refixing or repairing of any sort.

Our Climax Wood Mortar and Hercules Wall Plaster are Hard Wall Plasters. They are far ahead of and produce far better results than any heavy, cracky, lime mortar plasters made.

Our Hard Wall Plasters cost you less in the long run because they save you time, labor and money on every job you do.

Climax Wood Mortar

is extensively used. It is a wood fiber plaster made of pure gypsum rock. It is the best plaster made. The fiber adds about one-third to the bulk of the plaster, making it cover a greater area with less weight and maximum solidity and tensile strength. It is absolutely fire-proof. Its density prevents vermin. It is not affected by water. It is durable, flexible and pliable. Plastic and very easy to spread—any plasterer can apply it. It is adhesive and permanent. It does not contain one particle of sand.

Hercules Wall Plaster

is a gypsum rock hair fiber plaster—we do not sand at the factory. It makes a wall that is dense, durable, hard, tough and economical. It is absolutely fire-proof. It dries quickly after applying. It spreads better and with less waste than any other wall plaster. We use only high grade hair in its manufacture and it contains no chemicals, acids or vegetable matter.

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we want to send you these books—we will send them to you FREE. They will tell you all about Hard Wall Plastering and our Hard Wall Plasters. They will explain to you in detail our Climax Wood Mortar—Hercules Wall Plaster—Superior Wood Fiber Plaster—Gypsum Wall Plaster and Sackett Plaster Board. With these books we will send you our room measurement booklet—from it you can tell at a glance the number of square yards in a room.

Write us about your plastering troubles. Let us know just what difficulties you are having with your plastering jobs—what profit you are making on them, etc. Let us show you how you can give better plastering results and make MORE money through using our Hard Wall Plasters. Drop us a line today. We will mail you your books and the name of your nearest dealer handling Grand Rapids Plasters.

GRAND RAPIDS PLASTER COMPANY
 GRAND RAPIDS MICH.



"Remember the TRADE MARK"

GRAND RAPIDS PLASTER COMPANY
 GRAND RAPIDS MICHIGAN

N. B. We solicit inquiries from Michigan, Ohio, Indiana, Illinois, Wisconsin, Kentucky, Tennessee, West Virginia, and Pittsburgh district, Pa., only. Freight rates will not permit shipment to other territory.

When Writing Advertisers Please Mention the American Carpenter and Builder.

Mr. Haskell had not been in the executive chair many months until the financial interests of the Carborundum Company commenced to forget to shiver every time the name of that company was mentioned. A little later they actually smiled in a self-satisfied and contented way when anybody said "Carborundum" to them, and ever since then that smile has been growing in intensity until of late years it has developed into a grin that spreads all over the face of any man who owns a dollar's worth of stock in the Carborundum Company.

Under the dynamic influence of the new executive, losses commenced to be turned into profits in an amazingly short time. The bonded indebtedness of the Company was paid off years before it was due. Factory buildings were erected and paid for in cash out of the surplus earnings, and dividends of both stock and cash were declared in such generous proportions that the stock holders could scarcely believe the evidence of their own eyes.

Then the business grew some more and larger buildings were necessary. Then it grew some more and still larger buildings had to be erected. This operation has been repeated over and over again until now the Carborundum Company occupies half a mile or so of frontage along the Niagara River, and is one of the largest and most completely equipped establishments of its kind in the world.

Carborundum products have grown in importance until they are known and used in every country in the world. Hundreds of operations in steel and iron, marble, wood and glass, that were formerly performed by steel tools, are now accomplished in a fraction of the time and infinitely better by Carborundum. Something like 80,000 or 90,000 different sizes, grades and grits of wheels are manufactured and almost an equal variety of sharpening stones. Carborundum will grind anything from a car wheel to a needle, and will

sharpen anything from a razor to an axe. The annual production of the Carborundum crystals at present exceeds 10,000,000 pounds. Put it on the basis of that original sale at 40 cents a karat and figure out how much it is really worth. As a matter of fact, however, you can buy 5 or 6 pounds at present for the original price of a karat.

The man who is responsible for spreading Carborundum so completely over the industrial map sits in his comfortable office on the second floor of the new office building, smokes good cigars and talks about almost anything in the world excepting business. If you knew him simply in a casual manner you would say that the bulk of his time was occupied in writing amazingly entertaining articles for publication or for his own private amusement, in digging deeply into the intricate maze of genealogy or in solving the problem of how to get the greatest amount of real enjoyment out of life in a Pierce-Arrow car.

He does all these things and does them amazingly well, and yet there is never a minute when the impress of his dynamic personality is not felt in every nook and corner of the big plant over which he presides.

The whole plant simply pulsates with his energy. The whole atmosphere of the business is thoroughly impregnated with his high ideals of business integrity. He succeeded very early in his career in surrounding himself with a bunch of young men who immediately became imbued with his own spirit and who have helped in no small way to make his ideals come true.

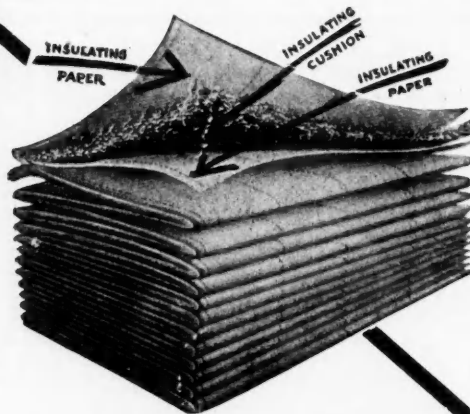
The Carborundum Company is probably one of the most forceful illustrations that can be found in America of the fact that business can be conducted on the highest possible ethical standard and still be eminently successful, and Frank W. Haskell is the man who deserves the credit for the demonstration.—*Anybody's Magazine.*

There's a Big Difference In Insulating Materials

It takes from 25 to 35 per cent more coal to heat a building when the walls are lined with ordinary building or sheathing papers than when they are lined with Keystone Hair Insulator.

The saving in coal in a few winters usually amounts to considerably more than the cost of the material.

You know that dead air is the most nearly perfect non-conductor of heat and cold. And a single layer of Keystone confines more dead air than many layers of the best sheathing paper. We have proven this by actual tests. And as a sound-deadener, Keystone is unequaled when placed between partitions and floors.



KEYSTONE HAIR INSULATOR

is made of a heavy layer of cattle hair, cleansed and sterilized, securely fastened between two sheets of strong, non-porous building paper.

Keystone Hair Insulator is Nature's own protector from heat and cold.

It will not settle or pack down, dry out, rot or attract moisture. Is an effective fire retardant, as it will not carry flame. Is also inodorous and vermin-proof, and will last as long as the building.

Our nearest branch will send you Booklet and Samples on request.

H. W. JOHNS-MANVILLE CO.

Manufacturers of Asbestos
and Magnesia Products

ASBESTOS

Asbestos Roofings, Packings
Electrical Supplies, Etc.

Albany
Baltimore
Boston
Buffalo

Chicago
Cincinnati
Cleveland
Dallas

Detroit
Indianapolis
Kansas City
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Minneapolis
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New York
Omaha
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Pittsburgh

San Francisco
Seattle
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Syracuse

For Canada:—THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED.
Toronto Montreal Winnipeg Vancouver

1375

When Writing Advertisers Please Mention the American Carpenter and Builder.

This Tool Will "Pry" Into Anything



It has the strength and leverage for safely opening packing cases, taking up floors, removing scaffolding and other like jobs that carpenters, plumbers and electricians come up against every day. Sizes 14 and 23 inches. Drop forged from special formula steel.

"BONNER" Pry Bars

are about the handiest things a mechanic or electrician can keep in his kit. They are the only tools that will do fast house-wrecking and save lumber. The only Pry Bar that will pull a nail as high as a man can reach. Dealers make money handling Bonner Pry Bars.

C. E. BONNER MFG. CO., Champaign, Ill.

MAJESTIC FOUNDATION COAL CHUTE



Protects the building just where most needed — above the opening.

The heavy steel hopper catches all the coal.




When not in use, the hopper lies in the bottom of the chute body. The door locks automatically either open or closed. Strictly burglar-proof. With 1/4-inch wire glass or steel panel in door.

Write for circular and address of nearest dealer.

MAJESTIC FURNACE CO.
995 to 1001 Sixth Avenue Huntington, Indiana

A Skilled Engineer is Not Needed for a Novo Engine

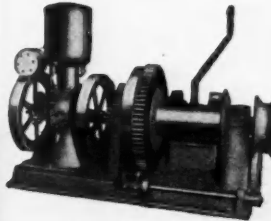


NO LANK
NO FAN
NO FREEZING
TROUBLE

Novo Trench Pump Outfit

NOVO ENGINE

"The engine for every purpose"



Novo Hoisting Rig

The simplicity of the Novo Engine makes it possible for any one to run it. Novo engines and hoisting rigs have many advantages which appeal to the contractor. They are light, compact, self-contained and very durable. Gears are large and strong, bearings are wide. Working parts are interchangeable and protected from dirt. The cooling system is guaranteed against damage from freezing, hence the Novo can be run in any weather.

Send for Novo Equipment Catalog

You ought to know full details before you buy any engine or outfit.

Novo Engine Co.
CLARENCE E. BEMENT
Sec'y and Gen'l Mgr.
236 Willow Street
LANSING - MICH.

Use KEROSENE Engine Free!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing. No waste, no evaporation, no explosion from coal oil.

Gasoline Going Up!

Gasoline is 9c to 15c higher than coal oil. Still going up. Two pints of coal oil do work of three pints gasoline.

Amazing "DETROIT"

—only engine running on coal oil successfully: uses alcohol, gasoline and benzine, too. Starts without cranking. Only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h. p. in stock ready to ship. Engine tested before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric light plant. Price (stripped), \$29.50 up. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate money-saving, power-saving "DETROIT." Thousands in use. Costs only a postal to find out. If you are first in your neighborhood to write, you get Special Extra-Low Introductory price. Write (138)



Detroit Engine Works, 495 Bellevue Ave., Detroit, Mich.

SAND'S PLUMBS AND LEVELS — ALWAYS READY TO USE — NOTHING TO GET OUT OF ORDER



No. 24. 24-inch Aluminum Reversible All-around

No. 30. 30-inch Aluminum. Works Either End or Edge

No. 18. 18-inch and 20-inch Long Wood Level

Be sure you ask for Sand's Plumbs and Levels. If you can't get them write to us. Better write and get our catalog anyway.

Sand's Plumbs and Levels are made by men who have had 25 years experience in the building line. Sand's Plumbs and Levels are thoroughly accurate. They are strong, light and durable. There are over 75,000 Sand's Plumbs and Levels in daily use.

Our new model aluminum levels are made of the best quality tested material. Our famous wood levels are made of thoroughly seasoned wood.

In our plumbs and levels the spirit glasses are protected from dust, dirt, moisture, etc., by a plate glass covering.

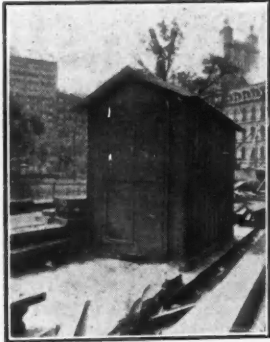
We make plumbs and levels in plain or brass bound finish. We can make anything in the plumb and level line to your order.

Our plumbs and levels are for sale by all good hardware dealers. Be sure you ask for Sand's — if you can not get them from your dealer WRITE US. Get our catalog and prices.

J. SAND & SONS
1023-25 Rivard St. Detroit, Mich.

When Writing Advertisers Please Mention the American Carpenter and Builder.

Contractors and Builders!



If you are busy?

This will interest you.

You know what it means to have contract jobs finished on TIME.

You also know what it means when you cannot.

At the same time orders continue to come in and you are unable to take care of them.

Your client wants a GARAGE, a Summer Cottage, a Storage House or a Small Building for one of the many different purposes.

You want to accommodate him, in return for his past favors and in anticipation of future business.

WHY NOT INVESTIGATE THE PRUDENTIAL PORTABLE FIREPROOF BUILDINGS?

They are constructed of No. 24 Galvanized Steel—the materials and workmanship, A-1.

They are shipped complete in every detail, knocked-down and crated, ready for erection on the site.

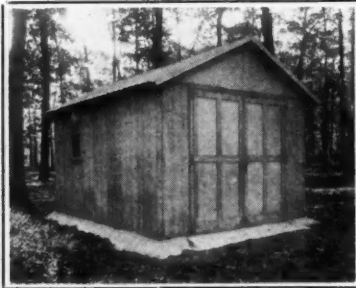
You send us the order, we allow you Dealer's Commission.

You charge additional fee for erection.

An easy and quick way for turning cash.

Write today for catalog and full particulars for the sale of the

PRUDENTIAL PORTABLE FIREPROOF BUILDINGS
(Patented)



The C. D. PRUDEN COMPANY, Sole Manufacturers

Station C. BALTIMORE, MD., U. S. A.



Next Time You Figure On A Garage Job

suggest "Pruden System" Fireproof Construction. It's much to your advantage. These buildings come complete, ready for erection. You set up in few hours and make a good profit. People in your town are buying cars every month and are undecided how to care for their cars. They know about "Pruden System" Construction through our advertising. Get after them and sell them a "Pruden Garage." Get posted at once regarding

"PRUDEN SYSTEM" Construction

Our Buildings are shipped complete in units of heavily galvanized steel. Units interlock by our patent system and support each other. No framing required. Make a building as strong, durable and handsome as masonry, at far less expense. Big stock always on hand. Orders shipped immediately.

Write for Catalog and special terms to contractors.

Metal Shelter Company

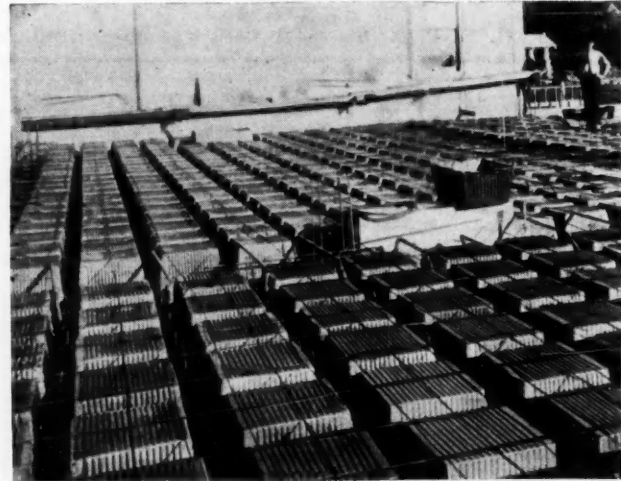
9-90 W. Water St., ST. PAUL, MINN.

Patentees and Sole Mfrs.
Pruden System Buildings.

"Floedome" Floor Construction

The new always attracts attention, but only the useful and valuable holds it. The reader will see from a glance at the accompanying cuts the great saving in concrete material and the great reduction in the load-bearing portions of floor construction effected by the use of what are known as "Floedomes."

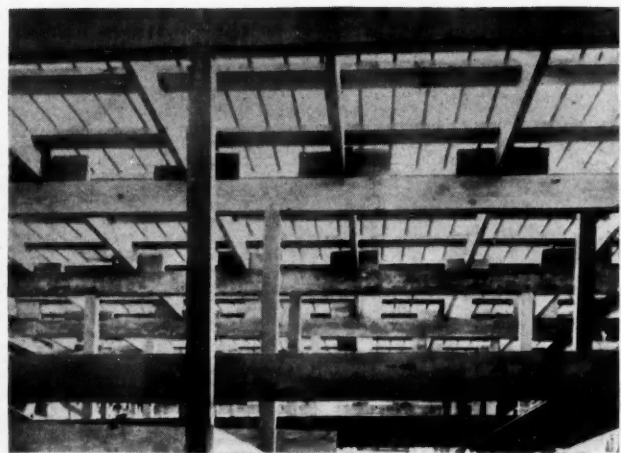
These steel structural units, recently put out by the Trussed Concrete Steel Co., 454 Trussed Concrete Bldg., Detroit, Mich., are an absolute new development in building construction. The flat domes, open on the under side, and with serrated edges to engage the meshes and straddle the ribs of the Hy-Rib, are especially designed for two-way reinforced



Floedome Construction, Mt. Tabor School, Portland, Oregon, Showing Floedomes in Place and Reinforcing Rods

concrete construction. The joists extend on all sides of the Floedome carrying the load in two directions to the supports. The Domes themselves serve merely as fillers, replacing the concrete where it is not effective in carrying stresses, and thus greatly reducing the dead weight.

Absolutely flat ceilings of almost any desired span are readily obtained by the use of Hy-Rib steel sheeting on the under side. This Hy-Rib provides an absolutely straight, true surface for plaster, besides thoroughly reinforcing it with



Supports for Floedome Construction in Mt. Tabor School, Portland, Oregon

steel. With this Floedome construction, all projecting beams below the ceiling line are eliminated, as the girders which support the Floedome construction can be readily contained within the depth of the Floedome.

One of the principal advantages of the Floedome con-

When Writing Advertisers Please Mention the American Carpenter and Builder

DECORATE

—A ROOM WITH—

“Cott-a-lap”

MADE in about 40 beautiful shades. Costs no more than good wall paper. Lasts for years. Protects walls. Softens sounds. Gives artistic effect not obtainable by wall paper.

SEND for Samples and Circular BB and Mention Name of your Decorator

The Cott-a-lap Co.
Chicago, Ill. :: Somerville, N. J.



DECO-VENEER

is a real wood—not an imitation—mounted on DECO boards.

DECO is made from the best foreign and domestic timbers. Panels come in white or finished. Furnished with caps, base and strips ready for immediate installation. There is no mill or cabinet work necessary. DECO saves time and money.

DECO is adaptable for window backs, wainscots, door panels, bank or bar fixtures, general paneling and interior decorating work, etc., etc.

We want a live Contractor, Carpenter or Building Agent in every town. DECO is moderate in cost and sells easily. You can make money through handling DECO.

Write for our descriptive matter, samples, prices, agency terms and other information. Drop us a line NOW.

Deco Manufacturing Company

INDIANAPOLIS :: INDIANA

Berger Ceilings Saved the Building



Rockland Opera House, Rockland, Mass.

by the National convention to use our best efforts to promote and secure his election.

Sunday Morning Blaze.

Union Glee Club quarters get a scorching, but Metal Ceilings saved the day.

Patrolman Thos. F. Kendrigan's timely discovery prevented what might have been a disastrous fire.

As he was passing the Savings Bank block at Union and Church streets at 3:20 he saw a light in the Union Glee club quarters on the third floor. An examination showed that a brisk blaze was in progress.

Mr Kendrigan immediately sounded an alarm from box 16, the "danger" box, and with the assistance of several volunteers he kept the flames in check until the arrival of the firemen.

After a lively struggle, in which chemicals were used principally, the firemen succeeded in confining the fire to the room in which it broke out.

Few people realize how near we were to losing the whole block, but the Metal Ceilings saved the day by preventing the flames from spreading to the attic, the fire being turned in its course was rapidly working its way to the balcony corridor of the Rockland Opera House when discovered.

The club's parlor carpet was badly damaged, as was the dressing room of the Opera House on the second floor by water, the total loss aggregating about \$900.00.

It seems to us that Metal Ceilings could be advantageously used in numerous other business buildings throughout Boston's down-town section.

Think this case over and then write to us for further facts.

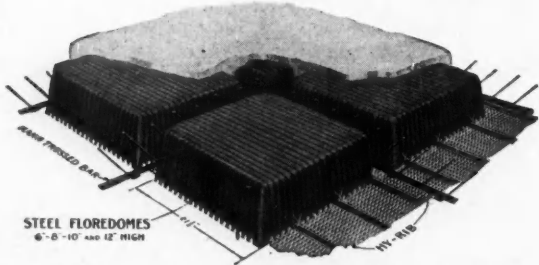
THE BERGER MFG CO CANTON OHIO
FOR PROMPT SERVICE ADDRESS NEAREST BRANCH
NEW YORK BOSTON PHILADELPHIA ST. LOUIS MINNEAPOLIS SAN FRANCISCO

We also manufacture Ferro-Lithic and Multiplex Reinforcing Plates, Metal Lath, Roofing, Eaves Trough and Conductor Pipe, and sheet metal building products of all kinds.

When Writing Advertisers Please Mention the American Carpenter and Builder.

struction is its lightness in weight, which saves not only in the construction itself, but in all the supporting girders, columns, foundations, etc.

Only the simplest kind of centering and forms are required for Floredome construction, as there are no beams to provide for and as the forms are covered with Hy-Rib, which



Concrete Floor With "Floredomes" Partly Exposed

provides the proper true surface for plastering. Sometimes this form work is of the open kind, with spaces between the boards, or perhaps a very rough flooring is laid. Either method is inexpensive, and saves considerable in construction costs.

Floredomes have been used in a number of localities, and have the enthusiastic support of architects, engineers, contractors and owners. Tests have shown exceptional strength and rigidity. Two of the accompanying photographs illustrate their use in the building of the Mt. Tabor School in Portland, Ore.

A descriptive booklet giving practical instructions as to just how to use Floredomes, with tables of safe loads, etc., will be sent free to readers of the AMERICAN CARPENTER AND BUILDER. Send your address on a postcard to the Trussed Concrete Steel Co., 344 Trussed Concrete Bldg., Detroit, Mich.

The XXth Century Furnace

That the furnace question always remains an interesting proposition with all contractors and builders goes without saying. So much responsibility must be shouldered in the selection of a heating plant for the new home or building, by the contracting builder that he feels he must at all times be entirely familiar with the furnace situation in general. He should know in detail the relative merits of the various furnaces being manufactured and what particular type of building, if any, they are best adapted for.

A particular furnace that has met with much success and given thorough satisfaction in both its operation and cost of maintenance is the XXth Century furnace which is manufactured by the XXth Century Heating and Ventilating Company of Akron, Ohio.

Sixteen years ago the first XXth Century heaters were built. Today XXth Century Heaters are in use from Maine to California, from the Lakes to the Gulf and even in foreign countries. Perfect satisfaction under every condition and in every climate is their record.

The heat-producing power of a furnace depends wholly upon its area of prime heating surface, and its economic principles of combustion. A perfect combustion means a well-balanced mixing of the oxygen from the air with the burning material—coal, wood coke, gas, etc., and unless the amount of oxygen be carefully measured to a given amount of fuel,

THE "HAN-COT" SASH MOUSE
for placing sash cord in window frames.

59 in. long, consisting of fastener, chain and weight. Takes but an instant to insert the cord in the fastener, or release it, and does away with the tying and untying necessary when using the old style chalk line and piece of lead.

Sample sent postpaid for 30 cts. If your dealer hasn't it.

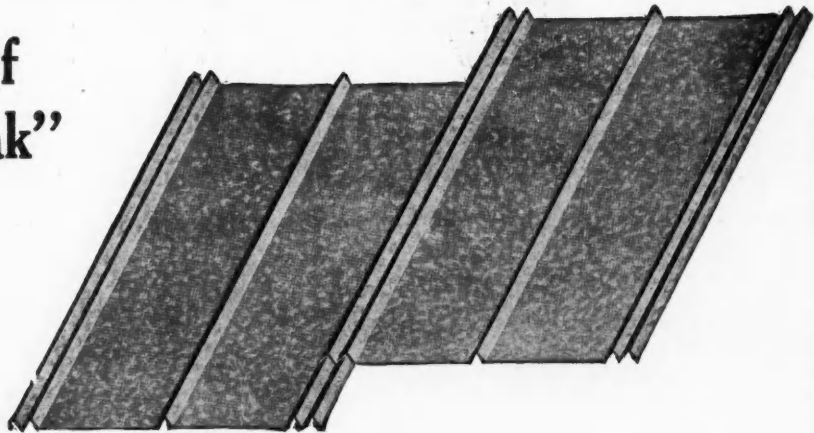
HANDLEY & COTTERMAN
Atlas Bldg., 164 N. Wabash Avenue, CHICAGO



Justright Galvanized Roofing

"That Simple Roof That Don't Leak"

- Absolutely Weather Proof**
- No Wood Strips Required**
- No Special Tools Required**



This wonderful roof will give **satisfaction**. It can be applied by anyone who can apply V Crimp or Corrugated Roofing. Agents wanted in unoccupied territory.

If your dealer does not handle this roofing, write

The Moeschl-Edwards Corrugating Co.
8th Street COVINGTON, KY.

Manufacturers Sheet Metal Building Material—Interior—Exterior

When Writing Advertisers Please Mention the American Carpenter and Builder.



Metal Top.

"Royal" Ventilators

are the ventilators you should specify and use to secure positive ventilation.

Royal Ventilators provide an ever changing supply of fresh air without Cost of Operation. Correct principles and careful workmanship have won for us an enviable reputation.

Royal Ventilators are absolutely Storm Proof, and are the best and cheapest means for the proper ventilation of Buildings of all characters.

Each Royal Ventilator is sold with a guarantee covering efficiency, durability and workmanship that cannot be excelled.

Write for 80 page catalog, fully describing Royal ventilators.



Glass Top.

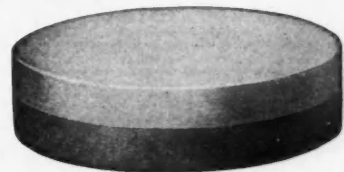
ROYAL VENTILATOR COMPANY
417 Locust St. PHILADELPHIA, PA.



Pack a Carborundum Niagara Grinder in Your Kit— Have it on the Job— You'll Find it Almost as Necessary as a Saw

A Carborundum Niagara Grinder is the handiest little tool you ever had for keeping your edge tools in prime shape. It is strong, durable, compact—smooth running—practically noiseless—mechanically perfect.

One big feature of these machines is that they are fitted with Carborundum Grinding Wheels—the quickest, coolest cutting wheels known. They cut free and clean, leaving the tool with a perfect edge—no filling or glazing. A Carborundum Grinder with a Carborundum Wheel should be in every carpenter's outfit—it will lighten many a day's work. Make your sharpening outfit complete by getting one of the Carborundum Round Combination Bench Stones.



Carborundum Niagara Grinder No. 2, equipped with 5-inch Carborundum Wheel, complete, \$4.00
Carborundum Round Combination Bench Stone, No. 107, each, \$1.00
Carborundum Pocket Stones, No. 149, each, .15

From your hardware dealer or direct.

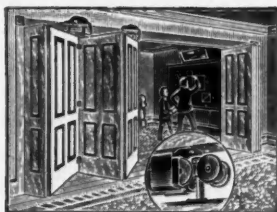
The Carborundum Company

NIAGARA FALLS, NEW YORK



USE

The Richard-Wilcox No. 135 Ball-Bearing Swivel Door Hanger.

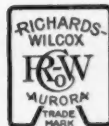


For sliding Accordion Doors and put a stop to your hanger troubles.

Made in four sizes for folding and sliding partition doors. Fitted with ball-bearing swivel pendants and has vertical adjustment.

Write for catalogue No. 10 which gives full particulars and prices.

RICHARDS - WILCOX Manufacturing Co.
AURORA, ILL. U. S. A.



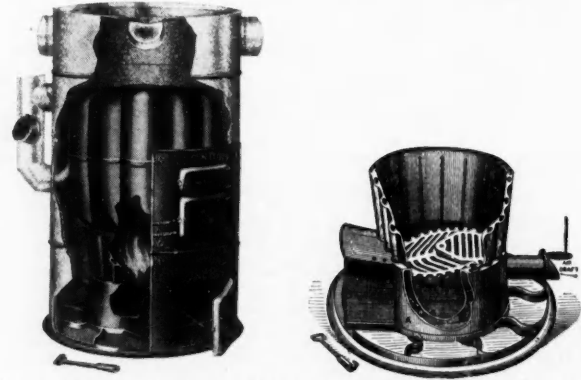
When Writing Advertisers Please Mention the American Carpenter and Builder.

there is a consequent loss of heat energy.

The XXth Century company spent time and money developing the principle as applied to heating whether from coal, coke, wood, gas, etc., and the keynote of their success lies in the fact that their furnaces embody a most perfect system of properly even co-mixing of fuel and oxygen. XXth Century furnaces save a large per cent of the fuel bills by *producing heat from the air*, and not drawing continually upon the "coal bin."

Another point in particular is their system of introducing that same oxygen *through* the air-cells of the fire pot itself from the *air chamber in the ash-pit* and by so doing the principle of ignition forces a draft which in itself, at the same time, measures the amount of oxygen to the burning force. The same principle compels an evenly distributed action over the entire fire-surface of the fire pot, and every part of the fire-pot is producing its equal share of heat-energy, and not

allowing one part to profit at the expense of another part to the necessary robbing of heat-power intended for the rooms. There is another matter of economy in this principle, and that is the preservation of the fire-pots. A properly heated and properly distributed area of heat in the fire-pot forces



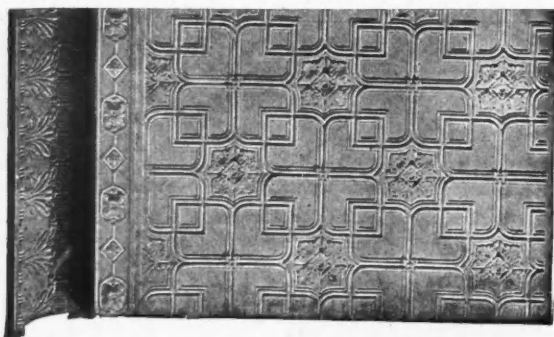
Illustrating Construction of one of the XXth Century Furnaces

the consumption of fuel and oxygen, produces uniform expansion and contraction of the metal, hence, does not burn out the fire-pot.

Particular features in the construction of XXth Century furnaces include large ash pit and ash door, allowing even the grate and rests to be removed or placed through it; an indestructible feed section affording simple regulation in feeding fuel; self-cleaning radiator made of corrugated cast iron; an automatic damper which opens the direct draft flue and constantly economizes both heat and fuel with the least possible labor; a double casing with patent air-space between, preventing any heat escaping; patent wrought casing rings making suction of dust into chamber impossible; large circulating chamber feeding pure, healthy, warm air regularly to heating surface; an indestructible fire-pot that gives a free circulation of air at all times, thus preserving fire-pot; patent regulator holding fire in some cases 48 hours without re-kindling; no gas puffing or smoking; the burning of all kinds of fuel, especially slack and cheap grades of soft coal with perfect satisfaction.

XXth Century furnaces are manufactured in several types; series A, B and D, and series C, especially adapted to the burning of hard coal, coke, wood and natural gas. XXth Century furnaces can be equipped with any one of three distinct styles of grates, *i. e.*, drop front grate, revolving or duplex grate and rocking grate. The company prefers the use of the drop front grate.

Detailed information concerning the XXth Century furnaces, catalogs, illustrations, etc., etc., can be obtained by writing the XXth Century Heating and Ventilating Company, Akron, Ohio.



No. 212. A Design in Modern English

Ceilings in **Stamped Steel** for Public or Commercial buildings. Ceilings of modern refined designs for private residences. Tilings in **Steel**, for Bathrooms and Kitchens.

Half the labor of erecting a metal ceiling is strictly Carpenters' work, that is, the scaffolding and furring. Once started, they can finish it as well or better than anyone else. Secure our agency and push them.

Catalogue on request

Northrop, Coburn & Dodge Co.

No. 29 Cherry St. NEW YORK

Specify a Kalamazoo Furnace For Your Next Job

Make Good Profits and Good Friends

There's big money for you in recommending Kalamazoo Furnaces and installing them yourself. You can charge for the work, making a nice additional profit on each job. Kalamazoo Furnaces are easy to install—the most inexperienced have no trouble following the blue prints which we furnish.

SHIPPED DIRECT—30 Days Free trial

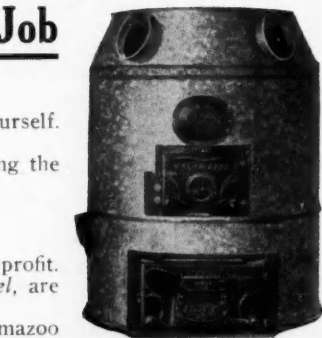
FREIGHT PREPAID—360 Day Approval Test

Buyers save \$25 to \$100 on each furnace because we ship direct, saving them the dealer's profit. Owners are always pleased—Kalamazoo Furnaces give *greatest heat from the least fuel*, are easy to operate and are long lived.

Write us *at once* for catalogue No. 689. Let us submit you a plan and price for a Kalamazoo in your next job.

KALAMAZOO STOVE COMPANY, Kalamazoo, Mich.

Over 200,000 stoves have been sold by the Kalamazoo Stove Co.



A Kalamazoo And Gas Stoves Too
Direct to You

When Writing Advertisers Please Mention the American Carpenter and Builder.

THE L. & I. J. WHITE COMPANY
Buffalo, N. Y.

Please send me particulars of
your proposition for Carpenters and
Builders.

Name

Address

Occupation

The Greatest Opportunity of 1912

☞ We want one Carpenter or Builder in every community in the country to demonstrate and take orders for our celebrated High Grade Tools on a liberal commission. Sign and mail the coupon today.

☞ We have been making Quality Tools for 75 years, and our goods are known all over the world, for their excellence of material, temper and finish. To use them is to save money. Every article guaranteed.

“This is the brand
By which we stand”



☞ This Trade Mark on a tool means both **insurance** and **assurance** — insurance against tool troubles, and assurance of the most tool satisfaction. Use the coupon and receive interesting information.

The L. & I. J. White Company

Edge Tools and Machine Knives

Main Office and Works BUFFALO, N. Y.

Branch Offices:
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Mr. Contractor and Builder

Why not equip the home or other building you are erecting with

Davis
Acetylene Lighting?

You can greatly increase your income by selling and installing Davis Acetylene Lighting Systems for new buildings and during dull seasons for buildings already erected. No previous experience required and we help you get started. Write us for cost of equipping a building and for our terms to salesmen.

Architects desire to recommend the best and we, therefore, invite them to carefully investigate what we have to offer.

Davis Acetylene Company
90 Crawford St., Elkhart, Ind

Write for Particulars
and find out all about our
Triumph Lights
System, Stand and Portable Lamps

before you put in your lighting plant or lamps of any kind, and avoid disappointment

A 300 Candle Power Shadowless Light that can be turned up and down like gas. They meet all requirements of Home, Store, Church or business lighting, in or out doors at less than half the cost of Kerosene or Electricity, simple enough for any one to install and operate. Write for ACB catalog, it tells all about them.

BRILLIANT GAS LAMP CO.
Dept. 20 182 N. State St., Chicago, Ill.



THE DENNIS "CLINCHER"
FELT WEATHER STRIP
PATENT PENDING



NOTE - NAIL PASSES THROUGH
BOTH MOULDING AND FELT.

Manufactured only by
W. J. Dennis & Co. - 2226 W. Lake St., Chicago
Free Sample to any address for your Hardware dealers' name.

Specify The

W. J. Dennis
Clincher Felt
Weather
Strip

If You Want
the Best
Made



Mr. Builder: — If you are lucky enough to read this advertisement, and wise enough to write and tell us what you buy in

IRON, BRASS
and BRONZE

we will send you catalog that is attractive enough to go in any man's library Do you want it?

DOW WIRE & IRON WORKS

Incorporated
Louisville, Kentucky

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Building for the Future

requires that you make provision for stationary vacuum cleaning precisely as you make provision for stationary heating, lighting and plumbing.

Really efficient air cleaning depends upon the volume of air moved in a given time, and this requires piping of ample capacity. Therefore you should always use 2½-inch pipe if you want to be able to install the most efficient and economical system of cleaning.

THE TUEC STATIONARY Air Cleaning System

operating in connection with piping of this size does the most effective work at the lowest cost. Competitive tests prove conclusively that the TUEC is superior to all other vacuum cleaning systems in the following particulars:

- 1—Greatest air capacity per minute at openings.
- 2—Sufficiency of vacuum inside every orifice.
- 3—Lowest cost of operation.
- 4—Simplicity of design and strength.

- 5—Nothing to wear out or make trouble.
- 6—Perfect lubrication.
- 7—Noiseless running.
- 8—Labor-saving tools.
- 9—Minimum floor space required.

More than two thousand buildings were equipped with TUEC systems during the past year and a thousand more, now in course of construction, are being piped for TUEC installation.

We make a special truck machine for buildings which cannot be piped.

Send for descriptive literature

THE UNITED ELECTRIC COMPANY, 30 Hurford Street
CANTON, OHIO
Tuec Companies in All Large Cities



The Ives Window Ventilating Lock.



**A Safeguard for Ventilating Rooms.
 A Lock, quickly applied and operated.
 Affording Sure Protection against Intruders.**

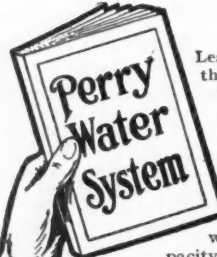
CHILDREN KEPT IN.

BURGLARS KEPT OUT.

—WRITE FOR DESCRIPTIVE CIRCULAR.—

THE H. B. IVES CO.,

NEW HAVEN, CONN., U. S. A.



Send for This Book

Learn all about the only system of water supply that eliminates the storage of water. That delivers water fresh from the well. The

Perry Water System

provides all the conveniences of a city water works system. It is designed for large or small capacity; is easy to install in any old or new building—operated by any kind of power—economical and practically indestructible. Has more advantages than any other system of water supply. Every reader of this publication should write for copy of our illustrated catalogue. Address

UNITED PUMP & POWER CO.
495 Old Colony Building, CHICAGO

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TO DAY



Can be used as a

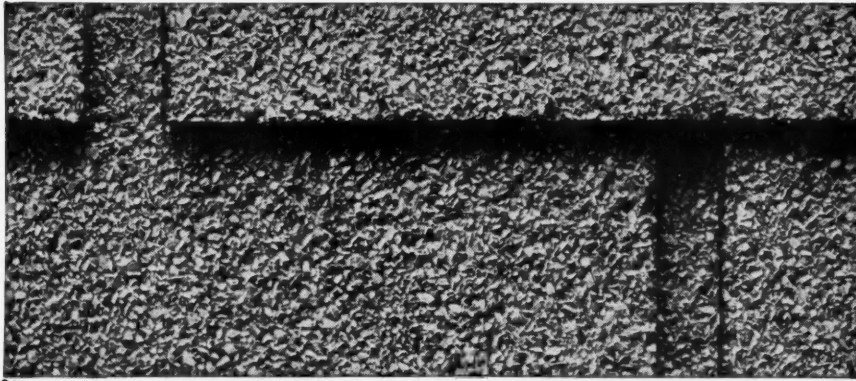
Music Cabinet Book Case or China Cabinet

Measurements:
 Width 26 inches
 Height 42 inches
 Face 11 inches
 Veneered Columns

Chicago Grille Works
828-838 Wells Street
CHICAGO :: ILLS.
Special Prices to the Trade.



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This Cut Shows the surface of Flex-A-Tile Shingles—Beautiful, Convenient, Durable.

If you haven't sent for that free sample yet you are certainly losing mighty valuable time.

FLEX-A-TILE ASPHALT SHINGLES

are the most remarkable roofing material of this twentieth century.

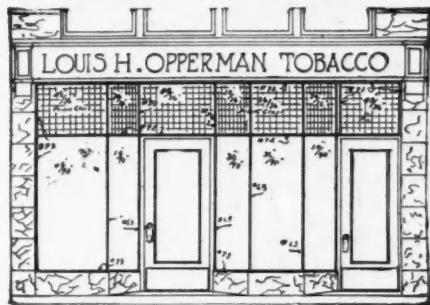
They are made of solid asphalt. The surface is chipped slate or granite rolled in under heavy pressure until it becomes an actual part of the shingle. The colors are natural slate and granite—no dye or coloring material—they can't fade or wear off—they are there to stay as long as the house lasts.

Flex-A-Tile Shingles are 8 inches wide by 12½ inches long—only takes 420 of them to cover 100 square feet—they are easily and quickly laid—are absolutely weather proof and highly fire resisting—as durable as slate and less expensive than stained wood shingles.

We want to send a free sample to every carpenter and builder in the country

Send your name

THE HEPPE'S COMPANY 1010 45th Street Chicago, Illinois



FRONT ELEVATION.

Everybody Is Satisfied

when Petz Bars are specified for that modern store front. The owner is pleased because the appearance is beautiful, his window display is perfect and well-lighted, and the ventilation is all that can be wished for.

The architect and builders are pleased because Petz Bars are staunch and strong, easy to install and were never known to break glass.

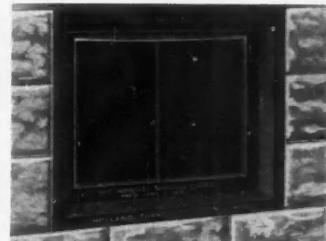
You will be pleased to get our valuable booklet on "Metal Store Front Construction." A copy is waiting to send at your request.

Detroit Show Case Co.

SOLE MAKERS

491 Fort Street, West, Detroit, Mich.

Carpenters Contractors INSTALL THE Window-Chute



Closed—A Real Window

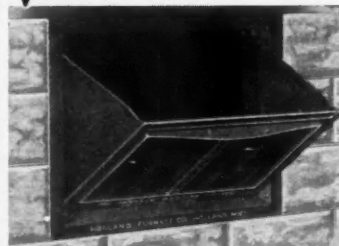
in your residence or office building construction work.

The Window-Chute is a real necessity. It is absolutely burglar proof. It can only be opened from the inside.

Holland Furnace Company HOLLAND - MICHIGAN

The Window-Chute is a real window, combination hopper coal chute. Closed—it is an ornamental, attractive, basement window. Opened—it is a practical chute. A heavy steel sheet covers and protects the glass when chute is in use.

The Window-Chute is made in two sizes—18 and 24 inches wide by 22¾ inches deep.

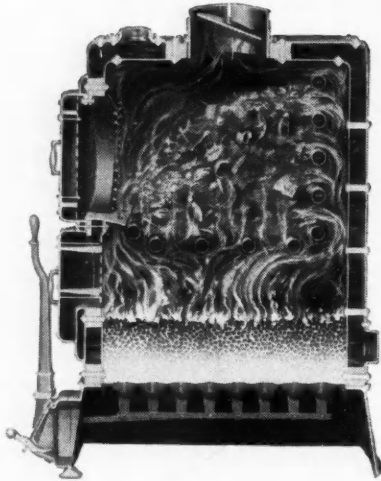


Open—A Perfect Chute

Get Our Window-Chute booklet. Drop us a line NOW that you want one.

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WHY THE KEWANEE GARBAGE BURNING WATER HEATER IS A MONEY, TIME, HEALTH AND LIFE SAVER



As a **Money Saver** it transforms your Garbage of all sorts into valuable fuel.
 It reduces your fuel bill 30 to 40 per cent.
 It annihilates your cartage charges.
 It gives you oceans of HOT water in apartment houses at 2 to 5 cents per family per day.
 In Hotels and Hospitals these advantages are greatly emphasized.

As a **Time Saver** it keeps the storage of hot water twenty-four hours round, and one never has to wait.
 It responds more quickly to fresh firing than any Water Heater extant.

As a **Health Saver** it instantly removes the source of foul stench, of noisome flies and venomous germs.
 It makes the disease-breeding garbage can a thing of the past.

As a **Life Saver** it makes impossible infectious contamination to every member of the family, father, mother and the babies, from the Disease-laden flies, which no longer infest your kitchen, the Dining room and the Nursery.
 The family pests need no longer be feared as disease carriers.

For Valuable Information Write to

KEWANEE BOILER COMPANY KEWANEE, ILLINOIS

MAKERS OF THE INFALLIBLE KEWANEE FIRE-BOX AND SMOKELESS BOILERS

CHICAGO NEW YORK ST. LOUIS KANSAS CITY SALT LAKE CITY LOS ANGELES
 Sold in Canada exclusively by the DOMINION RADIATOR CO.

BUY FROM THE MAKER



We have made and sold thousands of steel furnaces in Chicago, and we have sold them everywhere, by mail, direct to contractors, builders and house owners, all over the country, from Maine to China. We don't offer them through dealers, for the DIRECT DEAL with the consumer is the most satisfactory to all concerned. It means BETTER SERVICE—because of the direct interest of the maker in each contract—and it means BETTER PRICES, for the middlemen's profits are cut out.

In buying the Hess Furnace, you needn't have faith. You can buy it now, on trial, and test it before January 1st, 1918. We will deliver it at your station, with all

pipes and registers—freight prepaid.
 Set it up and use it. If you're not pleased; not sure you have big value for the price—send it back to us—we paying return charges—and we wont claim one cent from you.
 We don't offer you credit, however, for we require the price to be deposited with your local banker when you receive the goods. He holds it till the test is made, subject to the conditions outlined above, and gives it to you or to us, according to the result of the test. You take no risk, and you will save money.
 Our furnace is made of steel, EVERY SEAM WELDED, and therefore permanently gas, dust, and smoke-tight. Made in six sizes, and burns any fuel. There is no furnace, better, at any price.
 Our 48-page booklet on furnace heating is free. Ask for one. It will give you a lot of useful information on heating.

Hess Warming & Ventilating Co.
 920 Tacoma Bldg. Chicago
We make those beautiful white steel medicine cabinets, cheaper than wood.



“Everybody's Doin' It Now!”

At least, all of the best builders are.

Doin' What?
 Why!
 Specifying

GILT EDGE Furnaces and Boilers

They have found it is easier to sell houses with a heating plant of established merit.

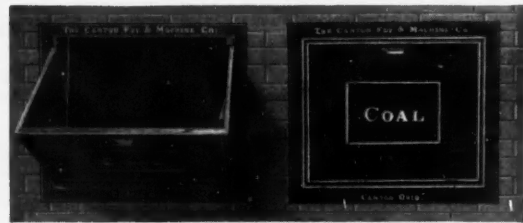
If you are going to build either a house or a hotel, it is worth \$\$\$ to you to get the Gilt Edge catalogue.

Write the manufacturers

R. J. Schwab & Sons Co.,
 295 Clinton Street
 MILWAUKEE WIS.



When Writing Advertisers Please Mention the American Carpenter and Builder.



Made in various Sizes

Pile—only by special key, furnished with the Chute. Window Frames and Sashes, Littered Walks and Lawns.

We also manufacture Sidewalk Doors (45 sizes), Coal Hole Rings and Covers, and a host of other Contractors' and Builders' Accessories.

Get our booklet "B-I" on "The Complete Line for the Contractors and Builders who know."

THE CANTON FOUNDRY AND MACHINE CO.

CANTON, OHIO, U. S. A.

The Canton Coal Chute

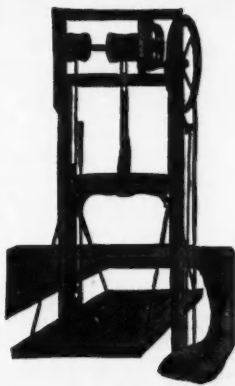
No building is up-to-date without a Coal Chute. They are necessary for sanitary reasons—for the time and labor they save—for looks and protection they afford.

Are made to last and at the same time be practical and ornamental.

Burglar Proof and Self Locking

Locks automatically when closed but can be opened from the outside—when owner wishes to avoid crawling over his Coal

There is no more excuse for blackened walls, soiled and battered



PERFECTION ELEVATORS

The Best Value for the Money in the World
Mechanically Correct

Dumb Waiters, Carriage and Store Elevators, Sidewalk Hoists, Etc., Etc.

Our Elevators are noted for their EASY RUNNING and SERVICE-ABLE QUALITIES. They are practically self-contained, and can be erected by any carpenter in a few hours. We furnish plans for erecting.

The Low Cost Will Surprise You

State your requirements, giving capacity, size of platform and number of feet to travel and we will name our lowest money saving estimate.

SIDNEY ELEVATOR MFG. COMPANY, SIDNEY, OHIO

**DUMB WAITERS
AND
HAND ELEVATORS**
OF THE MOST IMPROVED
AUTOMATIC CONSTRUCTION

INVALID LIFTS
TRUNK, CARRIAGE,
SIDEWALK AND
FREIGHT ELEVATORS

SEDGWICK MACHINE WORKS

128 LIBERTY ST. NEW YORK

CATALOGS AND
ESTIMATES FURNISHED
SEE SWEET'S INDEX

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.

Automatic Sash Holders
do away with
Sash Weights, Cord, Pulleys, Pocket Frames, etc.

A positive and durable device that holds window in any position desired and that cannot get out of order. For old as well as new windows. No broken cords, no binding pulleys, no rattling windows.

And they are economical—Made in three styles, for sash weighing up to 8 lbs., up to 20 lbs. and to 35 lbs. and more.

If your hardware dealer does not have them send us \$1.00 for a trial set, charges prepaid, together with your dealer's name.

ANYHOW send for literature and prices. Canadian Representative Smith Hardware Co., Ltd. Montreal, Quebec.

Automatic Sash Holder Mfg. Co
52 Church St., New York

Our Sash Locks
BURGLAR-PROOF any WINDOW

This lock—our "Ventilator" Sash Lock is a positive burglar proofing lock for any window when closed or open to any extent.

Equip the windows you are putting in with these locks, Carpenters and Builders. It will pay you doubly well in satisfied clients to do so. These locks are portable and unbreakable. They can be used detached or attached to sash.

Antique Copper finish "Ventilator" Sash Locks retail for \$3.00 per dozen. Special finish extra. We will mail you a sample lock postpaid for 25c.

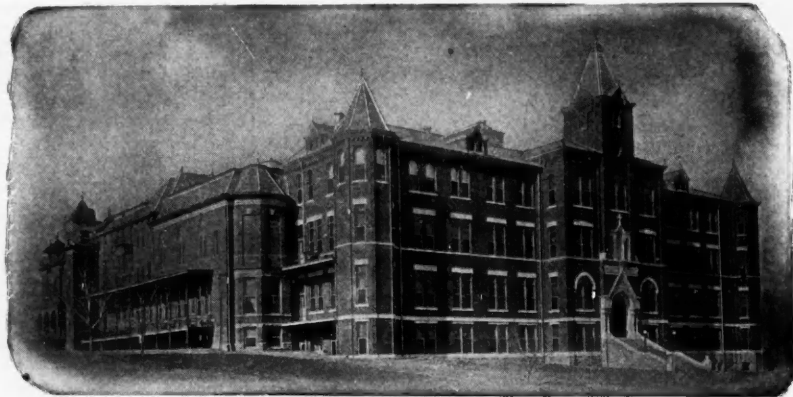
We have a fine agency proposition to make you. Let us send you our circular matter about these locks; our agency offer, etc. Drop us a line today.

Security Locks Company, 23 West 42d Street
NEW YORK CITY

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ST. FRANCIS HOSPITAL, Colorado Springs, Colorado, is a very fine building, as this photograph shows. No expense or care was spared to make it THE BEST AND MOST SANITARY hospital in the West. After exhaustive competitive tests, the authorities decided to roof it with THE BEST COVERING FOR ROOFS KNOWN—for

Walter's Galvanized Metal Shingles Last



INVENTED AND PLACED ON SALE BY THIS COMPANY IN 1885

Here is a sample of the roofing accepted by this Hospital and by thousands of other public and private builders. IT WAS THE ORIGINAL DESIGN OF THE INVENTOR IN 1885 AND IS THE FIRST SHINGLE COATED WITH PURE ZINC EVER MADE. Hand dipped so that every crevice is FILLED. No chance for rust to creep in EVER. Send for free sample and confidential information. Might as well have THE BEST.

NATIONAL SHEET METAL ROOFING COMPANY

Inventors of the FIRST Metal Shingle
JERSEY CITY, NEW JERSEY

GENUINE BANGOR

Roofing Slate
Structural Slate
Blackboards

Large Facilities, Prompt Deliveries

EAST BANGOR CONSOLIDATED SLATE CO.

East Bangor, Pa.

GET THE ROOF THAT LASTS

—the kind that never fades, never wears out, never needs any painting, re-coating or repairing every few years and never absorbs any water.

GENUINE FRANKLIN TUNNEL SLATE

—the strongest, the most uniform in color the best hand-selected, made from the best slate deposits makes the "Roof that Lasts a Lifetime" and Guarantees Freedom from all Roofing Troubles.

Plan **Now** to roof **Right**. Begin by sending to-day for our new Catalogue. Just out. It points the way to immense roof saving. Write for your copy to-day. It is sent Free.

SLATINGTON SLATE CO. Sole Manufacturers SLATINGTON, PA.
G. F. T. Slate puts "The Finishing Touch" on any Building.

IMPORTANT Contractors and Builders

Why not sell our Pure Copper Cable Conductors and Rod the buildings that you contract for and build. We have hundreds of Contractors and Builders making money in this line, there is money in it for the dealer.

Write us for prices, terms, etc.

NEBRASKA LIGHTNING ROD CO., Inc.
Manufacturers and Wholesalers
Pure Copper Cable Lightning Rods, Fixtures and Ornaments
205 North 17th Street, Omaha, Nebraska

ROOF SLATES

STRUCTURAL SLATE BLACKBOARDS

E. J. JOHNSON

38 Park Row, New York

Quarry Operator

BLACK, GREEN, PURPLE, RED

Booklet, Samples and Prices on Application

When Writing Advertisers Please Mention the American Carpenter and Builder.

GEO. H. BISHOP & CO., Lawrenceburg, Indiana, U.S. A.

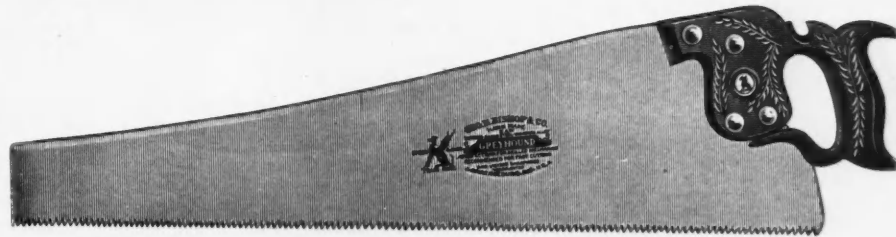
Makers of

Fine Hand Made Hand Saws

The Purest of Quality Our
"GREYHOUND" Hand Saw



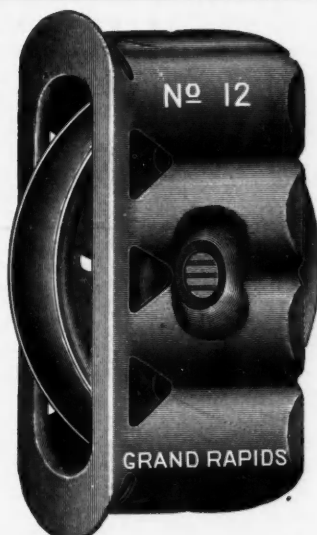
IN introducing our "GREYHOUND" brand of Saws to the trade, we have departed from our usual custom in naming instead of numbering the saw. This saw will be known as our "GREYHOUND" and will be the only Bishop Brand of saw known by name.



We have had a Chemist experimenting for years to originate a purity of steel with a fine grain and tough body that would stand up under such a fearless warranty as we place on our "GREYHOUND" brand of saws. We now have it. We know its worth as well as its value. As workers of steel we understand it. We had to name it and we have christened it Bishop's Refined "GREYHOUND" Steel, associating our trade mark with its name. We have in this "GREYHOUND" Saw blade a purity of steel that is tough, tempers accurately and even—together with the special way it is made—enables us to guarantee that this "GREYHOUND" brand of Saws will cut faster and run easier in all kinds of wood, hold its sharpness and set longer than any other makes of good Saws in the world. We Refund the Money if 30 days' trial does not prove our guarantee. Our pride is quality with an honest opportunity for the purchaser to judge. Each Saw is tagged with our warranty on it. No expense has been spared to make this Saw the most perfect in the world. We invite correspondence with anyone who has our "GREYHOUND" brand of saws in use.

Made in both straight and skew back. Packed One in a Box.
In workmanship this saw possesses all the skilled mechanical features known to the art of saw making. The hang of the blade has been carefully studied and adjusted, to suit the fancy of the most critical. If this saw cannot be found in the Hardware Store and they will not order it for you, write to us. Price

Inches, Each,	18	20	22	24	26	28	30	Net.	Packed one in a Box
	\$2.35	\$2.50	\$2.65	\$2.80	\$3.00	\$3.30	\$3.65		



"GRAND RAPIDS" ALL STEEL SASH PULLEYS

No Nails No Screws
Just Bore 4 Holes

The time saved by the "Grand Rapids" will actually pay for the pulleys.

You can't afford to use old style pulleys.

Write for free samples and prices.



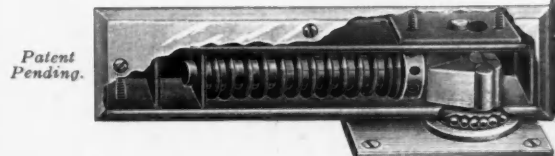
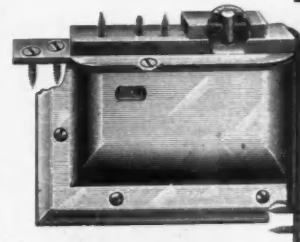
Grand Rapids Hardware Co.
Manufacturers
158 11th Street, GRAND RAPIDS, MICH.

This fastening is more secure than any number of screws or nails could make it. Saves about 15 per cent, too. S C R E W S COST MONEY

A door between dining room and kitchen equipped with

A SHELBY "CHIEF"

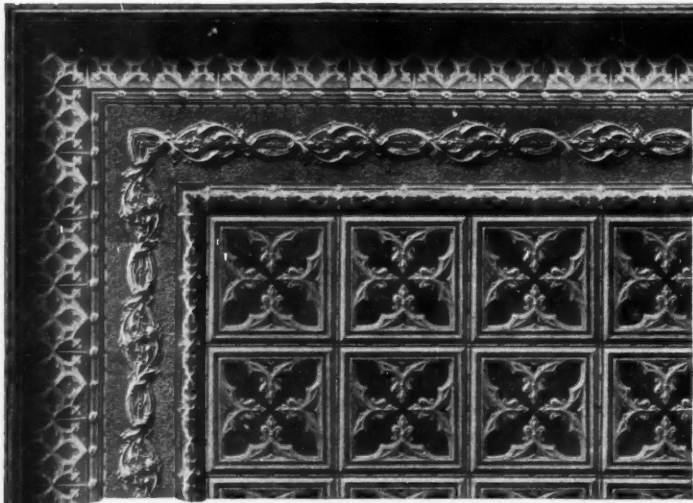
Double Acting Door Check and Floor Hinge gives everlasting satisfaction to every member of the household.



You should insist on your clients using The Shelby Chief, as it accomplishes more than any other device of its kind on the market and the price is within reach of all. The installation is very easy—simply notch out the upper corner of the door for the Check and the lower corner for the hinge. Place Check and Hinge in position and secure with wood screws. Place the door in position and secure floor plate to the floor and the door is ready for use. Ask us or your dealer to tell you more about it.

The Shelby Spring Hinge Co., SHELBY, O.

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Edwards Metal Ceilings and Walls

Carpenters Contractors and Builders

Here is a chance for you to build up an independent, profitable business for yourself right at home. Many agents are now devoting their entire time to selling our Metal Ceilings. Others have made big profits simply devoting part of their time to selling and applying our Metal Ceilings and Walls. *Write us to-day about your territory.* Our business is growing so rapidly that it is necessary to have an agent in every community. The territory is going fast. One day's delay may mean that some one else will be given your territory. *Don't delay. Write today for our special agents' proposition and large handsome catalog of attractive designs.*

The Edwards Manufacturing Company, "The Sheet Metal Folks"
401-417 Eggleston Avenue, Cincinnati, Ohio

Largest Manufacturers of Metal Ceilings, Metal Shingles, Steel Roofing and Siding in the World
Eastern Representatives: The W. H. Daycock, Jr. Co., 81-83 Fulton Street, New York
Branch Office and Warehouse: 1625-1627 Pacific Avenue, Dallas, Texas. J. F. Agnew, Manager

FOR CANVAS ROOFS



Order the Scientifically Prepared—

**BAYONNE
ROOF AND DECK
CLOTH**

Easiest to lay—
Lasts longest.
Requires but
**ONE COAT OF
PAINT.** The
treatment per-
meates the
fabric and pre-
serves the fibre.

BEST FOR PIAZZA ROOFS AND PORCH FLOORS

Ask for Sample Book A-6 and Prices

JOHN BOYLE & CO., 112-114 Duane Street New York
202 and 204 Market Street, ST. LOUIS

The Standard Brand of White Canvas
All Widths—All Weights—Any Quality

Our co-operative department gives complete
instruction for laying
BAYONNE or GULF STREAM

John Boyle & Co.'s Awning Stripes have
been the Standard for fifty years

**GULF STREAM
ROOFING
CANVAS**

We Are the "Price-Makers" on Ready Roofing



The Patent Roofing Co. helps dealers to take roofing orders away from catalog houses. Dealers make 25% to 30% profit and sell at same prices as mail order houses—when buying from us. We have matched up the best selling brands of the largest catalog houses. Note our prices.

HERE'S THE PROOF

"Best of All" Asphalt Roofing

	Our Price	M. O. Price
3½-ply, 60 lbs.	\$1.35	\$1.80
3-ply, 55 lbs.	1.28	1.45
2½-ply, 50 lbs.	1.20	1.50

"Flint Surfaced" Asphalt Roofing

	Our Price	M. O. Price
3½-ply, 80 lbs.	\$1.35	\$1.70
2½-ply, 70 lbs.	1.20	1.45

"Oriental" Slate Surfaced Roofing

	Our Price	M. O. Price
80 lbs. to square.	\$1.60	\$2.25

Red or Gray Color

All prices f.o.b. cars Chicago, or Kansas City, or Pittsburgh, or Cincinnati, or Atlanta, Ga. Terms net cash with order. Every dealer should send today for our complete line of samples and special inside prices on other brands not mentioned above. We do not sell catalog houses nor consumers. We protect the dealers.

REFERENCE: AMERICAN BANK, CHICAGO

All of our 3 and 3½-ply roofing guaranteed 15 years—2½-ply, 10 years. Quality of our roofings known the world over as the best.

Write Today

PATENT ROOFING CO.

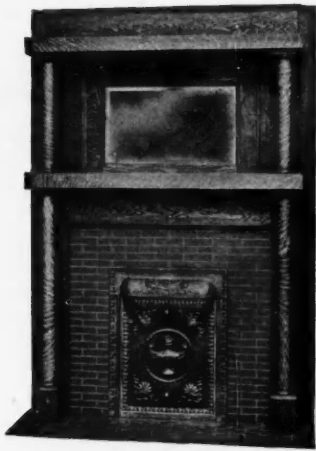
1225 Van Buren Street

CHICAGO

We Do Not Sell Mail Order Houses.

When Writing Advertisers Please Mention the American Carpenter and Builder.

JUST FOR A SPRING 1912 STARTER
Special Bargain



\$24.75

No. 239

At the above prices we include **Solid Oak Mantel**, with **Tiling and Grate**, also **Plated Frame and Front and Ash Screen**.

Mantel catalogs, sent free on application.

WRITE FOR ONE

MOORMANN & OTTEN

611-623 Main St. CINCINNATI, OHIO

High Grade Mantels and Fireplaces

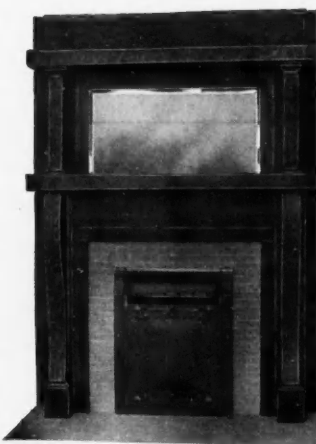


Our line of Colonial, Mission and Standard Mantels is the most complete in the country. All goods are guaranteed as to quality. Our large new catalogue, showing also brick mantels and a large selection of fireplace fixtures, consoles, colonnades, etc., sent free on request.

If building or remodeling be sure and write us.

CHAS. F. LORENZEN & CO.

701 N. Sangamon St. CHICAGO, ILL.



\$28.60

For this elegant massive, selected oak or birch, mahogany finished mantel. Beveled Mirror 18x36

"From Factory to You"

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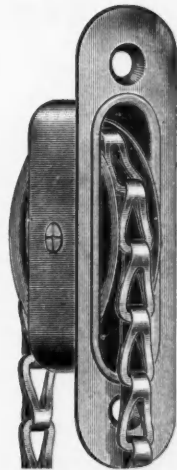
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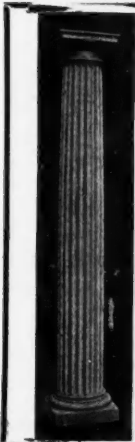
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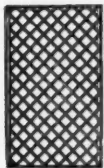
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All the information you need
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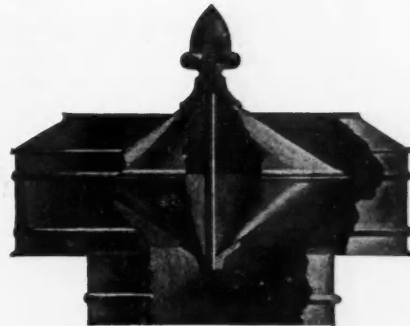
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Wire Window Guards



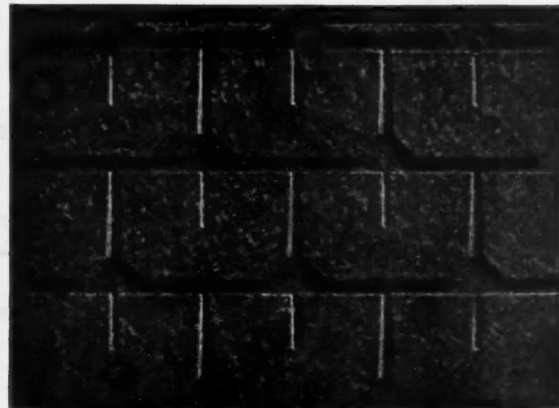
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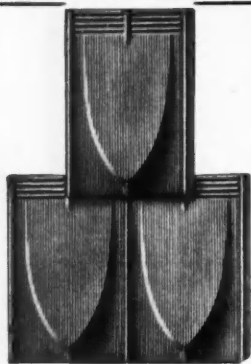
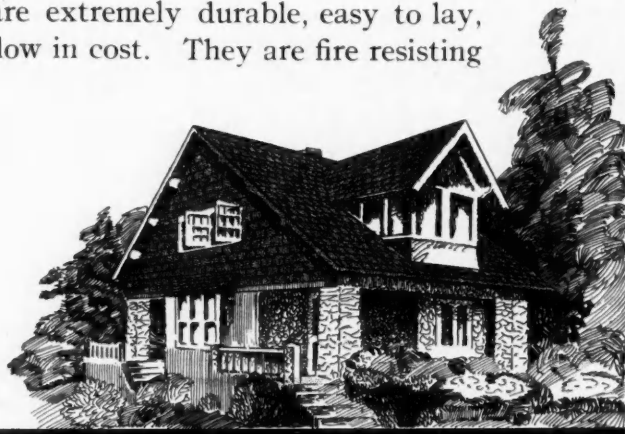
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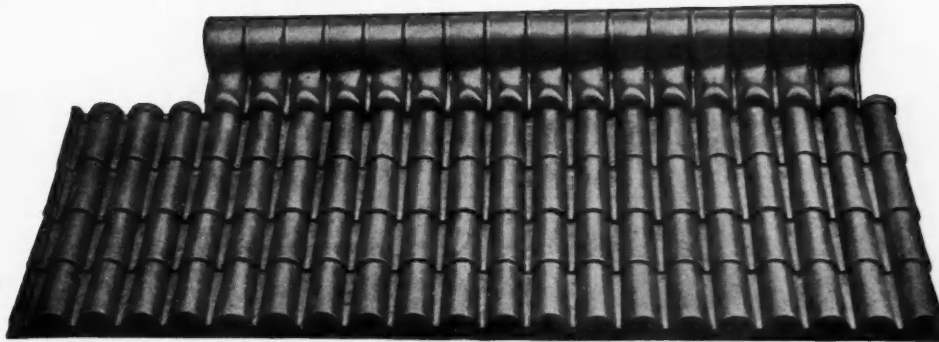
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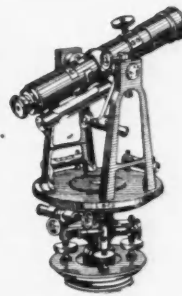
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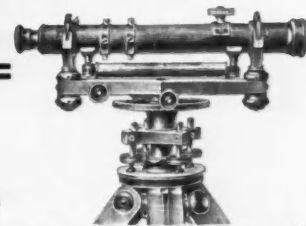
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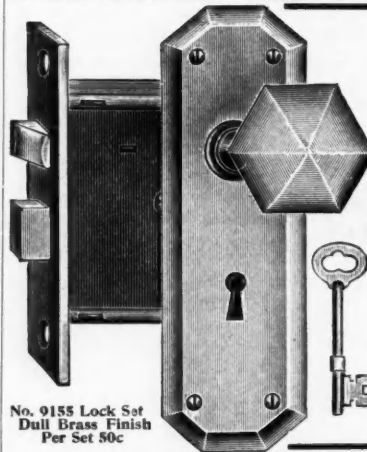
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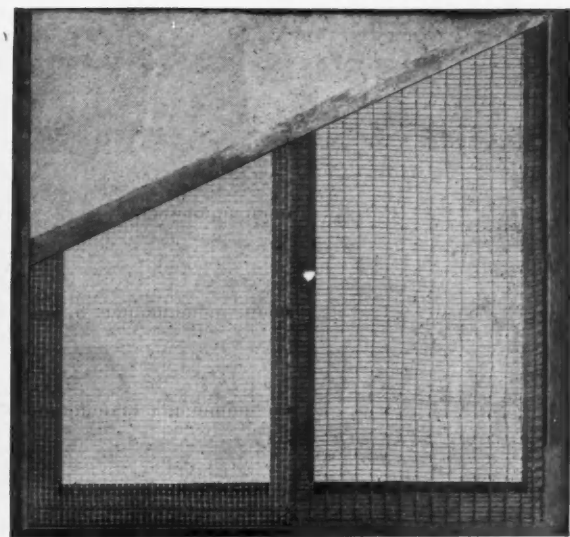
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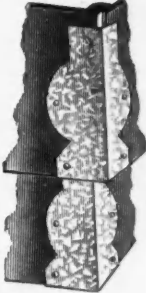


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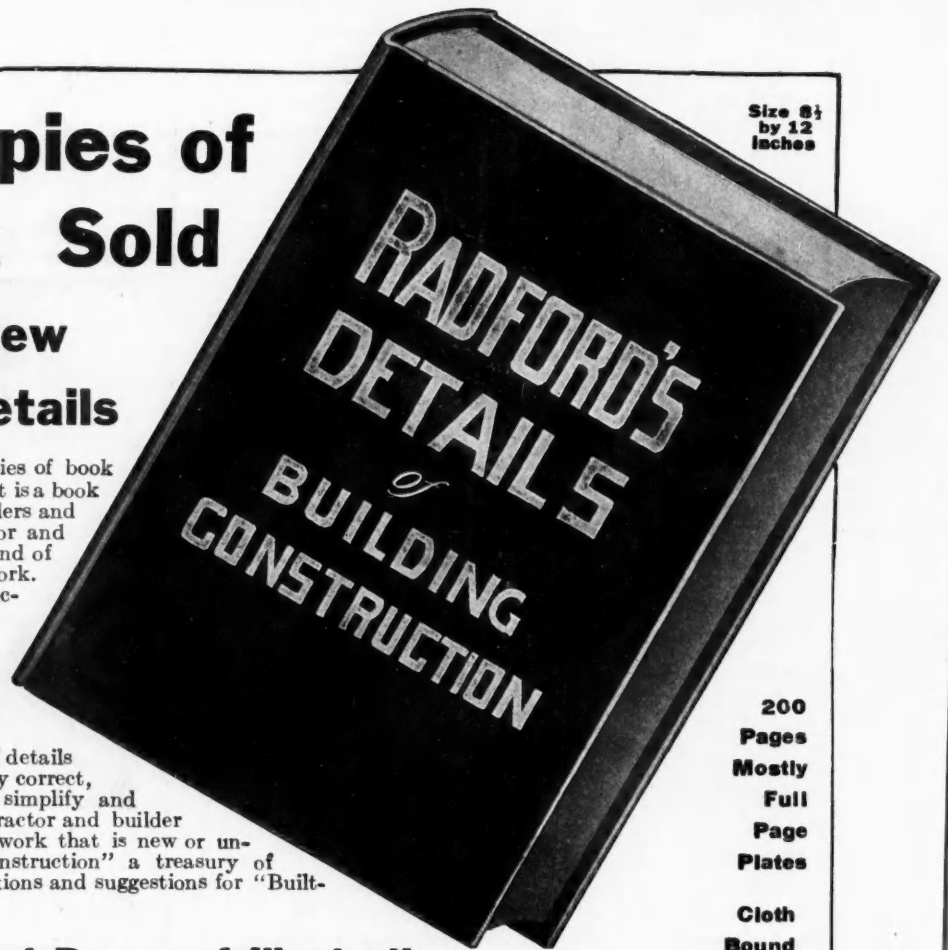
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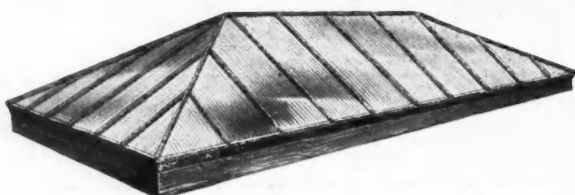
Second and Eric Sts., Camden, N. J.

MONTROSS METAL SHINGLES



Fire-Lightning-and Storm Proof

Live Agents Wanted



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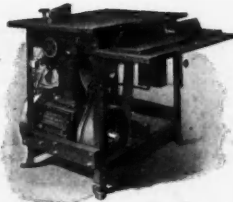
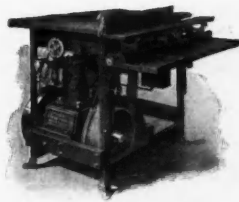
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and you don't need a soldering outfit to erect them. All Willis Skylights are constructed so they can be erected by any handy man with a hammer and screw driver. Guaranteed absolutely water-tight without the use of putty. The ridge and gutter bars cannot sag, buckle or spread.

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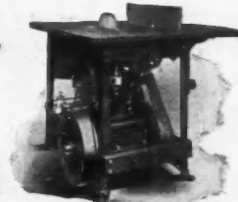
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Woodworker**

9 Machines in 1
6 H. P. ENGINE

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Meadville - Penna.



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JERSEY CITY, N. J.

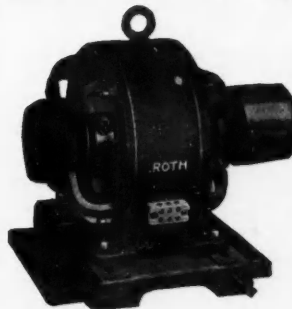
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2 1/2 H. P. STATIONARY
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Only the machines that are in actual operation consume power. Over 25 other advantages.

Let us act as your engineers. We will save you money.

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WITH POSITIVE GAUGE



CARPENTERS and BUILDERS

Here is a hatchet you can do some fast shingling with—No. 144 (oval head, 169 points.) Gauge is positive—it cannot slip. Clamps on with screw, gauge is readily changed. This hatchet is also made with flat head No. 44, 81 points, milled. Price of either is \$1.75 prepaid. We make a complete line—and the best—of Lathing Hatchets, from 84 to 225 points. Prices \$1.40 to \$1.75. You get your full money value in a Sayre Shingling or Lathing Hatchet. You can be positive of that. Find them at your dealers or sent direct.

L. A. SAYRE & SON
8 OLIVER ST. NEWARK, N. J.

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! The lately improved springs and corrugated steel rods put the "PHOENIX" far in lead of extra close scribing. Steel points can be moved up or down to suit pencil. No. 30, Polished Steel, 30c. No. 35, Nickel-plated, 35c. Also made in 5 1/2 size (No. 57.) This size is furnished with steel point, which can be inserted in place of pencil, if desired. No. 57, Nickel-plated, 60c.
Economy! Peerless Flexible Bit Gauge (No. 100.) A time saver for mortise locks. Nickel-plated, 30c. postpaid.
Convenience! All goods fully warranted. Special rates to jobbers and dealers. Order tools by number. U. S. stamps accepted. Cut shows Peerless scriber, one of our Ten Specialties.

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Peerless 3/4-inch Scriber. Pat'd. Broad point for plaster walls, fine woodwork, etc. Sharp point for quirks and mouldings. Adapted for extra close scribing. Steel points can be moved up or down to suit pencil. No. 30, Polished Steel, 30c. No. 35, Nickel-plated, 35c. Also made in 5 1/2 size (No. 57.) This size is furnished with steel point, which can be inserted in place of pencil, if desired. No. 57, Nickel-plated, 60c.
Peerless Flexible Bit Gauge (No. 100.) A time saver for mortise locks. Nickel-plated, 30c. postpaid.
All goods fully warranted. Special rates to jobbers and dealers. Order tools by number. U. S. stamps accepted. Cut shows Peerless scriber, one of our Ten Specialties.

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Structural and Plumbers' Slate*

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"SILVER LAKE"

and see that he gives it to you. It is impossible to



substitute as our name is stamped on every foot of cord. Silver Lake Sash Cord is the Original Solid Braided Cotton Sash Cord, and has been the standard since 1868. No other is just as good.

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CARPENTERS AND BUILDERS—Learn Structural Steel Designing during the long, cool nights soon at hand and prepare to advance into Steel Frame Construction, the most important branch of all building operations. Write to STEEL BUILDING DESIGN, Box 85, Akron, Ohio.

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WANTED—Contractors, carpenters in every town to handle our \$15.00 and \$20.00 made-to-order plans. \$5.00 commission on every plan. WOOLRIDGE ARCHITECTURAL CO., Bailey Bank Bldg., Correctionville, Iowa.

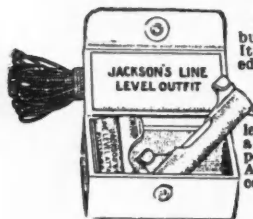
WANTED—An experienced man to take off millwork from plans, prepare estimates and lists. State practical experience, age and particulars of qualifications. In care of Editor of this paper.

Miscellaneous

ARCHITECTURAL DRAWINGS, TRACINGS, BLUE PRINTS. DURHAM BROTHERS, 1213 Filbert St., Philadelphia.

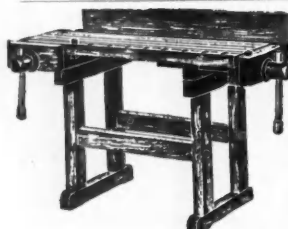
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CARPENTERS NOTICE—We want a carpenter in every town and community to sell our Ever Ready Door Clamp on commission. Send \$1.75 for sample clamp today, and receive our guarantee and protection to you as our local agent. 40 per cent profit for you on each sale. WILLSHIRE CLAMP CO., Willshire, Ohio.



A UNIQUE TIME SAVER.
The Jackson Aluminum Line Level is a mighty small device but it brings about a tremendous saving of both time and labor. It takes the place of the old-fashioned sixteen foot straight edge, yet it can be carried in your vest pocket.
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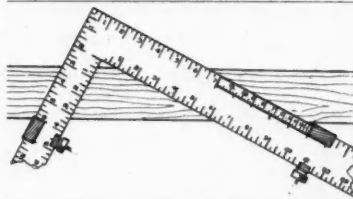
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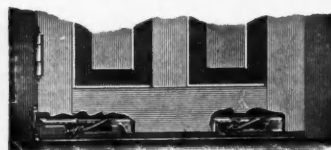
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BANISHES INDOOR THRESHOLDS leaving floors unbroken.
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Takes up no more space in tool box than a hammer. Absolutely noiseless. Can be fastened anywhere. With this clamp a 28-inch rip saw can be filed with but one changing. Very light and easily carried. Price \$1.00.

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The success or failure of every carpenter, contractor and builder depends on how accurately he can answer the question, What will it cost? This is one of the first questions on every job you undertake. The man who has reliable information as to the cost of material and labor, and the amount of each required on the job is the one who will be successful.

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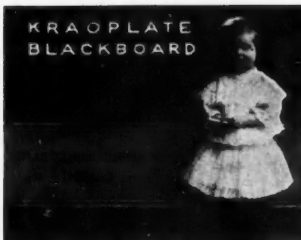
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By Arthur W. Joslin. A Systematic Treatise on Factors of Cost and Superintendence with Working Citations. 205 pages, illustrated, 12mo, cloth. Price **\$1.00**

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For 5 and 8 Room Dwellings

An unheard of Price and a most Remarkable and Indestructible Furnace

No Pipes No Lost Heat

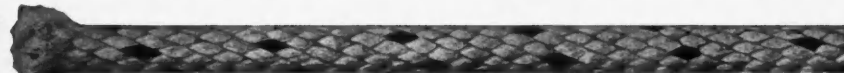
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Samson Cordage Works

Boston, Mass.

Made of extra quality stock, carefully inspected, and guaranteed free from the imperfections of braid and finish which destroy common cords so quickly.

The spots on the Cord, in any color, are our trade mark. Don't be misled by imitations. Samples and full information gladly sent.

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These Nails fasten direct to Hollow Tile and save the time, expense and anxiety of preparing Fireproof Walls to receive Nailing Grounds. They do away with the necessity of burying combustible wooden nailing blocks in the heart of the wall and afford full freedom for changing plans or correcting errors in the location of interior woodwork. Also used for attaching fixtures to all types of finished hollow walls.

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Is the ONLY BASE having a CENTER BEARING.

It carries the required weight without allowing the corner supports to sink into the floor and prevents the base of column and door from rotting.

See "SWEET'S" page 876.

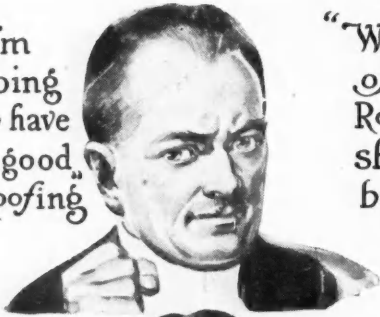
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Bottom View Showing Center Bearing

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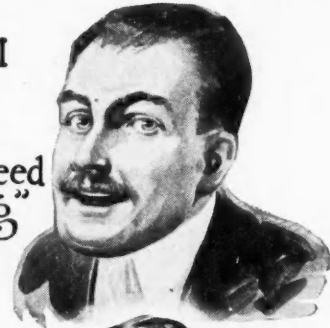
"I'm going to have a good Roofing"



"What kind of a Roofing shall I buy?"



"I wish I could get a Guaranteed Roofing"



"It's got to be artistic and easy to lay"



"I've decided on Certain-teed Rubber Roofing"



"By George! I'm glad I got It"



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Largest Mfr. of Roofing
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"The Certain-teed Guarantee is thoroughly dependable and is better than any test you can make"

THE faces above tell a true story. The owner of a Certain-teed Rubber Roof can afford to wear a smile because he has bought a *better* roof for *less* money.

Certain-teed Rubber Roofing

Quality Certified

Shingles or Rolls

Durability Guaranteed

In selecting a roof covering bear in mind Quality, Durability and Price.

Certain-teed Rubber Roofing is made only of the best materials. In the General's laboratories trained chemists make hourly tests of all materials used, insuring a uniform, high-grade quality at all times.

The user of modern, ready-to-lay Certain-teed Rubber Roofing need not worry about durability—the manufacturer backs his product with a written 15-year guarantee.

The "General" Says:

"Roofs don't wear out, they dry out. Don't buy roofing by the smell, taste, bending or tearing it—or any other fool test—let me tell you a better, safer way.

"I have originated a method of standardizing quality and value by putting a Certain-teed label on every roll. Certain-teed Roofing is guaranteed not to dry out and the Certain-teed Guarantee is thoroughly dependable and is better than any test you can make.

"This is just my way of protecting you, and makes it possible for you to get roofing with the quality certified and the durability guaranteed. It prevents you from buying inferior roofings and thinking they are the best."

If your lumber, hardware or building material dealer does not happen to handle Certain-teed Rubber Roofing, send us his name and we will tell you where you can get Certain-teed Roofing—or better still we'll arrange for your own dealer to supply you.

Write today for valuable book, BT-4 "How to Build for LESS Money."

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Fox Supply Co.	5	Orr & Lockett Co.	113	Winthrop Asphalt Shingle Co.	154
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NOTICE TO ADVERTISERS

Forms for the October number of the American Carpenter and Builder will close promptly on September 20. New Copy, changes and orders for omissions of advertisements must reach our business office, 178 West Jackson Boulevard, Chicago, not later than the above date. If new copy is not received by the 20th of the month preceding date of publication the publishers reserve the right to repeat last advertisement on all unexpired contracts. AMERICAN CARPENTER & BUILDER CO.



Dirt and Muss Gone

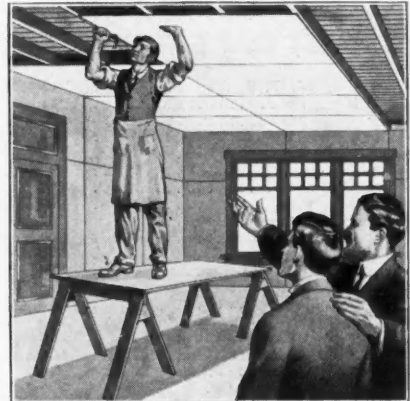
Away With Plaster!

Use "Bishopric" Board for Walls and Ceilings

Solid, Sightly, Sanitary, Inexpensive and Better in Every Way Than Costly Lath and Plaster

The Bishopric Wall Board System is a revolutionary improvement over the crude, costly, slow and "messy" lath-and-plaster method. Bishopric Walls, Ceilings and Partitions are beautiful, enduring, inexpensive. Ideal for all classes of buildings, new or old: homes, schools, churches, country clubs, hospitals, garages, for finishing attics, etc., etc.

Nail sheets to studding and wall is ready for paper, paint, burlap or kalsomine.



"Beats Lath and Plaster!"

BISHOPRIC WALL BOARD

It Can't Warp!

Bishopric Wall Board is toughened Asphalt-Mastic (non-burnable) in which kiln-dried dressed LATHS are imbedded, under pressure of 500 pounds to the square inch.

Surfaced with heavy high-grade, sized fiber-board. The only wall board stiffened by lath.

Cannot warp, shrink, swell, crack or pull loose! Will not absorb moisture. Proof against cold, wind, dampness, rats, vermin. Makes rooms fire-resisting.



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The Mastic Wall Board & Roofing Mfg. Co.

356 Este Ave., CINCINNATI, OHIO

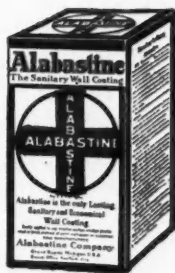
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When Writing Advertisers Please Mention the American Carpenter and Builder.

For 25 Years We Have Been Leading Authorities On All Interior Decorating

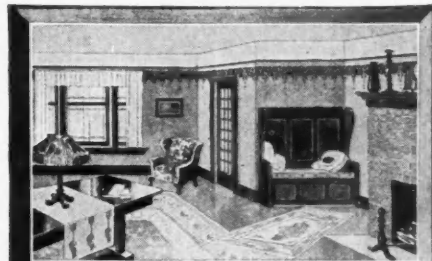
THERE are more thousands of artistic homes in the United States decorated with Alabastine than with any other material. There are 60,000 Alabastine dealers, painters and decorators, so constant is the demand for this exquisite Water Color Wall Tinting. For 25 years Alabastine has been famous for its velvetlike tints.

Alabastine The Beautiful Wall Tint



is the quickest and easiest material to put on the walls and has that soft richness architects strive for. Alabastine Color Schemes are exceptionally original and exclusive; seen always in the better homes and apartments. Our experts plan each room to blend harmoniously in tint and design. We furnish this service free of charge. Alabastine is far less expensive than wall paper and far more artistic besides being absolutely sanitary.

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*We will
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Color Plans
for any
rooms you
are going to
Decorate*



Alabasco The Flat Wall Paint

In every home, especially with children, there are places exposed to fingermarks. It costs but a little extra to paint these exposed wall spaces with Alabasco, which is a washable wall paint. We recommend Alabasco for nurseries, the lower part of bathroom and dining room walls and along the stairways. They can then be washed with soap and water. Alabasco is made to match exactly the beautiful, soft-hued tints of Alabastine. Alabasco does not chip, peel or rub off when rightly applied and is being used in thousands of schools, churches, libraries, apartment and business buildings in preference to all other materials. In liquid form all ready to use.



Send for The Alabastine Book and get the latest and best decorating ideas. Tells all about the Color Plans our expert designers will furnish you free of all charge. Shows our Free Stencil patterns.

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With our help your local decorator can give you as correct effects as the largest city experts. Let us send you this book, and let us furnish you Color Plans for a new living room, dining room or bedroom. *If you cannot get Alabastine or Alabasco we will see that you are supplied.*

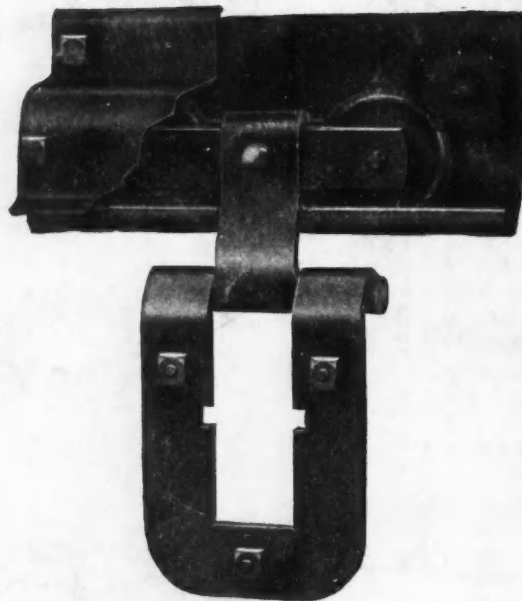
ALABASTINE COMPANY

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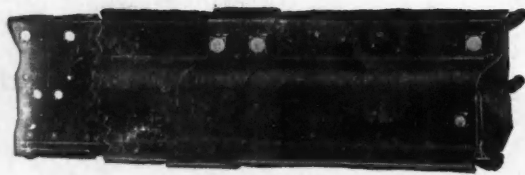
We Initiate—Never Imitate

Economy - Efficiency - “Eventually”



No. 77 Flexible

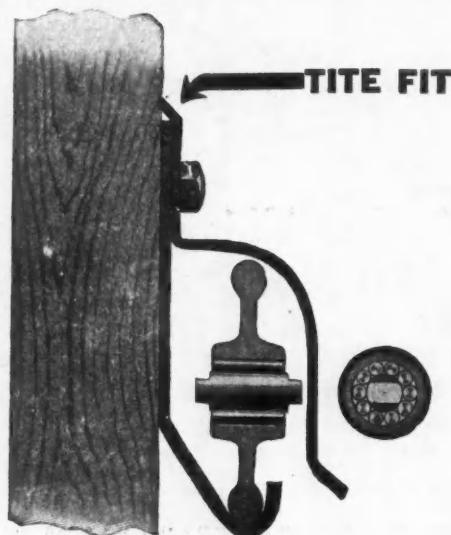
ECONOMY in Barn Door Hangers and Rail does not necessarily mean low price. The combination that will last the longest and give the best service represents economy. Try “Storm-Proof.”



Storm Proof Rail

EFFICIENCY—A hanger and rail that will give perfect satisfaction under the most unfavorable circumstances. Always on the job. One that is labor-saving and in itself constitutes a perfect housing and requires no brackets. Easy to install. That’s the “Storm-Proof.”

“EVENTUALLY” this hanger and rail will be used. “Why not now?”



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