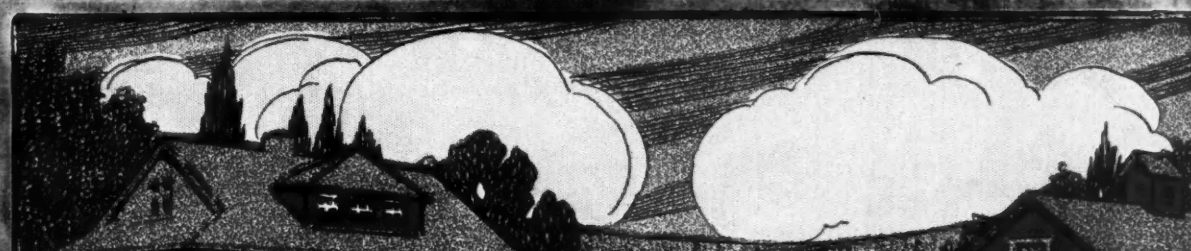


AMERICAN CARPENTER AND BUILDER



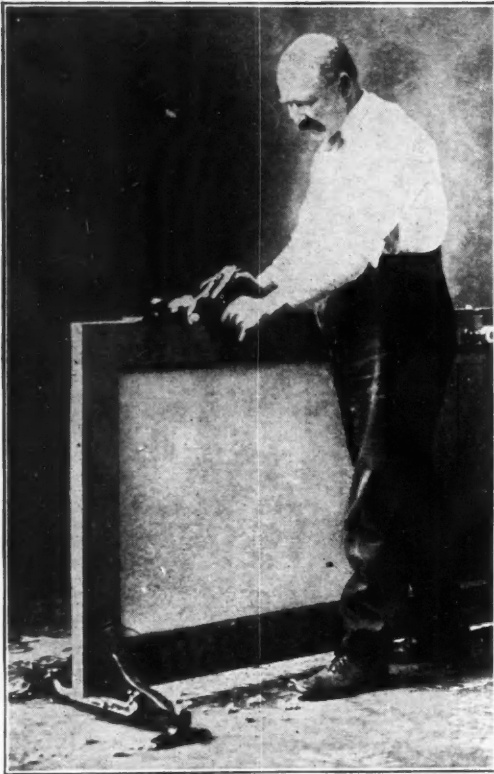
THE WORLD'S GREATEST BUILDING PAPER



MIDSUMMER BUILDING NUMBER

THE "DUTRO" Sash and Door Holder

A Practical Tool for Practical Men



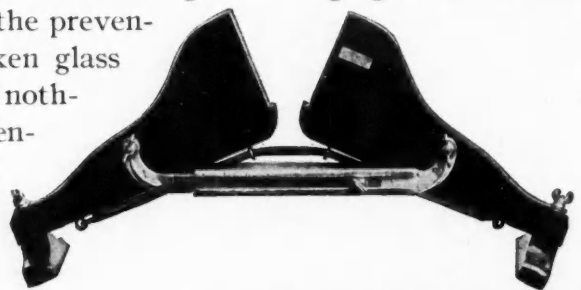
**Will Not Slip, Easily Adjusted,
Always Ready, Fits Any Tool
Chest, Will Hold Any Sash
or Door in a Perfectly
Rigid Upright
Position**

"The Dutro" will not mar any highly finished door or floor, as the jaws and feet are rubber lined. Steel clutches are provided to clamp over the rubber feet for use on rough floors, cement floors, etc., to protect rubber against unnecessary wear and tear.

No More Broken Glass

Will save its cost in fitting and hanging 25 doors and sash in the prevention of broken glass alone, to say nothing

of the added convenience and pleasure of having a perfect tool always at hand to fit your doors and sash.



If
your
hard-
ware deal-
er cannot sup-
ply you, send us
\$3.00

and we will deliver
one prepaid.
Read our
Guaran-
tee.

Wherever, Whenever ^{You} Want It It's There

OUR GUARANTEE

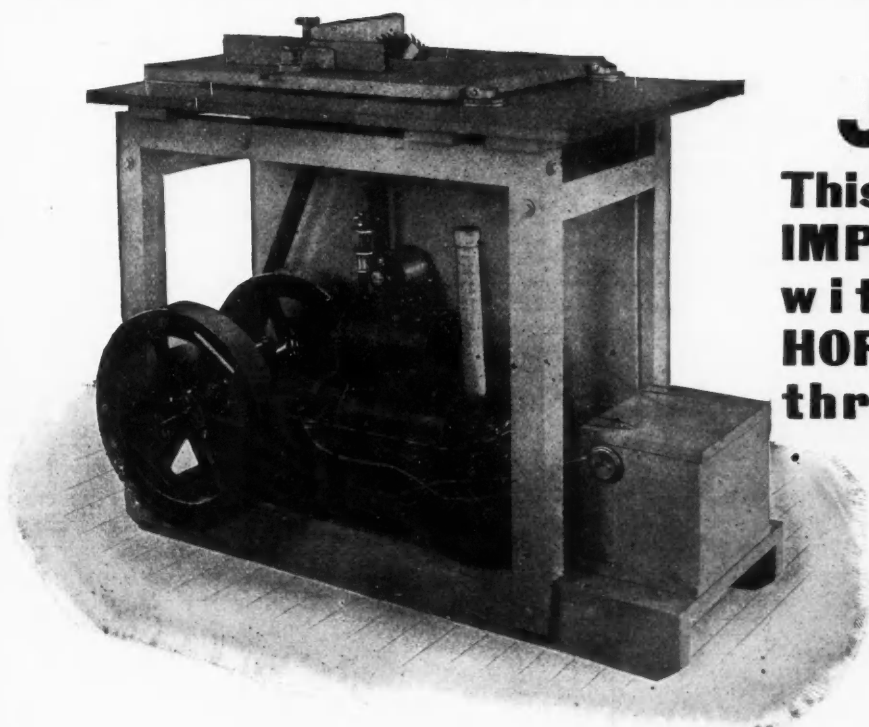
If the "Dutro" does not fulfill all claims made for it your money is refunded for the asking. **We take your word.** Send for "A Talk With Dad." It tells you all about it.

DUTRO MANUFACTURING CO.

331-333 S. Main St.,

MASON CITY, IOWA

Do Your Own **MILLWORK** ON THE **JOB—**



This is our **NEW**
IMPROVED RIG
with **WATER**
HOPPER Cooled
three **HORSE**
ENGINE.

The "Little Shaver" Portable Saw Rig

THIS rig, ready to start when it reaches you, weighs 520 pounds crated; includes two saws, cross-cut and rip; dado head for plowing window and door frames, emery wheel for sharpening your tools, wrench, etc. The engine furnished with this outfit is specially built for this kind of a rig, and it has a belt tightener attachment which keeps the belt from getting loose and can be adjusted in a few minutes. It is water hopper cooled and will develop three horse power under continuous brake test, which gives an abundance of power to run the saw.

WRITE
For Our
Folder and
SPECIAL
AUGUST
PRICE



The "Little Shaver" Floor Scraper

THE simplest and best floor scraping machine on the market. Has direct pressure on the knife, the handle having no pressure bearing control, as in other floor scrapers. With the entire weight on the blade gives the knife a uniform pressure at all times, with no possible chance of jumping and making a wavy floor.

Machine weighs 100 lbs. boxed for shipment.

Inter-State Equipment & Engineering Co., Old Colony Bldg.
Chicago, Ill.



The American Floor Surfacing Machine

is the original and only two-roll, self-propelling, dust collecting machine, protected by U. S. and Foreign patents, and the only one that will satisfactorily surface any kind of a wood floor, and has been in general use by contractors, hardwood floor companies and others for over five years.

Its work is rapid, regular, smooth and even, because the power that drives the rolls propels the machine at the same ratio of speed.

Its work has established the standard for surfaced floors, and the only machine whose work is specified by leading architects and meets the requirements of contractors, owners and hardwood floor companies for finely finished, smooth, even floors.

It has surfaced and polished millions of square feet of the finest floors in America and Europe.

Don't be fooled with an imitation, but get a machine that does work in paying quantities, and can be operated in small rooms.

The only one whose construction is guaranteed and sold on its merits. Write for our book "Surfacing Floors as a Business."

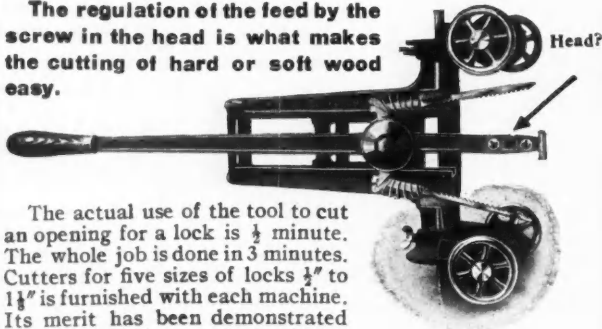
Manufactured by

The American Floor Surfacing Machine Company
TOLEDO, OHIO

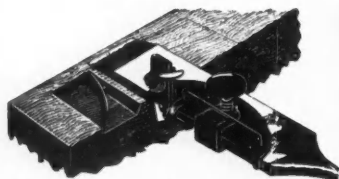
Miller's Lock Mortiser

IS SCIENTIFIC

The regulation of the feed by the screw in the head is what makes the cutting of hard or soft wood easy.



The actual use of the tool to cut an opening for a lock is $\frac{1}{2}$ minute. The whole job is done in 3 minutes. Cutters for five sizes of locks $\frac{1}{2}$ " to $1\frac{1}{2}$ " is furnished with each machine. Its merit has been demonstrated thousands of times. *Sent on Trial.*



Butt Mortiser

Cuts the seats for butt hinges in doors, jambs and other work. It does the work in one-third the time and makes a neat,

clean, accurate job. Price, including rule gauge, 75 cents.

A. W. Miller Mfg. Co.

Western Office:
RIVERSIDE, CALIF.

Main Office:
CINCINNATI, OHIO.

A NEW MACHINE

THAT WILL NOT ONLY DO THE WORK OF
10 Floor Planers and Scrapers

But will do it more perfectly



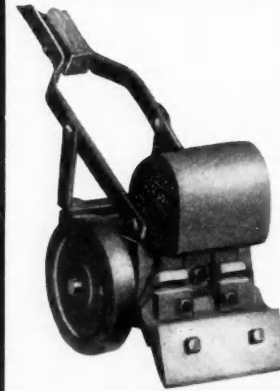
We claim and have proven that it has no equal competitor on the market for perfect work. We also manufacture the electric scrubber and polisher.

Floor Sanding and Polishing Machine Co.

Driven by Electricity. Automatic
Throughout. Ask for Booklet "F."

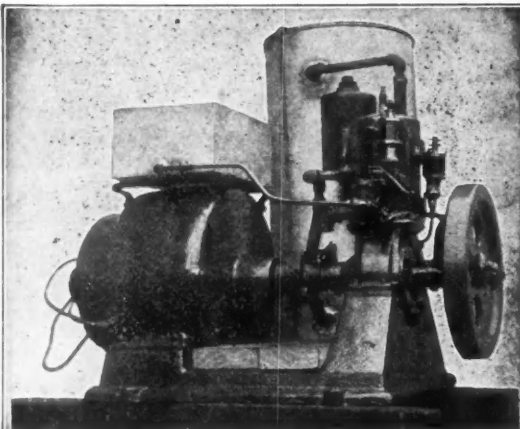
628 Race Street
PHILADELPHIA, PA.

THE BOSS



The Boss Double Swivel Head Floor Scraper and sand papering device is the only complete outfit. It costs nothing to convince yourself. The head can be set at any angle by loosening one bolt and by loosening two bolts you can tilt the knife up or down to suit the kind of lumber you are working. The price will surprise you. For further information call on or write the manufacturer.

G. J. Kepplinger
DWIGHT, - ILLINOIS



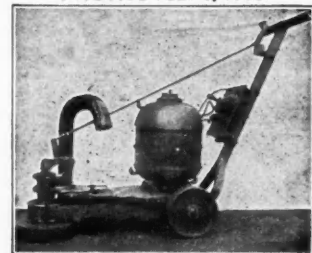
"THE WORLD'S BEST FLOOR FINISHING MACHINE"

IT PLANS—
GRINDS—
SANDPAPERS—
OILS—
POLISHES.

Valuable Perpetual County Rights

For Sale by **JOHN M. CROOK**
Dept. A. C. B.
Auⁿtin, Chicago, U. S. A.

PATENTED FEB. 4, 1908.



DAY OR NIGHT—ANYWHERE—
IT GRINDS FLOORS TO A
GLASS SURFACE AND POLISHES
TO A PIANO FINISH.

Outfit comprises;
Outside Power & Light Generator.
Inside Grinder & Polisher.
Cable Attachments.

The Anderson **FLOOR SMOOTHER**
 Automatic **ALWAYS DOES PERFECT WORK**
 Adjustable

FOR SCRAPING AND SANDPAPERING
 NEW OR OLD—HARD OR SOFT WOOD FLOORS

A WONDERFUL NEW FEATURE IS THE
AUTOMATIC MOTOR SPRING
 CONNECTED WITH THE DRIVE WHEELS

It does away with the old back-breaking method of pulling a dead weight. Furnishes momentum on the cutting stroke and doubles the operator's capacity.

OTHER IMPORTANT FEATURES

The Machine has two detachable weights and may be operated at 130 pounds or 150 pounds.

The Knife Clamp can be adjusted sideways (for shearing cut) and up and down to fit any desired width of beveler or square edge scraper.

The Knives can be sharpened in the machine.

The Handle can be telescoped for use in short space and can be raised or lowered instantly to suit height.

ACCESSORIES AND ATTACHMENTS

THE A.A.A. KNIFE SHARPENER

Produces a perfect cutting edge.

THE A.A.A. SMOOTHING SHOE ATTACHMENT

Produces an absolutely true surface.

THE A.A.A. SAND PAPERING ATTACHMENT

Produces a uniform fine finish.

Handy tool kit furnished with each outfit, including Knives enough to scrape 60,000 square feet of floor and the necessary sharpening tools.



EVERY
 OUTFIT
 GUARANTEED

**U R
 INVITED
 TO TRY IT
 AT MY EXPENSE**

FILL IN
 COUPON

MARK
 "X" AFTER
 THE NUMBER
 YOU WANT

Triple "A" Mach. Co.
 1020 Chicago Opera House Bldg
 CHICAGO

No. 1. () Send further information about your New Floor Scraper.

No. 2. () Send your Floor Scraper for FREE TRIAL.

Name _____

Street _____

City _____

TRIPLE "A" MACHINE CO.

1020 CHICAGO OPERA HOUSE BUILDING

CHICAGO, U. S. A.



THE HAVEN FLOOR PLANER

HERALDS THE NEW ERA IN FLOOR SCRAPING

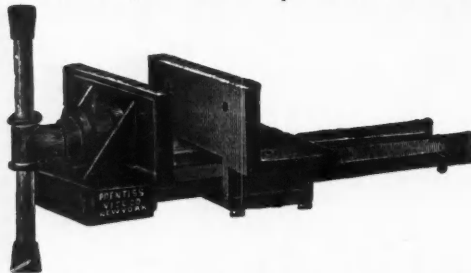
Eliminates all defects found in other floor machines. Does away with the man-killing toil of the heavy-weight machine. It embodies the mechanical principle of the plane. Planes and scrapes floor at one operation. Does better work than most hand work. Most rapid scraper on the market.

"Wavy" Floors an Impossibility

Makes floor scraping simple and agreeable. Particulars on request.

THE HAVEN MFG. CO. : : RACINE, WIS.

BLAKE QUICK ACTING VISE



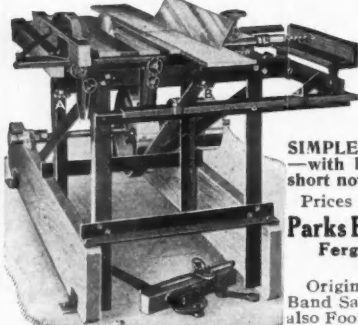
For Cabinet Makers and Wood Workers. Simplest—Strongest

—Cheapest—Best
Send for Catalogue of all kinds of Vises
PRENTISS VISE COMPANY, MAKERS
44 Barclay Street, New York, U. S. A.

PARKS' COMBINATION WOODWORKING MACHINES

Make a Complete and Economical Operating Mill for Carpenters and Contractors

Take our No. 410 for instance—here is a Combination of Three Machines in One—



**A Table Circular Saw
A Six-Inch Joiner and
Boring or Routing
Attachment**
Ready for Instant Use
No line shafts and large
amount of floor space
required.

SIMPLE—STRONG and Ready-to-Go
—with little power. We deliver on
short notice.

Prices and Catalogue on Request.

Parks Ball Bearing Machine Co.
Fergus and C. H. & D. Ry.,
CINCINNATI, O.

Originators of the Circular Saw,
Band Saw and Jointer Combination,
also Foot and Hand Power Machines.

PEARSON'S IMPROVED Nailer



SEE THAT NAIL

HERE'S an improved hand nailing tool that can be used for driving small nails and is especially adapted for driving shingle nails.

No trouble to handle, because it weighs only about two pounds. Can be used with gloves or mittens on and in any season.

Is operated as easily on a pitched roof as on the level surface. No slipping nails, no bruised fingers, no loss of time and temper.

Start saving money by making the Pearson Nailer part of your equipment. Your dealer has them; if not send to us. Complete information for a postal.

PEARSON MFG. CO., Robbinsdale, Minn.

3 New Features

These three features form the Ackermann New Knife Sharpener—the invention that ensures a perfect cutting edge all the time. It means better floor scraping than hitherto—it means quicker floor scraping. Not a talking point but a device that saves dollars for every user.

Ackermann Floor Scraper

The Ackermann is the best floor scraper. We guarantee it to do more, better and easier work than any other machine on the market. If it doesn't you get one free. Send for details of our offer under which any contractor may test the Ackermann Rapid Floor Scraper and Ackermann's New Knife Sharpener free at our expense.

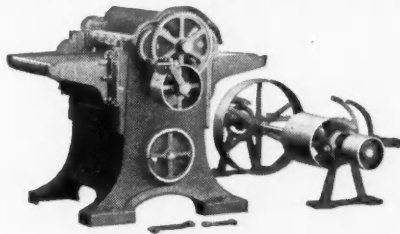
J. B. ACKERMAN CO., 100 Pearl St., Grand Rapids, Mich.

**Our Guarantee is
a Protection to every
Purchaser.**



**THE
1909 Crescent Catalogue
IS JUST OFF THE PRESS**

It contains eighty pages of valuable information for the prospective purchaser of wood working machinery.



If you are interested in motor-driven, wood-working machinery you should by all means get it at once. If you do not want the motor-driven kind, send for a copy anyway, describing: *Band Saws, Saw Tables, Jointers, Shapers, Borers, Swing Saws, Disk Grinders, Planers, Planer and Matchers, Variety Wood Workers, Band Saw Blades.*

THE CRESCENT MACHINE CO.

224 Main Street

Leetonia, Ohio : : U. S. A.

**A Weber Floor Scraper
On Free Trial**



I want you to be the judge of the Weber Double Acting Floor Scraper. I want you to make the trial, upon which you shall base your judgment, at my expense. All you've got to do is ask me to send you one of my machines and I'll do it. I'll take all the risk. All I ask you to do is try the scraper and if it isn't the best you ever saw send it back to me—at my expense. You can try it for 10 days.



Send for one of my booklets—it gives you the truth about floor scrapers.

And send for my 1909 price list of my 10 different priced machines weighing from 78 to 135 lbs.

JOHN F. WEBER, President

WEBER MFG. COMPANY
670 71st Ave., WEST ALLIS, WISCONSIN

The Floor Scraper

THAT'S ABSOLUTELY PERFECT

Of all the floor scrapers on the market not one can be quite as good as the Star, because no other embraces such durable features.

There's practically nothing about it to wear out. Consider the benefit obtained by the new mechanical principle. The principle that means better work and quicker.

The Star does **clean** work. A patented Ball and Socket device allows the blade to be set diagonally at any angle. This gives a shearing cut to the machine. It means a finished floor **free from planer marks and "waves."** It works the same on old floors as it does on new.

Star Scraper Co. - Elkhart, Ind.

Five Days Free Trial

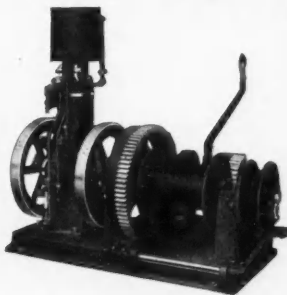
As a duty to yourselves you are asked to test this machine before you spend a cent on floor scrapers. A postal stating you will use the star for five days brings one to your door. We want you to be the judge of the best floor scraper. We want you to be thoroughly convinced of Star superiority.

***We pay the Freight**

Particular literature on request



EVERY CONTRACTOR AND BUILDER

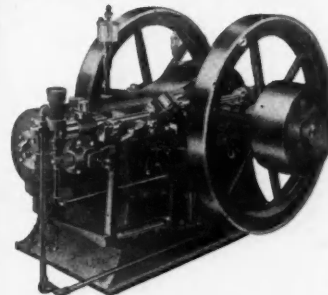


should know about our **Hoist** direct connected with **Gasoline Engine** for use with **Double Platform Material Elevators.** We furnish **Hoist** and **Elevator** complete ready to run. This outfit will elevate more building material at a less cost than by any other known method. Our Bulletin No. 5 will give you all particulars.

BATES & EDMONDS MOTOR CO. LANSING, MICHIGAN

THE FOSS GASOLINE ENGINE

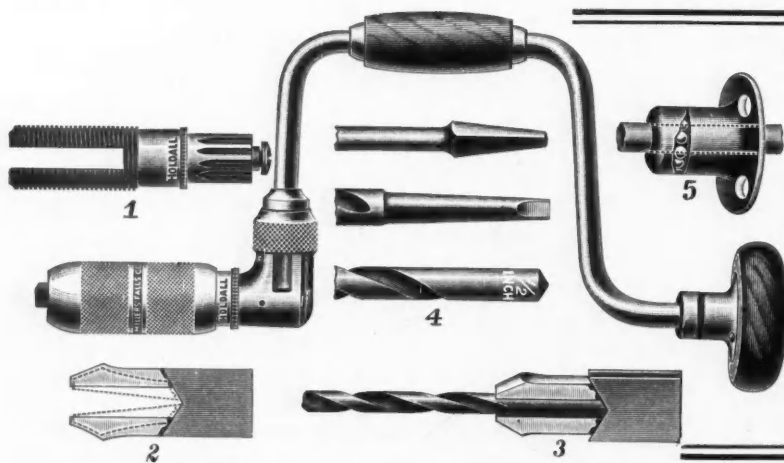
DIRECT TO YOU



We save you from 25 to 40 per cent on the Highest Grade Gas or Gasoline Engine.

Write for Price List and Catalogue.

FOSS GASOLINE ENGINE CO.
754 Portage Street - KALAMAZOO, MICHIGAN, U. S. A.



The HOLDALL BRACE

IT'S NEW and has jaws which adjust themselves to the shape of the shank. They grasp and hold securely straight, tapered, round and square shanks. The sleeve is correct in shape for comfort to the hand and to obtain the firmest grip. Every part of the Brace is made with greatest care. We say without hesitation that the Holdall is the most perfect tool of its kind yet offered. Made in usual sizes, with 8, 10, 12 and 14 inch sweep. Ask for circular giving further description.

Millers Falls Company
28 Warren Street, NEW YORK

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Euclid Avenue and East 14th Street
Cleveland, Ohio

OFFICIAL HOTEL
of the AMERICAN
MOTOR LEAGUE

300 Rooms ∴ European Plan
Rates \$1 to \$4 Per Day

Headquarters for Auto Tourists

Many of the leading garages located
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HOTEL EUCLID CO.

FRED. S. AVERY, President

EVERYTHING IN PLUMBING AND STEAM GOODS

TO EVERYBODY

SAVE YOU

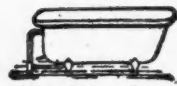
30 to 75%



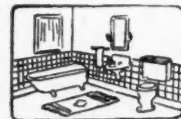
\$8.50 and up
This White Enamel Sink
Cast in one piece.
The latest idea.



\$7.50 and up
Artistic Lavatories
Various designs.



\$10.95 and up
White Enamel Bath
Tub of guaranteed
quality. Will wear
forever.



Complete Bath Room
Outfit. **\$35.00**
None better.



\$3.00 and up
Laundry Tubs
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\$11.50

Low-down and
high combination
Closets. Guarante-
ed to be equal
to the best in
the market.

Hot Water and
Steam Boilers.
A complete
line of
Radiators,
Pipes and
Valves.



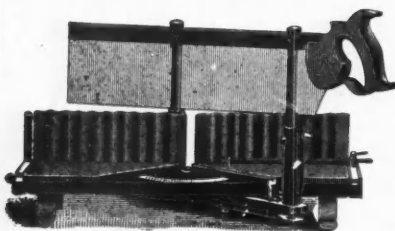
\$65.00 and up

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ONE-QUARTER CENTURY AT
4549 Cottage Grove Avenue - CHICAGO
Send for Catalog M.

GOODELL MITRE BOX

Made of STEEL - Cannot Break



First in Quality
and
Improvements
Automatic Stops
for
holding up saw.
Corrugated Backs.
Graduated.

Gauge for dupli-
cate cuts and many
other features.

Send for Circular
"C"

GOODELL MFG. CO., Greenfield, Mass.



This DUMB WAITER

complete ready
to erect for - **\$18.50**

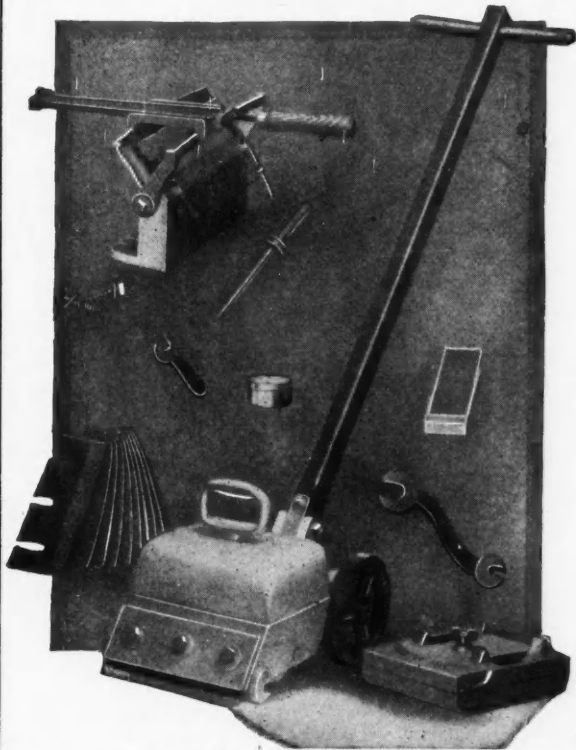
SELF RETAINING MACHINE
HARDWOOD CAR
SECTIONAL WEIGHT

ROPE, GUIDES, HARDWARE,
knocked down and shipped with the only
complete directions for erect-
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SEND FOR SPECIAL PAMPHLET

R. M. Rodgers & Co.
174 Washington Av., BROCKLYN, N. Y.

MY MACHINE vs. YOUR TIME



THE ACME FLOOR SCRAPING OUTFIT

Will you take a little of your time in order to look into a proposition that means a big saving of money to you? If you will, then I want to send to you the

ACME FLOOR SCRAPING OUTFIT ON ONE WEEK'S FREE TRIAL

basis at my expense. Try the machines. See what they can do by actually working with them and then decide whether you want to buy them or send them back.

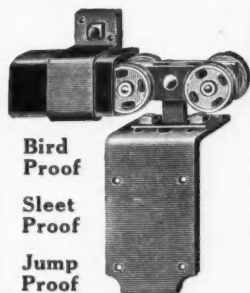
This is the only sensible way to buy a floor scraper.

Remember it costs you nothing to try my outfit, so send for it today.

Further information and booklet mailed on request.

JOSEPH MIOTKE

247 Lake St. MILWAUKEE, WIS.



Richards Trolley BARN DOOR HANGERS

Bird Proof
Sleet Proof
Jump Proof

Easy to install. Track can be attached to side or ceiling support and is furnished in any length up to 10 feet. Hangers made in several sizes to suit all requirements. Always satisfactory.

Insist on "Richards" Hangers at your dealer's.

SEND FOR COMPLETE CATALOG.

No. 20 Gem Roller-Bearing

The Richards Manufacturing Co.

AURORA, ILLINOIS

The Union Floor Scraper

Price \$35.00

A money maker for the contractor and a satisfied customer every time a floor is scraped.

The Union will pay for itself in two days.

SENT ON APPROVAL

GEO. J. BACHMANN

No. 501 Lyon St.
Grand Rapids, Mich.



WE PAY THE FREIGHT

"Little Giant" Floor Scraper

Sent on Free Trial
20,000 "Little Giants" are in use

throughout this country and abroad. These were purchased because they were better; because they did more work—did it quicker, cleaner and cheaper—than any other machine made. So great is our faith in its ability to prove its worth to you that we are making the following liberal proposition.

Special Terms

A request from you brings a "Little Giant" to your door—you send no money and we pay all expenses. After you have tested it as thoroughly as you know how, and have found it satisfactory, pay for it. If you don't consider it the best floor scraper in existence, return it at our expense. That's all. Won't you give it this chance today?

CATALOG AND FURTHER DETAILS ON REQUEST HURLEY MACHINE COMPANY,

155 South Jefferson Street, CHICAGO
71 First Street, SAN FRANCISCO
1010 Flatiron Bldg., NEW YORK





Save 1/2 Cost on First Job

Builders' Folding Steel time and lumber, are brackets. Less trouble and are practically

Also Folding Steel

Made entirely of steel. Removed instantly.

Guaranteed to carry all weight necessary for cornice, shingling and other work of like character.



Scaffold Brackets save safer than old style wood to put up and take down unbreakable.

Shingle Brackets.

Can be used forever. Always ready.

Folds up like jack knife.

Reasonable in price.

Agents wanted in every town.

Builders' Supply Co., Majestic Bldg., Detroit, Mich.
Agents Wanted

PLATE GLASS

Bath Room Fixtures

FOR RESIDENCES, HOTELS, OFFICE AND APARTMENT BUILDINGS

Absolutely sanitary, require no cleaning, never wear out or show the effects of use. Not affected by hot or cold water. The modern 20th century toilet and lavatory fittings.

PLATE GLASS TOWEL BAR



Price \$1.50

No. 141 24 inches, adjustable. Also made in 30, 36, 42 and 48 inch lengths at slightly higher prices.

Round glass towel bars, \$2.00
Adjustable glass towel shelves, \$3.50, \$4.00, \$6.00

We also sell plate glass with polished edges for table tops, any size, and glass push plates for use in fine residences and apartments, manufacture and re-silver mirrors, etc.

CATALOGUE SENT FREE ON APPLICATION

Geo. H. Anderson & Co.
Manufacturers and Jobbers of Plate Glass Specialties
281-291 W. Superior Street - - CHICAGO

CARPENTERS

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

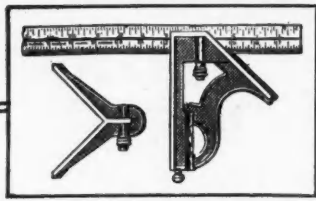
Barnes' Hand and Foot Power Machinery



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.



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COMBINATION SQUARE

THE ORIGINAL : : THE MUCH IMITATED

Send for free Catalogue No.186, of Fine Tools for all kinds of mechanics.

The L. S. STARRETT CO., Athol, Mass., U. S. A.

THE "IDEAL" FLOOR SCRAPER

The new time, labor and money saver.
A high-grade machine that does perfect work.

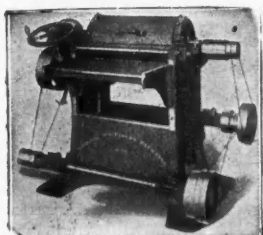
\$29⁵⁰

None Superior at Any Price

Has many new important features. Send your order today.
It Is Guaranteed

T. L. PHILLIPS, 118 River St., Aurora, Ill.





Chicago No. 35 Pony Planer

Machines for Contractors



Chicago Hand Jointer
8, 12 and 16 in.

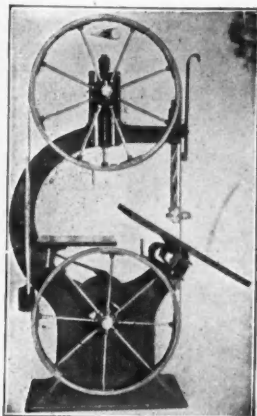
Every carpenter and builder can afford to invest in one, or more, of these machines. From our stock of 500 new and rebuilt machines contractors can obtain sufficient machinery to make them independent of local mills and their attendant delays and high charges.

Stop paying somebody else profit—put it in your own pocket. Be in a position to estimate under competitors. You can do this by installing your own machinery. All our machinery is of special construction to secure fine finished surfaces and to reduce sandpapering to a minimum.

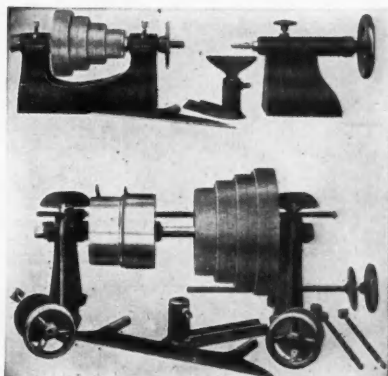
Prices are lower than you think. Send today for our monthly list of rebuilt machines (free to carpenters and builders).

Chicago Machinery Exchange

7-11 No. Canal Street, CHICAGO



Chicago No. 1 Band Saw
27, 32 and 36 in.



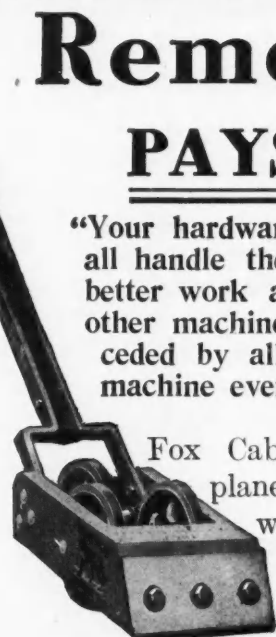
Wood Turning Lathe and Countershaft
16 and 20 in.



Chicago No. 10 Tilting Table
Improved Variety Saw Bench

**Fox
Floor
Scraper
No. 1**

A Perfect
Machine
for
Perfect
Work.



Remember—THE FOX PAYS FOR ITSELF

“Your hardware dealer will order it for you. They all handle the Fox Floor Scraper because it does better work and more of it in less time than any other machine on the market and is conceded by all to be the easiest running machine ever built.”

Fox Cabinet Scraper works like a plane. A FINE TOOL for fine work. Price, express prepaid, \$1.25.

(Write us for Catalogue.)



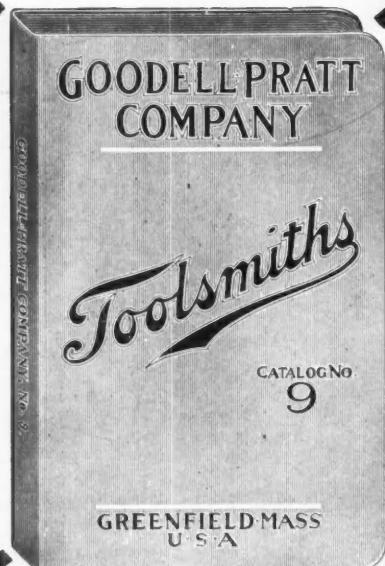
Fox Cabinet Scraper



Brooklyn, Wis.

TOOL CATALOG FREE

Every Carpenter should have one.
A postal brings it.



GOODELL-PRATT'S NEW No. 9.

CATALOG CONTAINS 272 PAGES,
ILLUSTRATING AND DESCRIBING
USEFUL AND LABOR-SAVING TOOLS

In this edition we are showing a number
of new items which everyone should know
about.

Goodell-Pratt Company

Toolsmiths

Greenfield, Mass., U. S. A.

MONITOR SASH LOCKS



(PATENTED)

NEVER BREAK

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

If the upper sash 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

GRAND RAPIDS

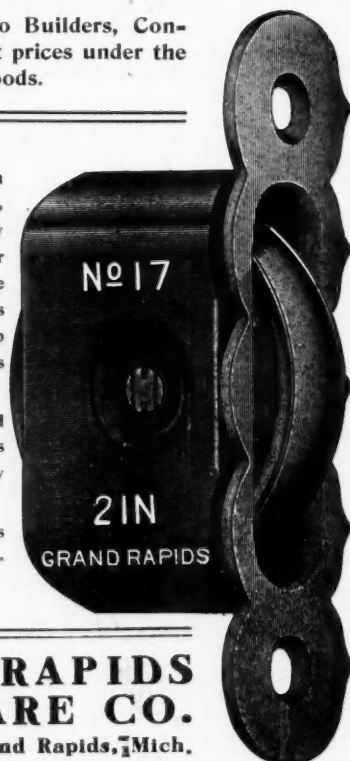
All-Steel Sash Pulleys

Are sold DIRECT to Builders, Contractors and Mills at prices under the common ordinary goods.

If you make ten or ten thousand window frames, we can save you money and give you a superior sash pulley. We are the largest sash pulley makers in the world. We ship direct, or through dealers and jobbers everywhere.

Write for catalogue and free samples and prices on gross, barrel, or any quantity.

Direct from the makers to you. Inquiries welcome.



**GRAND RAPIDS
HARDWARE CO.**
34 Pearl St., Grand Rapids, Mich.

"DEFIANCE" HIGH GRADE

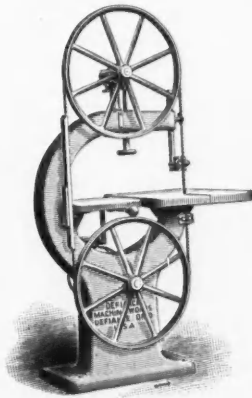
Wood-Working Machinery

Invented and Built By

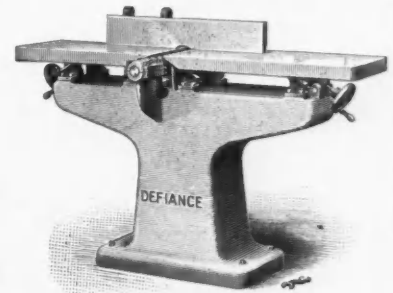
The Defiance Machine Works
Defiance, Ohio

For Manufacturing General Wood-Work

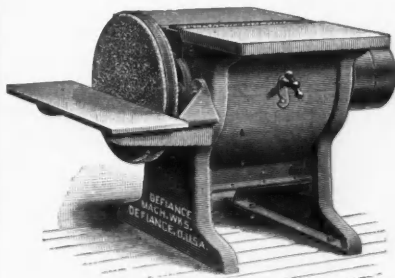
Also Special Machines for making Hubs, Spokes, Wheels, Wagons, Carriages, Automobiles, Rims, Shafts, Poles, Neck-Yokes, Singletrees, Hoops, Handles, Spools, Bobbins, Insulator Pins, Balusters, Table Legs and Wood Dishes.



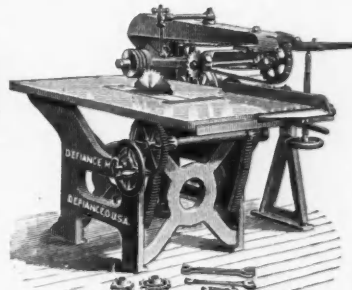
28" Band Saw



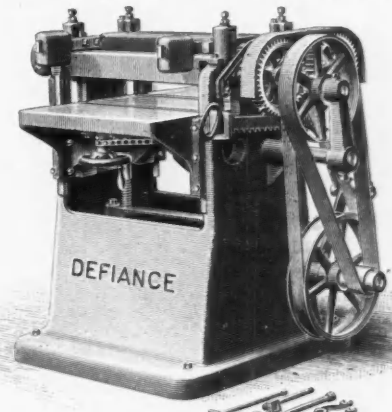
12" Hand Feed Planer with or without Boring Attachment



Drum and Disc Sander



No. 3 Power Feed Rip Saw



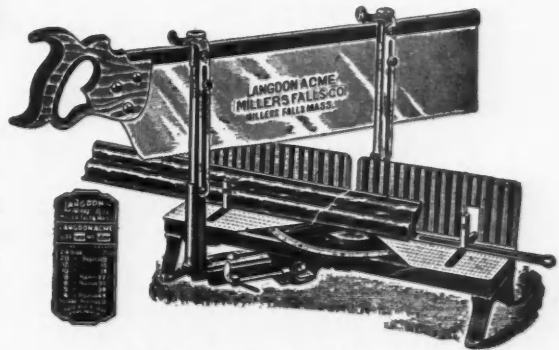
24" Single Surface Planer

ARE YOU INTERESTED IN MITRE BOXES?

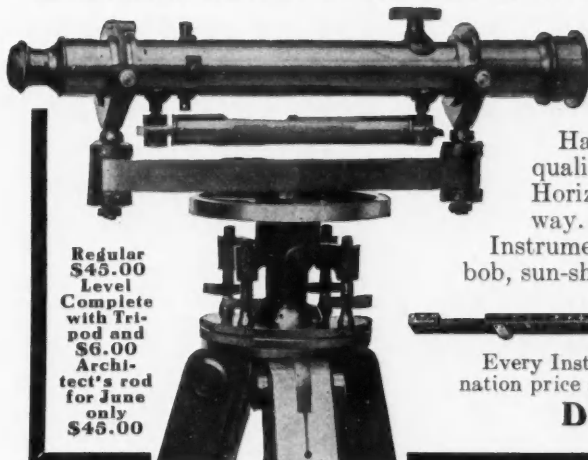
If you are, it will pay you to investigate the **LANGDON ACME**. It has all of the advantages of any other box and several that others do not have. They are made in three sizes and put up with varying lengths of saws.

MILLERS FALLS COMPANY

28 WARREN ST., NEW YORK, and MILLERS FALL, MASS., U. S. A.



Ask for Catalogue giving full description.



Regular \$45.00 Level Complete with Tripod and \$6.00 Architect's rod for June only \$45.00

This Improved Level

especially designed for Builders, contractors, etc.

Has a telescope 12" in length. Lenses of the best optical quality. Magnifying power 25 diameters. Object glass 1 1/4". Horizontal circle 4 1/2" in diameter, graduated from 0-90 each way.

Instrument complete in a polished hard-wood box with strap, plumb-bob, sun-shade, adjusting pins and trivet.

Every instrument guaranteed to be accurate in every respect. Special combination price of Level and Architect's Rod, \$45 00.

DAVID WHITE COMPANY

419 East Water Street, MILWAUKEE, WIS.

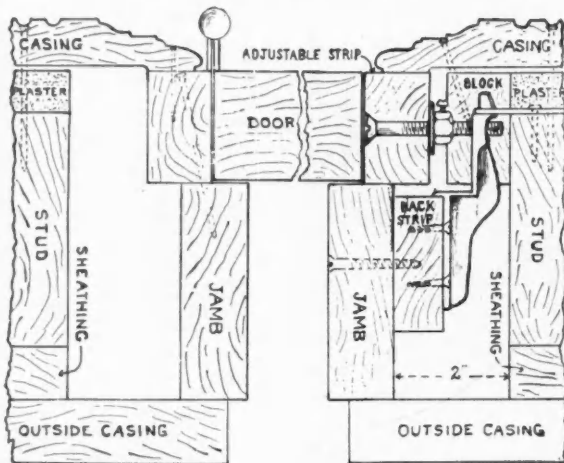
A Swell Head and A Swell Door

are both pretty stiff propositions, but the latter is a mere trifle when you have

The Taylor Door Jamb Adjuster

A few turns of the screws make a perfect fit, whether the door swells or shrinks.

Send for folder explaining this cut.

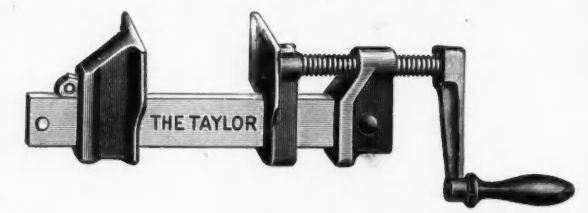


JAMES L. TAYLOR MFG. CO., - Bloomfield, N. J.

**Carry
A Ton,
Last
A LIFETIME—**
A pair of our smallest size
Wall Brackets.
There isn't room here to tell you
how cheap or how convenient they are.
Write for Catalogue and Special Trial Offer.

ARE YOUR CLAMPS GIVING BEST RESULTS?

Do you know about our improved gripping device?
It Saves Time!
The special grade of steel we use?
Our Clamps are warranted unbreakable in use.
Catalogue showing 19 styles sent on request.



CARPENTERS!
Look for this trade mark on tools when buying
**Planes, Chisels, Auger Bits, Drawing
Knives, Gouges, Spoke Shaves, Etc.**
Registered It will protect you against inferior goods. "Ohio"
Tools are made in only one quality and that **The Best.**

Every "Ohio" Tool is covered by a broad guarantee. Write
for our CATALOGUE No. A, if you are interested in Good Tools.

OHIO TOOL COMPANY
Columbus, Ohio

**THE AMERICAN
Combined Level and Grade Finder**

**All Progressive and Up-to-date Mechanics as well as Manufacturers
having use of a Level, are getting one**
An instrument with which at one glance you can get the true slant
on any line or grade either in degrees inches or percentage, or all
at the same time, and will at once give the exact distance needed to
plumb up a true level.
A Civil Engineer that you may have with you at all times.
The most practical, durable and convenient instrument of the day.
The longitudinal recess which is shown in cut is well worth the
low price of the instrument.
Write at once for large list of testimonials from all over the United
States, and special introductory price given only to first applicants
with privilege of taking agency.
Address **Edward Helb, P. O. Box No. 55, Railroad, Pa.**

PARKER VISES

MADE
ESPECIALLY
FOR WOOD
WORKERS

FOR SALE BY
DEALERS

SEND FOR
CATALOG

CHAS. PARKER CO.
MERIDEN, CONN.

SELF-SETTING PLANE

No plane like it. See this paper for December, pages 261, 320 and 322,
for facts and large pictures. This advertisement authorizes any dealer to sell
THE BEST IS THE CHEAPEST.
None Cheap but the Best.
All Want the Best
Sent on 30 Days' Trial as per Circular,
if Dealers do not keep it

Send on 30 Days' Trial as per Circular,
if Dealers do not keep it


NO LONGER VIEW—SHOWING ADJUSTABLE IRON THROAT.

turn you the entire amount you sent us and the trial won't cost you a
nickel. This paper guarantees that we will do as our advertisement says.
You run no risk. If there is any, we take it.
July 1, 1909.

GAGE TOOL CO., Vineland, N. J.



The World's Famous Line of Wood Working Machinery



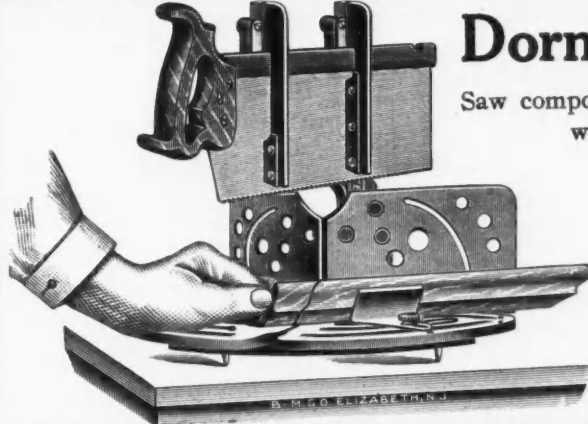
The accompanying cut shows the Universal Wood Worker arranged with our double outside bearing, cored band saw frame, 12-inch jointer head instead of 10-inch. We have arranged it in this way so we can use the 12-inch planing attachment.

Get our prices at once.



We also build BAND SAWS, JOINTERS, SAW TABLES, SHAPERS, PLANERS, TURNING LATHS, SWING SAWS, and POST BORERS.

SIDNEY TOOL COMPANY, Sidney, Ohio, U. S. A.



Dorn's Revolving Mitre Box

Saw compound as well as plain mitres any width with a back saw 4 inches wide

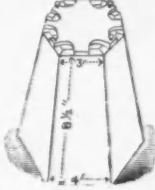
SEND FOR BOOKLET

IT TELLS THE STORY

MANUFACTURED BY

Braunsdorf-Mueller Company

1093 E. Grand Street, ELIZABETH, N. J.



Compound Mitre

PUMPS, DOOR-HANGERS, STORE LADDERS

The Pump That Pumps

MYERS

Glass Valve

Myers Stayon Flexible Door Hangers

with steel roller bearings, easy to push and to pull, cannot be thrown off the track — hence its name — "Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & CO.
Ashland, Ohio.

Double-acting, Lift, Tank and Spray

PUMPS

Store Ladders, Etc.

Hay Tools of all kinds

Write for circulars and prices.

Noiseless Cushion Tire

LADDERS





DUMB WAITERS AND HAND ELEVATORS

OF THE MOST IMPROVED AUTOMATIC CONSTRUCTION

INVALID LIFTS TRUNK, CARRIAGE, SIDEWALK AND FREIGHT ELEVATORS

SEDGWICK MACHINE WORKS

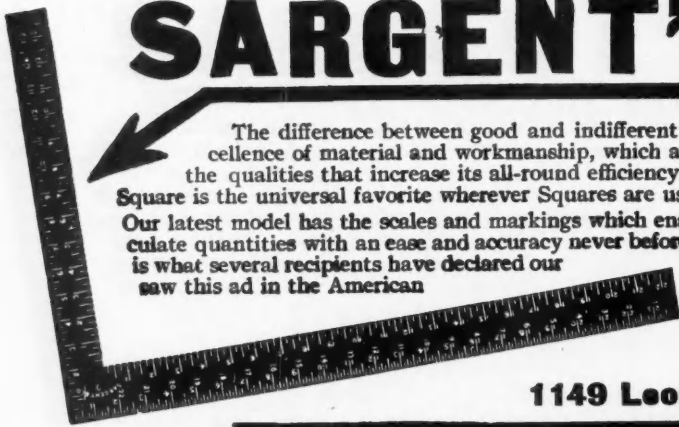
POUGHKEEPSIE, N. Y.

AND

128 LIBERTY ST. NEW YORK

CATALOGS AND ESTIMATES FURNISHED SEE SWEET'S INDEX

SARGENT'S IMPROVED STEEL SQUARE



The difference between good and indifferent Carpenters' Squares lies in something more than excellence of material and workmanship, which are, of course, among other "Sargent" features—it is in the qualities that increase its all-round efficiency. That is why the practical "Sargent" Standard Steel Square is the universal favorite wherever Squares are used.

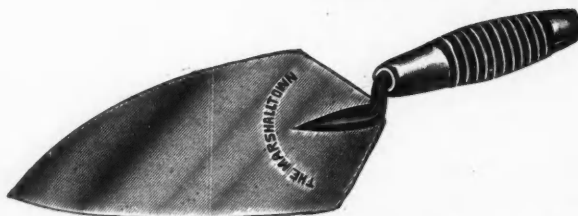
Our latest model has the scales and markings which enable the carpenter to lay out all kinds of work and to calculate quantities with an ease and accuracy never before thought possible. "A practical treatise on Steel Square" is what several recipients have declared our little publication. Copy free simply by mentioning you saw this ad in the American Carpenter and Builder.

Sargent & Company
New York

1149 Leonard Street

The Best Ever

You Will Never Regret Buying One

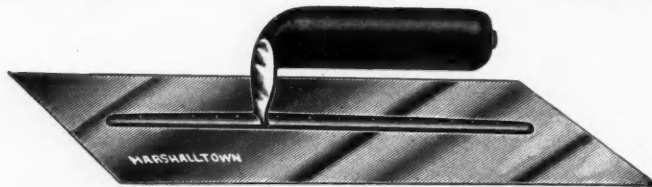


Wide Heel Brick Trowel
Made of Best Quality Crucible Trowel Steel.
Leather Handle.



Philadelphia Pattern
Best Quality Crucible Trowel Steel.
Wood Handle.

Send For
Catalogue



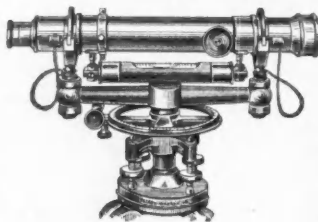
Send An
Order

Genuine Marshalltown Trowel

Straight Edges Always. Best Quality Spring Steel Blade. Hardened Mounting
Ten Rivets. Imitated because they are good.

Marshalltown Trowel Co., - - Marshalltown, Iowa

"Sterling" Transits and Levels



Fully 75 per cent of the Phila. Engineers who have purchased Transits or Levels this season selected "STERLING" Instruments.

Because, after inspecting our Factory and making a personal field test, they were convinced that "STERLING" Transits and Levels are without a fault.

Send for 225 page Illustrated Catalogue of Surveying Instruments, Engineering and Drafting Supplies.

ISZARD-WARREN CO., INC.

1122 Vine Street. :: :: Philadelphia, U. S. A.

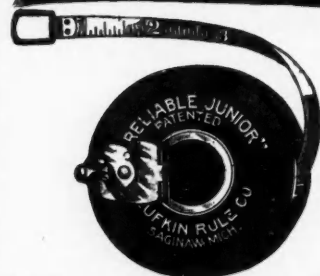
LUFKIN STEEL TAPES

and RULES

ARE INDISPENSABLE FOR ACCURATE WORK

MADE BY
The Lufkin Rule Co.
Saginaw, Mich., U. S. A.
New York London

For Sale Everywhere. Send for Catalogue.

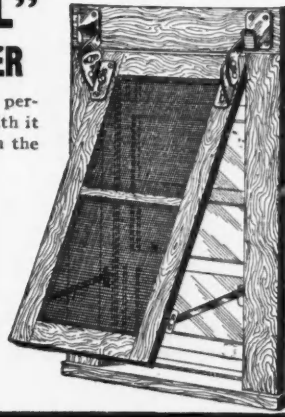


The "UNIVERSAL" ADJUSTABLE HANGER

can be used anywhere. It forms a perfect, practicable lock; sash hung with it cannot be opened or removed from the outside; it cannot be blown open by storms; makes practicable the only substitute for the half-sash sliding screen; is sold in sets, half sets, or in any other way the trade demands; indestructible; will outwear a dozen screens.

Ask your hardware dealer or write for free sample and catalog.

The ADJUSTABLE HANGER CO.
415 Huron St. Toledo, Ohio, U.S.A



Don't Ask the Dealer for Sash Cord. Ask for

"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.

BURLINGTON

Venetian and Sliding BLINDS Screens and Screen Doors



Venetian Blind for inside window and outdoor veranda. Any wood; any finish to match trim.

Equal 500 miles northward. Perfect privacy with doors and windows open. Darkness and breezes in sleeping rooms. Write for our catalogue, price list and proposition to you.



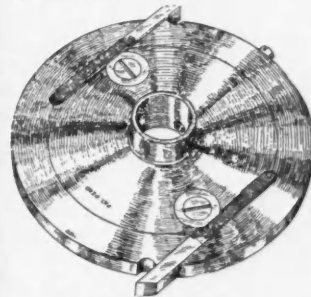
Sliding Blinds for inside use. Require no pockets. Any wood; any finish.

BURLINGTON VENETIAN BLIND COMPANY
341 Lake Street, Burlington, Vermont

THE ROSS IMPROVED

SASH COPING HEAD

SAVES FOUR OPERATIONS



A great labor saving device in making sash, cutting the straight, bevel, or mould mortise by merely adjusting the bits, entirely eliminates the operation of removing Coping opposite Tenon Mortise, thereby saves moving material from one machine to another. Cuts mortise up to 2 1/4 inches. Saves one-half the time in making sash. Used on top coping mandrel.

If you are at all interested send for this head at our expense on ten days' trial. It will pay for itself in that length of time. In ordering state size of mandrel.

UNIVERSAL MFG. CO. 310 Nevada Bldg. Cincinnati, Ohio

One Man with the No. 5 Union Combination Self-Feed Rip and Cross-Cut Saw

can do the work of four men using hand tools, can do it with ease, can do it better. Consider the amount saved—three men's wages—and compare with the cost of the "Union" saw. In a short time the machine will pay for itself and then the wages saved will go into your pocket.

EVERY MACHINE is carefully tested before leaving factory. We guarantee entire satisfaction and machine may be returned at our expense if, after two week's trial, you prefer your money back.

SUITABLE FOR various kinds of work—ripping, (up to 3 1/2 inches thick), cross-cutting, mitering, etc., and with additional attachments rabbeting, grooving, dadoing, boring, scroll-sawing, edge-moulding, beading, etc., almost a complete workshop in one machine.



"Union" Moulding Attachment

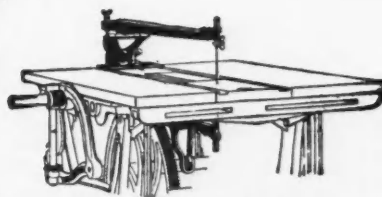


No. 5 "Union" Combination Self-Feed Rip and Cross-Cut Saw.

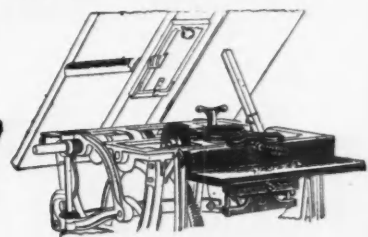
Ask for Catalogue "A," fully describing our complete line of wood working machinery.

The Seneca Falls Mfg. Co.,

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



"Union" Scroll-Saw Attachment.



"Union" Boring Attachment. (117)



Here is a Gimlet

Equal in quality and usefulness to any Brace Bit

**HANDLE OF
SELECTED
COCOBOLO
WOOD**

THREE SIZES ONLY
Cutting 4-32, 6-32, and 8-32 Holes

Price Postpaid 15 cents each

H. H. MAYHEW COMPANY
SHELBURNE FALLS, MASS.



GRILLES COLUMNS AND CONSOLS

In quality and price our work is not surpassed.

You will make no mistake in writing us before ordering elsewhere.

Send for 48-Page Catalog No. 15.

It contains many fine designs of modern Grilles, Columns and Consols.

Illustration at right shows half-section of Column design No. 552.



Northwestern Grille Works
CHRISTENSON BROS., Props. 1452 Milwaukee Ave., Chicago

MALLORY'S



**Standard
Shutter
Worker**

New and improved patterns and designs.

Opens and closes the blinds without raising the window. Automatically locks the blinds in any position desired. Made of gray and malleable iron. The best and most durable blind hinge. Incomparable for strength, durability and power. Can be applied to old or new houses of brick, stone or frame. **Send for Illustrated Circular.** If your hardware dealer does not keep them send direct to **MALLORY MANUFACTURING CO.**
204 Flemington National Bank Building. FLEMINGTON, N. J.

**DON'T PUT SASH WEIGHTS IN YOUR
WINDOWS—THEY ARE OUT OF DATE**

The "AUTOMATIC" SASH HOLDER

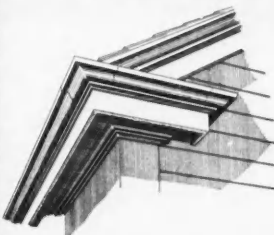


The "Automatic" Sash Holder is the new, modern, up-to-date device that dispenses with cumbersome sash weights, kinking cords or ribbons, useless weight pockets, misfit pulleys and reluctant balances, and saves all the time, labor and expense of fitting them in place.

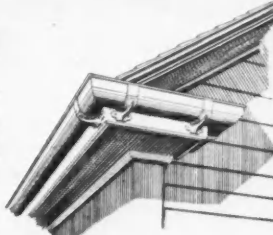
Prevent rattling and permit the window to be moved up and down with ease. Hold it safely at any point desired.

A sample set of four sent, postpaid, for \$1.20. Ask your dealer, or write to us direct.

Automatic Sash Holder Company
277 Broadway, New York City.



Cast Iron Gutters Last



Easily put up. Once up, always up. Do not bend or break by pressure of ladder against them. Will stand greater weight of snow or accumulation of ice than any other gutter. Not affected by acid fumes that in some vicinities play hob with all other metal gutters.

They are adaptable to any kind of building or type of construction. Cast with moulded face to form part of cornice, or rounded to serve as a hanging gutter. Used almost exclusively in England and all over Europe. Supplied in 6 feet lengths. Joints fitted ready to erect. No soldering required. Send at once for circular and prices.

HITCHINGS @ COMPANY, Elizabeth, N. J.

Roth's Latest Type Band Saw

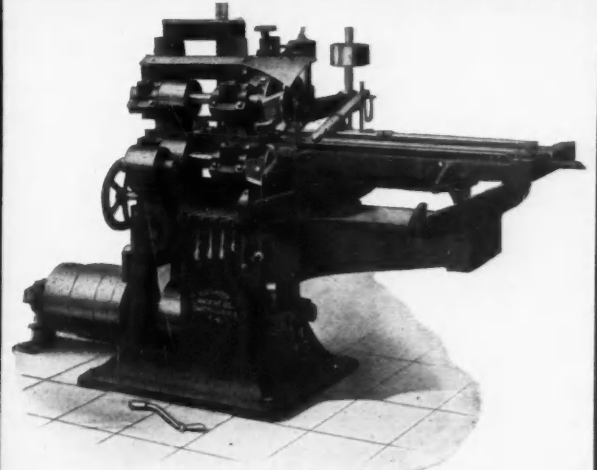


Do not buy a Band Saw with pulleys for belt driving. Be up-to-date — have it fitted with a

ROTH BAND SAW MOTOR

Tell your friends what a fine outfit you have—it will increase your business. Study the picture a little. Decide you want the **BEST** — the **BEST** is not expensive.

ROTH BROS. & CO.
483 W. ADAMS ST. CHICAGO
136 LIBERTY ST., NEW YORK



No. 225 C. E. Tenoner

The Smith Tenoner is today acknowledged the standard because of its rigid design, accuracy and simplicity. There is no vibration as the frame is heavy and cast whole. The carriage is mounted on rollers and can not be lifted or tilted, and you will find it an all 'round high grade machine. *A postal request will bring circulars and prices.*


H. B. Smith Machine Company
Smithville, N. J., U. S. A.
NEW YORK CHICAGO ATLANTA MEMPHIS

FAR AHEAD for smooth, easy work and holding edge will be YOUR VERDICT ON TRYING

CHAPLIN'S IMPROVED PLANES

Patented Feb. 14, 1899; Dec. 30, 1900; Dec. 24, 1902

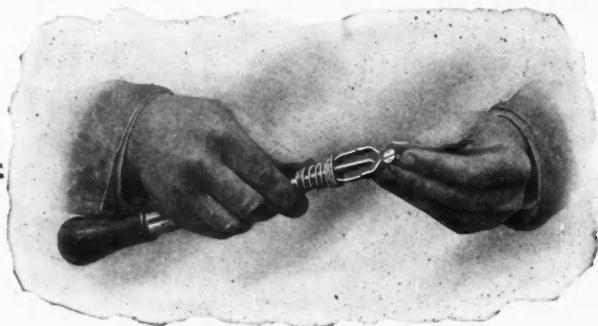
We invite the
Severest
Comparative
Tests



We want you to have a copy of our booklet
"A 'Plane' Talk About a Good Plane!"

We want you to have a copy, for it is a booklet you really need in your business. We'll gladly send you this booklet with our compliments, promptly upon receipt of your request.

Tower & Lyon Company, 95 Chambers Street, New York



**It's Very Easy
To Use A "YANKEE" Screw Holder**

Slight thumb pressure opens the jaws to receive the screw and instantly you are ready for business. (The bit centers itself in the slot.) Holds the bit firmly, but **releases itself** as the screw is driven home. Slips back on the blade out of your way when not in use, but right at your fingers' ends when you want it quickly for awkward or out of reach places. Pays for itself every time you use it. Costs but a trifle.



Did you get our "Yankee" Tool Book? We want every Mechanic to have one. It demonstrates 25 interesting "Yankee" Tools, each a labor-saver. A postal brings it if you mention "The American Carpenter & Builder." Send to-day — now.

Your Dealer Sells "Yankee" Tools.

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

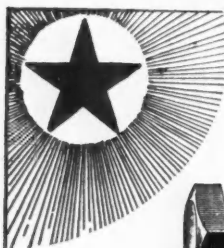
**PHOENIX
INSIDE SLIDING BLINDS**

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. MILLER.

**Comfort!
Economy!
Convenience!** PHOENIX SLIDING BLIND CO.
BRIDGE & CANAL STS. PHOENIX, N. Y.

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



**EXPANSION
BOLTS**



FOR Quick, Labor-Saving Fastenings that HOLD in Brick, Stone and Masonry, Drill hole, place STAR SHIELD within, then put lag screw thro' material to be attached and into STAR SHIELDS and fasten tight. A positive inside lateral expansion insures a fastening PERMANENTLY DEPENDABLE. Catalog, Samples and Prices upon request.

STAR EXPANSION BOLT CO.

Cor. Cedar and Washington Sts.

New York City

"DIAMOND"

The Brand to Demand



No. 4.
Finished
in Gold.

Pat.
Feb. 5, 1907

"Diamond" Hay Carriers are built for service — are easy to operate and are absolutely positive in action.

They are built of selected material by mechanics having years of experience in this line of work, and before leaving our factory are given severe tests and are carefully inspected.

This not only insures a perfect Carrier, but also a perfect working Carrier, and one that will stay

right after it goes in the barn.

The "Diamond" Hay Tool line is complete and includes Carriers for Steel and Wood Track, Steel Track, Forks, Slings, Pulleys, and other sundries.

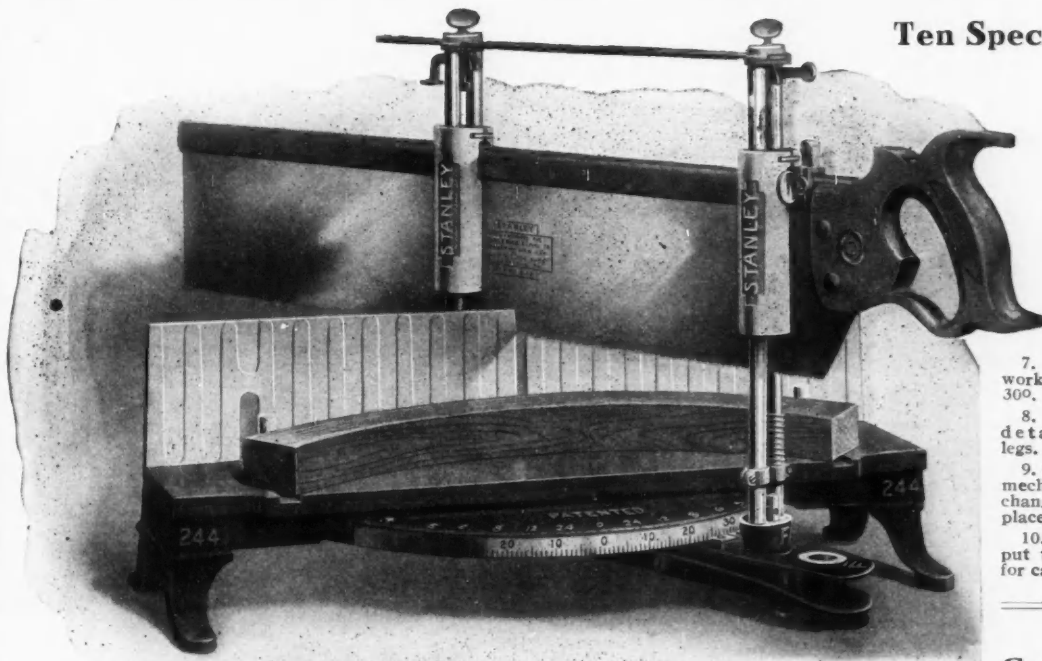
Write for Catalogue No. 70, giving complete description, and other useful information.

THE WHITMAN & BARNES MFG. CO.

120th Street,

CHICAGO, ILL.

STANLEY MITRE BOXES



Ten Special Features:

1. Saw is held above work when not in use.
2. Swivel is automatically locked at any angle.
3. Two sockets in swivel for use of long or short saw.
4. Narrow opening in back of frame, especially adapted for small work.
5. Steel rod uprights for saw guides.
6. Stock guides for holding work in place.
7. Extra wide range of work—will saw at angle of 30°.
8. One-piece frame with detachable malleable iron legs.
9. Construction thoroughly mechanical; all parts interchangeable, and readily replaced if lost.
10. Quickly and easily put together or taken apart for carrying.

Send for our
Catalogue No. 34

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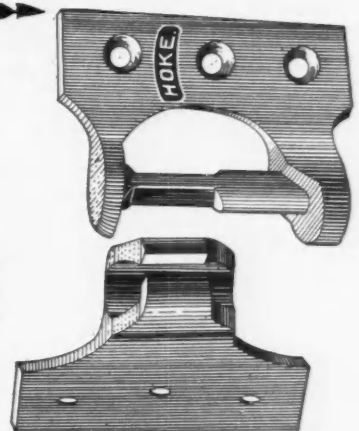
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GEO. H. BISHOP & CO., Lawrenceburg, Indiana, U.S.A.

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.

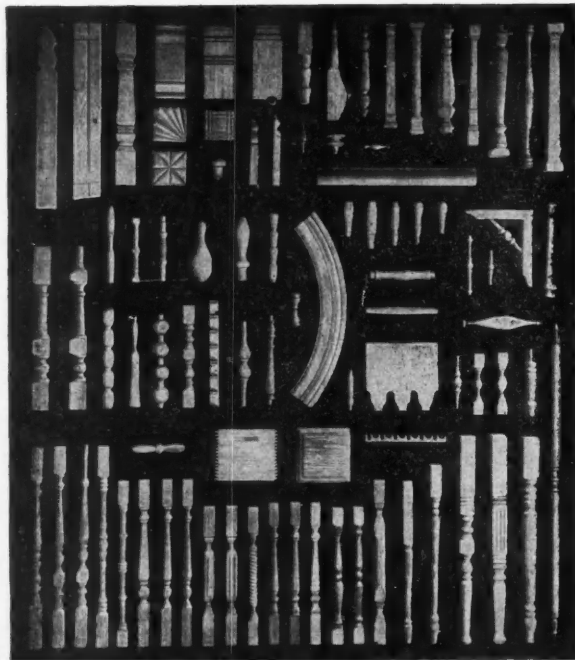


We have had a Chemist experimenting for years to originate a purity of steel with a fine grain and tough body that would stand up under such a fearless warranty as we place on our "GREYHOUND" brand of saws. We now have it. We know its worth as well as its value. As workers of steel we understand it. 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 for 26 in. saw, \$3.00 delivered. We make anything in Carpenters' Saws.



**MADE ON OUR
Universal Turning and Variety Machine**

It is the wide range of its work that makes this machine, wherever sold, one of the busiest and most profitable in the shop. It will quickly pay for itself in making balusters and other turnings at a big saving in cost, and as a general handy machine its variety feature gives it a value that only use can thoroughly demonstrate.

May we show you, without obligation on your part?
Then we have a proposition to submit—when you are ready.

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THE TRUE MITER BOX

Cut shows saw raised

about two inches above bed and is held there until ready for use. When ready to use the saw, all that is necessary is to touch the lever or to take hold of the handle and the saw will drop into the stock.

This miter box is so constructed that any piece broken or stolen can easily be replaced
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Builders' Hardware

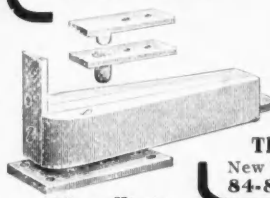
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New York Office: Main Office & Factory:
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Floor Hinge



Spring Butt

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SHALL BE AS WELL-DESERVED IN THE FUTURE AS IT HAS BEEN DURING THE PAST
SIXTY-NINE YEARS



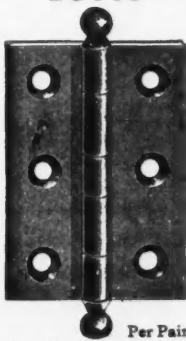
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Guided by its circular rim—instead of its centre—the Forstner Labor-Saving Auger Bit will bore any arc of a circle, and can be guided in any direction.

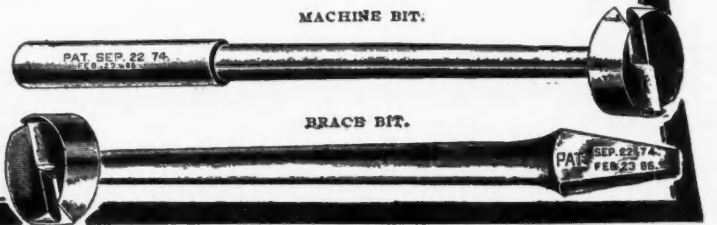
Doesn't matter how hard the wood is, no consequence whether it is full of knots, or the grain awkward to negotiate. The Forstner Bit works with equal smoothness under any condition and leaves a true polished surface on every job.

Unequaled for Delicate Work

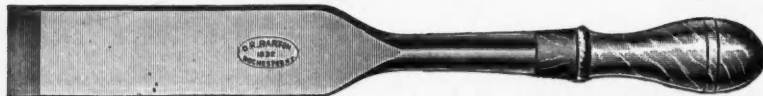
Supersedes chisels, gauges, scroll-saws, or lath tools combined, for all kinds of delicate work. Cabinet and pattern makers and carpenters are enthusiastic because they do more work than other bits and cost no more.

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

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D. R. BARTON
1832
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The Celebrated Barton Planes and Edge Tools for carpenters and all other woodworkers are unequaled by any other make for keen hard, smooth cutting edges. If your hardware dealer does not handle

The Celebrated Barton Tools, send direct for catalog. Be sure and specify "CARPENTER'S CATALOG"

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Orr & Lockett Hardware Co.

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You Will Sell More Window-Screens If You Hang Them With

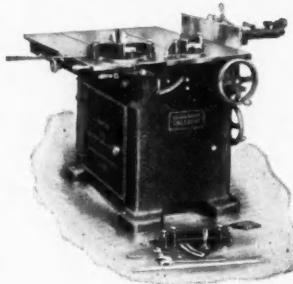
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Heavy, finely constructed—a quality machine throughout.

Equipped with every convenience and graduation for quickly and accurately getting out work.

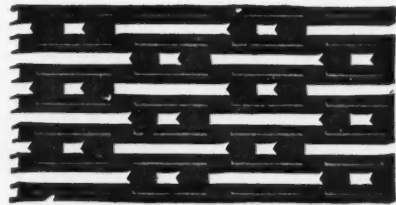
No time lost—no chance for mistake.

To make money—save it by installing the Crescent Double Revolving Arbor Saw bench.

Positively the only Full Universal Saw Bench built. Send for complete catalog.

The CRESCENT MACHINE WORKS, 38-50 So. Front St., Grand Rapids, Mich.

ECONOMY FROM START TO FINISH



Coming right down to the economy question Clincher Lath has got everything beaten.

As a practical man you can understand the principle by the illustration. Notice the level

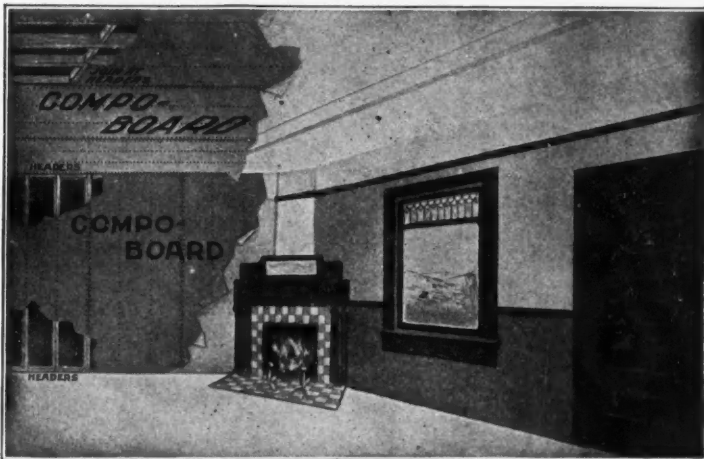
plastering surface—the construction that's different.

Sagging Is Impossible

Sagging between the studding is rendered absolutely impossible if Clincher Lath is used. Read what progressive carpenters have to say about it.

Easier to handle and easier to erect than any other lath on the market. Prove this by sending to Department R. C. for samples. Free to anybody interested.

The American Rolling Mill Co.
MIDDLETON
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COMPO-BOARD

A substitute for Lath and Plaster. Can be put on by any Carpenter. It is Warmer, more Durable, Quicker and more Easily Applied. Manufactured all 4 ft. wide, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 and 18 ft. long.

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SAMSON SPOT SASH CORD



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TRADE
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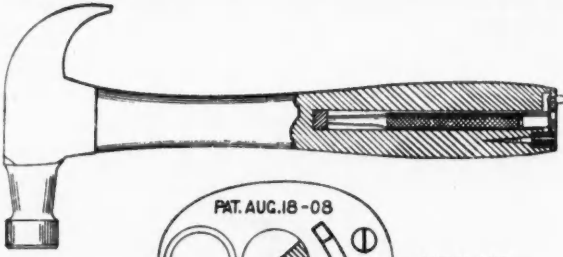
combining all the valuable features which experience has demonstrated to be desirable.

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Chicago Spring Butt Company,
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Send for Catalogue C-26.

The Peerless Nail Set Holder



PAT. AUG. 18-08

ABSOLUTELY NOISELESS
DOES NOT RATTLE

ACTUAL SIZE
OF PLATE

DON'T LOSE YOUR NAIL SET

It is **NOT** wearing out the pockets of your clothes.
NOT mixed up with the nails in your apron pockets.
NOT in the basket or tool chest when wanted.
NOT lost among the shavings.

It is always in your hand available for instant use.

To Operate—Hold hammer in right hand, press spring with thumb of left hand. Nail Set will drop into your palm ready for use. To replace, simply place Nail Set in hole and give a quick shove. The attachment can not be injured by falling or striking on end of hammer handle.

Ask your Hardware Dealer for it, or mailed to any address upon receipt of 25c. Stamps accepted.

THE PEERLESS SPECIALTY CO.,
77 N. Water St., ROCHESTER, N. Y.
AGENTS WANTED.



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LOOK!
LISTEN!**

“Pullman” Spring Sash Balances

ASK US ABOUT THEM

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To Make Your Saw Run Sweet

THE “SPECIAL” SAW SET

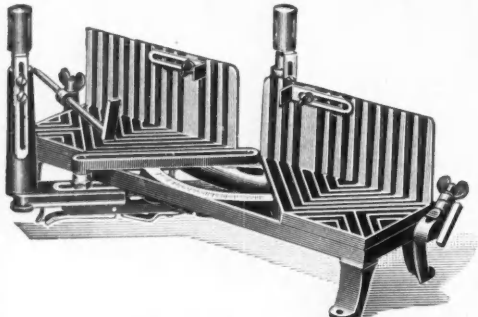


MY TRADE MARK ON ALL MY GOODS
MORRILL'S PATENTS

Use a “SPECIAL” Saw Set. Anybody who can read numbers can use it.

CHAS. MORRILL, 283 Broadway, New York

REASONS WHY IT IS THE BEST



1. Plates cast solid with frame, for strength and rigidity
2. Bed and back ribbed allowing clearance for sawdust.
3. Graduated.
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Have your dealer show you a
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AMERICAN CARPENTER AND BUILDER

<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 renewals must reach us before August 25 to avoid missing the September 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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185 JACKSON BOULEVARD, CHICAGO.

Vol. VII AUGUST, 1909 No. 5

The AMERICAN CARPENTER AND BUILDER is issued promptly on the first of each month. It aims to furnish the latest and the most practical and authoritative information on all matters relating to the carpentry and building trades.

Short practical letters and articles on subjects pertaining to the carpentry and building trades are requested.

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SNAPS are not!



REMEMBER it is the optimists and not the pessimists who make the wheels go round.



AHEART-TO-HEART talk with employes is like oil on a machine, while a calling-down is like putting sand in the gear wheels.

Our Home Builders' Number

WE TAKE pleasure in announcing that the October number of the AMERICAN CARPENTER AND BUILDER will be our "Home Builders' Number." We want to invite every one of our readers to join with us in making it the biggest and best and most interesting of all the numbers yet published.

The editor has had prepared a great many special features for this number of more than usual interest—practical, illustrated articles which will be of real value to all carpenters and home builders.

The main interest, however, will center around those pages devoted to "Typical American Homes." This has always proved a very popular feature. It will consist of photographs with floor plans and statement of actual cost of the best work done by readers of the AMERICAN CARPENTER AND BUILDER during the past year.

We invite you all to send in such pictures so that all parts of the country may be represented. We want this "Home Builders' Number" to be typical of the splendid work being done by our readers. Mark on the back of each picture where the building was put up and to whom credit should be given for its construction and design; also please state the actual cost complete. In order to make each exhibit as useful and complete as possible a sketch showing the floor plans should be included wherever possible.

Address all photographs and drawings to the Editor of the AMERICAN CARPENTER AND BUILDER. They will be returned to you, if so desired, promptly and in good condition. Send them in as soon as is convenient so that we may have plenty of time to make up this feature of our big October number in a way that will do credit to the members of the Big Family.



Lumber Cut for 1908

DURING the year 1908, 31,231 sawmills in the United States manufactured 33,289,369,000 feet of lumber, according to a preliminary report just issued by the Bureau of the Census. These mills also cut 12,106,483,000 shingles and 2,986,684,000 lath.

Lumber manufacturing, like every other industry, felt the effects of the business depression which began in October, 1907. Consequently the production in 1908 was below that for the previous year. In 1907 the cut of 23,850 sawmills was 40,256,154,000 feet, the highest production ever recorded. Notwithstanding, therefore, that in 1908 reports were received from 8 per cent more mills than in 1907, the decrease in lumber cut reported by them was slightly over 17 per cent.

Washington, as for several years past, still ranks first among the states in lumber production, its cut in 1908 being 2,915,928,000 feet—a decrease of 22.8 per cent over the cut in 1907. Nearly all the lumber in Washington is Douglas fir, the market for which was seriously affected by the panic. Louisiana ranks second, with 2,722,421,000 feet, a decrease of 250,000,000 feet or 8.4 per cent over the cut in 1907. Louisiana is first in the production of both yellow pine and cypress. Cypress is a particularly useful and valuable wood, and apparently the manufacturers of it did not suffer as severely from dull times as did the manufacturers of yellow pine and Douglas fir. Mississippi was the third state in lumber production in 1908, with a total of 1,861,016,000 feet—a decrease of 11 per cent from the cut in 1907. Arkansas ranked fourth, with 1,656,991,000 feet—a decrease of nearly 17 per cent over the previous year's output, and Wisconsin fifth, with 1,613,315,000 feet, against 2,003,270,000 feet in 1907. In Texas, where the lumber industry is confined almost exclusively to yellow pine, the falling off was very heavy. The total cut of the state in 1908 was 1,524,008,000 feet—a decrease of 31.6 per cent over the cut in 1907. Eight other states manufactured more than one billion feet each of lumber last year. In the order of importance they were: Michigan, Oregon, Minnesota, Pennsylvania, Virginia, Alabama, North Carolina and West Virginia. California and Maine, other states which reported more than one billion feet each in 1907, went just below the figure in 1908. The totals for a few states were greater in 1908 than in 1907, but this was chiefly due to the larger number of reports secured in those states in 1908. In Georgia, for instance, a particularly close canvass increased the number of mills reporting nearly one-third, while the resulting increase in reports of total production was only 6 per cent. In Massachusetts, 610 mills reported a cut of 384,526,000 feet in 1908, as compared with a cut of 264,231,000 feet by 518 mills in 1907. In Colorado 254 mills cut 182,036,000 feet in 1908, while in 1907, 230 mills cut 134,239,000 feet. A particularly large gain in mills reporting was made in Oklahoma. In 1907, 129 mills in that state cut 140,015,000 feet, while in 1908, 214 mills cut 158,756,000 feet.

While there are many very large sawmills in the United States, the small mills far outnumber the large ones, and it is particularly interesting to note how many of these small mills there are in the states which

are not now of first rank in lumber production. The statistics for New York were collected by the Forest, Fish and Game Commission from that state, which secured reports from 2,291 mills. In Pennsylvania 2,224 mills reported to the Census, and in Virginia, 1,937 mills. In North Carolina reports came from 1,740 mills, and in Kentucky from 1,530 mills. The number of mills reporting from Tennessee was only forty less than from Kentucky. In West Virginia, Georgia, Missouri, Ohio, and Indiana between 1,000 and 1,100 mills each were engaged in cutting lumber last year. The average output per mill was 350,000 feet in New York, and 5,260,000 feet in Louisiana, these two states presenting nearly the extremes of production by small and large mills.

Yellow pine, Douglas fir, white pine, oak, hemlock and spruce, in the order named, were the woods cut into lumber in the largest quantity. Yellow pine has ranked first since it surpassed white pine in the later nineties, and it is still far in the lead. More recently, white pine has also been superseded by Douglas fir, so that now it occupies third place.

Washington has been the principal shingle producing state since the use of red cedar shingles became general, and it supplied three-fifths of the total output of shingles last year. Among the other shingle-producing states, Michigan, Louisiana, Maine and California were the most important. The shingles cut in Michigan and Maine are chiefly of white cedar, those in Louisiana of cypress, and those in California of redwood. Lath are generally a by-product of lumber manufacture, and are made to some extent from almost every kind of wood that is cut into lumber. Among the kinds of lath which are most prominent are white pine, Douglas fir, spruce, yellow pine, cypress and hemlock.

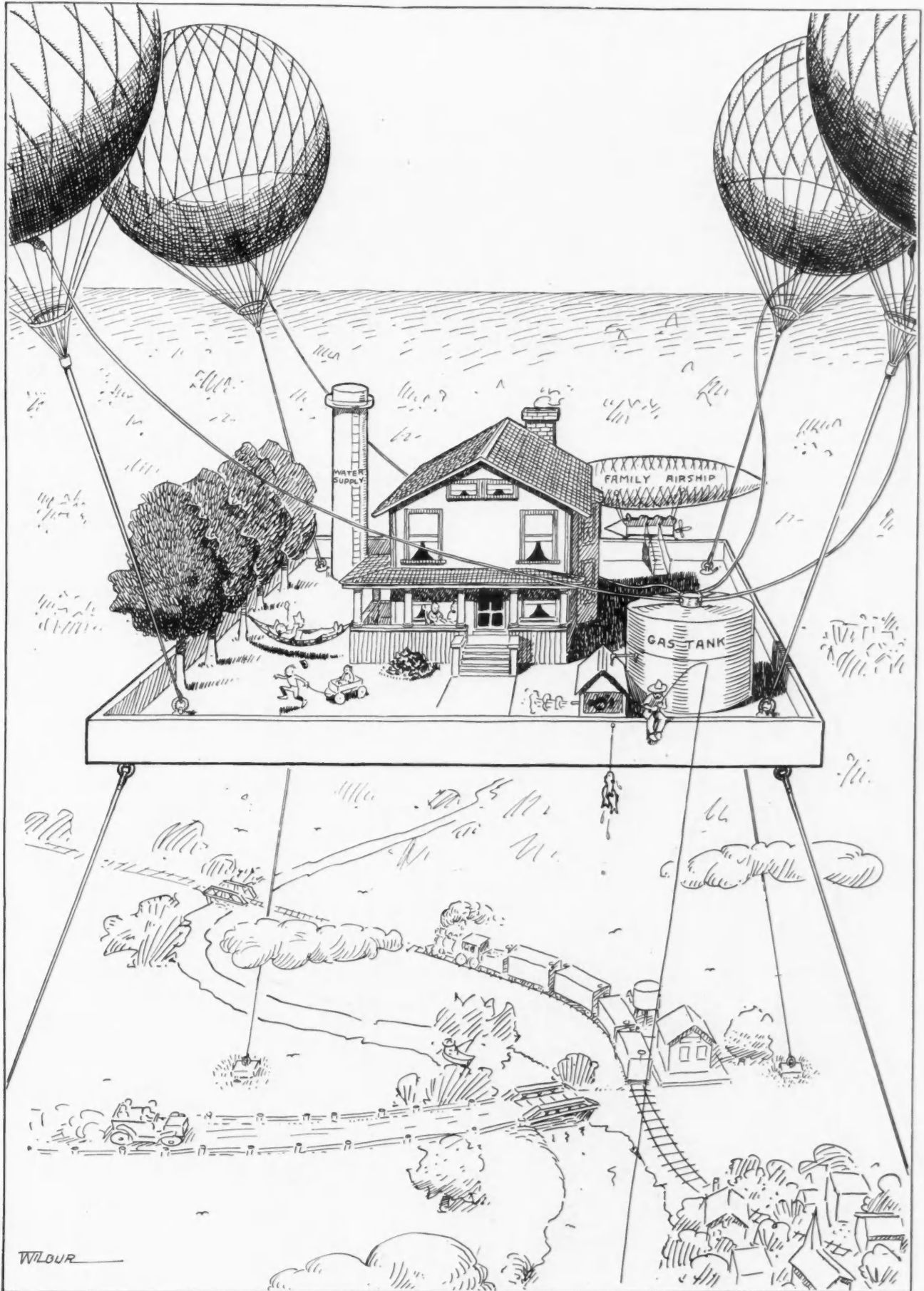


Date of the Chicago Cement Show Changed

THE dates for the third annual cement show in the Coliseum, Chicago, previously announced as February 17-23, 1910, have been changed to February 18-26, 1910. The show will open on the evening of February 18 and be open continuously until the evening of Saturday, February 26, being closed, however, on Sunday, the 20th. Under the new dates the show will be open two days longer than the show held last February.

We announce with pleasure that the National Association of Cement Users have decided to hold their sixth annual convention in Chicago on February 21-24, 1910, these dates being covered by the third annual cement show. The decision of the N. A. C. U. to hold their convention in Chicago during the cement show will mean that the gathering in Chicago February next will undoubtedly be the largest gathering of cement interests ever held in the world.

Summer Houses of the Future



Suggested for the Wright Brothers or for the Man Who Would Get far From the Maddening Crowd



FLORENCE does not exist apart from her world of art. Here architecture, sculpture and painting with all their literary and historical significance confront you at every street corner, along the river, on the open piazzas and from every hotel window. You may turn from it all in weariness, but there is no escape.

The best remedy for the weariness of having seen too much, and having still too much to see, is the resolution that Florence shall be an abiding place,

that at last the time has come when it is well to cease being a wanderer on the face of the earth, and to become instead a citizen of the loveliest of all cities.

It is no weakness to yield to the spell of Florence. The greatest have been conquered by her and have allowed a few weeks of spring they had allotted as time enough to spend within her walls, to glide into months and years.

The Brownings, the Hawthornes and scores of other wanderers in the realm of art and literature lingered here, living again the lives of the great Italians, Dante, Boccaccio, Petrarck, Savonarola, and making new paths for other literary pilgrims who were to follow. The history of Florence for six centuries or more has been written by these, her lovers, in many books. Her artists have recorded her aspirations and their fulfilment on many frescoed walls and splendid canvases. But it is her architects, her workers in stone, who have best expressed the spirit and genius of mediaeval Florence.

That she was fierce and relentless in warfare, her grim and massive palaces testify. That she was the mother of all art and grace and beauty is written in most delicate lines on the slender Campanile and on the fragile lace work of the Duomo.

The great Palazzo Vecchio tells a long chapter of history in itself, when you answer the questions it raises. Why is it placed at one side of the grand plaza? Why should the battlements that surround the main building be square, and V shaped battlements surmount the upper tower?

The position of the Palazzo Vecchio records the bitter hatred of Guelph and Ghibelline. Its architect, Arnolfo, begged that it might be placed in the center of the grand plaza, but the vindictive Guelph swore that its foundations should not touch one foot of land that the hated Ghibellines had ever possessed, better by far that the building should be placed at



Stairway in the Bargello Palace

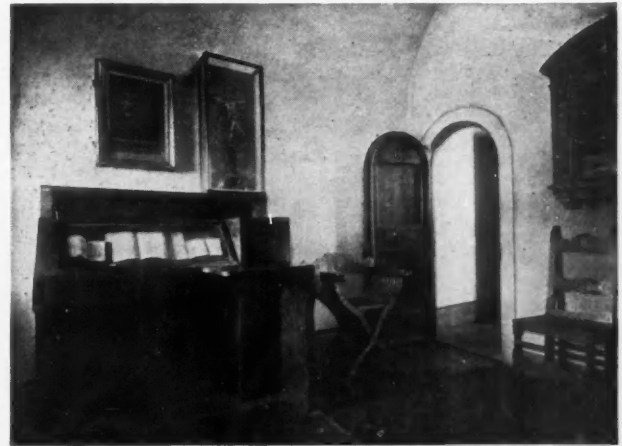
any angle in any corner of the city. So the Palazzo Vecchio stands today as warped by hatred as was its builder.

When the palace was completed the square machicolations, the sign of the pope's party, adorned it. Then, the Emperor's party, the Ghibellines, took possession of this stronghold, the home of the magistrates of the republic, and crowned it with a tower, and their swallow-tailed machicolations. . A wonderful airy tower **the conquerors built, rising as it does nearly 300 feet** above the square palace, visible from all points of the city, and always a thing of grace and symmetry.

There is a stone in the pavement in front of this stern palace upon which is laid on the twenty-third of each May a garland. On it women kneel to pray, and all about the pavement children scatter rose petals.

It was here that Savonarola bore witness by his heroic death to the sustaining power of the gospel he preached. History records that the last glimpse his followers had of him was with hands extended in the midst of the flames, blessing the people who reviled him.

The stone floor of Savonarola's cell-like room in the convent of St. Mark's is worn smooth by the feet of many pilgrims. The carpentry of door and desk and chair seems the mission furniture of yester-



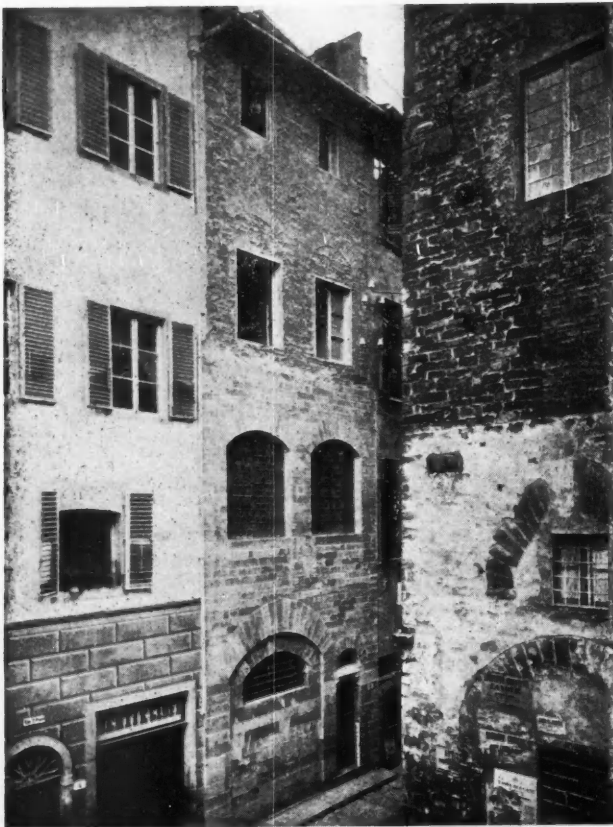
Savonarola's Room in the Convent of St. Mark's
Furniture 400 Years Old

day and not of four centuries ago. All the work of these old builders, from a chair to a palace, is worthy of reverence, because of the conscience and sincerity that they put into their work, giving it worth not for years but for centuries.

The governor's palace played a part in the city's early history. The Bargello was a splendid palace of state, square and forbidding as the Palazzo Vecchio without, but containing one of the most beautiful of court yards within. The inner stairway is a triumph



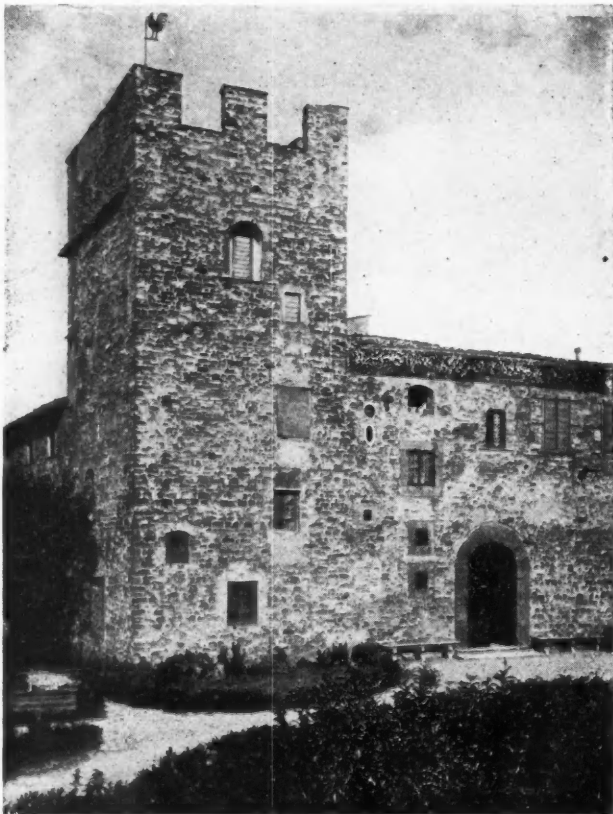
The Famous Palazzo Vecchio of Florence. Designed by Arnolfo



Dante's House, 600 Years Old, but Still the Ordinary Italian City House

of architectural art. Artists linger here through the shadows of the late afternoon transferring to canvas the browns and yellows of old armorial bearings and discolored marble.

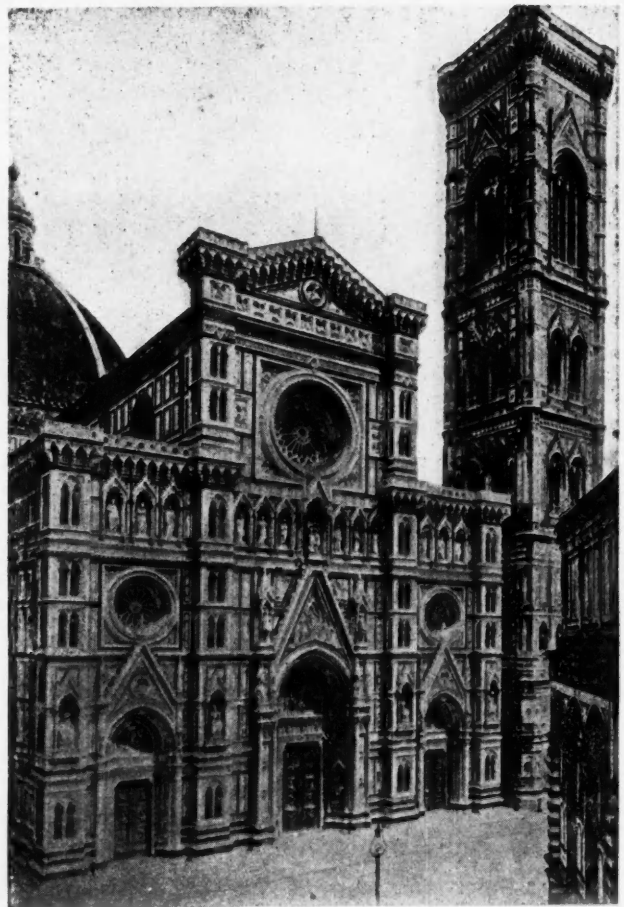
Within the dark old Bargello, Giotto painted fres-



Galileo's Tower—An Old Piece of Heavy Stone Masonry

coes, and once when in his happiest mood he painted with sincerity and affection his friend Dante, with two shadowy figures behind him. The whitewash which covered the frescoes has preserved for Florence during six centuries, the head of the thoughtful Dante—her greatest poet and her greatest citizen.

There is a stern, bare house in one of the narrow streets of Florence, not more attractive than the ordinary dull house that the dweller in an Italian city calls home. It is interesting not only because it is a typical Florentine house in its cheerlessness, but because a marble tablet above the door records, "Here lived Dante." During his lifetime these very stones were denied him as a place of refuge. Banished from the city which was to him the very wine of life, he spent his declining years eating out his lonely heart



Facade of the Duomo—Bell Tower by Giotto on the Right

in the bitterness of exile. The world has never learned to pay its debt of gratitude in time; and Dante and Savonarola hungered in vain for the reverence and affection their city today bestows so lavishly upon the very stones whereon they trod.

On the hillside of Arceti, a half mile from the heart of Florence, is the tower of Galileo. Here, an exile from Rome, the ban of the church upon him, he continued his work with his telescope under the clear skies of Florence.

The Florentines were not always men of this stern type. On the road to Fiesole, the hill that is the background of Florence, there is an Italian villa, as charm-



The Villa Palmieri where Boccaccio Lived and where Queen Victoria Spent her Florentine Winter

ing today as it was 500 years ago, when Boccaccio and his party of gallant gentlemen and fair ladies fled from the plague in Florence to disport themselves and pass the time in story telling until the poor wretches below should be through with their dying.

The stories of these first of story tellers were gathered into the Decameron of Boccaccio, from which Shakespeare borrowed largely the material of his plays. "In this very villa," said the guide, "did Queen Victoria stay in 1888. And not far away," he added impartially that we Americans might not be belittled, "did Mark Twain pass one winter."

The villa is of black and white marble, very fanciful and elaborate. One who is interested in the

architecture of these old Italian villas and in landscape gardening will find the drive to this Villa Palmieri well worth the days of pilgrimage.

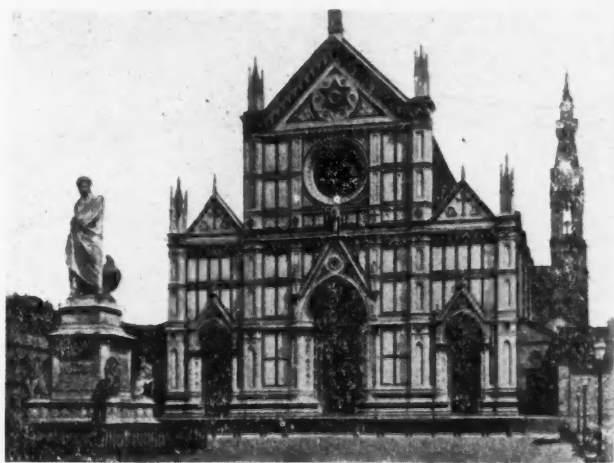
The two great churches in Florence that represent the Italian Gothic in architecture are Santa Maria Novella, and the Westminster Abbey of Flor-



The Duomo, Famous Cathedral of Florence

entines, Santa Croce. These have not succeeded in making so exquisite a piece of black and white embroidery of their splendid marbles, nor have they the crowning glory of the Duomo, the dome.

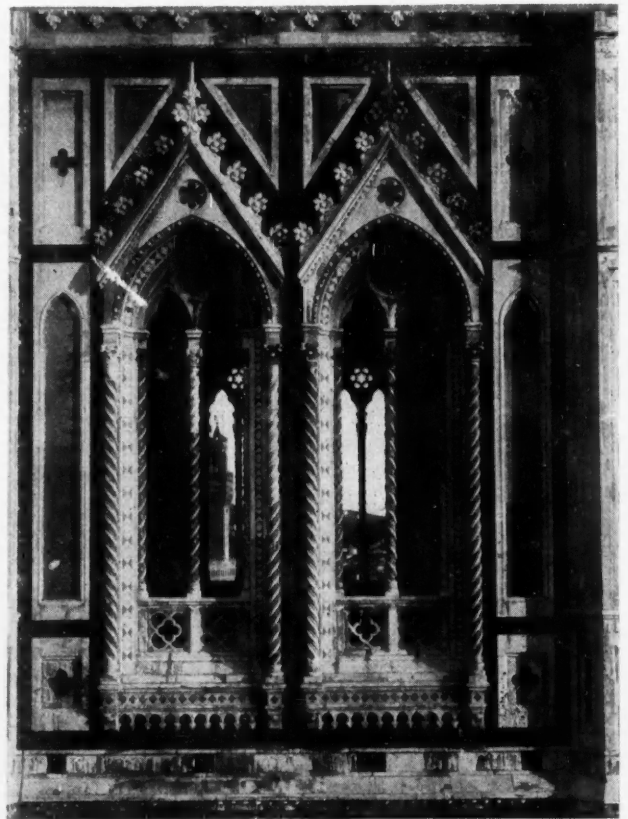
The dome was the impossible in architecture. "It cannot be done," said the world to Brunelleschi. "A massive hemisphere cannot rest on nothingness. There must be supporting columns."



Santa Croce—Example of the Italian Gothic



The Graceful Campanile, Designed by Giotto



Window Detail, the Campanile



Interior of the Tomb of the De Medici, the Ruling Family of Florence

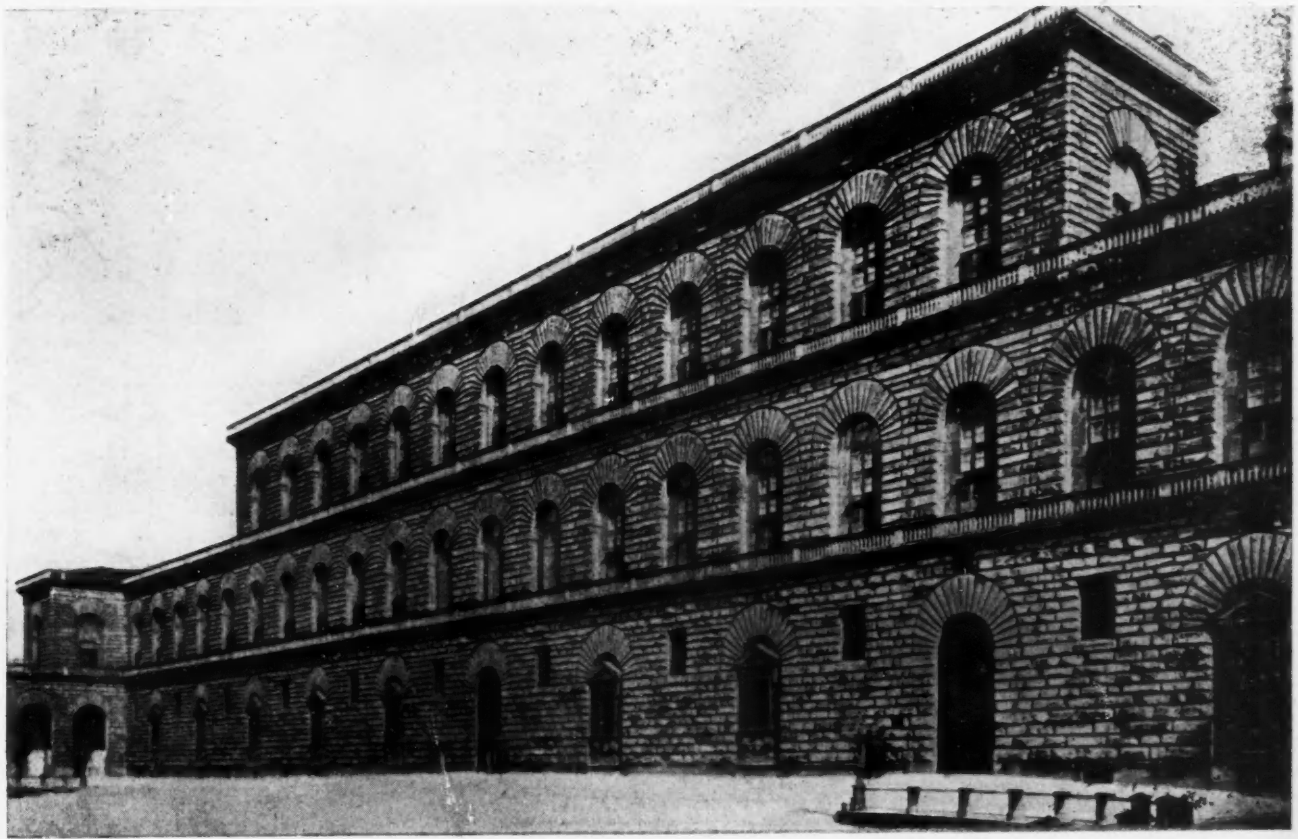
Plans were suggested for a possible means of support during the process of building. "The sensible thing to do," they said, "is to make a great mound of earth from floor to ceiling in which coins are hidden. The dome shall be built over the mound. When it is rounded out and completed, the beggars will be willing to dig away the earth and carry it off for the sake of the buried coppers." Brunelleschi listened to their ingenious contriving and went ahead with his own plans, constructing like the great architect that he was, and not the petty trickster the lesser builders would have him be. One dome within another gives the vaulting its proper support.

There was no limit to the presumption and arrogance of the old Italians. The Pitti Palace was the deliberate attempt to be supreme. When Lucca Pitti

inlaid floors—a fit treasure house for the most priceless treasures in the world—the masterpieces of Florentine art, which now fill it.

Then there are days when the traveler ceases to study or learn. On these days he walks along the Vecchio. Little dove cotes of houses cling to its sides. Why shop and shop keeper do not tumble off into the river over which they are suspended is a mystery; but the little houses have hugged the stone wall tightly and securely for so many centuries that they have lost the sense of fear. In former years the butcher shops lined the bridge. Now the jewelers and silversmiths display alluring bargains, giving one an opportunity to satisfy the yearning to spend his money for souvenirs and gifts.

The walk along the river at sunset blends poverty



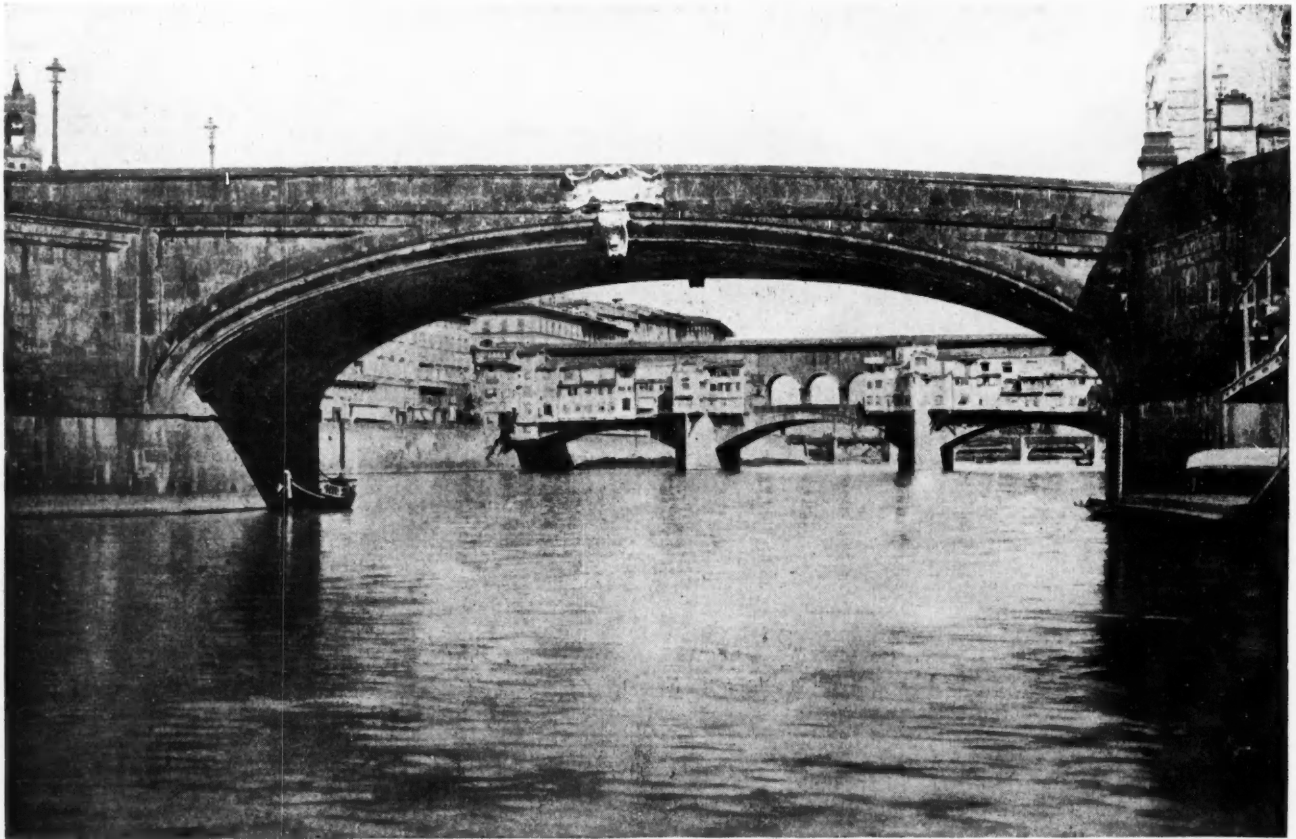
The Great Pitti Palace, Florence

gave orders to the great Brunelleschi for the building of his palace the order read it was so far to surpass all that the Medici had done that "the doors for the Palazzo Medici should serve only as models for its windows." The palace was planned on a colossal scale; the windows measure 24 feet, and each of the stories is 40 feet high. "The walls shall be impregnable," said Lucca Pitti.

But it is easier to order the impregnable to be built, than to build it, and Luca Pitti lived to see his fortress palace pass into the hands of the Medici. It was a possession worth fighting for; grim and forbidding as it is without, it is all color and light within with its many colored marbles, soft frescoes, and

and picturesqueness into a water color of rare loveliness. The softly tinted cream, pink and green adobe houses are reflected in the gray blue water. The sluggish tide of humanity moves a little faster across the bridges, the little boats come to anchor under the arcades of the houses. Then a silvery mist softens the outline of the grim old palaces, and Florence dissolves into a dream in which art and history and all learning have no place.

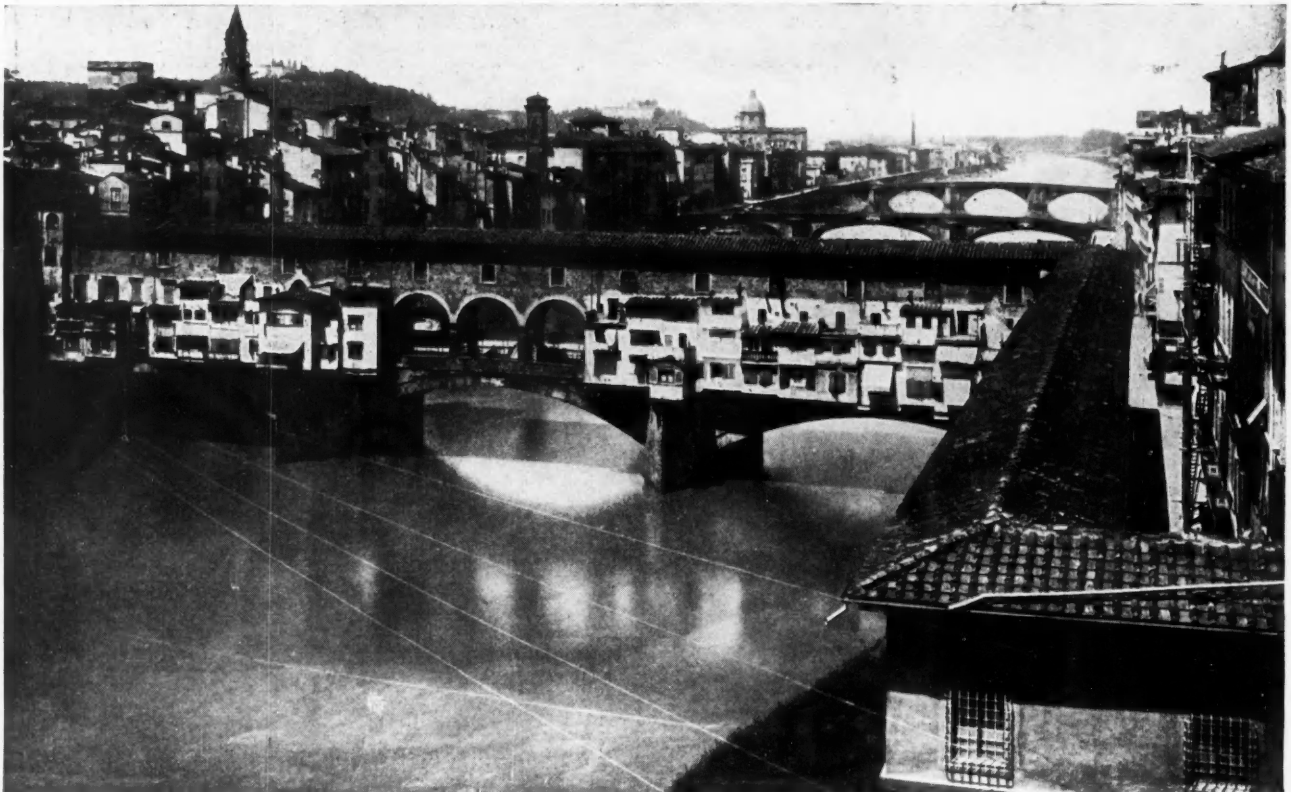
All that one can say about Florence seems ineffectual. Mrs. Browning, who felt most deeply its beauty, wrote after many happy years at Casa Guidi: "What Florence is, the tongue of man or poet may easily fail to describe; the most beautiful of cities, with the



Modern Bridge Over the Arno at Florence

golden Arno shot through her heart like an arrow, exquisitely beautiful in the garden grove of vineyards and olive trees." Here come every spring 30,000 English speaking tourists. Other cities they are able to change into something modern and cosmopolitan,

but the spell of mediaeval Florence is the stronger influence. The current of humanity that fills her streets sweeps by like "the golden Arno," reflecting unconsciously her exquisite beauty, not transforming, but transformed.



The Historic Ponte Vecchio, the Bridge of the Silversmiths]

House-Boats and How to Build Them

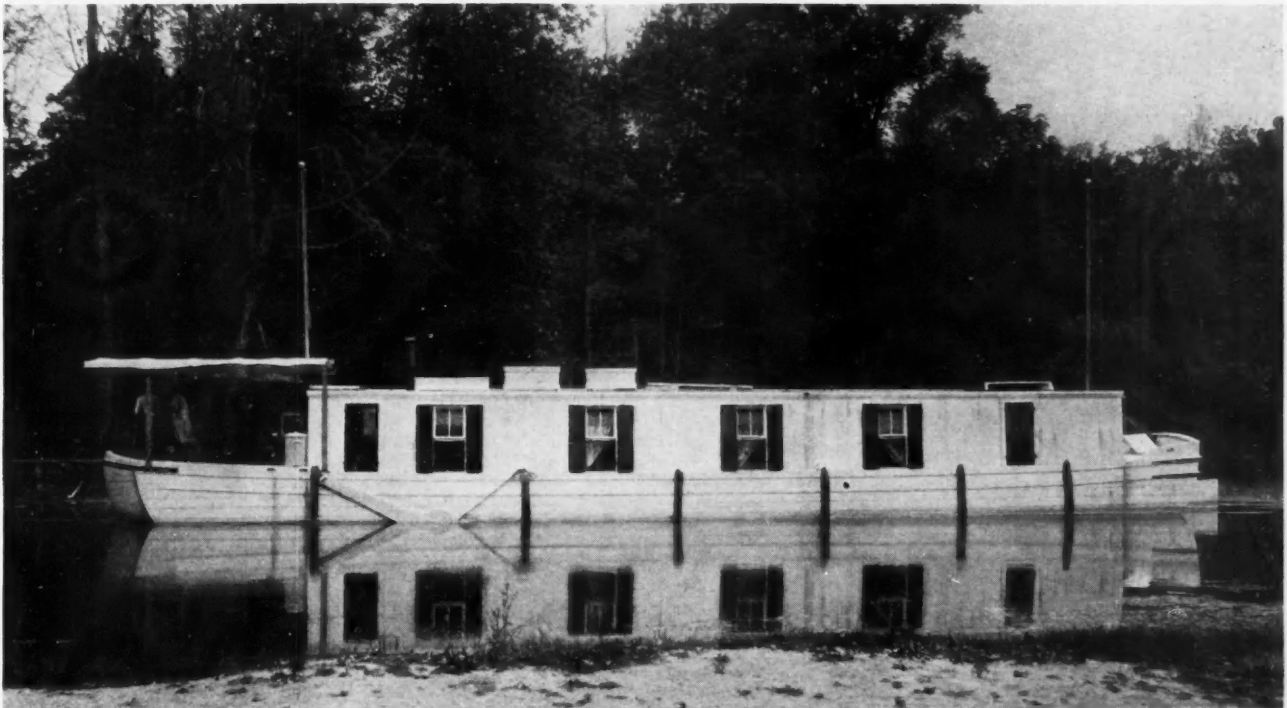
HOW A WIDE-AWAKE CARPENTER EARNED A SNUG OFF-SEASON INCOME AT HOUSE-BOAT BUILDING
—CONSTRUCTION AND USE OF HOUSE-BOATS

By George E. Walsh

MARINE architecture is a distinct branch and trade by itself, and the ordinary carpenter is not as a rule supposed to understand the technical points involved; but in recent years there has come into existence a popular feature of this work which really falls in the province of the general carpenter more than in that of the marine builder. House-boats have been in more use in England than in this country, but in the last ten years thousands of these floating homes for summer use have appeared on our lakes, rivers and bays along the coast. Their popularity has increased now that the gasoline engine has been developed so that for a small additional outlay the houseboat can be moved from point to point under its own power. They are not power crafts by any

he had to take as part payment for a debt an old second-hand flat scow. This seemed like a white elephant on his hands, but as he had it he decided to make use of it. He patched it up so that there was no danger of leaks, and then with some second-hand lumber stored away on his place he built a 3-room house on the boat.

His intention was to live on the houseboat in the summer and rent his own home to summer visitors. But before he could find a tenant for his home, he had several applications for his houseboat, and he closed a bargain for its renting at considerable more than he could get for his house. The summer's rent paid for the lumber and carpentry work, and left him something over. This unexpected transaction started him



A Cool and Comfortable Summer Home

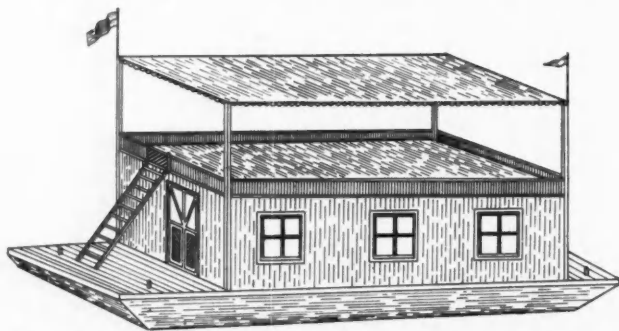
means, but with a 2 or 3 horsepower gasoline engine installed in a houseboat it can move from one anchorage place to another on pleasant days at the rate of two or three miles an hour.

The houseboat in many cases is an old canal-boat or a second-hand flat scow with a living house built on the top of it. In the construction of this house the carpenter's service might well be employed. The idea of this article was suggested by the record of a carpenter who three years ago took to houseboat building in a dull season and established a very important trade as a side issue to his regular profession. He lived close to an inland lake—Lake Hopatcong, New Jersey—where summer visitors were numerous. One day

in his new work. He purchased for a nominal sum two other flat scows the following winter, and built houses on them and furnished them in a simple but comfortable style. The next summer he rented two of the houseboats, and sold the other outright for a very profitable sum.

Then he solicited orders for houseboats. They were popular, and he got two orders that summer for houseboats of considerable size. One of these was 30 feet long, and was made from an old canal-boat. It was fitted up inside with all the comforts of home, and proved a standing advertisement of his workmanship. The boat had an upper and lower deck, and the owners secured another order for the carpenter.

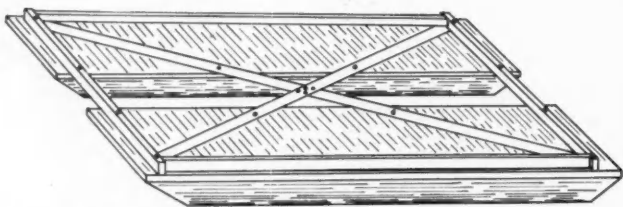
But the expansion of his business threatened to absorb all of the flat scows that could be had, and the carpenter was not yet qualified to go into marine architecture. However, he considered the matter carefully and noted the demands of the market. Very few cared for a large houseboat, but a great many wanted small ones that could rent for about \$100 to



Thirty-foot Home-made House Boat. With Three Living Rooms and Upper Deck

\$200 a season. These people wanted to live on the water, and they were not particular about the size of the rooms or the furnishings. After looking carefully into the matter, the man decided that he could find a way to secure the hulls at less expense and without much difficulty.

Flat bottom row boats 18 to 20 feet in length were common. So he purchased two of these at a nominal sum, and drawing them out of the water he patched them up, and reinforced them inside with braces and plankings. Then he bolted them together with small beams on the deck, running one across the stern and another over the bows. Two others were run crosswise from corners to corners. These beams made the boats form a two-piece hull, as shown in the drawing, and they also served as the foundation for the floors. The floor timbers were of second-hand, unmatched lumber, but over the top of them cheap canvas was stretched, oiled and painted so that the floor was waterproof. Then he built a house on top of this floor with a door in front and windows on either side. This

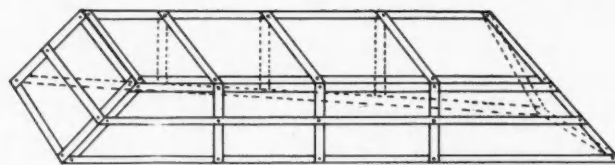


Method of Attaching Flat-Bottom Row Boats Together to Receive Deck Planks for House-Boat Superstructure

gave him room inside for one living and sleeping room and one kitchen and dining-room combined. This boat cost him as follows: \$6 for the two flat-bottom boats, \$15 for the second-hand lumber, nails and paint, and \$25 for the simple furnishings, some of which he purchased second hand, making a total of \$46, not counting his own labor. He rented the boat for \$75 for the first season, which paid for all expenses, and left him a balance, and the boat for another season.

He built five of these boats, and then decided that there was enough money in the business to warrant attempting something more ambitious. He ordered lumber for news hulls, which he decided to construct himself. A carpenter who cannot build an ordinary flat-bottom boat is not much good at his trade. The frame was very simple, and the planking of plain lumber, with seams calked and painted. This man built his boats larger than the ordinary boat, making them 25 feet and one 30 feet long. They were only 4 and 5 feet beam, and when bolted together, with a space of a foot between each one, the total width was from 9 to 12 feet.

His latest improvement was to build a water-tight deck over these boats so that they were really pontoons. This made them more buoyant and less likely to sink. The house was built on the top of the decks in the ordinary way. These boats rented as high as \$100 to \$200 a season. Today the man has eight houseboats which he rents out, and there is hardly a season that he does not sell from two to four. This gives him an opportunity to build that number of new ones each winter when trade is dull, and as he is sure to rent them he never loses anything on his investment.



Framework of the Hull Upside Down

Now this man's experience may be exceptional, but it indicates the possibilities the wideawake carpenter has in his field in working up trade as a side issue. At no time did he let the work interfere with his regular trade. He built his houseboats at odd times and when business was very slack. One winter he was out of employment, except for odd jobs, during the greater part of three months, but instead of being idle that time he practically built three houseboats and had them ready for launching the following spring. He received in rent from two of them \$300, and sold the third at a clear profit of \$200. So those three months out of work were after all pretty profitable.

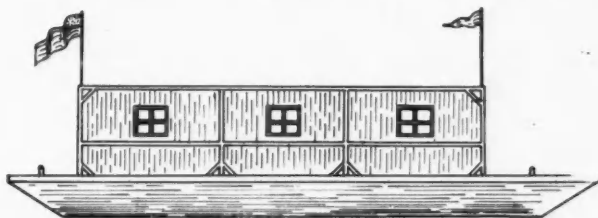
Houseboat building naturally would not be of much value to anyone located inland away from any body of water, although these crafts are in use on our canals and it is quite common to see them towed up and down the artificial waterways to some natural body of water for the summer season. There is another builder of houseboats located fifty miles away from any lake, river or sea coast, and he has made a great success at his work. The idea of turning shipbuilder in such a locality might excite the surprise of anyone. But there was the Erie canal. It flowed within a mile of his home. So he constructed a small workshop on the line of the canal and started to building houseboats. These houseboats were launched by him in a small basin that entered the canal, and he towed the crafts

up to the St. Lawrence or down to some of the lakes or to the Hudson river. In fact, although situated far from any large body of water, this man was ideally located for delivering houseboats to any part of the country needing them. He could tap the great lakes or the Atlantic ocean and deliver his goods when ordered.

The problem is often how to get a start. The experience of the carpenter first described is the best illustration of how to do this. Build a houseboat for your own use or for renting, and if good returns are obtained build another. Then sales and orders may follow. A great many people want houseboats, but they do not know where to get them. There is no regular market for such craft and it is too expensive to deliver them to all parts of the country. It is much the better way for each locality to have its own houseboat center where they can be built and rented as needed. This field is far from being overcrowded today. There is hardly a good size lake, bay or river that does not contain possibilities in this direction.

There is one other type of small houseboat that should be mentioned in this connection. A gentleman living on a lake in the summer wanted a small houseboat for his children to play in. His family did not care to leave their cottage to live on a big houseboat, but the children were crazy over houseboats. So the man visited a local carpenter and discussed the matter with him. The result of this conference was that the carpenter purchased twelve empty beer casks, and after making the bung water-tight, he nailed them together, six on a side by two long beams. He formed a sort of raft out of these barrels by means of a platform of boards on top. This raft was so buoyant that you couldn't sink it if you put two or three tons of coal on it. It was safer than an ocean steamship in some ways.

But his order specifically stated that the cost must



Side Elevation of a Flat-Bottom House-Boat

not be much, for after all the houseboat was merely a plaything for the children. The platform was made of rough second-hand lumber, but when covered by canvas and painted it made a smooth even deck. The next thing was to place upright posts along both sides, and to nail stout canvas overhead and along the sides. This made a canvas houseboat which was as water-tight as any tent. The roof was made slanting, a ridge pole running the whole length, and two thicknesses of water-proof canvas covered it. Openings were left in the canvas for windows. Now here was a canvas houseboat built for the children at a total

outlay of \$40. The carpenter received a bonus for his skill and efficiency in designing it. The houseboat proved so attractive that the family often spent whole days on it with the children.

A modern houseboat of any pretensions requires today an upper deck covered with canvas where the owners can enjoy themselves on hot days. There is no space on the ordinary raft or scow for much deck room, and it is better to inclose practically all of the deck with boards and leave the upper deck for recreation. To accomplish this the floor of this upper deck, which forms the ceiling of the inside, must be laid on beams of sufficient strength to prevent any accident. The floor of the upper deck should be covered with



Typical House-Boat Interior

canvas, oiled and painted, and a hand railing should be run around on all sides. Posts for supporting the overhead awning should be put up at each corner, and on large boats on the sides and ends too. This awning should be placed on poles which can be rolled up in times of heavy wind storms and tied snugly to the posts at one end. The entrance to the upper deck should be made from the outside by ladder or stairs. Cost is thus simplified, and nothing but plain carpentering work is needed.

The division of the inside into rooms and the furnishings are merely matters of detail. In small houseboats, two rooms should suffice, a living and sleeping room and a general kitchen and dining-room. Larger boats require two or three extra bedrooms, and some have as many as five and six. The interior is finished off entirely in the natural wood or painted. The cost of this depends upon the amount that is to be expended in the boat. Simple cottage furnishings such as we find in summer homes are the best suited for the houseboat, and if one is building it to rent these need not cost much. There should be added to the outfit two anchors, ropes and a pair of oars. Some include a sail so the houseboat can be moved to a new anchorage when the wind is favorable.

◆
"Are you related to Barney O'Brien?" Thomas O'Brien was once asked.

"Very distantly," replied Thomas. "I was my mother's first child—Barney was th' sivinteenth."

STEEL SQUARE

ALFRED W. WOODS

Possibilities of the Steel Square

SHOWING HOW SOME DIFFICULT PROBLEMS MAY BE SOLVED BY MEANS OF THE STEEL SQUARE APPLIED IN A PRACTICAL WAY

TAKING up the subject where we left off in the June number, we show in Fig. 255 how an elliptical figure may be drawn by the aid of the steel square, or by first laying off a right angle. By a system of lines, as shown, form the curve as indicated by the dotted line.

In this, it will be seen that the lines center at a point on one side of the angle equal to one-half of

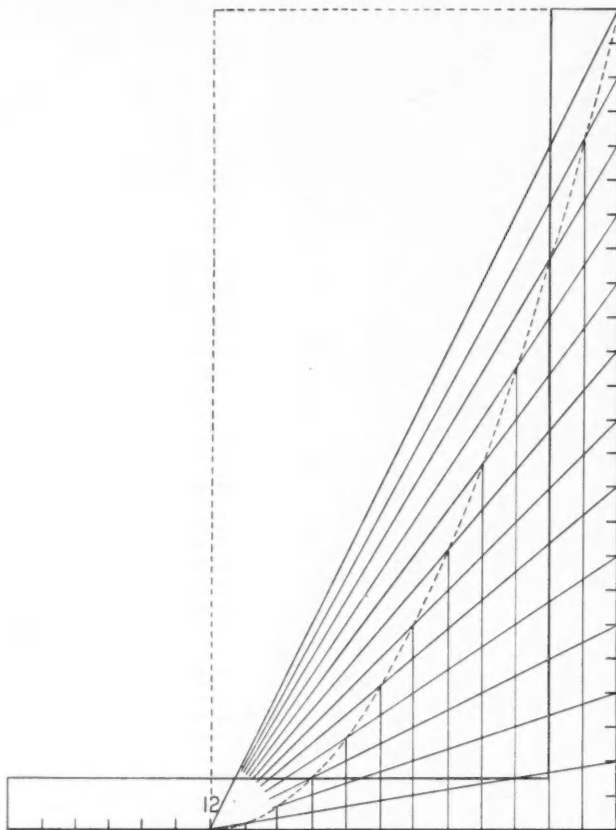


FIG. 255.

the short diameter, radiating to the other side and intersecting the same at double the space of the lines run from the other side of the angle. The intersections of these lines will give the points for the desired curve which, as will be seen by the illustration, forms one-half of the arch or one-fourth of an elliptical figure.

In Fig. 256 is shown a very useful illustration, of how the area of a third square may be made to equal

that of two given squares with the aid of the steel square. This is found by letting the sides of the given squares represent the base and altitude of a right angle triangle. The hypotenuse of which will represent the length of the sides of the third square, which will equal the area of the given squares. In the illustration one of the squares is 12 by 12 inches and one 9 by 9 inches and one 15 by 15 inches. Now, by adding the areas of the two former, it will be found to equal 225, which is just the same as the area of the largest square.

The same proportion exists in the circle as well as in the above example, as will be seen by referring to Fig. 257. Here are three circles with diameters as follows: 12, 16 and 20. The centers of which begin at a, a, a. The rule for finding the area of a circle

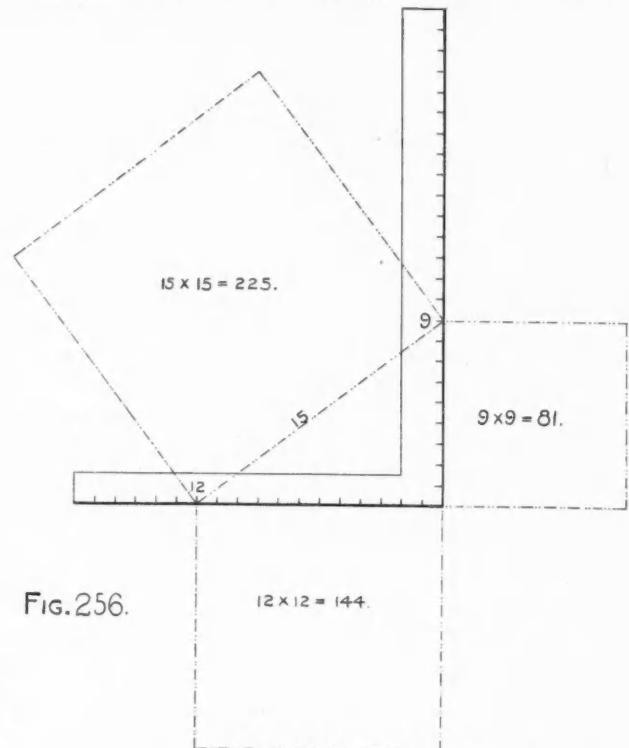


Fig. 256.

is—square the radius and multiply by 3.1416; which will give the area. Thus, the radius of the large circle being 10 its square will equal 100 and 100 times 3.1416 equals 314.16 inches. Proceed in like manner for the other circles and it will be found that the sum of the two will equal the above.

See the example worked out in figures in the illustration. The mathematical solution is only used here to prove the accuracy of the diagram. This is a practical example in more ways than one. Suppose a tinner wishes to turn two pipes of different size into one of equal area. This simple diagram will give the required size for the largest pipe without further figuring.

This calls to mind a costly error made by some parties engaged in putting in drain tile. They understood laying tile to a perfection and prided themselves on their work, but they did not understand how to find the areas or carrying capacity of the tile, and rather than ask some one that knew, they guessed at it. The starting point was at the juncture of two tile

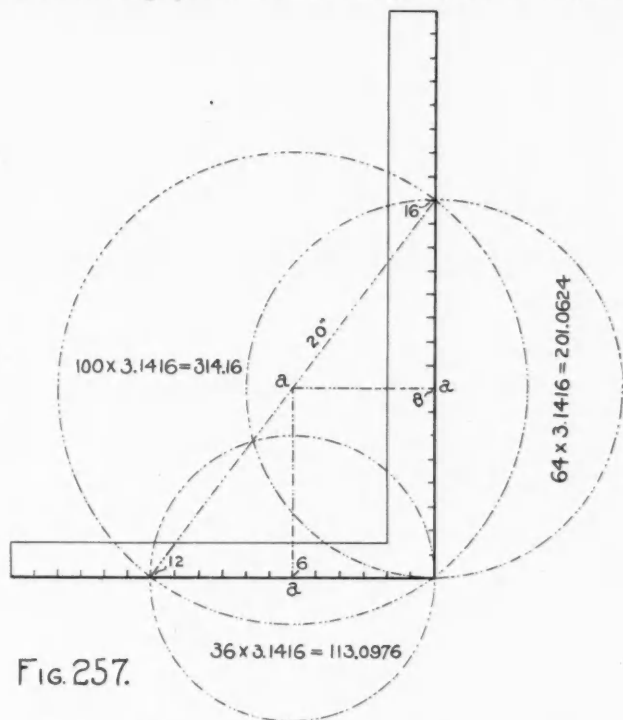


FIG. 257.

emptying into an open ditch and it was in this that the new tile was to be laid. Of course, the main or outlet tile should be at least equal in area at this point to the two emptying into it; but they did not under-

stand how to calculate in figures, or the simple rule given above; and the result was they put in a tile much too small. It really should have been much larger further on down the line to care for added territory.

Haste is made by going slow sometimes and certainly in this case haste coupled with ignorance made waste.

In Fig. 258 is shown how the area of a square and circle may be approximately made to equal each other by the aid of the steel square. In the example is

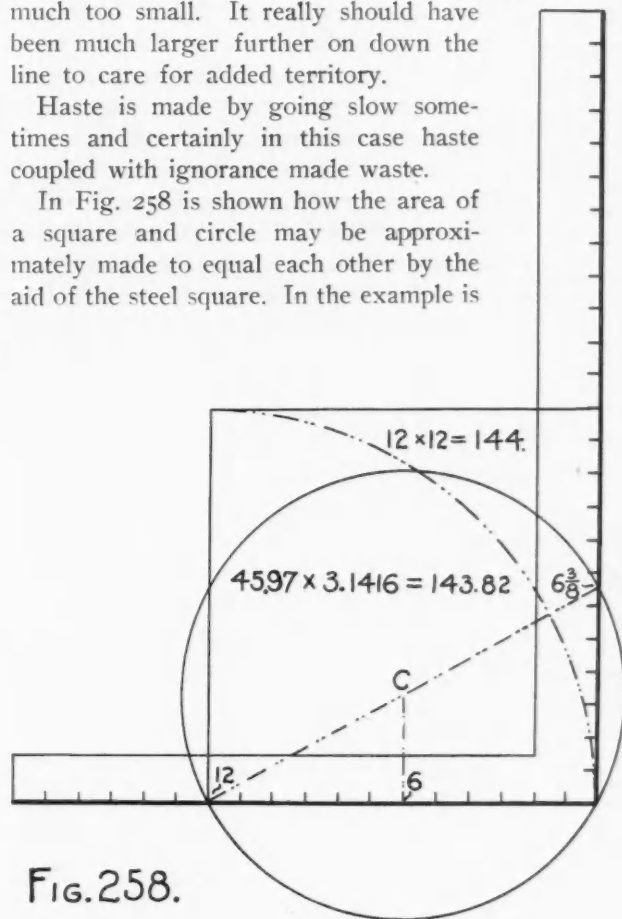


FIG. 258.

shown a square 12 by 12 inches which, of course, contains an area of 144 inches. Now to make a circle contain an equal amount, draw a line from 12 to $6\frac{3}{8}$ as shown. This line will represent the diameter of the circle and one-half of its length will be its radius. This proportion holds good for any size desired. It is shown here for a square foot, simply for illustration purposes. The point for a circle to equal a square of twice this base, or 24 inches, would be twice $6\frac{3}{8}$ or $12\frac{3}{4}$ inches.

How to Drive a Nail

THE science of nail-driving is the subject of an article by W. D. Graves in a recent number of *The Scientific American*. Mr. Graves notes that the driving of a nail is usually deemed so simple a matter that inability to do the job typifies entire lack of mechanical ability; yet he believes that even skilled mechanics may have something to learn in regard to this elementary operation. He says:

"It usually takes a woodworker's apprentice a year or more to learn that he doesn't know how.

"A fledgling mechanic, who spoke sneeringly of a man whom he heard using several blows of the hammer to drive a shingle nail, was somewhat crestfallen when told that the nail would hold better when driven

'home' by several light taps, than when driven by one heavy one.

"'Why?' he asked, in surprise.

"'Because,' said the other, 'when you drive a nail home with a heavy blow, it is apt to rebound a trifle, loosening the grip of the wood fibres on it. Drive it almost down, if you will, with as hard blows as you wish, but finish the job with several light blows.'

"One who thinks that the driving of a nail simply consists in getting the whole length of it out of sight, has little conception of the real nature of the operation. A nail driven by an expert will often hold several times as much as one ill-driven; while, too, it is often made to draw the parts into place. If you

have ever watched a mechanic driving nails, you have doubtless noted that he rarely drives one at right angles with the face of the work. There is a reason for it. Suppose that he is nailing the 'sheeting' on the frame of a building, and desires to draw the board down tightly against the one below it; he points the nail downward, and a few well considered blows at the last produce the desired effect. If the board is bent edgewise, so that much force is required, probably he will start the nail in the upper edge, pointing very sharply downward. Again, two nails driven in a board at different angles will hold it in place much more firmly than the same nails would if they were driven in at right angles with the face of the board.

"Did you ever notice that, in driving a nail in very hard wood, one man will do it successfully, while another succeeds only in doubling the nail up before the point has fairly entered the wood? The difference lies in the fact that the expert strikes the nail fairly, and not too hard, 'coaxing' it in; while the other strikes too hard and with indirection. It may be profitably mentioned, right here, that in driving a nail into very hard wood, it is usually profitable to dip the end into oil or grease. This will not sensibly interfere with the holding qualities of the nail, while it will very materially facilitate its driving."

That a nail may hold firmly, the writer goes on to say, the pieces it penetrates should be in close contact. A few taps at the finish may serve to bring this

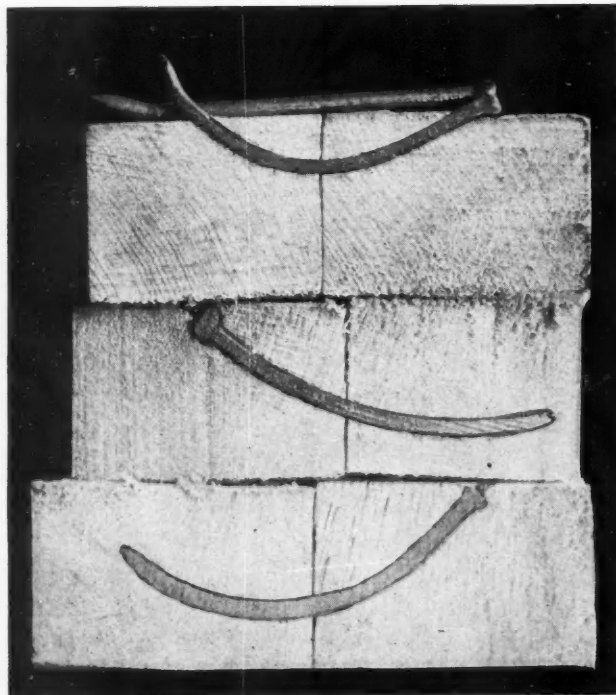


Fig. 1. Nailing for Butt Joints

about; while a heavy blow often destroys it on account of the rebound. The direction in which a nail goes is governed largely by the shape of the point. A horse-shoe nail, by having a chisel point, may be made to swerve and to come out of the hoof but little above

the shoe. By filing the point of a nail off on one side, it may readily be made to take a curved course, or the same result may be attained by bending the point slightly with the claws of the hammer. Fig. 1 shows how two boards may be secured, edge to edge, by nails bent in this way. We read further:

"In driving a clinch nail, there is room for the exercise of some skill. In Fig. 2 the central figure is that of a clinch nail driven down into a hard surface, thus

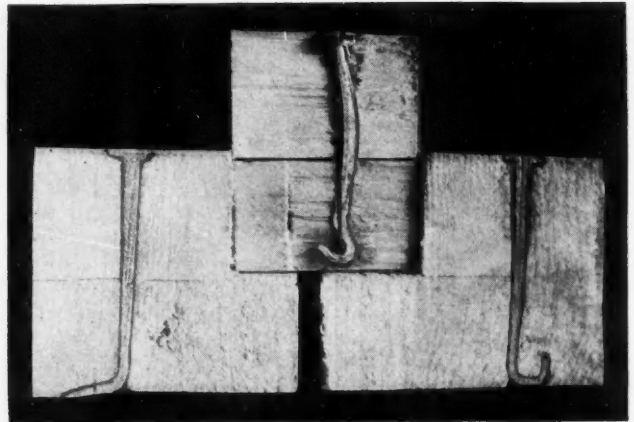


Fig. 2. Clinched Nails

being driven and clinched at the same operation. It will be noted that it is bent in the middle, 'crippled,' thus loosened in the wood and deprived of much of its holding capacity. At the left and right are nails which were first driven through the wood, and had the points bent over afterward, while a heavy hammer, or the like, was held against the head. The one on the left was carelessly bent, leaving a clinch which will straighten easily; while the one at the right was first bent over a trifle at the extreme point, then hammered firmly down. By the latter method, it will be seen, the point is driven into the wood, and thus more securely held in place."



Regarding Stair Building

A correspondent asks regarding stair building how the width of nosing additional to the width of tread is determined.

Always make it correspond to the thickness of the tread. If the thickness of the tread is $\frac{7}{8}$ inch make the projection of the tread beyond the face of the rise, which is the "nosing" equal to it.

If the thickness of tread is 2 inches make the projection of the tread beyond the face of the riser 2 inches. This rule is generally followed by all experienced stair builders and is recommended by authorities on the art of stair building.



Effective Treatment

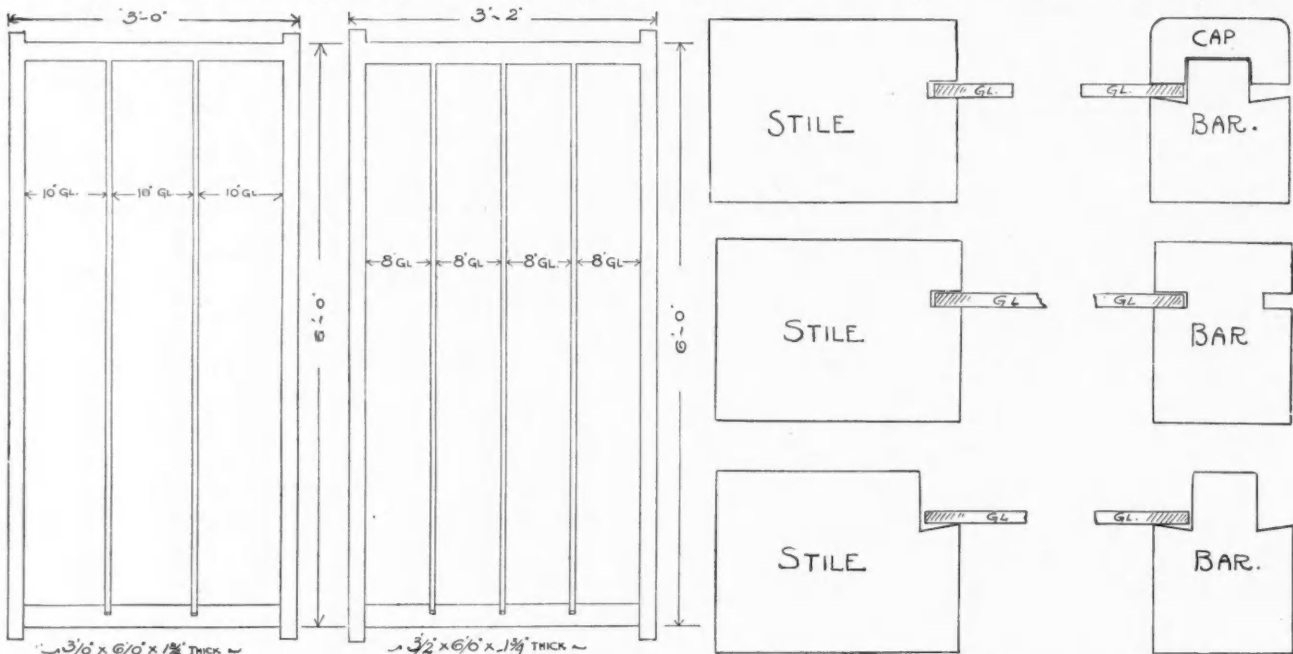
Asked the Progress Woman of the Beauty Culturist: "Don't you think women should exercise the suffrage?"

"Certainly. My method will increase it two inches."

more trouble and expense than the difference between the cost of the highest and lowest grade material for the entire house.

For wall and gutter supports posts are usually set

to receive this sheathing. The outside siding of any kind is nailed on over the sheathing and should have a tough waterproof paper well lapped placed between it and the sheathing. The detail drawings show

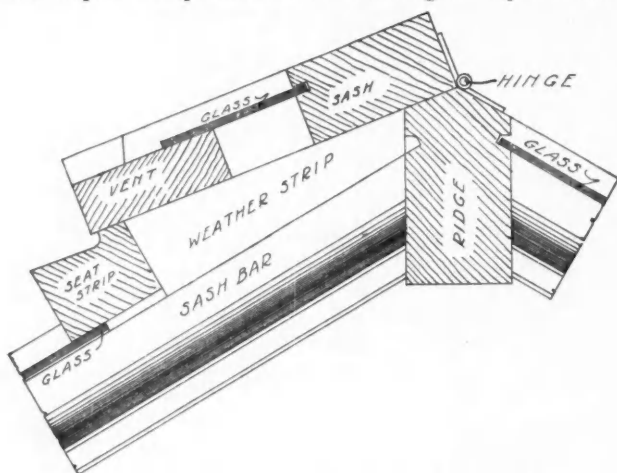


Methods of Securing Glass

in the ground at least three feet and surrounded in the ground with cement concrete, making the whole about ten inches in diameter. When 16-foot lumber is used the posts should be set 5 feet 2 inches from center to center. Square gulf red heart cypress posts are best; and when set in the above manner last an indefinite length of time. When common round cedar posts are used a slab is usually taken off on one side so that a flat surface is gained to nail the sheathing to. Iron pipe posts are set in concrete in the same manner, and require a special cast-iron fitting at top for con-

special construction for side sash, stationary side glass, and for the gable ends where glass and doors are used. The door frames are made from 2-inch material and run up to the gable rafter. Doors are usually made 3 feet wide, 1 3/8 inches thick and of height to suit the house.

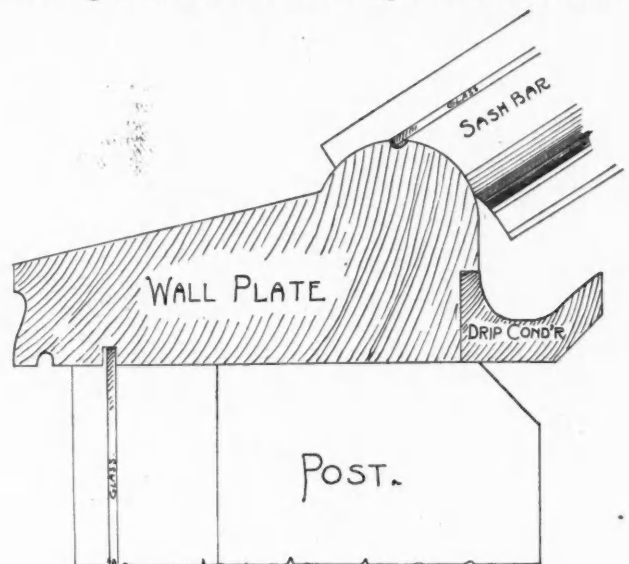
Proper ventilation is a very important factor in successful green-house work. In top ventilation the sash



Details—Ventilating Sash Hinged to Ridge

necting to the gutter or wall plates. A good proportion for the concrete is 1 part cement, 2 parts sharp sand, and 4 parts broken stone or gravel.

For the sheathing ship-lap is used, made either of hemlock or pine 6 to 8 inches wide. The details show a groove in the underside of gutters and wall plates



Eaves Plate—Concentric Style

is hinged to the header and in bottom ventilation the sash is hinged to the ridge. Details for both kinds are given. It is largely a matter of individual preference among growers which is used, but for vegetables, carnations and the hardy plants top ventilation is mostly preferred, while bottom ventilation is usually used

for roses and such tender plants. Unless continuous ventilation is desired and ordered we would suggest that one row of glass be run to the ridge between each sash, thus giving a chance for the swelling of the sash to be taken up, also this arrangement admits of a freer circulation of air than is the case in continuous ventilation, as there is an opening at the end of each sash instead of only at the ends of the continuous row. The ventilating sash should preferably be as near 7 feet as the width of glass will permit, otherwise they will require too many lifters if small, or become unwieldy if much larger.

The best and most economical material for the con-

struction of benches is pecky cypress. It is very rough looking and disappointing in its appearance, but being made of all heart cypress without sap has the lasting qualities of the best grade, and its pecky condition (which looks something like worm holes and decay) really is an advantage, as it aids in draining and does not impair its use for the purpose. All heart cypress for bench supports are almost everlasting.

Two systems of construction at the eaves are in general use. One furnishes a gutter to conduct the water away; the other allows it to drip, but at the same time protects the side walls. Details of both are shown, the latter being the simpler and less expensive.

Bungalow Framing Details With Estimate

DESIGN AND CONSTRUCTION OF A TYPICAL BUNGALOW CORNICE WITH EXPOSED RAFTERS—HOW THE COSTS SHOULD BE FIGURED

By I. P. Hicks

THE bungalow style of building requires special designs and details of finish in order to carry out the work in a style that will be in harmony with the plan and general design.

The bungalow must have its extra-wide cornice to give it the bungalow appearance, and the rafter ends must also be of good material and dressed up smooth so that they can be properly finished. And, above all, it is always interesting to the contractor to know how to figure the cost of construction. There is probably no better way to figure a cornice than by the lineal foot, for if we have a plan it is comparatively easy to find the lineal feet of cornice required to cornice the building; then, if we know the number of square feet of some kinds of lumber and the lineal feet of other kinds, it is easy to arrive at either the cost of the material or the labor or both as may be desired.

First, we will estimate the value of the lumber per lineal foot of cornice. The projection of the cornice is 3 feet from the inside of the building. It is quite convenient as well as economical to make the plancher of 7/8-inch flooring, nailed on to the rafters with smooth side down. The flooring should be either 5/4 or 3 1/4-inch face.

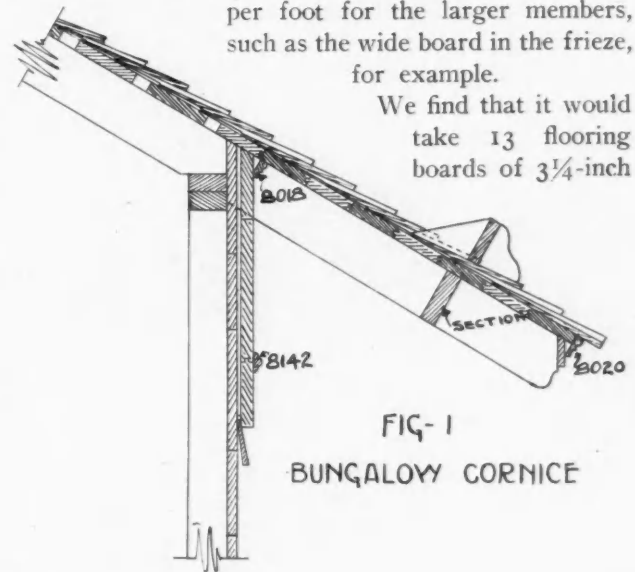
This cornice will require a plancher 3 1/2 feet wide. Counting the amount of lumber lost in the matching of the boards and allowing for some waste in cutting, it will require 4 square feet of flooring per lineal foot of cornice, which at 4 cents per square foot would be 16 cents. The combined width of the frieze and fascia is about 2 1/2 feet, which at 4 cents per square foot would make 10 cents per lineal foot of cornice. Summing the matter all up we have the cost as follows:

Plancher	\$0.16
Frieze and fascia10
Molding, No. 8142.....	.01
Molding, No. 8018.....	.01 1/4
Molding, No. 8020.....	.01 3/4
Total	\$0.30

Thus we see that the material, figured at \$40 per thousand, is worth 30 cents per lineal foot of cornice.

Now for the labor part estimated as near as possible at 40 cents per hour. To get at this in a practical manner it is about the best way to figure by the lineal foot at so much per member, charging a higher rate per foot for the larger members, such as the wide board in the frieze, for example.

We find that it would take 13 flooring boards of 3 1/4-inch



face to make up the plancher; we will put these in at 1 cent a foot for each board, making:

Flooring boards	\$0.13
Molding, No. 8020, per foot01
Molding, No. 8142, per foot01
Molding, No. 8018, which has to be cut in between every rafter, per foot.....	.02
The fascia01
The lower piece of frieze.....	.01 1/2
Upper piece of frieze cut in between rafters...	.02 1/2
Wide part of frieze.....	.04

Total **\$0.26**

Thus we find the cost of labor to be 26 cents per lineal foot.

The gutter on the roof is best to estimate separate on account of there not being any gutter on some

sides; as across gables, for example. For the gutter we have only the back, end pieces and gutter brackets, if any are used. The back piece of gutter would only be worth about 2 cents per lineal foot, and the brackets about 1 cent each. The labor of putting in the wood work could be figured at 2 cents per lineal foot, making a total cost of 5 cents per lineal foot for lumber and labor. The lining of the gutter with a good quality of tin will cost about 12½ cents per lineal foot, making

total cost of gutter for material and labor 17½ to 18 cents per lineal foot.

In the construction of the cornice the frieze and bed mold which cut in between the rafters should be put on first, that is before the plancher is, then the latter can be nailed down from the top, making a thoroughly tight job. The board that goes between the rafters should be of just the right width, which is easier than to use a wide board and notch around the rafters.

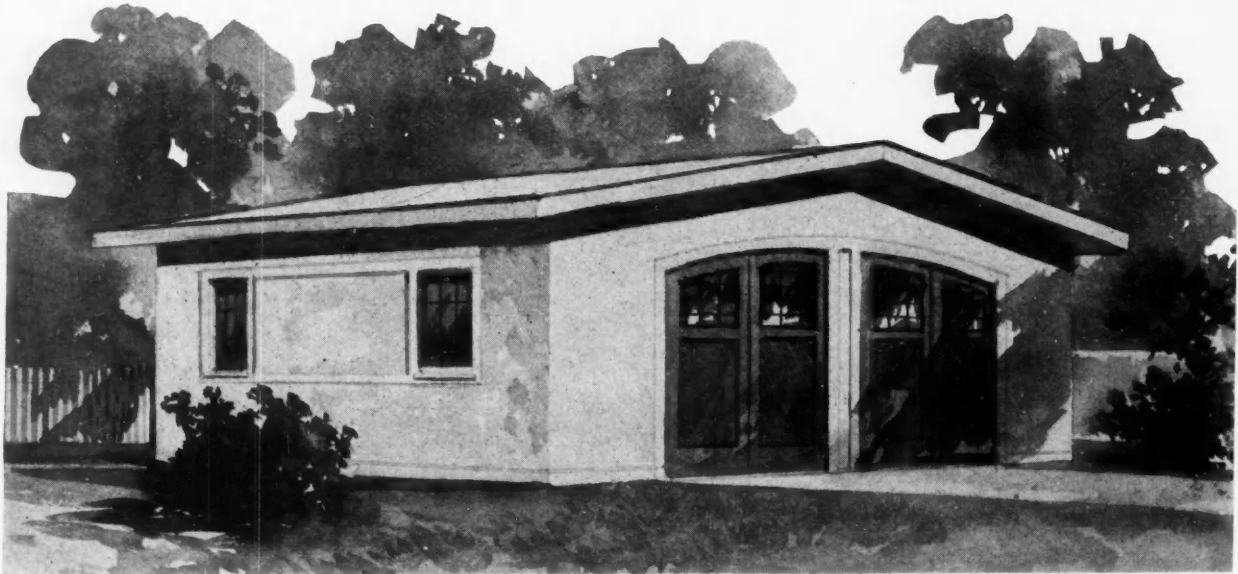
Practical Garage Design

PERSPECTIVE AND FLOOR PLANS OF A PRACTICAL GARAGE OF VERY NEAT DESIGN AND OF A SIZE MOST FREQUENTLY DESIRED

THE accompanying design shows a garage, or automobile house, of a type very popular in the suburban towns. It is simple in arrangement and design, and so is inexpensive to build, yet it is

walls and ceiling matched beaded ceiling over tarred building paper; floor, cement; and roof, shingles.

In size this garage is 30 by 24 feet. This is large enough to accommodate two large cars, with enough



A Practical Artistic Garage

very attractive in appearance.

The material to be used in its construction are: Exterior, cement plaster on wooden lath; interior, side

room to spare to permit of their being overhauled and cleaned.



The Pesky Almanac

Hayrix—Thar be one thing erbout them 'ere pesky almernacks I can't understand.

Mrs. Hayrix—What be that, Hiram?

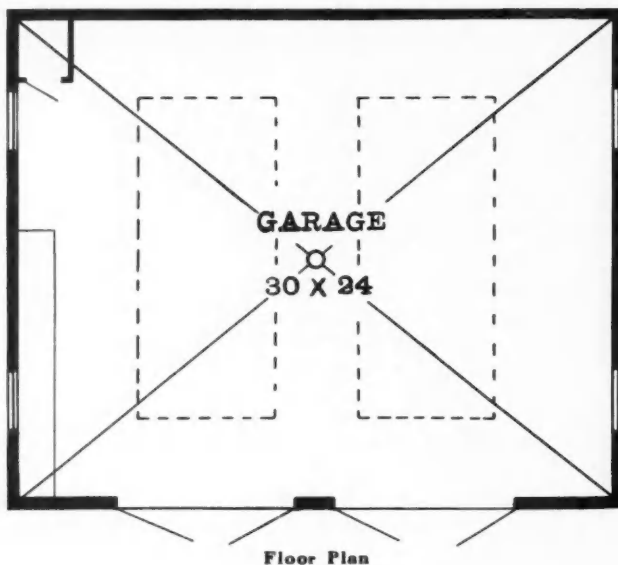
Hayrix—Why'n tarnation don't they fix it so we kin hev a moon on dark nights when we need it, by grass?

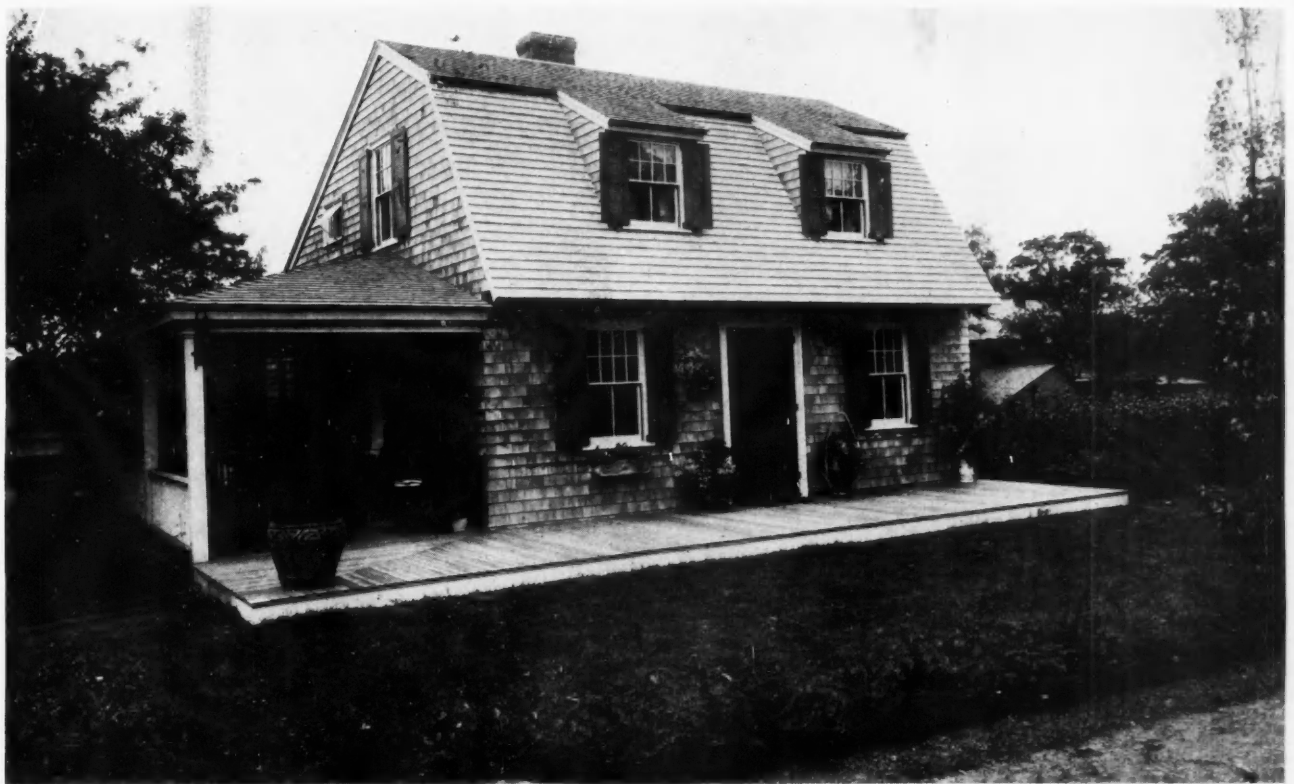


Where He Slept

A prosperous farmer sent his son to New York to begin life as a clerk. After he had been in the metropolis for six months the farmer wrote the merchant to ascertain how his son was getting along and where he spent his nights. In due time the merchant sent a reply to the farmer which read:

"Your son sleeps in the store in the daytime. I don't know where he spends his nights."—*The Circle*.





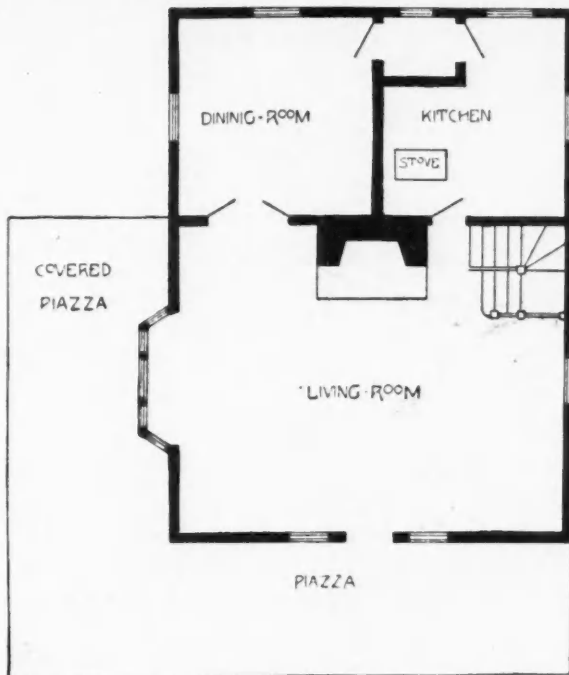
A Beautiful Summer Cottage

PHOTOS OF BOTH INTERIOR AND EXTERIOR, TOGETHER WITH FLOOR PLANS OF A VERY ATTRACTIVE, WELL-DESIGNED SUMMER HOME

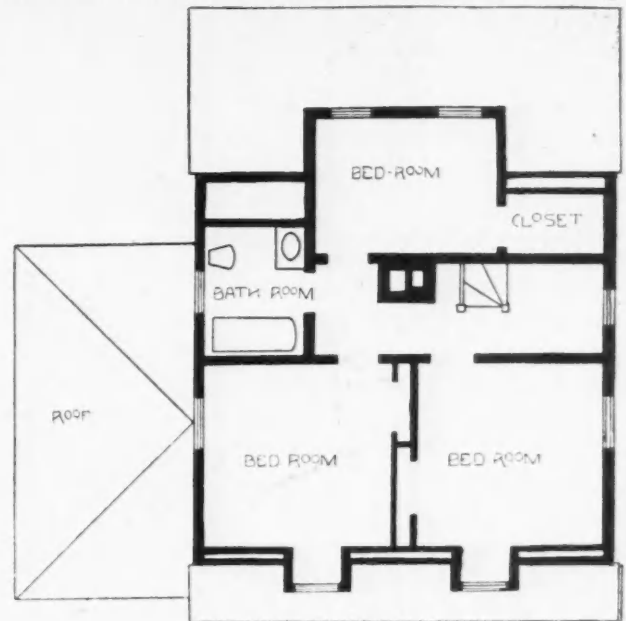
AT MAGNOLIA, in Massachusetts, is located the interesting summer home of Miss M. L. Bradford, which was designed by Messrs. Everitt & Mead, architects, of Boston. In appearance it strongly resembles the Colonial type of New England farmhouse. It stands back some little distance from the highway in the midst of sloping lawns, and

against a background of fine old trees. The exterior finish is of shingle, left unstained.

A broad, uncovered veranda extends across the entire front of the house, and it connects at one end with the side veranda, which is roofed over. Large



First Floor Plan



Second Floor Plan

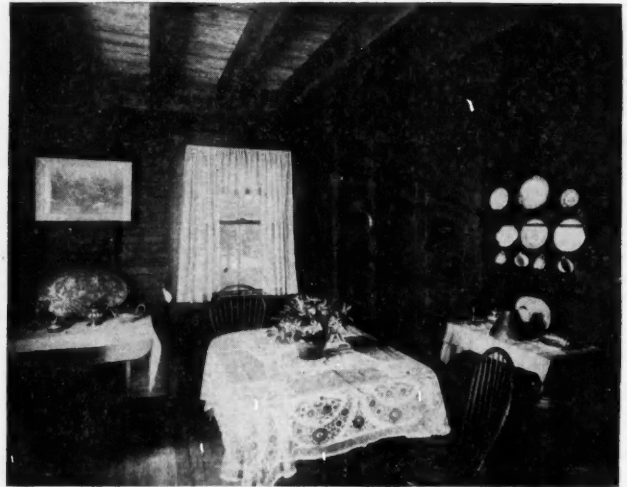
tubs of foliage plants and boxes filled with pink geraniums are placed at intervals about. A low hedge of Japanese barberry outlines the front lawn, and great clumps of shrubbery are planted at one side.

The interior finish is of cypress, planed, and stained a dull brown; no sheathing is used. The floors are all of polished hardwood.

The entrance door opens directly into the living-room, a cosy apartment, which connects at one end with the dining-room and kitchen. A massive fireplace, constructed of red brick laid in white mortar, occupies a prominent position at one side. To the right of the fireplace a flight of stairs ascends to the second floor, and just beneath is arranged a roomy clothes closet concealed behind curtains. A bow casement window at one side of the room overlooks the side veranda and commands an extended view of the main highway.

On the second floor are three chambers, a bathroom and linen closet, and in addition each room has a clothes closet and a set of drawers built into the wall under the sloping roof.

At present the house is suited only to summer occupancy, but it could easily be made an all-the-year-round home. The sloping ground at the rear of the house would permit of the construction of a cellar, or one could easily be built under the whole structure. With the walls plastered, a furnace installed and storm windows put on, the house would do for the winter.



The Dining Room

Following is the estimated cost:

Lumber	\$800.00
Carpenter work	600.00
Painting and staining.....	150.00
Hardware	100.00
Plumbing	250.00
Brickwork	100.00
Total	\$2,000.00



The Living Room Showing Stairway



The Living Room Showing Casement Windows



The Covered Porch—Bradford Cottage



Summer Porch Furniture

FULL INSTRUCTIONS WITH WORKING DRAWINGS SHOWING HOW TO MAKE A SET OF CHAIRS AND A SETTEE FOR PORCH USE

PORCH furniture should be light of weight so that it can be moved in and out of doors as occasion requires. As far as possible the ordinary glue-joint construction should be avoided so that should sudden rains be blown upon it no great damage shall be done due to unusual swelling and subsequent shrinkage. Of course it is possible to go to extremes in this respect and build pieces so rough and rugged that they are suggestive of the barn or factory rather than the house. The accompanying designs show a fair proportioning of the two types of fastenings.

These pieces have seats of wood with slats interspaced for ventilation and properly shaped for comfort.

Whatever finish is used a water-proof final coat should be applied. Plain red oak is an appropriate wood and may suitably be finished with a dark Flemish stain and filler followed by a dull finish.

For the arm chair order the following:

	No.	Thick,	Wide,	Long,	
	Pcs.	In.	In.	In.	
Front verticals	2	$\frac{7}{8}$	$3\frac{3}{4}$	$27\frac{1}{2}$	S-4-S
Back verticals	2	$\frac{7}{8}$	$4\frac{3}{4}$	$34\frac{1}{2}$	S-4-S
Bases	2	$\frac{7}{8}$	$4\frac{1}{4}$	$26\frac{1}{2}$	S-4-S
Side rails	2	$\frac{7}{8}$	$3\frac{3}{4}$	$24\frac{1}{2}$	S-4-S
Front rail	1	$\frac{7}{8}$	$3\frac{3}{4}$	$21\frac{1}{2}$	S-4-S
Back rail	1	$\frac{7}{8}$	$3\frac{3}{4}$	$19\frac{1}{2}$	S-4-S
Back rails	2	$\frac{3}{4}$	5	$19\frac{1}{2}$	S-2-S
Back rail	1	$\frac{3}{4}$	$7\frac{1}{2}$	$19\frac{1}{2}$	S-2-S
Arms	2	$\frac{7}{8}$	$5\frac{1}{4}$	25	S-2-S
Braces under arms.....	2	$\frac{7}{8}$	$2\frac{1}{2}$	7	S-4-S
Seat	7	$\frac{3}{4}$	$2\frac{3}{4}$	$20\frac{1}{2}$	S-4-S
Cleats	2	$\frac{7}{8}$	$\frac{7}{8}$	21	S-4-S

There will also be needed sixteen wood bolts, with nuts and washers $\frac{1}{4}$ inch by 2 inches, and four machine bolts $\frac{1}{4}$ by 3 inches.

Begin work on the verticals. Since the front ver-

ticals can have their top ends cut to the proper slant after the parts are assembled, begin the measurements for length from the bottom and leave the top ends until ready to fit the arms. The rear verticals are to be shaped as indicated in the drawing. The lower ends of both front and rear verticals are sloped slightly to make them harmonize with the curves of the bases.



Next prepare the bases. These shapes are rather unusual and it may be well to make paper patterns or templets of thin wood to be used in laying them out.

The side rails are plain except the front ends, which are rounded. These are to be $\frac{7}{8}$ by $3\frac{3}{4}$ by 24 inches, with the $\frac{1}{4}$ -inch bit bore the holes for the bolts which are to fasten the sides together. Bolt together the two sides of the chair.

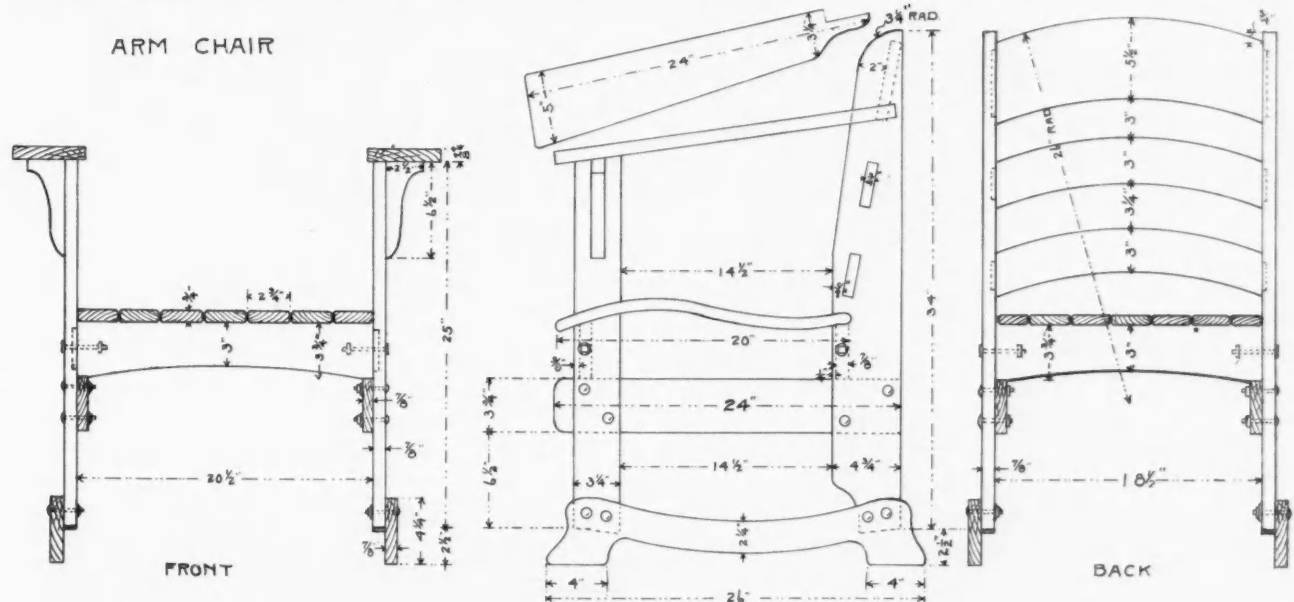
Slope the arms as shown in the drawing and fasten them in place after having cut the tops of the front verticals to shape. To get this slope, hold the arm at the proper angle and alongside the verticals at the proper height and mark under the arm upon the vertical with a pencil or knife. Dowels and glue are to be used to fasten the arms to the verticals. The position of the chair arm is somewhat out of the ordinary,

the idea being to give the arm of the occupant an easy position away from the body.

It should be noted that the front end of the arm of the chair is not cut at a right angle to the inside edge

as the ones to be draw-bolted, are to be thoroughly glued and clamped.

It will be noted that the top edges of the front and back rails are to be beveled so that the seat slats shall



of the chair as are most chair arms, but is cut at an angle such as will bring the front edge parallel to the front of the chair.

Shape the braces and fasten them in place under the arms, using dowels and glue.

Now prepare the rails for front and back. The front rail is to be $3\frac{3}{4}$ inches wide at the ends, the lower edge being curved at such a radius as to give 3 inches at the middle of the piece. The corresponding rear rail is similarly shaped. Its length, however, is only $18\frac{1}{2}$ inches between the posts while that of the front is $20\frac{1}{2}$ inches. This difference in length will necessitate cutting either the sides of the mortises or of the tenons of the front and back rails at a slight angle, also the shoulders of the tenons.

The tenons to be used on these and the rest of the back rails are what are known as stub tenons. Since the thickness of the pieces into which they enter is only $\frac{7}{8}$ of an inch, these tenons can be only about $\frac{3}{8}$ inch long.

Cut the tenons and mortises; then shape the edges of the back rails. These rails are curved on the edges only—they are not curved the flat way as are most chairs. The radius for each is 26 inches. The tenons might have been cut after the curves were shaped. However, by laying out the curves, then cutting the tenons before the curves no confusion as to the proper location of the tenons need arise.

The front and back rails to which the seat is to be fastened are to be secured to the verticals by means of draw-bolts, the 3-inch machine bolts being used for this purpose. The boring for the nuts that are to enter the rails will be done on the inner surfaces of the rails, of course. The rest of the tenons, as well

fit them properly, also the top edges of the cleats.

These slats are shaped by steaming the wood, then clamping them to forms previously worked to the desired shape, as shown in the drawing. Fix up a steam box as follows: Nail four pieces of boards together so as to make a steamtight box of a size sufficient to take in the slats to be shaped. Close one end of the box, boring a hole in it large enough to take in the

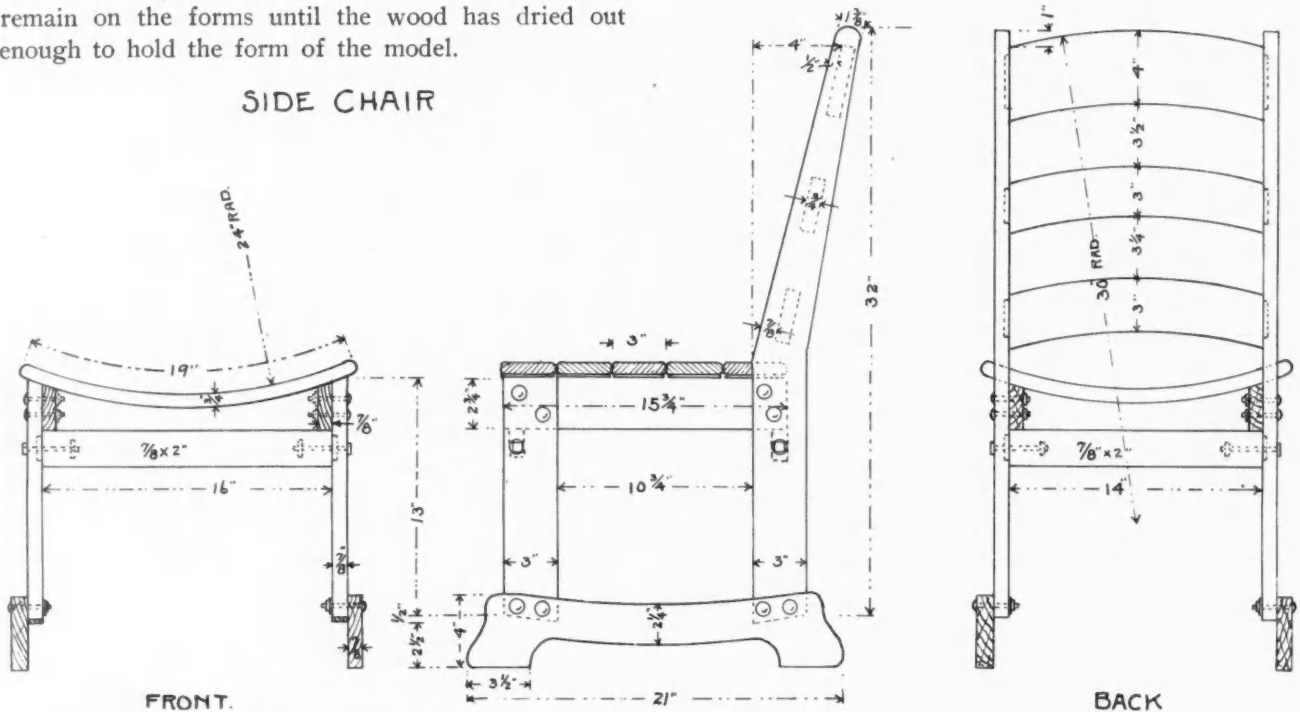


end of a piece of iron pipe or a garden hose. Put the pieces in this box, connect the box to some steam-producing vessel—a tea kettle would do—using a piece

of hose, and stuff rags in the open end of the box. Allow the pieces to remain until they are thoroughly saturated with moisture and are pliable, then take them out and clamp them to the forms. Allow them to remain on the forms until the wood has dried out enough to hold the form of the model.

the front and back rails. The sides of the chair are assembled first, then the back and front rails glued up, and finally the seat is put on.

SIDE CHAIR



Thoroughly scrape and sandpaper all the parts preparatory to applying the finish. The bottom pieces are made fast to the cleats and these in turn fastened to

The Settee

The settee which is shown is so similar in the manner of its construction that no additional drawing is needed for it. The ends of the settee are exactly like those of the chair. The length of the front rail is 41 inches, measuring from the inside of one post to the inside of the other. The back rail is 39 inches long from inside to inside. Fourteen slats will be needed for the bottom. The back horizontals and the cleats to which the seat is to be fastened must be made correspondingly longer. The curvature of these back rails is of the same radius as for the chair for the same length of horizontal. The intervening part of the horizontals is straight, as will be seen in the picture.

MILL BILL FOR THE SETTEE.

	No.	Thick,	Wide,	Long,	
	Pcs.	In.	In.	In.	
Front verticals	2	7/8	3 1/4	27 1/2	S-4-S
Back verticals	2	7/8	4 3/4	34 1/2	S-4-S
Bases	2	7/8	4 1/4	26 1/2	S-4-S
Side rails	2	7/8	3 3/4	24 1/2	S-4-S
Front rail	1	7/8	3 3/4	42	S-4-S
Back rail	1	7/8	3 3/4	40	S-4-S
Back rails	2	3/4	5	40	S-2-S
Back rail	1	3/4	7 1/2	40	S-2-S
Arms	2	7/8	5 1/4	25	S-2-S
Braces under arms	2	7/8	2 1/2	7	S-4-S
Seat	14	3/4	2 3/4	20 1/2	S-4-S
Cleats	2	7/8	7/8	42	S-4-S

Bolts as for the arm chair will be needed.

The Side Chair

The construction of the side chair is along the same lines as the two just described. The proportions are

different and the seat is put on differently. The radius of the seat slats is 24 inches. They are fastened to the chair rails by means of small-headed nails. These heads are set below the surface of the wood slightly and the holes are to be filled with a putty colored to match the finish.

No rocking chair has been described in this set of porch furniture. The manner in which either the arm or side chair can be made into rockers is very evident, the making of rockers and their substitution for the present bases accomplishing this result. The bolts which fasten the bases to the verticals make it possible

to change from one kind to another quickly.

MILL BILL FOR THE SIDE CHAIR.

	No. Pcs.	Thick, In.	Wide, In.	Long, In.	
Front verticals	2	$\frac{7}{8}$	3	14	S-4-S
Back verticals	2	$\frac{7}{8}$	6	33	S-2-S
Bases	2	$\frac{7}{8}$	$4\frac{1}{2}$	$21\frac{1}{2}$	S-2-S
Side rails	2	$\frac{7}{8}$	$2\frac{3}{4}$	16	S-4-S
Front rail	1	$\frac{7}{8}$	2	17	S-4-S
Back rail	1	$\frac{7}{8}$	2	15	S-4-S
Back rails	2	$\frac{3}{4}$	5	15	S-2-S
Back rail	1	$\frac{3}{4}$	6	15	S-2-S
Seat	5	$\frac{3}{4}$	3	20	S-4-S

The bolts needed are the same as for the other chair.

Pressed Steel vs. Cast Iron Radiation

A PAPER PRESENTED BEFORE THE AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS AND DISCUSSING A SUBJECT OF MUCH INTEREST TO BUILDERS

By Ray D. Lillibridge

NOTWITHSTANDING the obvious advantages of sheet-metal radiation in the way of reduced weight, reduced space occupied, facility of handling, and ability to withstand, without injury, the freezing of contained water, there prevails in some quarters the general impression that this new form of radiation also possesses inherent defects which render it unworthy of consideration as a substitute for cast-iron radiation. This impression is due, perhaps, in no small measure to the adroitly conducted "Campaign of Discouragement" that has been directed against this new thing—as comprehensive and systematic a campaign as was ever directed against any innovation, the advent of which threatened the commercial supremacy of the interests occupying a chosen field.

Such opposition and obstacles are not unusual. It was so with the railroad, with the automatic harvester, with the telegraph, the telephone, etc. It was so with steel itself. Benjamin Huntsman, the inventor of the process that produced the world's steel up to the invention of Henry Bessemer, found difficulty in introducing his product in his own country, owing to the conservatism of the Sheffield cutlers, who "perversely declined to work a metal so much harder and denser than any to which they had been accustomed, so that he was compelled to introduce his product, which was destined to revolutionize steel making, through a foreign market."

But, as in the case of those great inventions, it is also to be expected that the hindrances put in the way of the new form of radiation will be ineffective in the end; since anything of the kind of genuine merit, if properly exploited, cannot long be prevented in this age of progress from coming to its own. Now that this particular new thing has survived the vicissitudes of the experimental stage, and has entered upon a career of commercial success, it may prove advantageous to point out the fallacy of some of the arguments advanced against it. A permanent record of the discussion of the subject may also be of value for future reference.

The durability and efficiency of the new form of radiation have been assailed particularly. Dire predictions have been made as to the short life of the thin steel walls of the pressed radiation as compared with the thick walls of the cast-iron type. Ominous comparisons have issued, of which, perhaps, the one most often heard is that likening the pressed radiator to the steel kitchen boiler, which has proved to be comparatively short lived. Finally, on the subject of efficiency, ignoring the more than compensating virtue of a thin metal wall versus a thick one, capital has been made out of the theory that steel has a slightly lower radiating power than iron.

If we are going to discuss the vulnerability of steel to the corrosive impurities of water in radiating systems, one has but to refer to the steel nipple connecting the sections of the cast-iron radiators, which are located in the direct path of all circulation, to call to attention that the cast-iron chain is no stronger, at the point of its weakest link, than steel. The screw nipple used between sections of cast-iron radiators is of much smaller cross-section, especially after threading, than the 20-gage (16-gage after galvanizing) steel radiator. As for push nipples, these as regards durability are about on a par with the walls of pressed radiators, except that the many that have come under the writer's observation were either not galvanized at all or the galvanizing was decidedly scant. Or, why not refer to the steel pipe connections, which are similarly weakened by threading (Fig. 1), but which are as integral a part of the radiator system as the radiators themselves? In both the screw nipples and pipe connections, not only is the material pared down, but the galvanizing, if any, is removed by the threading; so that these elements are far more liable to be eaten away than is the continuous, well-galvanized sheet metal of the pressed radiator.

Consider further the small quarter-inch pipe commonly used with vacuum systems and compare the thinness of the wall of this quarter-inch pipe, especially after cutting the threads, with the thickness of the

pressed radiator wall. Moreover, it is seldom that these pipes have any interior protective coating. Think of the trouble that would arise with vacuum systems if these little pipes should fail from corrosion. As this consideration seems to arouse no anxiety, is it logical to condemn on the same score the pressed radiator?

It is safe to say that a very small proportion of the pipe used for connecting radiators is really wrought iron, although "wrought-iron pipe" is usually specified. Although Mr. T. N. Thomson's paper before this society last January has led to much discussion, no one has questioned his observation that of the samples sent to him from all over the country of "good old wrought-iron pipe," 80 per cent. proved to be steel. At the recent Atlantic City meeting of the American Society for Testing Materials, Professors Howe and Stoughton outline corroborative testimony of a most convincing character. Incidentally, Mr. Thomson's

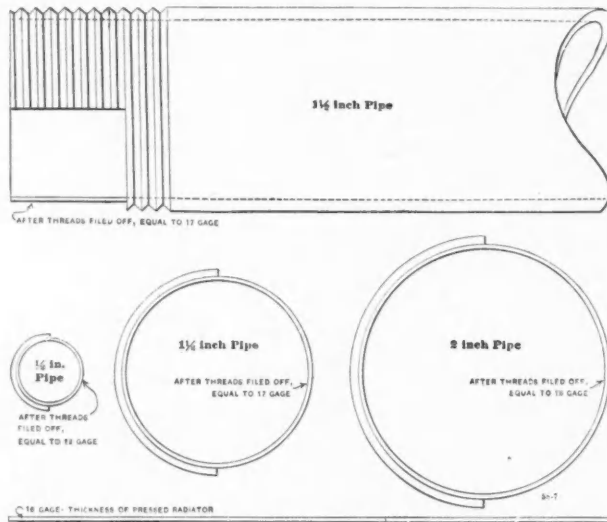


Fig. 1. Pipe Thicknesses Compared with Pressed Radiator Wall

tests, concluding that steel withstands better the corrosive impurities of water than wrought-iron, are more than substantiated by Professors Howe and Stoughton's conclusions. I beg to quote you just a paragraph from the latter. The italics are mine:

"It is found that * * * *the wrought-iron skelp, though from the best makers, pitted in seven months much deeper than the steel did in thirteen months.* It seems to us that the fairest way is to confine our attention to the deepest pit in each plate, because, as has well been said before this Society, if there is a hole the water will run out, no matter how much the pipe weighs. Using thus the deepest pit in each piece, as a basis of comparison, in our tests *the steel pitted very much less than the wrought-iron.*"

The comparison of the pressed radiator with the kitchen boiler for durability is particularly inconsistent for the reason that the very service of the kitchen boiler insures that the water is constantly changed, and the effect of any contained corroding agent is thereby multiplied thousands of times as compared with the corroding effect in a closed-circuit radiating system. Moreover, the majority of kitchen boilers are

made of inferior grades of steel, and actual investigation has shown that the galvanizing they receive upon the inside is often of the proverbial "lick-and-promise" type; whereas pressed radiators are made of the very best open-hearth sheets, low in phosphorous, carbon and sulphur, and *after manufacture* are galvanized with a coating of 4½ ounces of zinc to the square

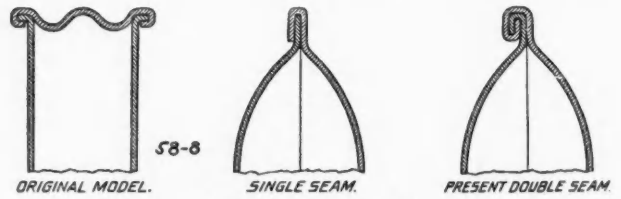


Fig. 2. Vertical Sections at Extremities

foot, increasing their effective thickness from 20 gage to 16 gage.

On the subject of efficiency, the original form of pressed radiation was defective because of the peculiarly shaped top to each section, which interfered with the free circulation of the air and because, in the light of more recent knowledge, insufficient space was allowed between the sections. This peculiarly shaped top is shown in the left-hand illustration, Fig. 2, which is a vertical section of the old pressed radiator. The two right-hand illustrations of this figure show, respectively, a section of pressed radiation with the single seam, and with the double seam as now manufactured, respectively. This improved double seam gives an entirely impervious joint.

As for the maintained superior radiating efficiency of cast-iron as compared with steel, Professor Carpenter, Professor Kent, Professor Allen, Mr. W. T. Monroe, M. E., and the many references quoted by these authorities incline to agree that the differences appearing between the radiating efficiency of various metals are due more to differences in surfaces, differences in size and shapes of the radiators tested, and to different methods of test, than to differences in metal. I beg to quote from Professor Carpenter's "Conclusions from Radiator Tests" (page 112, Heating and Ventilating Buildings):

"The experiments do not show any sensible difference for different materials used in radiators, or for hot water or steam, provided the difference in temperature between the air in the room and that of the fluid in the radiator is the same."

A favorite implication of some of the exponents of cast-iron is that pressed radiation is from "30 to 40



Fig. 3. Cross Section of Two-Column Radiator

per cent. less efficient." The really vital test for any radiation is that of heating the particular room it is designed to heat. The calculating of the appropriate size of radiator from which to expect the adequate heating of a given room is sufficiently standardized so that any type of radiator failing so far short of the

radiating capacity of cast-iron could not continue to live in the heating world. It is conservative to say that pressed radiation continues to live after six years of existence. Is it not, therefore, abundantly clear that the practical differences between the radiating efficiency of steel and iron resolve themselves into mere talking points, and that any references to vague and indefinite tests that show to the contrary should not go unchallenged?

Comparative tests, to be of value, should be conducted by disinterested people and under specified, uniform conditions. It is too often taken for granted that the entering steam is "dry," whereas only calorimeter readings should be considered competent to determine this point. When even under such conditions differences *do* appear, it is well to bear in mind that great differences exist by condensation tests between the efficiency of different types of cast-iron radiation. For instance, I refer to tests conducted by Professor Allen at the University of Michigan, showing a difference of 16 per cent. between two popular types of cast-iron radiators. I have also in mind the test which decided in favor of pressed radiators one of the most important installations of radiators in the world. This test was conducted by a committee consisting of the architect's engineer, the building engineer, the consulting engineers of the builders, and the contracting steam fitter. It is noteworthy that the conclusions reached were not based upon condensation, but upon the heat units conveyed to the atmosphere by the respective radiators under identical conditions.

Judging by various published tables and the extensive adoption of one-inch pipe for radiator service prior to the advent of cast-iron radiators, the most efficient proportion between containing capacity and heating surface of radiation is that of the one-inch pipe, very nearly one pint to the square foot. The average proportion with the steel radiator is just about one pint to the square foot, whereas cast-iron radiators average about 50 per cent. greater. Besides this nearer approach to the ideal proportion of capacity to surface, there is less water and steam and far less metal to raise to the working temperature before effective heating is available, and to remain heated after the discontinuance of heat is desired; so that pressed radiators heat up more quickly when the valve is open and cool off more quickly when the valve is closed than cast-iron radiators. This positiveness of operation becomes an especially valuable consideration when heat is needed only for an hour or so a day—as in the spring and fall, when a little heat is required to take the chill out of the air, and during the mild winters that prevail in certain parts of the country.

Another argument advanced in favor of the cast-iron radiators as against the steel radiator is that the sections of the former possess all the advantages of individual units. For example, if they are broken they can be replaced, or, if it is desired to decrease or in-

crease the size of a given radiator, one or more sections can be removed or added, respectively. The comparative unwieldiness of the cast-iron radiator, and the formidable task of prying apart and pushing together the predominating type of iron radiators having push nipples, however, are material points against the unit argument, which more than offset the advantages. It will usually prove cheaper, cleaner, and quicker, to send for a new pressed radiator than to tamper with the sections of a cast-iron one.

The personal equation, unconscious bias, or mere conservatism naturally enter into any consideration of this new subject as they enter into all others. So, when you hear of failures of steel radiators, it may be well for you to know instances that give testimony on the other side. For example, there are several concerns of heating contractors which have made many large installations of the pressed type of radiator who today declare that they would consider it a great misfortune if they were deprived of this new form of radiation.

As with anything new, more is expected of pressed radiation than of the older types. The same defects or troubles which would condemn the new are accepted as matters of course when they occur in the old. Job for job or radiator for radiator, it will be found to be absolutely true that with the pressed radiators as they are made today no more trouble develops than with cast-iron radiators.

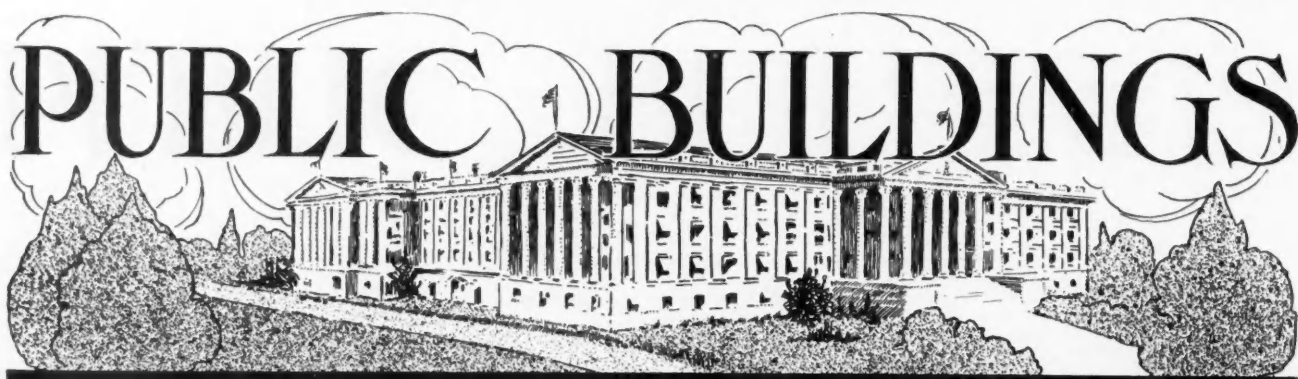
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Copper for Steam Pipes

In a recent lecture before the Institute of Marine Engineers of London, Eng., J. T. Milton, chief engineer of Lloyd's Register, made an interesting declaration on the use of copper for steam pipes. Speaking on this point, he said:

"Copper is valuable for steam pipes chiefly on account of its ductility, its ability to withstand considerable repetitions of changes of form, and its non-liability to rust. Ordinary copper contains a proportion of impurities such as arsenic, bismuth, antimony, lead and other metals, but by electrical deposition it is possible to obtain pure copper. The latter is especially useful for electrical purposes by reason of its high conductivity. Impurities affect the conductivity to a great extent. The presence of bismuth in copper is exceedingly deleterious, one part in 1,000 rendering the copper useless for important works, as at high temperatures its strength is reduced, and the copper becomes very brittle.

"Impurities in copper, when in small quantities, on the whole have a good effect for most purposes, and the recent British Admiralty tests allowed 0.7 per cent for these. In making sheet copper it is cast in slabs and first rolled when hot. Subsequent thicknesses are rolled cold, and the quality of the copper depends to a great extent on the amount of work put upon it in undergoing this process."



Library Building of Unique Design

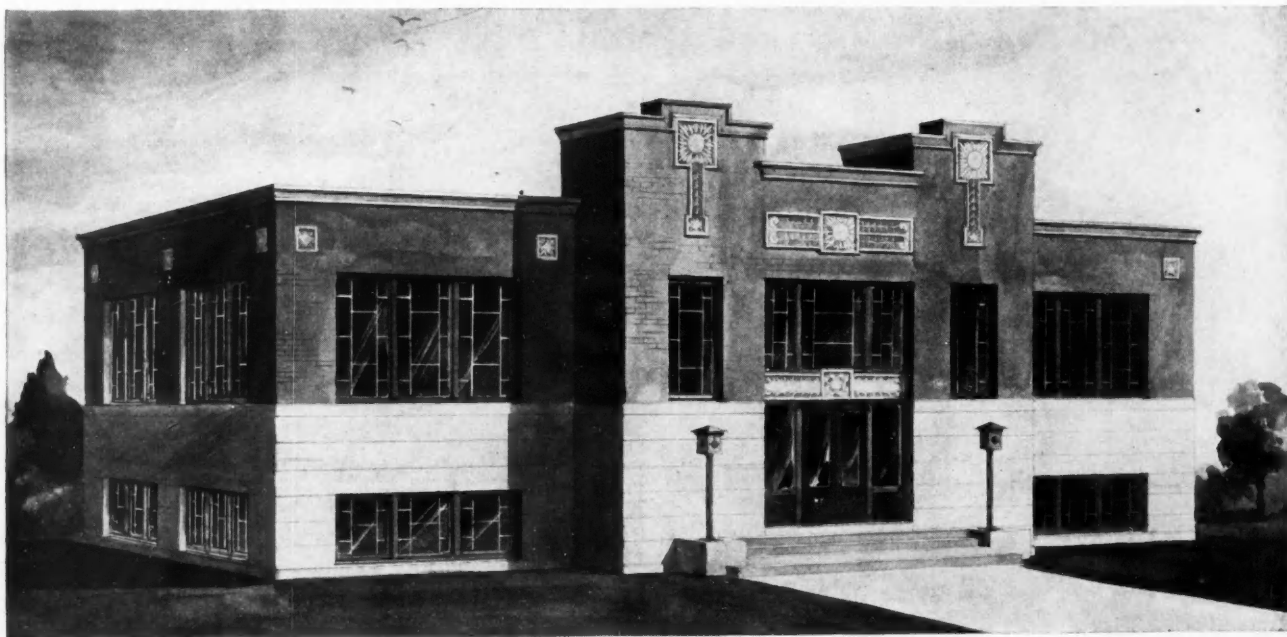
PERSPECTIVE AND PLAN OF AN ATTRACTIVE WELL-ARRANGED LIBRARY BUILDING—A STRIKING EXAMPLE OF L'ART NOUVEAU OR THE STRAIGHT-LINE STYLE

IN RECENT years it has become quite the usual and expected thing for every village and town to have its public library building. In fact, the library has come to rank in the popular mind well up with the public schools as an educator. So village councils appropriate funds for the erection and main-

tenance of this clear and shows other desirable features in the arrangement of this building.

New Method of House Framing

I have been thinking for some time about writing an article for the AMERICAN CARPENTER AND BUILDER,



Pleasing Example of the Straight-Line Style in Library Building

tenance of the public library just the same as for other educational work.

The building itself, which is to house the library, deserves considerable attention. It need not be over large; yet it should be substantially built, and so designed as to be dignified and individual in appearance.

The accompanying perspective and floor plan show a small library building recently designed by Geo. W. Ashby, architect. It is rather striking in appearance, and is a thoroughly good arrangement and design. The materials are smooth-faced concrete blocks, buff colored brick and terra cotta trimmings. The interior arrangement gives a large well-lighted space for book stacks. The floor plan shown on the next page makes

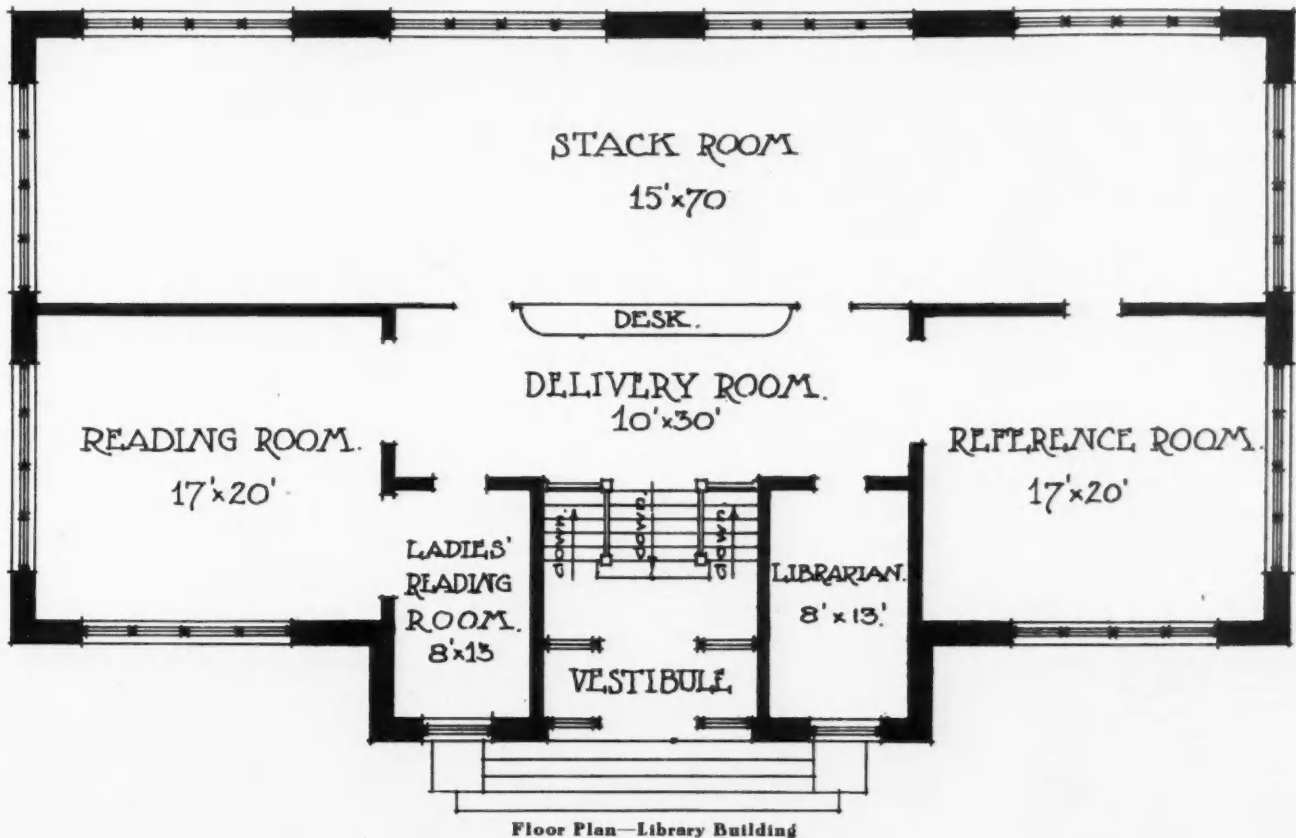
but have been unable to find what I thought would be a suitable subject, but I think I have found it at last and I think that any wide-awake reader of this magazine will readily catch my ideas and absorb the benefits which I am aiming at along this line of construction.

My idea is in the building of a 2-story house, to build one story at a time and thus save material and make the building stronger and better. I, myself, as a carpenter, have worked on all kinds of work, some on which my idea was partially carried out, but where a great deal more material was used than was really necessary.

Now since nearly every contractor has adopted

nearly the same method of construction for the first floor, namely, "putting on joist box sills and laying sheathing floor before raising any of the framework," I will start my article from this point. In most all the work that I ever worked on, the floor plate was first spiked to the floor. I think there is a better way, and that is by laying both bottom and top plate at the same time and then spiking the whole side together, including floor plate, before raising. By so doing the spikes are driven through the floor plate into the

vantages over any other, most of all is the convenience of putting in heat stacks for hot air furnaces. You can bring a stack up between two studding and turn the stack to one side and place a floor register without the least bit of cutting; or if there is a jog between the lower and upper partitions the same will hold good with the exception of cutting the foot plate of the upper partition to place a wall register. All studding set over bearing partitions should run clear down on the plate of the bearing partition and be



studding and thus do away with all that toe-nailing of the studding to the floor plate.

Now then we must deal with the length of the studding. First, it must be considered that all floor joist on the same floor should run in the same direction. All partitions of the first story, both interior and exterior, running the crossway of the floor joists above will be bearing partitions, and must be framed to make the right height for the ceiling; and the non-bearing partitions should be framed the width of the joist higher and thus catch the second story floor, saving a joist and making the floor bear directly upon the partitions. Then on the exterior wall a plate 2 inches wider than the stud should be used, so as to catch the floor past the studs; and on interior walls, that continuing on up should have a plate 4 inches wider than the studs. Let this extend 2 inches on each side of the partition. Then it remains to nail a strip across the studs, to catch the ends of the lath, even with the bottom of the joist.

I think this method of construction has many ad-

vantages over any other, most of all is the convenience of putting in heat stacks for hot air furnaces. Studding set over the longitudinal partitions must be set on top of plate and toe-nailed. If the well hole in a building of this kind comes to the outside wall the exterior wall studding should run up the full two stories.

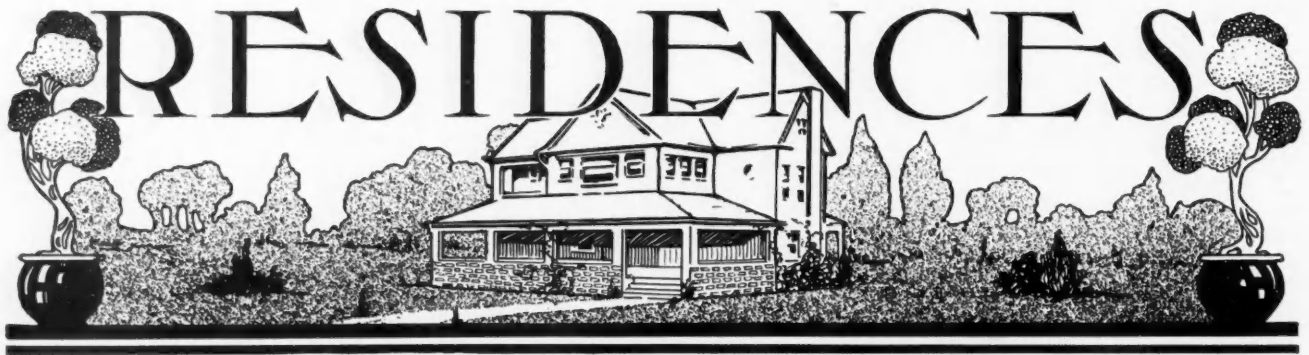
While I believe I have explained very thoroughly my ideas along this line I think that anyone should try this method through on a job. Then he would understand it and would like it so much better that he would never change back to the old way.

W. A. CALDWELL.



Irish Wit

A young member of the House of Commons who had just made his maiden speech sat upon his new silk hat. There were roars of laughter. An Irish member immediately arose and gravely said: "Mr. Speaker, permit me to congratulate the honorable gentleman upon the happy circumstance that when he sat on his hat his head was not in it!"



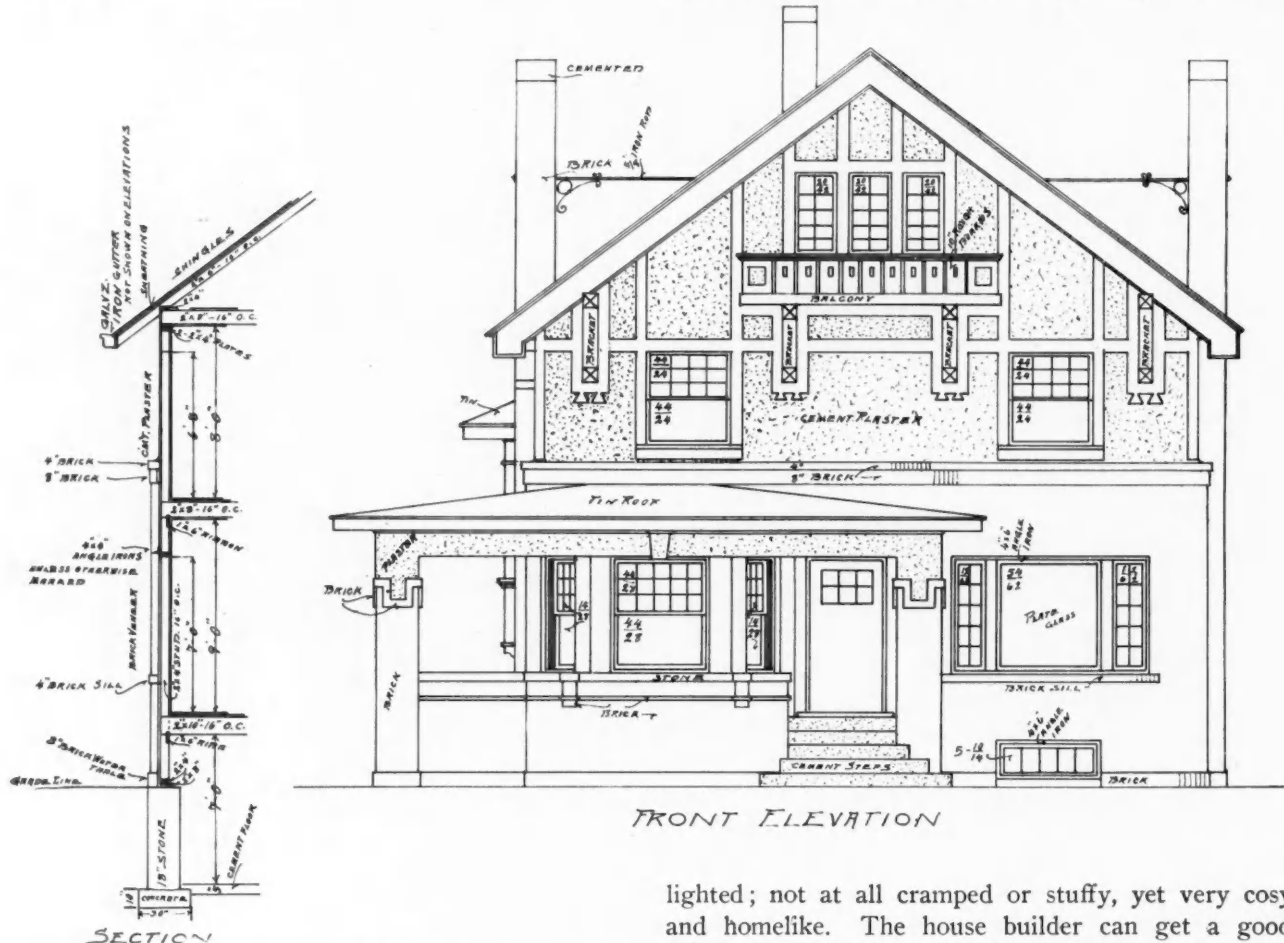
Attractive Modern House Plans

FULL WORKING DRAWINGS INCLUDING ELEVATIONS, FLOOR PLANS, AND DETAILS OF CONSTRUCTION AND FINISH OF AN ATTRACTIVE MODERN HOUSE

WE PRESENT this month a complete set of architect's drawing of a modern 8-room house, just as it was designed and built for Mr. E. C. Brown, of Lake Mills, Wis. These drawings, made to a quarter-inch scale, have been reduced to practically one-eighth inch to the foot. They will be studied with a good deal of interest by carpenters and builders.

bricks used in Mr. Brown's house were the dark brown, dull finished bricks, and the exposed timbers and wood trim of the second story and cornice were stained a similar color. The cement plaster, applied with a rough pebble-dash finish was left the natural gray in color.

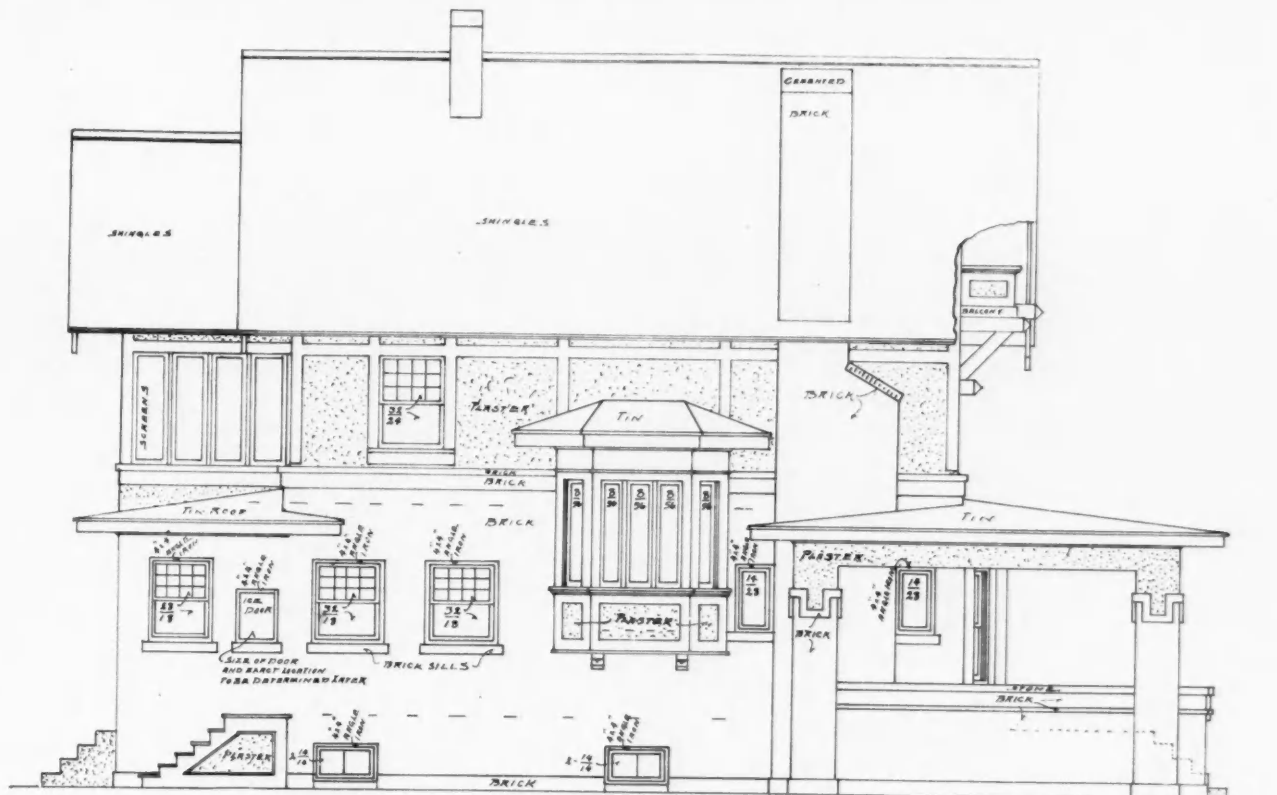
The interior arrangement of this house is all that could be desired. The rooms are large and well-



FRONT ELEVATION

This house is a combination structure, standard wood framing, with 4-inch brick veneered first story and with the second story surfaced with cement plaster and divided into panels with exposed timbers. This makes a very warm and substantial construction and presents a very neat and stylish appearance. The

lighted; not at all cramped or stuffy, yet very cosy and homelike. The house builder can get a good many valuable ideas from these plans concerning the built-in fixtures; cupboards, bookcases, mantels, consoles, closets, etc., which are now so much in demand for first-class residences. The floor plans show where these are located and the detailed drawings show their construction.



SIDE ELEVATION



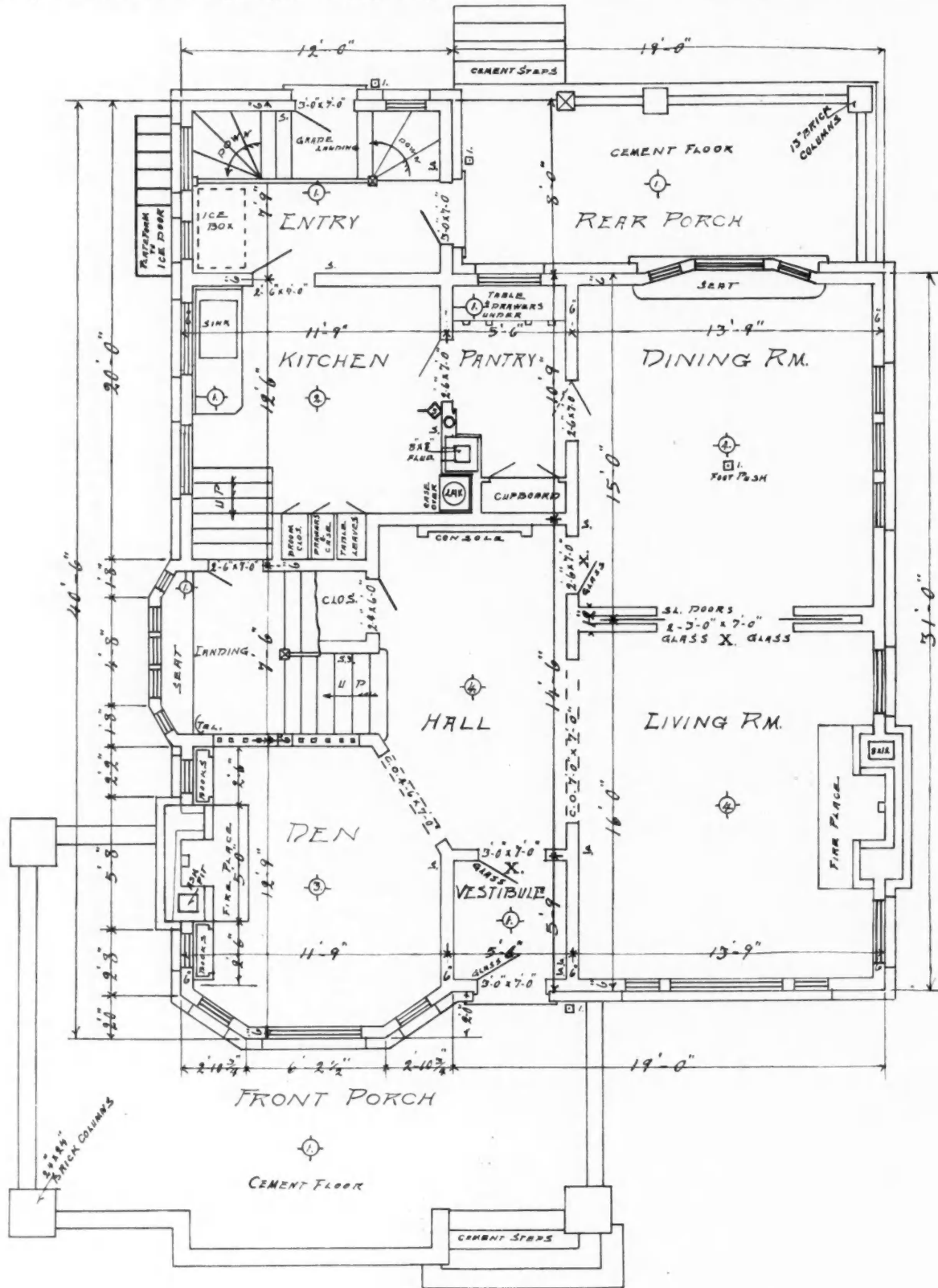
REAR ELEVATION

New Style of House Design

One of the most recent additions to American residence styles and one that is giving much popularity is

residence architecture and home building in general.

The unusual point in connection with the chalet is that it originated in Switzerland and has remained in



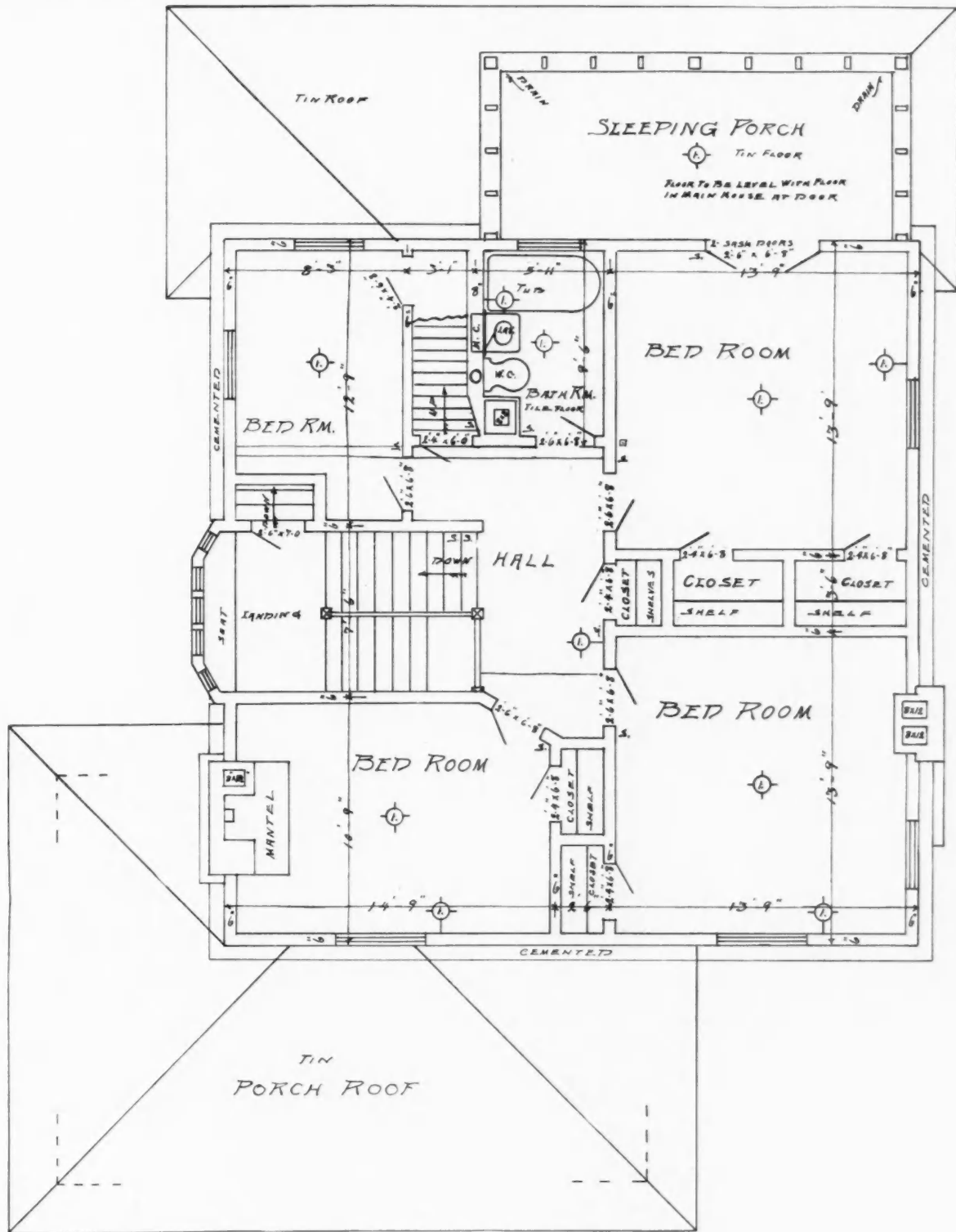
FIRST FLOOR PLAN

the chalet. While it is distinctly a novelty in the United States, it would be wholly incorrect to represent this unique type of dwelling as an innovation in

the prescribed limits of that little republic ever since—or, rather, until the recent date when Yankee architectural explorers discovered its possibilities.

The chalet attains its artistic perfection by the most simple forms of architectural expression. The principal details of construction are emphasized to produce a decorative effect. The floor beams are usually appa-

rent; the chimneys are monumental, and the windows are conspicuous—nothing being in any sense hidden or masked. In other words all the decoration belongs to the building itself; is not added as an



SECOND FLOOR PLAN

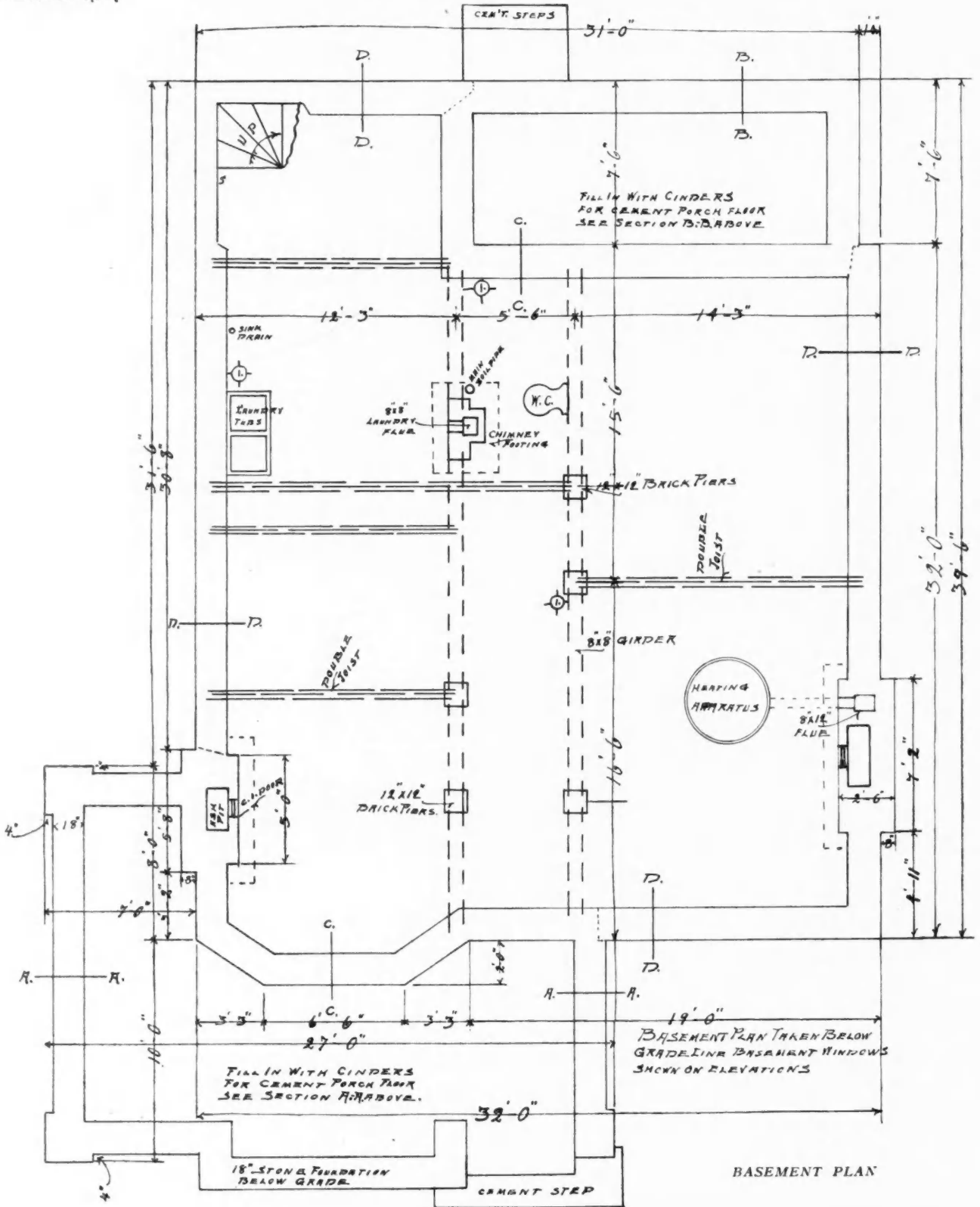
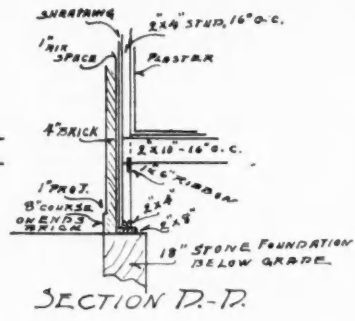
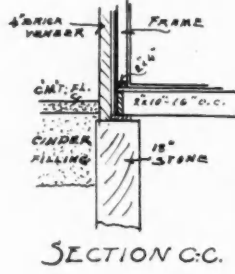
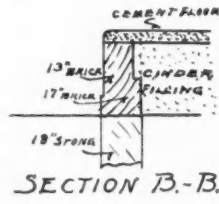
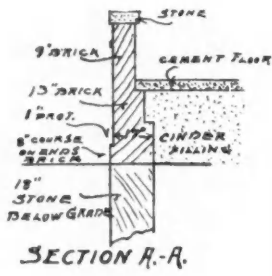
rent, and show the division of the building into stories, and this demarkation is often emphasized by a carved decoration.

Following the same novel architectural policy, the brackets that support the roof of the chalet are enor-

afterthought, so to speak.

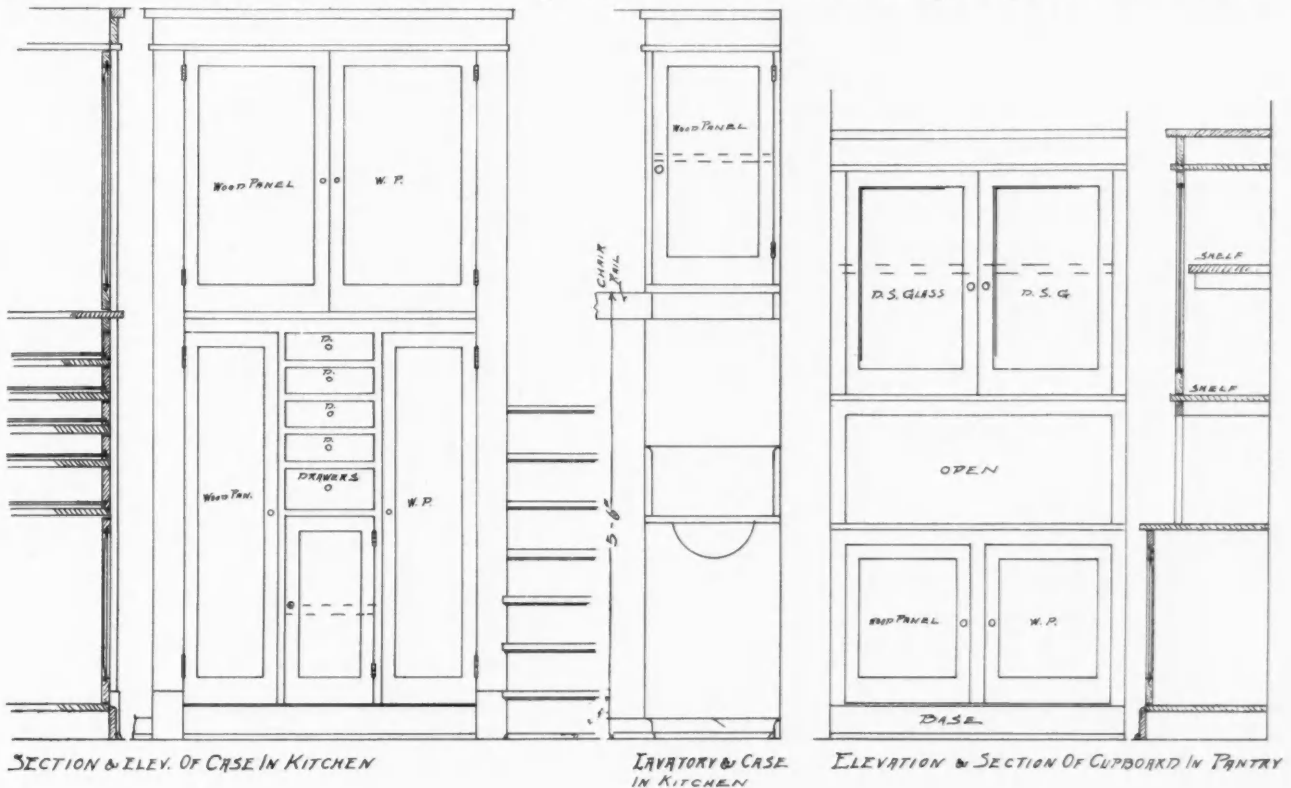
The feature of the chalet which more than any other impresses a person beholding one of these houses for the first time is the distinctive and conspicuous design of the roof. The roof advances considerably on the

DETAIL OF WALLS



front—from 4 to 10 feet in most instances—and on the sides of the house it extends widely. The protection thus afforded induces balconies or galleries

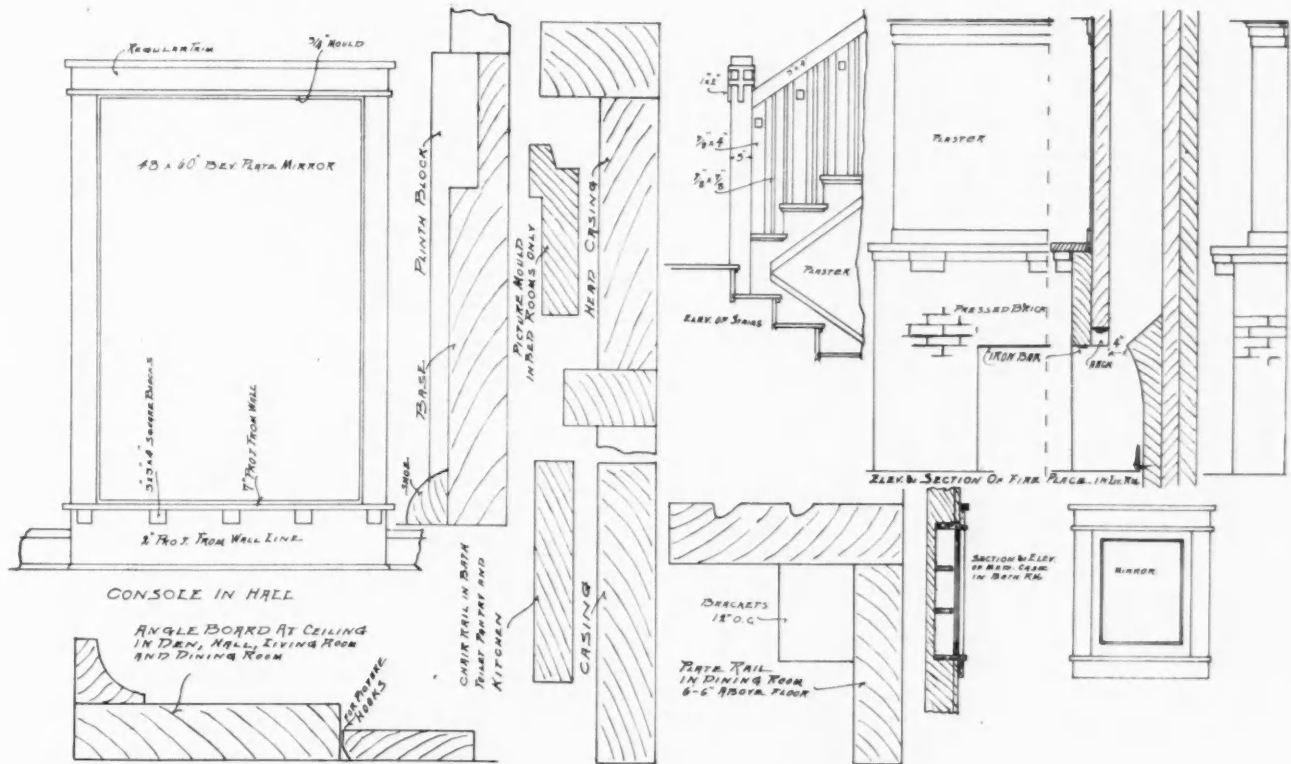
Chalet roofs are of two different patterns, which markedly affect the whole appearance of the individual house. These differing designs of roofs have been



SECTION & ELEV. OF CASE IN KITCHEN

LAVATORY & CASE IN KITCHEN

ELEVATION & SECTION OF CUPBOARD IN PANTRY



Details of Interior Trim

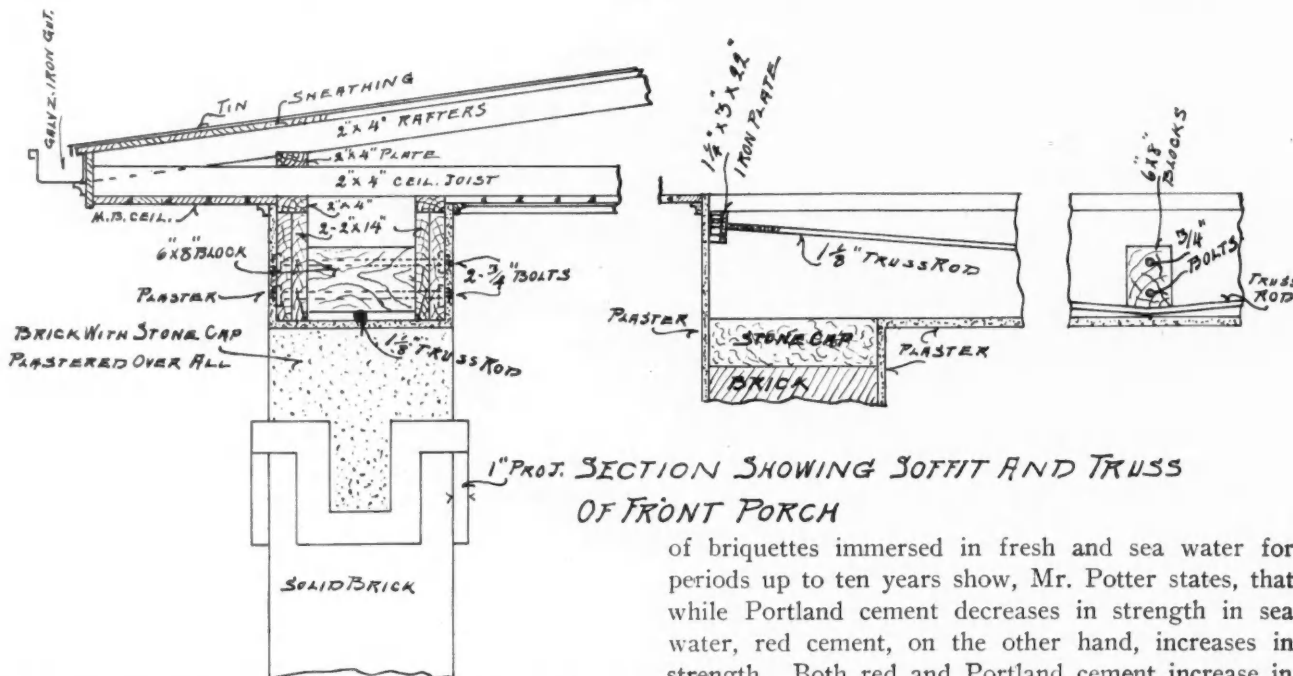
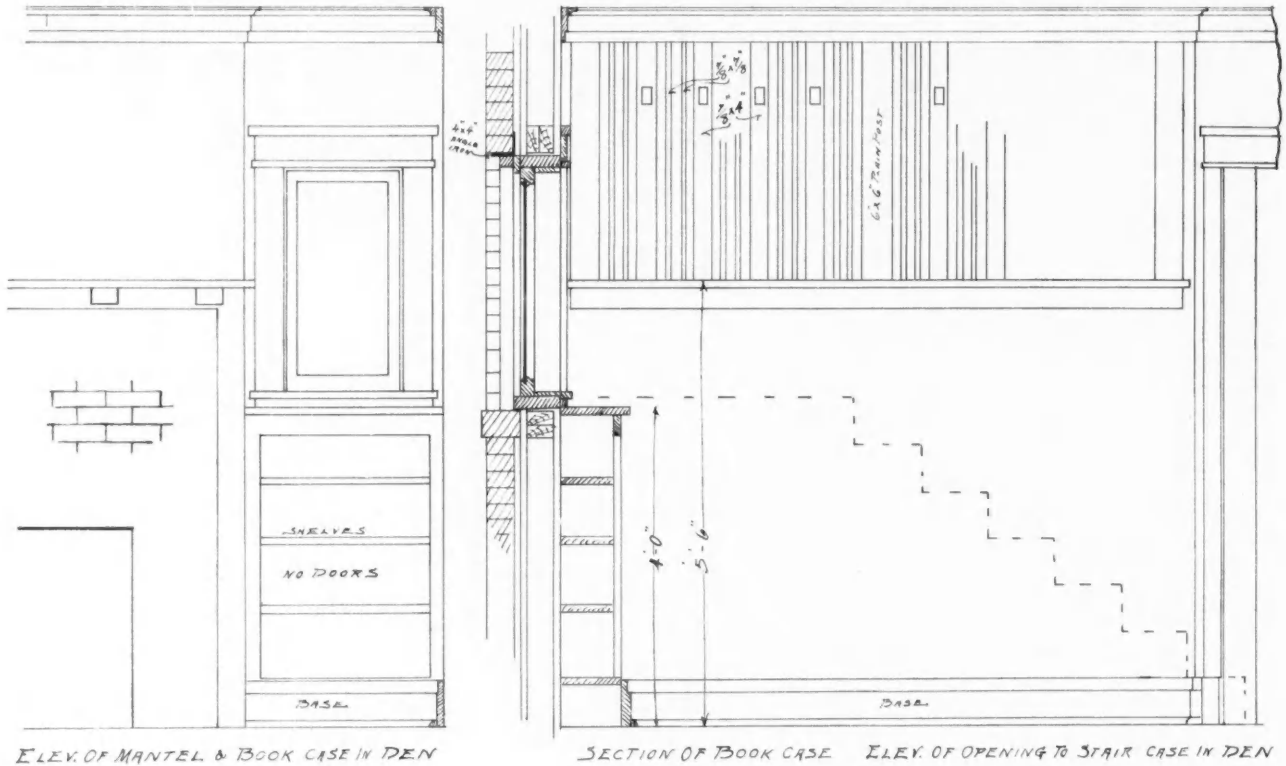
as the natural adjunct of this type of residence. In Switzerland the balconies are on the sides rather than on the front of the house, but in the Americanized version of the chalet the reverse is often true.

adopted indiscriminately in America, but in Switzerland, where they originated, they were adapted to different climates. The high, steep roof was the approved shelter for the chalet of the plains or valleys,

its construction having been planned to allow water to run off rapidly.

In contrast to this is the mountain chalet, designed, originally, for a country where snow is of heavy and

recent issue of the *Journal of the Society of Chemical Industry*. It is made by grinding six parts by weight of calcined red brick clay with ten parts of Portland cement clinker, and is known as "red cement." Tests



of frequent occurrence. This variety of chalet has a broad, low roof, so that the snow may accumulate on it and protect the house from the exceeding cold of the winter. Even in Switzerland, however, these two standard types have been varied infinitely.

A Cement to Resist Sea Water

A cement for resisting sea water was described in a

of briquettes immersed in fresh and sea water for periods up to ten years show, Mr. Potter states, that while Portland cement decreases in strength in sea water, red cement, on the other hand, increases in strength. Both red and Portland cement increase in strength in fresh water, the latter in the larger ratio. Over 5,000 tons of red cement have already been used in sea and fresh water, and the results are said by Mr. Potter to be satisfactory.

An Irishman who fished continuously for forty-nine years, is dead, but the stories he left will live after him, forever.



A Molder for the Small Shop

WILL IT PAY TO INSTALL A MOLDER IN YOUR SMALL WOODWORKING OR CONTRACTOR'S SHOP?—
PRACTICAL CONSIDERATIONS INVOLVED

By W. D. Graves

THE molder, or sticker, is such a useful and all-important machine to the planing mill man, and in our larger woodworking establishments, that the question is frequently up before their smaller brothers of the woodworking and contractor's shops to see if they, too, might not install this machine to good advantage, both to business and to pocketbook.

Now there are, of course, vital considerations on both sides; but let it be said right at the beginning that the molder is a machine which would prove profitable to comparatively few contractors or carpenter-shop men. True, the price of moldings, when compared with the price of lumber, indicates a pretty stiff price for ripping and sticking; but one must consider the cost of the machine, as well as that of the knives and of setting up. As one must have a complete set of knives for, practically, each pattern of molding, one must needs run quite a quantity of each such style before the knife cost becomes negligible; and it doesn't pay to set up for a pattern unless quite a quantity is run at one time. It takes a high-priced man an appreciable time, or a cheap man a long, long time to set up a machine for even the simplest molding.

The writer has often had builders ask him to run a short piece of some odd style of molding—styles for which there was no likelihood of further demand—to be used in repair jobs; but they usually "fade away" when asked to pay a fair price for making special knives. It is usually much cheaper to work such a piece by hand than to make knives and set up the machine for it. If a man cannot be found who has the needful tools and ability, some makeshift had better be resorted to; or the whole of the old work renewed in some stock style. The making of special moldings, to architect's designs, does not usually pay any more than is due to the skill and time required for so doing—scant that, unless the quantity is large. The making of a good molder knife calls for no small degree of skill and time; besides the cost of the blanks.

One is apt to consider the edging pile a basis for the purchase of a molder; but he should beware of giving it too much weight. Edgings, and good ed-

ings, too, have to accumulate very fast, indeed, in order to amount to much as food for a molder. The chances are that the strips are worth more for kindling, and that any attempt to make moldings of them would simply be a very expensive way of depreciating the value of good fuel. The stock for moldings must be of the best—for a slight defect in the strip is apt to be a mighty big one in the finished molding—and an attempt to work up defective stock, with a view to cutting out the defects, is sure to be expensive economy.

For those who have sufficient outlet for the product, however, there is perhaps no more profitable machine than a molder; but, as the machine represents quite an initial investment, and requires considerable power, one should be reasonably sure of that outlet before investing. When one gets a molder he is getting into machinery "as is machinery"; and it behooves him to "bally well know" what he is about, before he invests.

Even more than is the case with other machinery, one must be on his guard against getting a molder too light for the work. Weight and rigidity, even where their necessity may not be plainly apparent, are well worth while. In the molder we have several cutting members which, to use a printer's term, must "register," and any spring, jar or give is practically sure to be detrimental to the work. I say several cutting parts, because it is assumed that no one will think of buying a machine to work less than four sides; unless for some special form of work. Also, one doesn't want any "old trap," "almost as good as new;" for, however delightful it may be to tinker one up and make it do good work, it doesn't pay. Some men can do pretty good work on very "bum" machines; but, as a general rule, they don't earn their salt while doing it. At the same time they are making themselves worse insurance risks than Indian fighters, and with no pension in prospect.

It is beyond the scope of this article—if not beyond the ability of the writer—to give even approximately adequate instructions in the use of a molder. The man who installs such a machine should figure on employing a *competent* man to run it, and on paying him the price of highly skilled labor. Such a man must not

only be well informed as to the practice of machine operation generally, but he must know how to lay out and grind knives. It would be well, too, that he should know how to temper them, and have a forge for that purpose; for "the village blacksmith" is unlikely to be good at tempering now-a-days..

Of course any man of mechanical bent can soon learn to set up a molder, and under average conditions it takes no very high order of skill to run it. On the other hand, to set up quickly and to run the machine with the greatest economy of time and material, under all conditions, requires as much talent and training as any trade, in the old time sense of that term.

A molder must have ample power in order to do at all pleasing work, and the manufacturer's statement of the power requirements of his machine may usually be doubled without any serious danger of getting too much. It is quite essential to the accomplishment of good work that the speed be high and constant. In order that it may be so, one must have sufficient power to drive dull knives through the toughest and most ill-prepared stock. It is not meant by this that one should run dull knives, nor be careless in the preparation of the stock, but that he should have reserve power enough to cover emergencies. He should, of course, make these emergencies as rare as possible.

Good work can be expected only from sharp and well fitted knives, firmly and correctly set on a well-balanced and close-running head. From the nature of the work the knives must often project quite a distance, causing a severe strain on them, and on the bolts which hold them. As a knife or nut hurled from a cylinder making several thousand revolutions per minute, is apt to cause acute irritation of any part of the human body in which it may find lodgment, it is the best of policy to keep them strictly confined to their proper places. In order that they may be so kept they must be of the best; and should be placed by a man of judgment and "know how." There is a certain subtle sense of touch, incapable of designation except by the terms "know how" or "feel" (and they would designate it only to the initiated) which warns one when a bolt is as tight as it may be without over strain. This sense one must have before he can safely operate a molder, for the bolts will be called upon to hold all that is possible for them. Also, one must know how to have the knives fit the face of the cylinder accurately and closely; for, if there is the slightest opening between them, the shavings will drive in sufficiently to break the strongest bolt that can be used. There is room for the exercise of a deal of judgment and skill in the setting of knives to the best advantage; judgment and skill attainable in a high degree only by considerable study and practice.

Volumes might be written, and have been written on the operation of molding machines, and the tyro

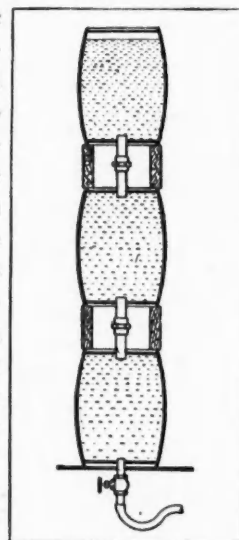
should, by all means, read as many of these as may be before attempting to run one. If such reading is supplemented by lessons from a practical operator, so much the better. One may "pick up the trade," but that is sure to be an expensive way to acquire it. A molder, when one has the market for its product, is a valuable machine; but it is not one well calculated solely to work up odds and ends, or to occupy the spare moments of the hired man.



Fire Protection For Mill

A correspondent writing in the *American Miller* tells of a fire-fighting arrangement which could be used in many wood-working shops to very good advantage. A miller taking charge of a mill noticed piled up with the scrap in the basement an accumulation of fifteen or twenty oil barrels. These were in a

condition to invite a fire in the near future by spontaneous combustion. Permission was granted to make use of these barrels to reduce the fire hazard. All barrels were tested to make sure they would hold water and then three were placed one upon the other, putting two 4-inch blocks of wood between them, and connecting the barrels with 2-inch gas pipe, making a water-tight connection between the three barrels. A set of three barrels was placed in each corner of the upper story of the mill. A pipe with a valve and proper connections for a garden hose was fitted



Barrel Water Tower

in the bottom end of each lowest barrel. A hole was bored through the floor and a hose attached for use on the floor below. This gave ample pressure for protection from fire in its first stages, and is a long way ahead of pails and one barrel of water. Where a slight pressure can be brought to bear on an incipient fire, it soon can be brought under control.



Just in Time

A German shoemaker left the gas turned on in his shop one night, and upon arriving in the morning struck a match to light it. There was a terrific explosion, and the shoemaker was blown out through the door almost to the middle of the street.

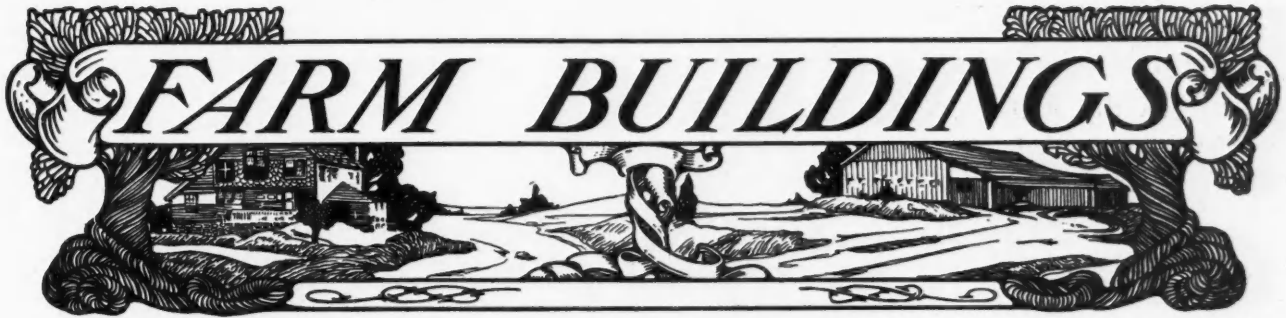
A passerby rushed to his assistance and, after helping him to arise, inquired if he was injured.

The little German gazed in at his place of business, which was now burning quite briskly, and said:

"No, I aindt hurt. But I got out shust in time, eh?"



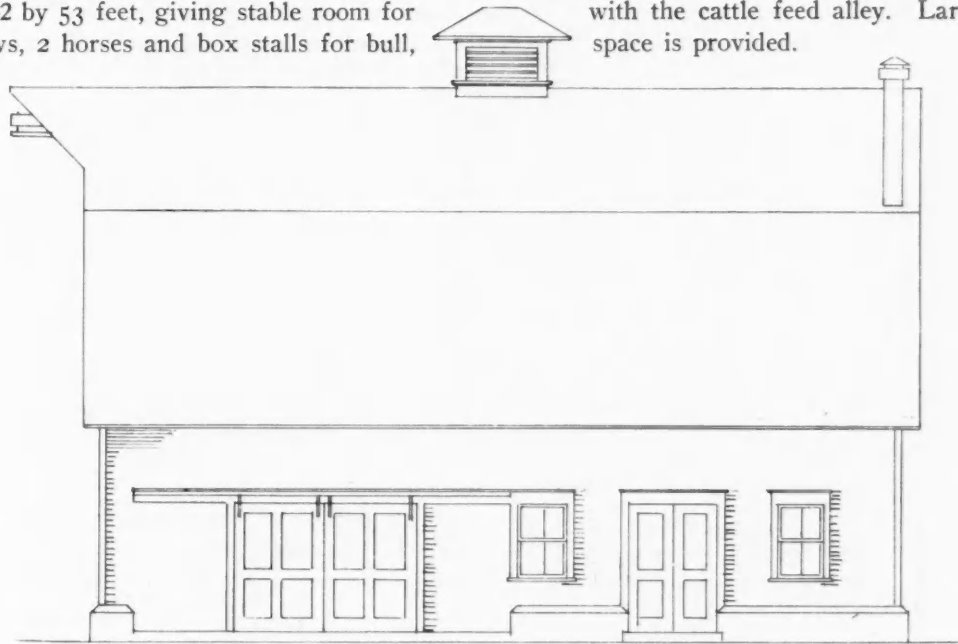
It takes a live fish to swim upstream. Any old lobster can float down.



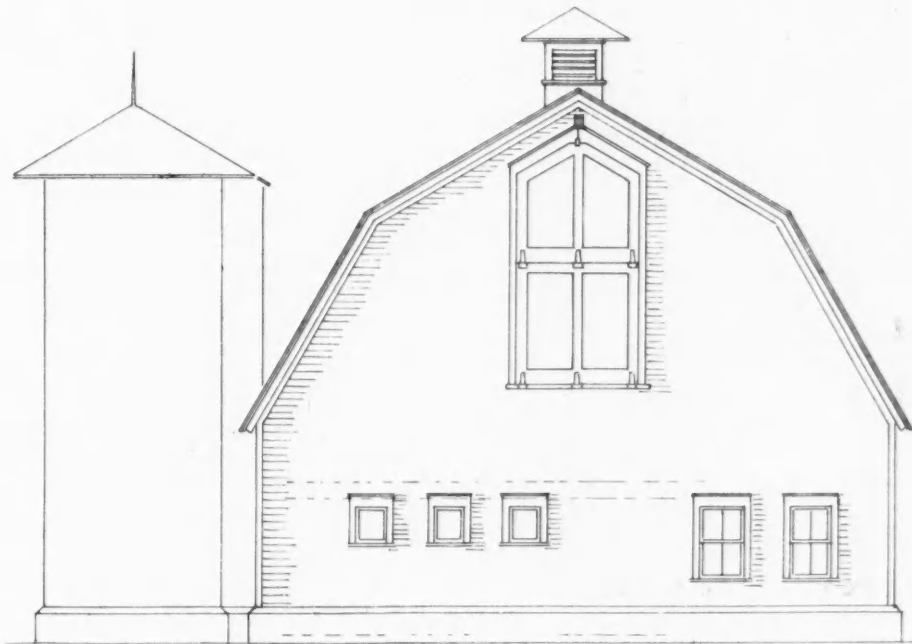
Small Dairy Barn

FULL DRAWINGS OF WELL-LAID-OUT DAIRY BARN OF SMALL SIZE SHOWING INTERIOR ARRANGEMENT AND SIZES OF THE DIFFERENT PARTS

PLANS for a very neat and serviceable dairy calves, etc. There is also good space for wagons, barn are shown herewith. It is a gambrel roof implements, feed, etc. There is a silo connected with the cattle feed alley. Large hay storage space is provided.



West Elevation

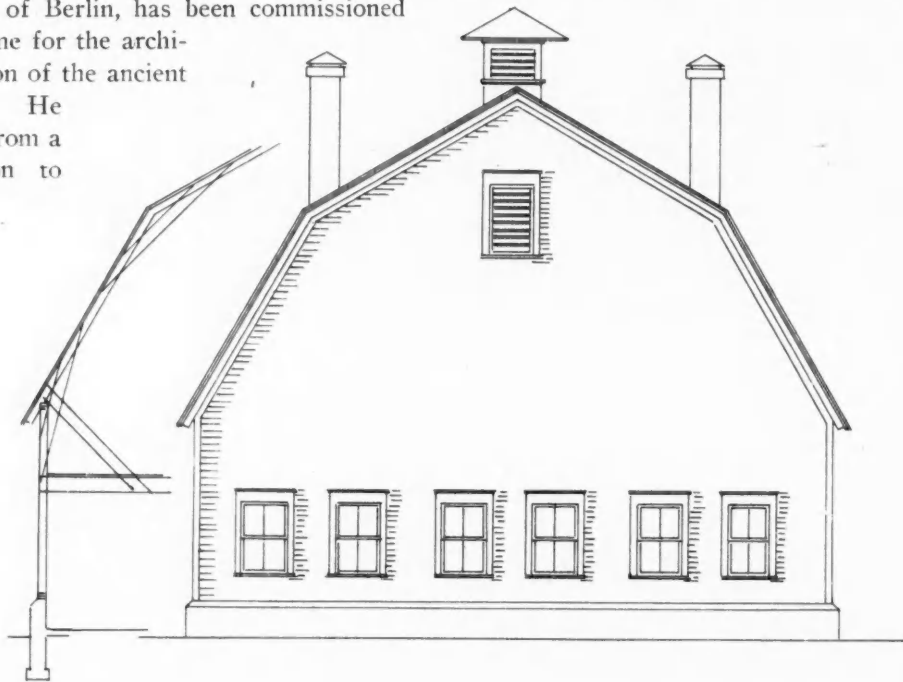


North Elevation

Athens to Be Remodeled

Athens, historic capital of grace and beauty, is to be remade in Germany. Herr Ludwig Hoffman, architect of the city of Berlin, has been commissioned to map out a scheme for the architectural regeneration of the ancient Greek metropolis. He has just returned from a visit of inspection to Athens.

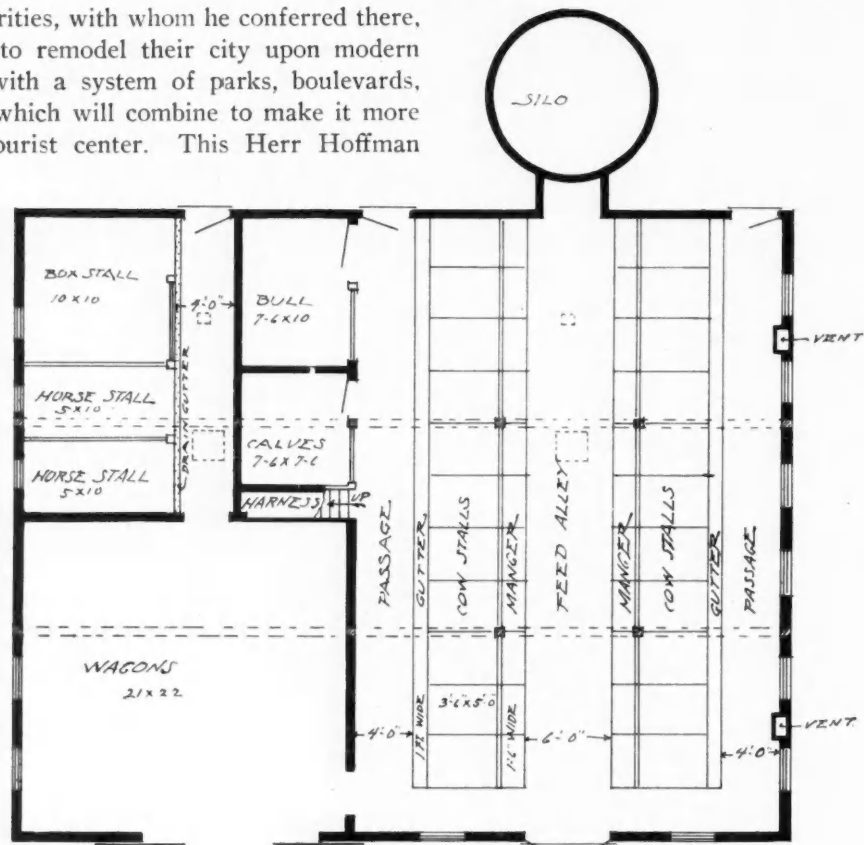
frowned was what he describes as a "bizarre, fantastic creation, designed to perpetuate Greek heroism"—a design for a monumental statue submitted by an Italian



SECTION

South Elevation

The local authorities, with whom he conferred there, appear to desire to remodel their city upon modern European lines, with a system of parks, boulevards, public buildings, which will combine to make it more attractive as a tourist center. This Herr Hoffman



Floor Plan—Exterior 42 by 53 Feet

hopes to accomplish, while still retaining the best examples of ancient classic architecture, of which Athens contains a multitude.

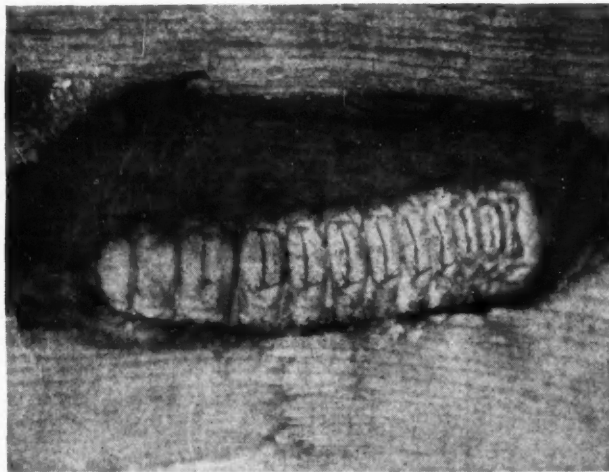
One of the projects upon which the Berlin builder

sculptor. Although the design has already received first prize from the Athens municipal council, Herr Hoffman hopes to induce them to abandon the idea of erecting it.



Rocky Mountain Timber Worm

To the Editor: Florence, Mont.
 An item printed a short time ago, in regard to the ravages of worms in west coast timber, recalls a life size photo which I took of a similar, if not the same, worm, found in some dead timber in the Rocky mountains. This worm, to one not versed in entomology, looks the same as the smaller one which is common wherever pine grows; but it is as large as a man's finger.
 Although I have not been able, as yet, to prove the connection, the bug which appears to be its probable progenitor



A Smallish One

and ultimatum is a nocturnal one, in evidence in the early summer months. It is nearly as large as a small bat—nearly as long, but much more slender—and has a couple of antennae like small darning needles built into the upper part of its head. It looks as though it might be a cross, in miniature, between a bat and a Texas steer. They are often quite plentiful in the pine woods of a June night, and fly about as if with no object but to butt against something; like an animated and sportive rubber ball. One awakened, for the first time, by their striking against his tent, and seeing their moon-cast shadows on the canvas, might easily be pardoned for pulling his head under the blankets.

I once enclosed one in a stout mailing case and directed it to a friend in the east. My friend notified me that he got the case, empty, with a large hole gnawed in it. At about the same time a news item stated that a mail clerk, running into Boston, had suddenly died of heart failure. I hope that there was no connection between the two incidents; but, if that bug appeared to that young man on the morning after a convivial evening, I'm afraid that I was indirectly responsible for his death. The bug is harmless, except to dead pine timber; but an unexpected first view of it might well be debilitating.

W. D. GRAVES.

Wood vs. Metal Lath

To the Editor: Henderson, Ky.
 Noticing the inquiry of W. H. Benson about the best way

to plaster the outside of his house, I would warn him against the use of wood lath. I had an out-building plastered that way and in less than two years had to do it over again as the cement became loose in places and in other spots I found the lath had rotted away. The lath we buy now is all sap and bark, and absorbs moisture like a sponge. I used expanded metal lath the last time and think I will have no further trouble as I heard of a job of that kind which is in good condition after being up for nine years. I used some lime on first coat, enough to make a paste.

G. W. EDGERLING.

Framing for Cement Roof

To the Editor: Ohlman, Ill.
 I wish a little advice if you please; I am going to build a building 32 by 60 feet, 24 feet high, out of concrete blocks; would like to put concrete on same if it can be done. Will 2 by 12, set 16 inches centers, 16 feet long, well bridged, carry a 3½-inch concrete roof with ¼-inch fall to the foot? Any information will be appreciated.

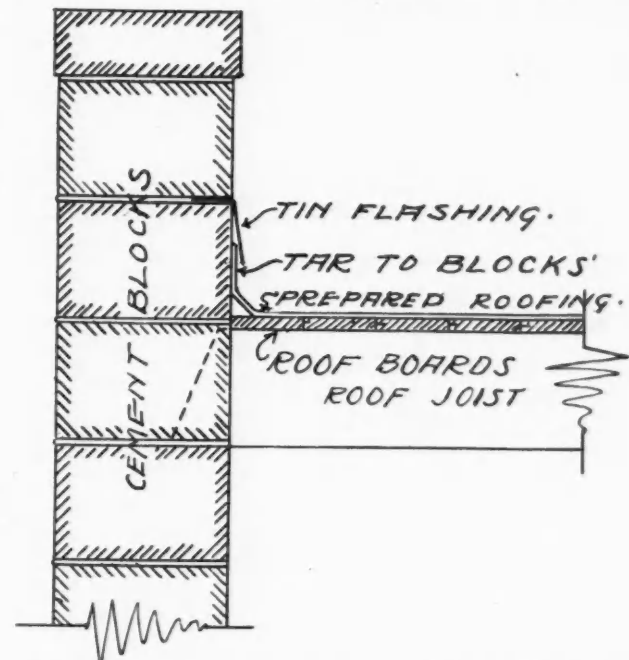
S. W. BAXTER.

Answer: Rafters 2 by 10 inches set 16 inches on centers and 16 feet long, if well bridged, will be strong enough to carry a 3½-inch concrete roof. We would think, however, that a roof 2½ inches thick would be sufficient.

EDITOR.

Prepared Roofing and Blocks

To the Editor: Hickman, Neb.
 Find enclosed plan of the front of Geo. Broekema's new furniture store, which I have drawn according to my own



ideas. It was to be a wooden structure, 48 by 70 with 16-foot ceiling; but now it will be a cement block building. The roof is to be nearly flat, covered with a prepared roofing.

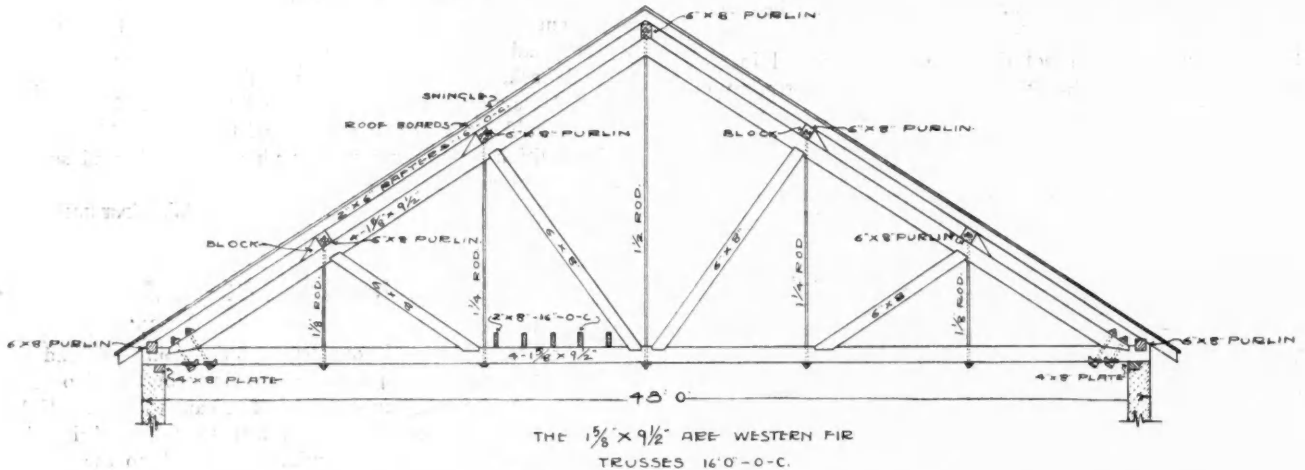
How would you properly construct the part of the walls which extend above the roofing to keep it from leaking?

J. E. OFFER.

Answer: The roof should be flashed at the fire wall with tin flashing as per the enclosed drawing. EDITOR.

Proper Truss Construction

To the Editor: Breckenridge, Minn.
I am sending you a rough sketch of a roof truss; I beg of you to let me know if the timbers are strong enough for this size span to carry the ceiling and a shingle roof.
JACOR REDLINGER.



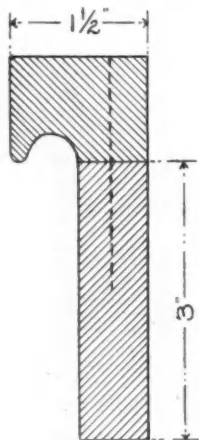
Answer: The timbers of your truss seem to be sufficiently strong, but we have made a change in the size of the rods and have used a different method of setting the purlins from that shown in your sketch. The attached is a sketch of the truss as it should be constructed. EDITOR.

apprentice. He sent the boy to the shop to make a straight edge. The boy not getting back as soon as the man, or boss, expected, he went to the shop to see what was the trouble. The boy was working at the straight edge; but a few steps away was a young lady sitting on the front steps. In sighting along the edge of the board he would see the young woman. So he said to the boss, that he could not get the board straight. So the boss took hold of the plane, and sighting along the board he saw the young lady. Realizing the difficulty the boy had encountered he said to the boy, "You straighten that board if it takes all day!" then went back to his work and left the boy to straighten the board. So I will say to Mr. Taylor, in order to be a skilled workman

requires study, thought, neatness, energy, promptness. ROBERT I. MILLIKIN.

For Square Planing

To the Editor: Canyon City, Ore.
I have been a subscriber to the AMERICAN CARPENTER AND BUILDER for several years and think it is the best magazine published of its kind.



Would like to tell C. H. Taylor in July number, how I plane the edges of boards to make them square with the sides. I make a gauge, like this sketch, out of inch lumber and about 8 inches long. After nailing the 1 1/2-inch strip on top I square it up with the plane and try-square. By holding this under your jointer you will get good results and also save lots of time.

M. DEXTER.

Good Advice

To the Editor: Waynesburg, Pa.
In reply to Clarence H. Taylor, who wants to know how to plane the edge of a board square; the first thing to do is to place the board firmly on work bench and then with mind and eye fixed on the board, before you (your attention must be on what you are doing) use a try-square to help. Put your plane in good order; it must not be out of order or you can not joint true. In case you fail the first trial try again until you are sure you are right.

This reminds me of a story of a man who had a boy

Arrangement for Jib Head Frames

To the Editor: Allentown, Pa.
In answer to A. H. Baird, I send the following sketches, showing section through head of window frame for a brick wall, with box head for lower sash to slide up. The slide B will be pushed up along with sash to top of box.

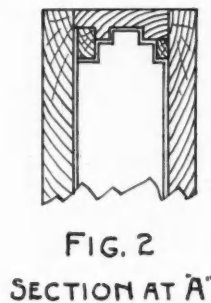


FIG. 2 SECTION AT A"

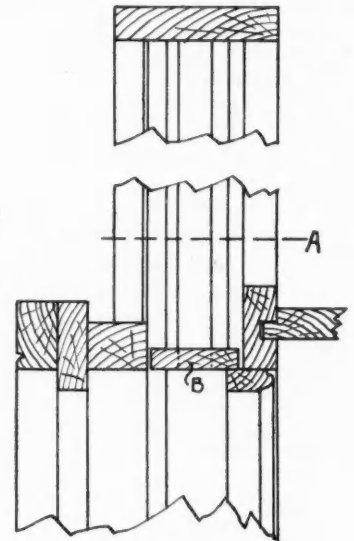


FIG. 1.

sash is lowered, the slide will come along down until it rests on bottom of plow, flush with bottom of head jamb, as shown.

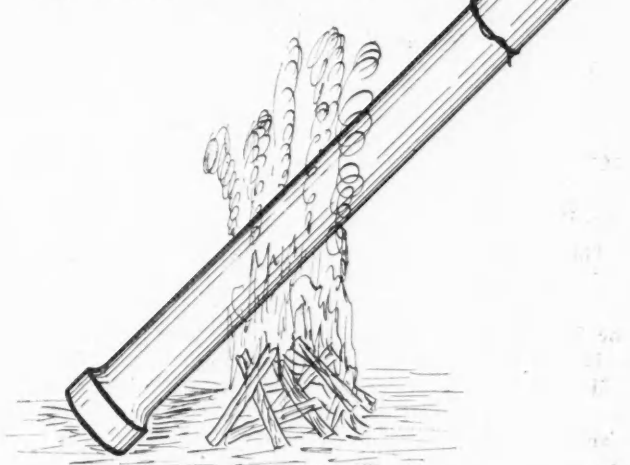
I trust this will answer his question without further explanation, as the sketches are given through head jamb and box above. F. J. CASE.

Bending Canoe Ribs

To the Editor: Fredrickton, N. B.

In reply to the request of M. Lind in the July number for a simple steam box for bending canoe ribs, etc., I beg to submit another method which I have used for many years with complete success.

A 6-foot length of cast iron pipe is plugged with clay at one end and suspended over a fire, as shown in the sketch; the plugged end being below the fire. The pipe is filled with water and the pieces to be bent are placed in the pipe and boiled until soft and pliable. They are then removed and placed on a form with rather more



curve than is required for the rib when finally in its place in the canoe or boat.

This device has been used by pupils of our manual training schools for some years past and no difficulty has been experienced with the work.
T. B. KIDNER.

Good Planing Form

To the Editor: Sardis, Miss.

Please permit me to answer the inquiry of Clarence H. Taylor relative to squaring lumber with a hand plane.

First of all, my boy, is to know that your plan is in proper shape. I mean by that it must be straight and out of wind, and the cutter or bit, commonly called, must be nearly straight on cutting edge, just a shade rounding.

Now you have your plane in proper working order, let us proceed to use it right. Set your plane on the board to be squared, at front end. Be sure that your plane is parallel to the board; and with stroke of the plane move backward until the end is reached. Stand just close enough to your work so that when the center of your plane is centered with the board your elbow is just close to hip, not close enough to rub. Do not allow the heel of your plane to get off back side of board. Keep your plane at all times parallel with your mark and you will soon see how easy it is to make a straight edge.
J. W. BURNS.

Steel Square Rafter Scales

To the Editor: Weldon, Iowa.

I here ask you to furnish me instructions telling how to use the rafter scale that is now given on the steel squares. I have not been able to find instructions how to use them yet; also the jack rafters.
JOHN FAIRALL.

Answer: There has been probably a score of patents taken out for rafter tables stamped on the steel square, but so far, only two are prominently before the building public. One of these is manufactured by Sargent & Co., 1149 Leonard street,

New York, and the other by the Nichols Manufacturing Company, of Ottumwa, Iowa. These parties publish instructions for the use of their squares, and no doubt will gladly mail a copy to those desiring them. Drop them a postal with your request.
EDITOR.

Valuable Interest Formula

To the Editor: Pueblo, Colo.

Noting that many of your problem fiends are interested in mathematics I submit a formula which I have just derived, partly because I knew it would be very convenient for use and partly because I wished to see if I could do it. I would like to submit it to your readers asking if they know of a simpler one or whether they find any error in mine:

AN INTEREST FORMULA.

For finding the total to which any number of regular installments of \$1.00 each, drawing any rate of compound interest, compounded any number of times per year, will amount—

- Let R equal interest on \$1.00 for one year.
- Let N equal number of years during which payments are continued.
- Let X equal number of payments between each compounding time.
- Let Z equal number of compoundings per year.
- Let T equal amount at the end of N years.

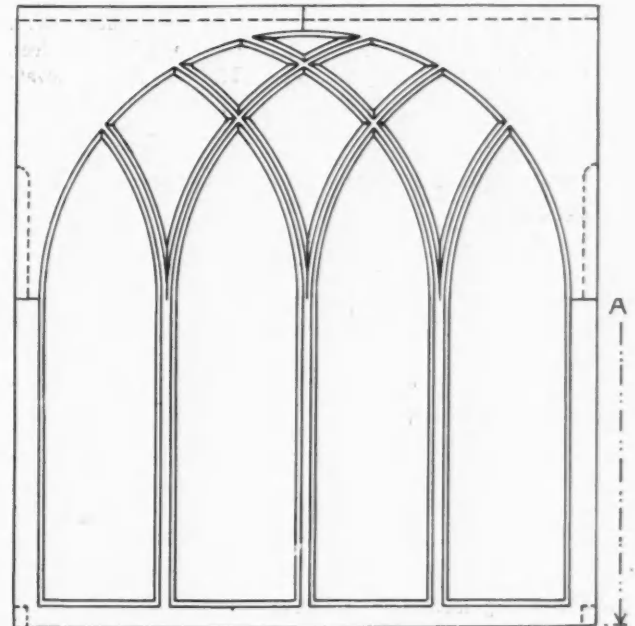
$$T_N = X + R \left(\frac{X+1}{XZ} \right)^X \frac{\left(1 + \frac{R}{Z} \right)^{ZN} - 1}{\frac{R}{Z} \left(1 + \frac{R}{Z} \right)} + \frac{\left(1 + \frac{R}{Z} \right)^{ZN} - 1}{1 + \frac{R}{Z}}$$

Note.—Use logarithms for calculating the ZN powers. The formula assumes installments to be \$1.00. Should they be otherwise multiply the result by the number of dollars in each installment.
LEROY G. GATES.

How to Cut Up a Sash

To the Editor: Chicago, Ill.

I have seen in your magazine a method of how to cut up a



sash, and make same square out and half-circle in, and will say it is a very good method. The method I use is, I think, a much easier one; it is as follows:

I run the lower part below "A" the regular way, as a common sash, only leave the tenons longer. The square head is made of two pieces, as per sketch, mortised out on the shaper, the curved bars shaped and run on the shaper, but not the uprights. The uprights I have on stock, left from some bars I ran over when making sash bars (by the method previously described one would have to lay out the full length of the bars). Then these curved bars I nail on the top of these upright bars. The square head I mortise and tenon on the lower part of the sash, as per sketch. This also makes a good sash, and as far as the flasting is concerned, will last as long as sash made by any method. I never had any of my sash come back. Of course, for a large size sash with large lights, another method should be used, but for lights six or eight inches in width, the above method is sufficiently strong, as the glass stiffens the bars also.

Hope some other of your readers will give a method of how they make their cut-up sash. JOSEPH P. BATTES.



A Trick With a Hole in It

To the Editor: Woodhaven, N. Y.
Kindly allow me to agree with J. P. Wells's opinion of N. N. Signed's "sticker," as he gives it in the July number; and I hope that N. N. Signed will not buy gold bricks from A. Helander, if Helander sells 65 square inches cut from an 8 by 8 inch piece, nor would I care to be in the same boat with Helander if he patches 65 square inches with 64 square inches—if it is more than swimming distance from shore.

I first saw this same "sticker" some ten years ago, when after a while I had occasion to pay for my folly. Let me advise Helander to cut this trick out of paper, and if he takes care of his angles he will see where he loses.

Thanks, Mr. Editor. A SUBSCRIBER.



How Much Will They Do ?

To the Editor: Farmington, Mo.
Will you kindly answer the following question and thereby place a charter member under renewed appreciations of your kindly advice?

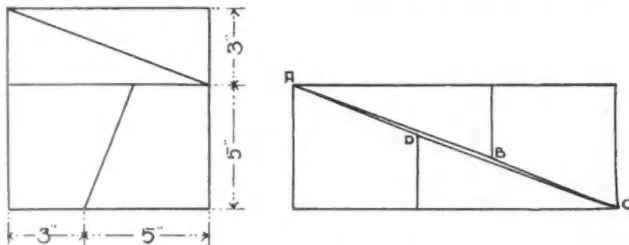
About how many yards of concrete would make an average days work for two men of eight hours each; the material to be elevated to a height of about ten feet to begin with (up on a concrete wall) and built to a height of twelve feet, or at total height of twenty-two feet? The mixing and elevating are to be by hand.

W. D. MCBRYDE.



Three Problems Solved

To the Editor: Portland, Me.
I will submit my solution of a few of the problems in the June number. Mr. N. N. Signed's ship carpenter must have used a liberal amount of oakum and pitch in making his joints, for a piece of plank 8 inches square will not fill a



space 5 by 13 inches, even if there is no waste from the saw cut.

The diagrams show how it is apparently made to fill the space.

It leaves a narrow opening in the shape of a parallelogram,

A, B, C, D, with a base of 8.544 inches and altitude 0.117 inch.

In regard to the problem of the conical glass, I will give an outline of my solution. When the 4-inch ball is placed in the glass the water rises to such a height that the contents of glass at given height minus the contents of segment of ball below given height equal one-fifth of contents of glass. One-fifth contents of glass equals 7.854 cubic inches. The lower side of ball is 3.2 inches from bottom glass. If we let x equal depth to which ball is submerged

$$.7854 \left(\frac{5}{6}(3.2+x) \right)^2 \left(\frac{3.2+x}{3} \right) \text{ equals contents of glass at given height.}$$

$$\sqrt{2^2 - (2-x)^2} \text{ equals radius of segment at given height.}$$

The contents of a segment of a sphere with one base equals surface of base multiplied by one-half the height of the segment plus the contents of a sphere whose diameter is equal to the height of the segment.

We have the equation:

$$.7854 \left(\frac{5}{6}(3.2+x) \right)^2 \left(\frac{3.2+x}{3} \right) - (.7854(16-4(2-x)^2) \left(\frac{x}{2} \right) + .5236x^3) = 7.854.$$

This equation reduced gives x equals .54596, the depth to which the ball is submerged.

Mr. J. E. Mitchell inquires if the length of a veneer for the frustrum of a cone can be found by mathematical calculations, when the two diameters and altitude are given. I will submit the following method. Diameter of base multiplied by altitude and product divided by difference of the two diameters gives radius of developing circle.

$$(28 \times 16) \div (28 - 18) = 44.8.$$

Radius of developing circle is to the radius of base as 360 degrees is to number of degrees in segment. (44.8:14:: 360:112.5). Twice the sine of one-half the angle of the segment gives the length of the chord, equals 74.4986 inches.

CHAS. S. TIBBETTS.



To Put Screen Wire on Doors

To the Editor: West Ellis, Wis.

I saw an item in the May number, how to put screen wire on a door. I think I can improve on that method some. Take two trestles and set them far enough apart so the ends of the door frame will lie on them nicely; then cut two sticks one-half inch longer than the distance from the ceiling of the shop to the top side of the door frame. Put one on each side of the frame, springing it down half an inch. Now take the loose end of your screen and fasten permanently to one end of door frame; then roll off the length of the door and fasten other end permanently. Take out the sticks at sides of frame and it will spring back into place and the screen will be stretched perfectly. Same method will work on window screens.

C. T. PLUCKHAHN.



Length of Chord

To the Editor: Hastings, Minn.

In reading your June number I find in your correspondence column a request from Mr. J. E. Mitchell for a mathematical calculator to find the length of chord of a segment when the two diameters and altitude are known. The length of chord desired in this case is a mean proportional between the two diameters indicated on the drawing, multiplied by 3.1416.

$$\text{Applying the following formula } \frac{2' 4'' + 7' 6''}{2} \times 3.1416 = 72.26'' \text{ length of chord desired.}$$

F. F. ENGLS.

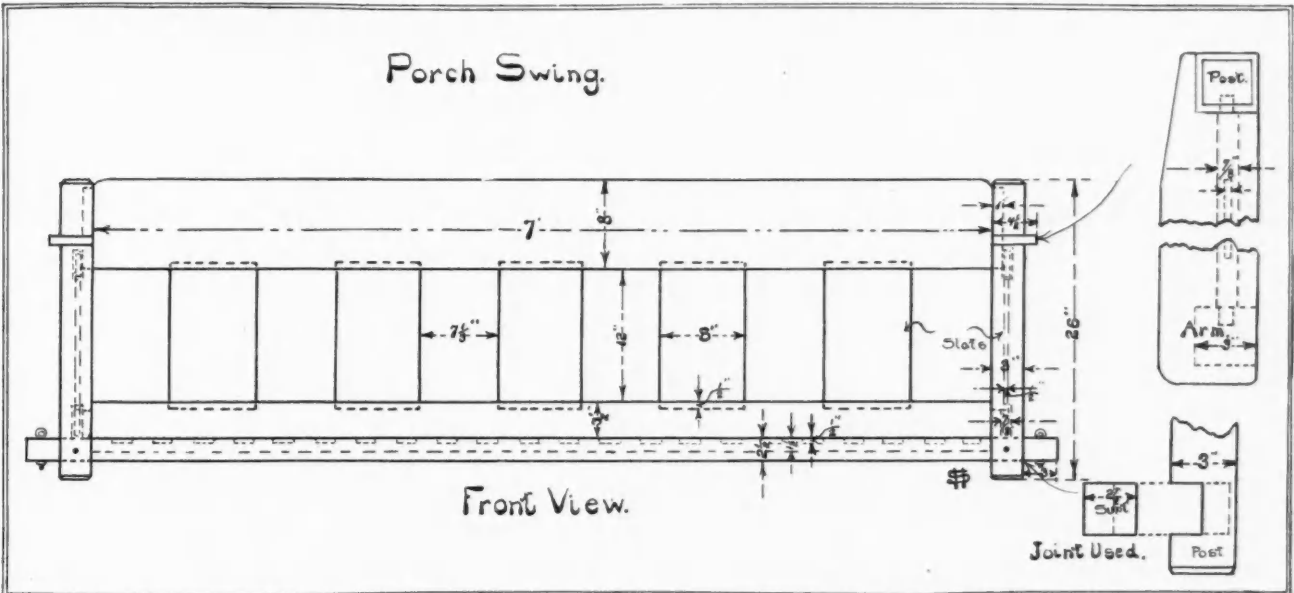
How to Make a Porch Swing

To the Editor:

Oak Park, Ill.

I am sending you sketches showing how I have made a porch swing; it is very similar in construction and design to the one described in the AMERICAN CARPENTER AND BUILDER of July, 1908. It is a very useful piece of furniture and should find a place in every home. It was not expensive, made in

posts have a quarter-inch bevel, while only the bottom of the front ones have a bevel, as the arms rest upon it. Next I fashioned the four pieces three and one-half inches wide, seven-eighths of an inch thick and twenty inches long, used to connect the front and rear posts. They are tenoned into each post one inch deep; the lower ones are five inches from the bottom and the upper ones coming even with the top of the front posts. Into these cross pieces is tenoned a slat



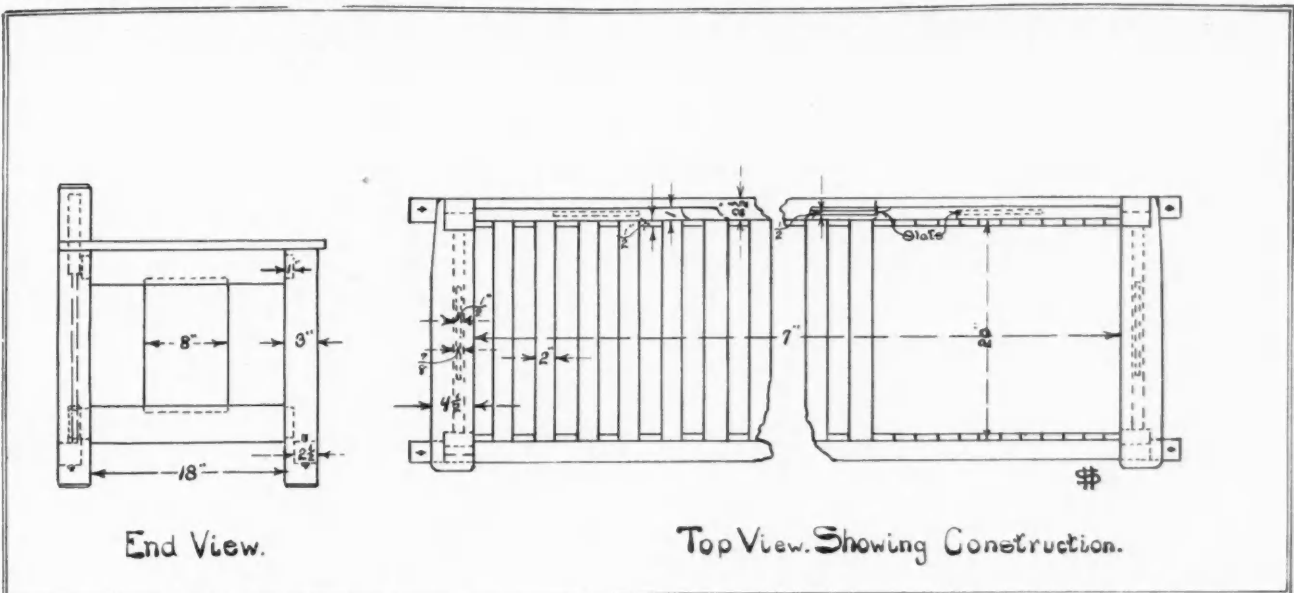
my own work shop at home; and when once completed is well worth the trouble of its construction. The wood used was:

- 2 pieces—3 inches wide by 3 inches thick by 26 inches long
- 2 pieces—3 inches wide by 3 inches thick by 20 inches long
- 4 pieces—3 1/2 inches wide by 7/8 inch thick by 20 inches long
- 2 pieces—4 1/2 inches wide by 7/8 inch thick by 25 inches long
- 22 pieces—2 inches wide by 1/2 inch thick by 20 inches long
- 7 pieces—8 inches wide by 1/2 inch thick by 13 inches long
- 2 pieces—2 1/2 inches wide by 2 1/2 inches thick by 8 feet long
- 1 piece —8 inches wide by 1 inch thick by 7 feet 2 inches long
- 1 piece —3 1/2 inches wide, 7/8 inch thick by 7 feet 2 inches long
- 2 pieces—1 1/2 inches wide by 3/4 inch thick by 7 feet long

eight inches wide and one-half inch thick and one-half inch deep.

Next I made the piece which is used as the back rest. This piece is tenoned into the two back posts one inch deep and to its lower side has seven mortises one-half inch deep into which the slats are tenoned. The other piece which makes the rest of the back is also tenoned into the two rear posts one inch deep and five inches from the bottom, and in its upper side has seven mortises, seven and one-third inches apart, eight inches long, one-half inch wide, and one-half inch deep, into which the slats fit.

The two pieces two and one-half inches wide, two and one-half inches thick and eight feet long were used for the sup-



In constructing this swing, the first step was to square up the four posts; these being three inches square, the two rear ones being six inches longer than the two front ones, which were twenty inches long. Both ends of the two rear

ports. The two ends were fastened to these by the joint shown in the cut. Three inches project at each end, to which the chains are attached, by which the swing is screwed to the back posts.

The cushion was not made of leather for that is very expensive, but of heavy canvas stuffed with hair.

STANLEY B. FURBECK.

✦
From Arizona

To the Editor:

San Carlos, Ariz.

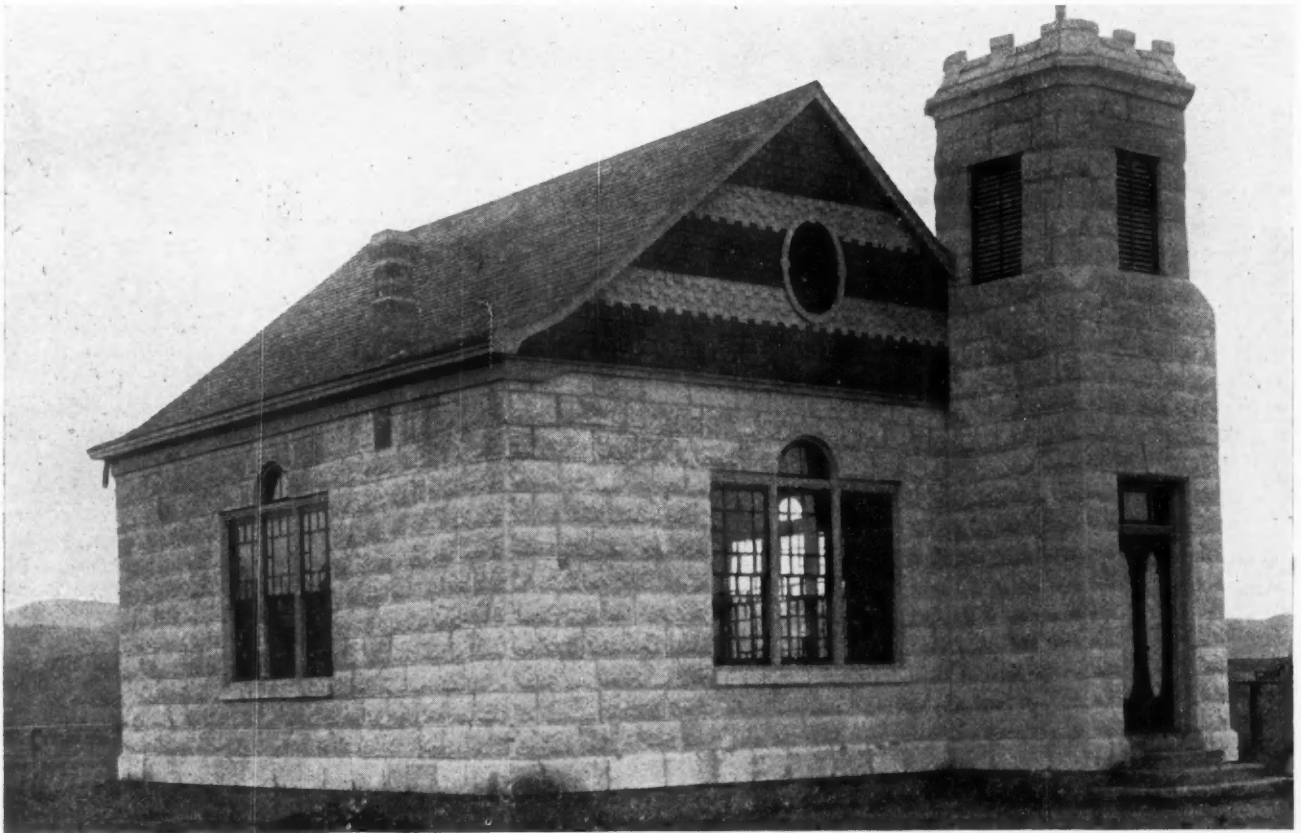
This church, the first church to be built by the government at the San Carlos Agency, I put up with only Indian help. I cut the stone, laid them; did the cement work, including chimney of cement; did the plastering, painting and decorating; set the glass; and what is more, worked out all the sash, doors, molding, etc., by hand. Did everything with only Indian (Apaché) help.

Now I have a question in regard to creosoting shingles that

PENTER AND BUILDER I noticed the heading, "The Sticker Solved," being a solution by L. A. Peterson, C. E. Bidler, H. Halverson, Ira S. Griffith and a host of others, of the rafter problem submitted by R. L. Ricks. Even the Editor seemed to feel good over the fact that the sticker was not as sticky as Mr. Ricks thought.

I did not notice Mr. Rick's request for the solution of this problem and do not know whether his object in so doing was purely for information or not, but I assume it was. If so, to me the solution fails to solve; the information given fails to inform.

I believe it would not only be a benefit to Mr. Ricks, but to many others to give a simple, practical solution of his problem in a manner that can be used in practice. After



I would like to submit to the readers of the AMERICAN CARPENTER AND BUILDER. What I want to know is the best method of dipping shingles before putting on, as putting them on a roof in the raw and painting after they are laid only coats the outside. Here in Arizona, where we have plenty of sunshine (hot) and dashing showers it wets in under them. The hot sun comes out and draws the shingles crooked. So I want to know the best way to dip them and dry them before laying. I want the most expeditious and cheapest way. Would two-thirds of the butt end be deep enough to dip them?

J. R. KEMP.

✦
He Doesn't Like the Formulas

To the Editor:

Fort Smith, Ark.

I am not a regular subscriber to the AMERICAN CARPENTER AND BUILDER, but I generally secure a copy of it every month at the newsdealer's. I often get valuable information from it, but I am sorry to say there seems to be a tendency on the part of some of the correspondents to hide what otherwise would be valuable information behind formulas of higher mathematics, thereby obscuring the very information they have sought to give.

In looking over the March number of the AMERICAN CAR-

carefully reading the solution of the problem by the above named gentlemen, I say, "Yes, very good. But how do you do it?"

I have sympathy for any brother who seeks information; I believe they should receive it in a manner that can be applied directly to the work. As I take it, it is not merely the knowledge of the length of the rafter in question that Mr. Ricks wants, but the knowledge of the principle involved, so that he can use it when and where necessary. He may have another shed roof to put on sometime, it might have a run of 10 feet instead of 8 feet, and might possibly have a different pitch from the one in question; so he would be stuck again, and again have to come back for information. So, Mr. Editor, with your permission I will endeavor to give a plain, practical method of solving this problem that will cover all conditions of this class of work.

Yes, I have sympathy with every brother who feels the need of information; I have been all along that line myself. About thirty-five years ago I left my father's house on the Iowa prairie, about twelve miles east of Mr. Peterman's town, and went to Casey, to learn the carpenter's trade. I have been up against it ever since in many states and many cities. My career has been a flat failure from a financial point of view; yet I am not sorry, because I have picked up

many a crumb of experience and information. In all these years, whenever I was up against a problem pertaining to the practical solution of work that I did not understand, I have made it my business to learn it. I take pleasure in doing and knowing how to do good work. Yet I often feel myself in need of more practical information, a feeling of the need of someone to O. K., or of a system by which I could compare and verify my own calculations.

It was this need that only recently prompted me to invest a good sum of money in a set of books, hoping by their assistance to more thoroughly understand and more surely design and construct and calculate the strength of reinforced concrete columns, beams and floors. But alas, the information sought, and perhaps contained in the volumes, is covered and completely hidden under formulas of algebra and trigonometry. The books still leave me standing alone with only my past experience, and my old hard head to figure out these great problems!

Why is it that those who know how to do things won't or can't impart the information in a manner that will inform? Why can't they give it in plain arithmetic and everyday practice, instead of giving it in a way that only a student of the higher mathematics can understand? And if they do understand the formulas, they seldom have the ability to make a practical application of them. The idea of shooting a man full of higher mathematical formulas when he has asked for plain, practical information! Has not the thought ever occurred to any of you that if a man understood enough mathematics to make anything out of your formulas, he would not have had to ask for such information in the first place, being able to figure it out for himself?

I am not saying anything against mathematics. I believe the more one knows of mathematics the better. I often feel the need of more, but the workman that expects to earn his wages through his ability to figure out the length of rafters or braces or any other thing that goes to make up a job, will utterly fail to do it. I have seen a few so-called workmen that would spend a lot of time covering the best finishing lumber on a job with a lot of figures that had to be cleaned off again. They could figure out the length but they could not do the work.

I take it it is not a lesson in mathematics the average workman needs, but plain information that will enable him to make a practical application of the rules to the work in

hand, so that he can take his square and lay his work off directly on the timber. He wants a practical rule of do it, and be done with it.

If I understand it, Mr. Ricks wants to know how to correctly lay off a rafter for a shed, having a span of 8 feet and a pitch of 2 inches to the foot, and intersecting with a main roof having a pitch of 8 inches to the foot, both plates same level.

Here is a method that is easily understood and is reliable:

First, select a straight stick of timber from the stock you intend to use for rafter. Put it on your saw benches; now take your square and begin at the toe of the rafter (point A of the diagram); now, as the pitch of the roof is 2 inches to the foot, place 12 on the blade at point A and bring figure 2 on the tongue even with the edge of the stick. Hold square in position and scribe across timber against blade, from point A. This gives you the foot cut of the rafter. Now as the shed is 8 feet wide, proceed to carefully measure off along the edge of the stick 8 laps of the square in position you now have it, 12 to 2.

This method of rafter framing is too well known to need explanation. This brings you to point B, 16 inches directly above point C, which is the toe of the main roof rafter, having a pitch of 8 inches to the foot.

Now, we have just come to the problem, how are we going to know how much longer the shed rafter has to be from point B to intersect with the main rafter at point D? It is this way. Take the distance the two rafters are apart at points B and C, this case 16 inches; divide this distance by the difference in pitch of the shed and main roof, in this case 2 inches pitch and 8 inches pitch; difference, 6 inches. Sixteen divided by 6 equals $2 \frac{2}{3}$, which simply means we have 2 feet and 8 inches run, farther to go from point B. So proceed to measure off $2 \frac{2}{3}$ laps of the square as before using 12 and 2, from point B to point D, which is the spot you have been looking for, the point of intersection. Now if it is desired to seat head of shed rafters on top of main rafters, hold square in position, and scribe across timber against blade of square. This gives level line. Take pitch of main roof, 12 on tongue, 8 on blade; bring figures to level line, so tongue will cut point of intersection, scribe across against tongue at point of intersection; cut it. The job is done in half the time any man can tell about it. If it is desired to locate point of intersection on main roof, just measure off $2 \frac{2}{3}$ laps, 12 and 8 (the main roof pitch), from point C on main rafter, and you have the spot again. This rule holds good for any pitch. All that is necessary to do is to think, to think with your head, and use your square.

JOHN STILLIANS.

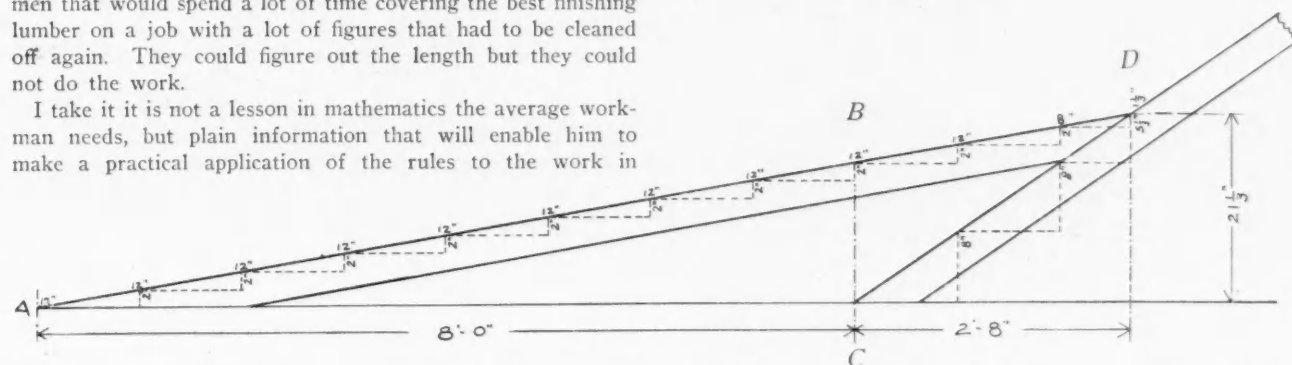


Handspike Problem Solved

To the Editor:

Hanford, Cal.

Please state that the two men with handspike at one end of timber 30 feet long should be $7 \frac{1}{2}$ feet from the end in order to carry their portion of the timber, a third man carrying his share at the other end.



The principle of the "steelyards," universally established, serves this problem.

Let us suppose the three men equal in weight and the timber balanced on a pivot in the center and the query to have been, where shall the two men suspended at the end of a handspike across the timber, be placed to balance the one man suspended at the other end? All will readily say, suspend the two men at a point from the center, which multiplied by two produces the same result as one multiplied by 15, which is $7 \frac{1}{2}$.

While the men are placed at this point, with the timber yet balanced, change the condition so as to have all three of the men to pull upward instead of downward, and the principle of the "steel yards" applies, which distributes the weights so that respective weight on one end multiplied by the distance it is from center equals the weight on other side of the center multiplied by its distance from center.

This is true whether the factors are pulling down, or the factors are pulling upward.

I assume the responsibility of rightly deciding this matter.

C. W. TALBOT.

Silo Construction

To the Editor:

Paulding, Ohio.

I wish you would kindly instruct me how to build a silo and what kind of material to use.

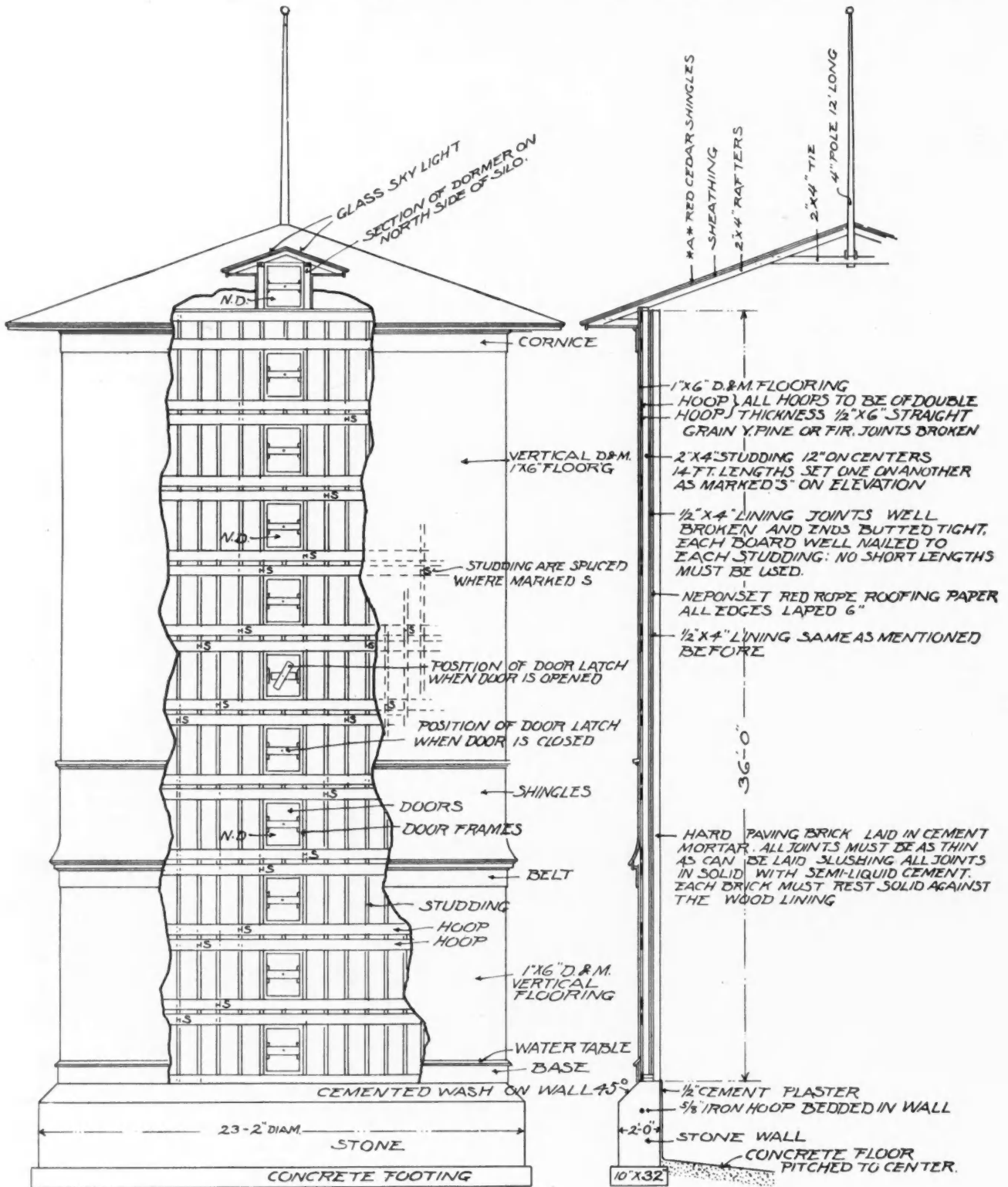
FRANK HART.

Answer: The drawing shows the construction of a silo, built of concrete, wood and brick so as to unite strength, durability and an artistic outline. The foundation walls are constructed out of concrete 2 feet in thickness and running down below the frost line, where they rest on a 10-inch by

32-inch concrete footing course to avoid settling. This concrete work is composed of one part Portland cement, three parts sand and four parts crushed stone, and is reinforced with a 5/8-inch iron hoop to prevent the walls from spreading. There are anchor bolts bedded in the concrete by which the wooden sill is bolted solid onto the concrete foundation.

The area inside the foundation is excavated down to the footing course in order to increase the capacity, and has a concrete floor slightly pitched to the center.

Frost may not do great damage to the silage as far as its



ELEVATION OF SILO SHOWING DOORS ON EAST SIDE (FACING INTERIOR OF COW BARN) ALSO CONSTRUCT DOORS ON NORTH SIDE AS MARKED "N.D."

food qualities are concerned, but if frozen into a solid mass it is very difficult to handle and should therefore be to some extent protected against severe frost. Hence wood construction with dead air spaces between the studding and heavy building paper between the sheathing has been selected as the most practical construction.

Silage is very heavy and creates a great pressure against the walls, similar to water in a tank, and to prevent this pressure from bulging out the walls silos are usually built in the shape of a cylinder. To properly preserve the silage it is necessary to exclude the air, hence the walls must be perfectly air tight. Where an extra good job is wanted the inside surface has been veneered with vitreous paving brick, which do not absorb moisture and are proof against the action of acid. These bricks are laid tight against the sheathing surface so that the pressure cannot change their position and laid in a thin bed of cement mortar, not exposing any more mortar to the surface than is necessary to properly bond the brick together.

The exterior surface is composed of dressed and matched narrow flooring set vertically to the outer hoops. About 10 feet above the ground there is a singled belt for exterior effect. The roof is of shingles and has a wide projecting cornice.

EDITOR.

A Heavy Timber Barn

To the Editor:

Grove City, Minn.

I hereby send you a picture of a full frame barn which I would like you to give a space in your valuable paper. It is

raised, and is fitted with a pulley in the top, for a rope to run through, and is a very handy thing to take up the purlin plates. When done, we just loosen the bolts and take them off. If there are any of the readers of the AMERICAN CARPENTER AND BUILDER that would like to get a sketch of them I will be glad to give it. This barn was framed by one man and myself in five days and a half. O. P. BARROWS.

+

Cement Roofs

To the Editor:

Pincher Creek, Alta.

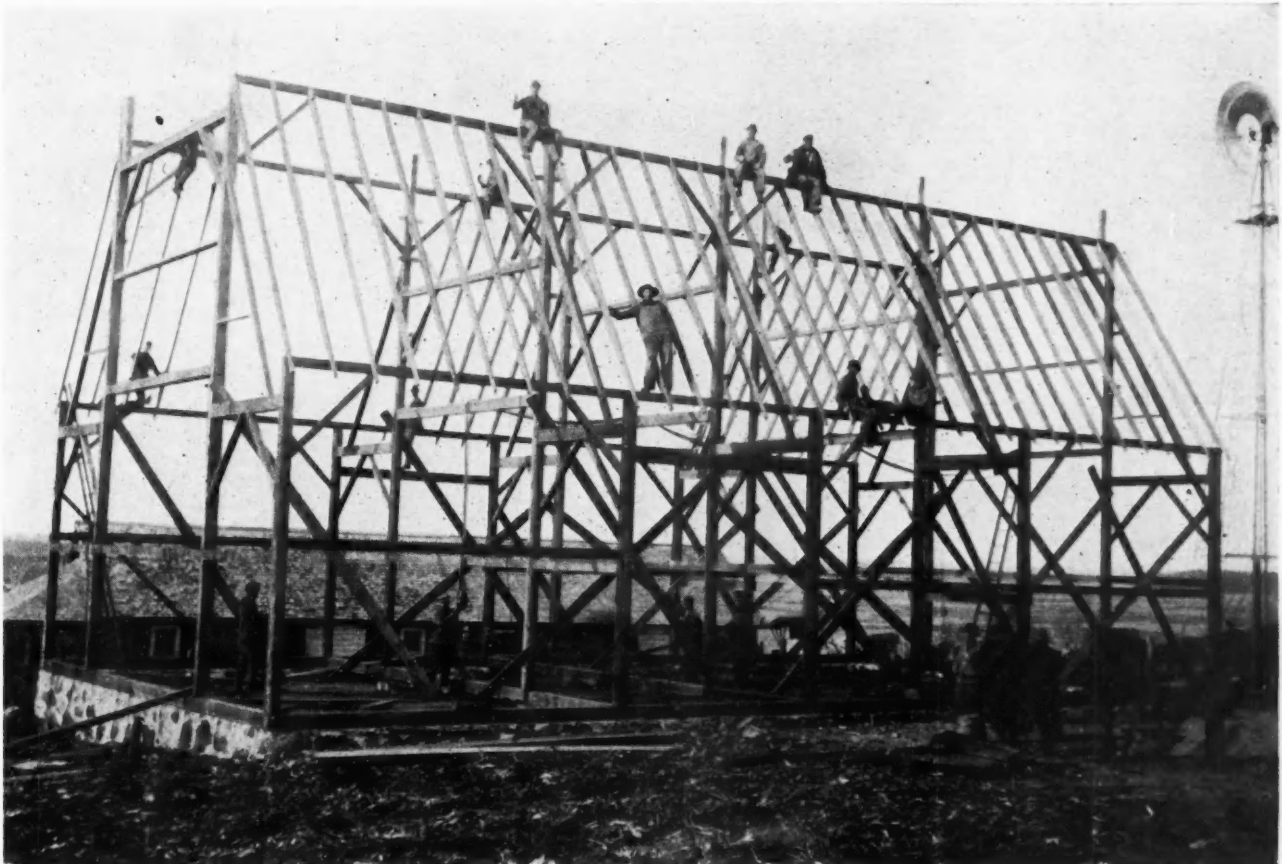
In using prepared roofing, would there be any advantage in applying sand and gravel with Portland cement instead of tar?

If this is not practicable, will you kindly advise me of the lightest concrete roof which one can apply, and also state the method used?

The "pioneer" in concrete work in his district cannot afford to experiment, for the slightest lapse on his part is at once attributed to the material, the method and experimenter get off scot free; the reason is obvious, the last two are "small game"; the critics—generally building contractors—are "laying for" cement, and welcome any such opportunity.

"INTERROGATION POINT."

Answer: The prepared roofings, as they are now generally made, contain certain amounts of tar, natural pitch and similar substances. For this reason tar is used to best advantage in laying these roofings for cementing the seams and making them water-tight. A wash of Portland cement and sand might be used satisfactorily in this way, although it would



a structure 36 by 64 feet long and is framed out of 6 by 8 inch timbers with 30-foot purlin posts. You will notice that there are quite a few temporary braces in it. It was my intention to take them out before the picture was taken; but it was such a bad wind the day we raised it that we had to keep them on. You will see that on top of the purlin post there is a 4-foot post that is bolted right on the posts before it is

not be as good and durable as the hot tar dressing.

If a concrete or cement roof is wanted there are three or more kinds which you can safely use; first, reinforced concrete slabs; second, 2½-inch cement coat similar to a cement walk composition laid down on matched wooden roof boards, supported by ordinary rafters and framing; third, an ordinary cement shingle or cement tile roof. EDITOR.

PRACTICAL TRADE APPLIANCES

Monel Metal Sheets

We take pleasure in calling the attention of our readers to a booklet recently issued by the American Sheet and Tin Plate Company descriptive of their new product "Monel Metal" and telling of a few of the great variety of uses to which it is adapted. This booklet also contains tables showing the physical properties of this metal, together with some very interesting and convincing tests. Additional information and data will be furnished gladly upon application and the company will also be glad to submit samples in any of the various gauges for your inspection or tests.

Monel metal is a new product which means much to the sheet metal worker, the roofer and the manufacturer, because of its great range of adaptability and large field of usefulness.

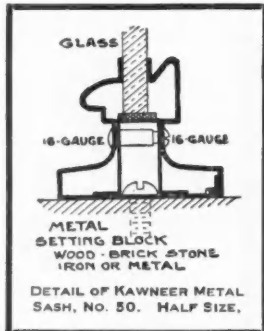
It is a natural alloy in guaranteed proportions of 68 to 72 per cent nickel, 1½ per cent iron and the balance copper. In smelting and refining the ore the nickel and copper are not extracted or separated, and, therefore, are found in the finished product in the same relative proportions. This gives us a metal that is tough and strong. It is ductile, flexible, easily worked, and can be drawn, spun, seamed or polished. It can be formed up into suitable shapes and bent into such

locks as go, for instance, with the standing seam roofing.

Monel metal can be soldered readily with a killed acid, and can be brazed with ordinary brazing solder. A test of this kind showed that a ½-inch section of No. 26 gauge, with a brazed joint, had a tensile strength of 1,700 pounds, or about 60,000 pounds to the square inch. It is a non-erosive and non-corrosive as pure nickel, which makes it invaluable as a roofing or any place where non-corrosive qualities are of vital importance.

This metal has the important property, particularly as compared with copper, of showing relatively smaller expansion and contraction changes. Another valuable feature of this metal is that it has a tensile strength approximately three times as great as copper. It is less expensive than nickel or German silver, since, in the former, the expense is largely in the difficulty of isolating it, and in the latter we have a manufactured instead of a natural alloy.

Monel metal sheets are used for roofing to supplant copper, and, owing to their great strength and non-corrosive qualities, a much lighter sheet can be used and greater efficiency and service obtained at a lower initial cost. Undoubtedly, they are the very best material that can be used for this purpose. They are used for cornices, gutters, metal window



A New Metal Sash for Store Fronts

For Show Window Construction where no wood is desired.

This new Metal Sash, No. 50 and No. 100 will meet every requirement. It is made in 37-oz. Cold Drawn Copper, Brass, Aluminum or Bronze. The face piece and inside piece unite forming a self-supporting construction.

These sash are identical except the No. 50 Sash is so arranged that the glass can be set from the inside, for the installation of plate glass above the first floor; while the No. 100 Sash permits glass to be set from the outside and is particularly adapted to the installation of plate glass in first story show windows. The No. 100 Sash is fully equipped with drainage and ventilation device, a feature which distinguishes Kawneer from all other Store Front Construction.



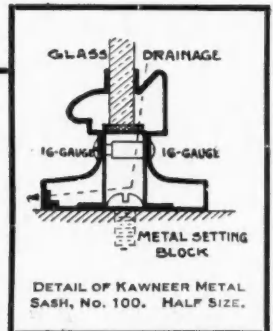
The same high standard of Kawneer workmanship, quality of materials and design has been maintained in this type of Sash.

On all Kawneer Bars will be found this Patent Stamp

KAWNEER PAT.
7-16-07. NILES, MICH.

KAWNEER PAT.
2-25-08. NILES, MICH.

Look for it. It's the Stamp of Merit.



A Letter or Post Card to our nearest Office will bring Catalogue No. 2, and complete information.

Kawneer Manufacturing Co.

HOME OFFICE, NILES, MICHIGAN

BRANCH OFFICES:

Chicago	New York	Kansas City	Minneapolis	Indianapolis	Detroit	Cincinnati	Houston
St. Louis	Spokane	Denver	Atlanta	Lincoln, Neb.	Sioux City, Ia.	San Francisco	Seattle
Pittsburg	London, Ont.	Portland	Milwaukee	Philadelphia	Vancouver, B.C.	Syracuse, N. Y.	Los Angeles

SEE SWEET'S INDEX PAGES 650-651

Sackett Plaster Board

FIRE PROOFING

**Instead of
Lath**

**Time
Saving**

**Labor
Saving**

**Money
Saving**

**DOES
NOT
STAIN
OR
BUCKLE**



**The board
that made
plaster
boards
famous**

**First used
in 1891
Perfected
in 1908**

Sackett Plaster Board Company

**17 Battery Place
NEW YORK**

frames, ventilators, skylights, smelter roofs, mine screens and chutes.

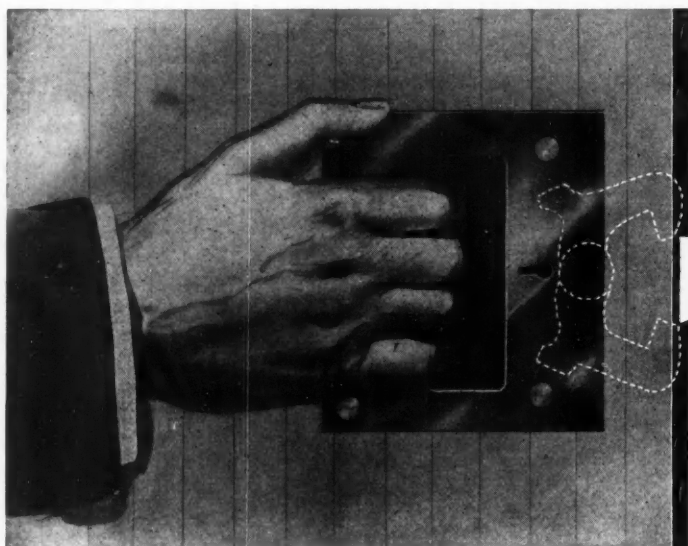
This product is also adaptable for automobile parts, gaskets, smoke jacks, range boilers, laundry machinery, tanks, kettles, refrigerator work and vessel sheathing, where non-corrosive qualities are important as well as the toughness of the material to resist impact; for innumerable stamping and forming purposes,—kitchen utensils, toilet articles, bathroom fixtures and products such as are made with a brass base and nickel plated.

Monel metal sheets are manufactured exclusively by the American Sheet and Tin Plate Company, and are furnished in sizes up to 36 by 96, and in all gauges. The fact that these sheets are rolled in the famous Vandergrift works, the largest sheet mill in the world, is a sufficient guarantee of their exactness and uniformity. While Monel metal sheets are practically a new product, they have opened a wide field to every user of sheet metal. For progressive metal workers, stamping concerns and manufacturers, their range of usefulness is practically unlimited.

No-Break Sliding Door Lock

The Richards Manufacturing Company, Aurora, Ill., have recently put on the market a sliding door lock which is regarded as an article of unusual merit. It is called the "No-break" lock. It is simple, durable, positive and secure. It marks a decided advance in the construction of sliding door locks for barns, warehouses, garages, factories, houseboats, etc.

The working parts of the Nobreak lock are few and sim-



ple. The action is positive. The principle is such that the lock *must* act. The jaws are extra strong and non-breakable. The locking mechanism is so simple that only one tumbler is required. There is a different key for each lock. The lock is reversible—can be used on either side of door and can be locked or latched from either side.

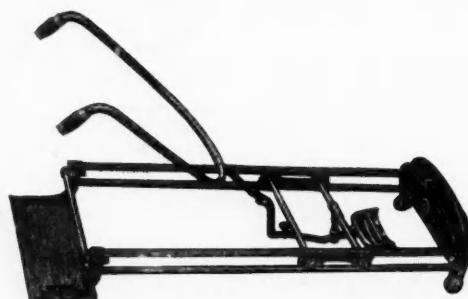
The Nobreak lock receives and grips the holding lug through an opening in the side of the lock. The door—not the lock—receives the blow when door strikes jam. This is a distinctive and important feature of this lock. The lock-grip is flush with the door and the holding lug is fastened to the jam entirely outside the door opening. There are thus no projections whatever on which to catch harness or tear clothes.

The hand-hole covers operate from both outside and inside and serve as flush pulls as well as operating the lock. The Nobreak lock cannot be tampered with—it cannot be picked, and the use of the blind screw studs on the outside makes lock practically burglar-proof.

The Haven Floor Planer

The work of properly preparing a hardwood floor after it has been laid is one of the problems of the carpenter today for it entails an enormous amount of the hardest kind of work. Therefore an ever-increasing demand has been made for a mechanical contrivance which will be simple in operation and at the same time will transform the floor into a thing of beauty.

The Haven Manufacturing Company, of Racine, Wis., are marketing now a floor planer which is intirely unlike anything before the public.



By glancing at the cut here the principle of their machine is apparent and its mechanical advantages are obvious. Its essential features may be summarized by saying that they consist of a tool-carrying lever mounted on a carriage confined to operate in a horizontal plane by a true and level trackway.

By using this method it is easily seen that there is no heavy weight to be dragged back, merely a weight of not more than 10 pounds, which glides along the runway with practically no effort.

The use of the "Haven" permits the operator to get in close to the base boards, inasmuch as the plane at the end of the lever extends under the runway several inches. And herein lies the main difference between the "Haven" and other floor scraping devices. The tool that does the scraping is nothing more or less than a plane which absolutely prevents a "wavy" floor.

In reading over their catalogue we find the following:

1. It does perfect work. Its very mechanical construction makes it easier to do good work than poor work. The carriage runs over the smooth and true track, while the use of the smoothing face of its blade produces a perfectly flat and level surface, free from "waves," and superior to most hand work.

2. It makes the work easy; it is not a man-killer. The operator does not have to roll to and fro a hundred pounds or more of dead weight all day long and feel like a beast of burden at quitting time. He will never refuse to use the "Haven" because of its hard running qualities.

3. It does more rapid work than done in any other way. It will do the work of several men with less wear and tear. The reasons why are evident, for, besides taking the workman off his knees, the banishing of heavy weight and the applying of a stroke about twice the usual length, permit the work to proceed rapidly and without resting spells.

4. It makes the work of floor dressing a simple task. It does not require the services of a skilled mechanic to do the work. It is true that the blades should be sharpened and

LUMBER TRUST PRICES SMASHED!

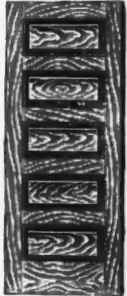
CHICAGO HOUSE WRECKING CO.'S GREAT OFFER!

150,000,000 Feet of Brand New Lumber at Wrecking Prices!

We purchased direct from the Mills, at various Forced Sales, thousands of carloads of high-grade, first-class, brand new Lumber. We bought it at sacrifice prices and we are offering it for sale at a reasonable margin of profit. This is an opportunity of a lifetime to buy the very best lumber manufactured at prices less than the dealer or jobber can ordinarily buy it for. Don't delay a single moment. Even if you have no immediate need for lumber, the time to buy it is today when our low prices are calling on you for action. You will never again be able to buy lumber at such low prices as we offer.

We don't ask for money in advance. You can buy without sending one cent of money with your order. All we require is a guarantee as to your responsibility. Money refunded if material is contrary to our representation. We have a capital stock and surplus of over \$1,000,000.00. We refer you to any bank or banks anywhere. Or you can write direct to the Great Stock Yards Bank, The Drovers' Deposit National Bank of Chicago.

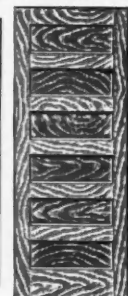
THE HIGHEST GRADE DOORS [ON THE MARKET AT LESS THAN WHOLESALE PRICES!



Our Money-Saving Plan Book should be in the possession of every person who intends to build whether now or in the near future.



These prices hold good for June and July only. If you want to save money we advise you to buy now and take advantage of the big saving you'll be able to effect.



As to quality, rest assured nothing better is manufactured. Don't listen to what unscrupulous dealers may tell you. Our material is guaranteed to be clean, new, fresh lumber — not wrecked material in any sense of the word — just as good as you can buy anywhere and it is sold under a positive, binding guarantee that protects you absolutely.

Solid Short Leaf Yellow Pine Doors
 2'6" x 6'6" x 1 1/2" \$1.20
 2'8" x 6'8" x 1 1/2" 1.30
 3'0" x 7'0" x 1 1/2" 1.45

Solid Short Leaf Yellow Pine Doors
 2'6" x 6'6" x 1 1/2" \$1.60
 2'8" x 6'8" x 1 1/2" 1.65
 2'8" x 7'0" x 1 1/2" 1.70

Veneered Red Oak Glazed Bevel Plate
 2'6" x 6'6" x 1 1/2" \$8.50
 2'8" x 6'8" x 1 1/2" 9.15
 3'0" x 7'0" x 1 1/2" 11.70

Six-Panel Veneered Red Oak
 2'6" x 6'6" x 1 1/2" \$3.25
 2'8" x 6'8" x 1 1/2" 3.35
 2'8" x 7'0" x 1 1/2" 4.00

Two-Panel Veneered Red Oak
 2'6" x 6'6" x 1 1/2" \$3.55
 2'8" x 6'8" x 1 1/2" 3.85
 2'8" x 7'0" x 1 1/2" 4.35

\$650 Buys all the Material to Build This House!

\$700 Buys all the Material to Build this House!

\$780 Buys all the Material to Build this House!



HOUSE DESIGN No. 6.

In the above design we illustrate a 6-room house of symmetrical outline and comfortable interior. It is provided with all the conveniences of a modern home, bathroom, pantry, basement and handsome open stairway. The rooms are all of comfortable dimensions. The hall, living room and dining room are connected by cased openings, practically throwing these rooms into one large apartment, which is universally appreciated. Large number of windows.



HOUSE DESIGN No. 126.

In the design illustrated above we have made a complete departure from conventional methods in house designing for a building of this size. It contains 7 rooms, bathroom and reception hall room. It is of strictly classic architecture. Its handsome entrance with the Massive Columns and Colonial windows fitted with panel shutters give to this house a distinction all its own. It is arranged for seven rooms, bath, pantry, stair hall and the necessary closets. The handsome open stairway leading to the second floor and the leaded casement windows and window seats located in appropriate locations still further develop the artistic harmony of this design. It is provided with every essential convenience of a modern home. Its large number of windows insure an abundance of light and air and by reason of its compactness, it can be erected at a very moderate cost.



HOUSE DESIGN No. 139.

In the above we illustrate a thoroughly modern home of liberal dimensions and pleasing exterior effect. Please note the symmetrical lines of the roof with the gable and dormer and the wide porch extending nearly across the entire front of the house. The interior arrangements are not only modern, but delightfully roomy, yet there is not an inch of room wasted where not needed. The fire-place in the parlor is flanked on either side with a handsome casement window. Other windows of this kind are placed at convenient locations and insure harmonious effect. The house is 29 feet wide by 33 feet 6 inches in length, exclusive of the porch. Has 7 large rooms, bath, pantry and all conveniences of a modern home. The dining room, especially, is the finest room in the house and with its large bay windows is universally appreciated. We recommend this design to people of good taste.

SEND US YOUR LUMBER BILL FOR ESTIMATE! WE'LL SAVE YOU MONEY!

Upon request we will name you delivered prices so you will know exactly what the material you select will cost you laid down at your station, and you will have no freight to bother with. It's impossible to beat these prices—try it.

Widths	Lengths	Per 1000	Widths	Lengths	Per 1000
12"	20'	No. 1 Arkansas Soft Pine Barn Boards.....	6"	10' to 20'	No. 2 Soft Minnesota Pine Roof Sheathing.....
6"	10' to 20'	No. 1 Arkansas Soft Pine Drop Siding, any Pattern.....	8"	10' to 16'	No. 2 Soft Minnesota Pine Roof Sheathing.....
8"	10' to 20'	No. 1 Genuine White Pine.....	4' 6" 8' 10'	12"	Selected White Pine Sheathing.....
12"	16'	No. 1 Genuine White Pine Barn Boards.....			Selected Soft Minnesota Pine Furring Strips Sized, per 1000 lin. feet.....
6"	10' to 16'	No. 2 Genuine White Pine Fencing.....	4' or 6"		Byrkit's Pat. Sheathing Lath.....
4"	8' to 20'	Clear Y. P. Flooring D. & M. Kiln Dried.....	32"		No. 1 Michigan Soft Pine Lath.....
3"	10' to 20'	Edge Grain Y. P. Flooring D. & M. Kiln Dried.....			No. 1 Michigan Soft Pine Lath, Kiln Dried.....
3"	10' to 20'	Selected No. 2 Kiln Dried Y. P. Flooring.....			No. 1 Soft Arkansas Pine Lath, Kiln Dried.....
1 1/2" x 4"		Clear D. & M. and Beaded Y. P. Ceiling.....			Diamond A Washington Red Cedar Shingles 6" to 2", 6" and Better, Clear: Good widths, best 2nd Grade Shingles made. If shingles are laid 4 1/2" to the weather, a perfect roof is assured.....
2" x 6"	12'	No. 1 D. & M. and Beaded Y. P. Ceiling.....			Extra Star "A" Star Washington Red Cedar Shingles 3.00
2" x 8"	14'	No. 1 Y. P. SISIE.....			
2" x 8"	20'	No. 1 Y. P. SISIE.....			
2" x 10"	18'	No. 1 Y. P. SISIE.....			
2" x 12"	20'	No. 1 Y. P. SISIE.....			
8" x 10"	10' to 20'	Yellow Pine Sheathing Boards.....			
4"	10' to 16'	No. 2 Soft Minnesota Pine Roof Sheathing.....			

SEND FOR OUR FREE MAMMOTH ILLUSTRATED CATALOG No. 914.

We publish a book of some 500 pages, containing a general record of our goods and showing millions of dollars worth of merchandise secured by us at Sheriffs' Sales Receivers' Sales and Manufacturers' Sales. It is a friend to every economical person. You cannot afford to be without it. It lists Building Material and Supplies, Machinery, Roofing and Wire, Structural Material, Hardware of all kinds, Furniture and Office Fixtures, Belting and Rubber Hose, Plumbing and Heating Apparatus, Pipe, Valves, and Fittings, Wire and Manila Rope, Electrical Apparatus, Saws and Vault Doors, Tanks, etc., etc. It's a book every one should have.

In addition to this General Catalogue we publish a "BOOK OF PLANS." It shows illustrations of modern houses and barns; gives illustrations from life as well as floor plans; it explains our unique offer to furnish all material needed to construct any buildings shown in our book. You can get a complete set of plans, specifications and bill of material for \$2.00, or furnished free with your order. We also publish a Furniture Catalogue showing handsome designs in Household Goods, Furniture and Office Supplies. Write us your wants. We can save you big money. No matter what you want, write us; we can save you money.

CHICAGO HOUSE WRECKING CO., 35th & Iron Streets, CHICAGO

turned by those who are skilled in the art, but other than this an apprentice can do just as good work as the more experienced journeyman.

5. It makes the work of floor dressing agreeable, banishes



the dread of a once unwelcome, laborious and dreaded job and raises the task to the level of any kind of the more pleasant duties to which the "sons of toil" may be devoted. Address the Haven Manufacturing Company, Racine, Wis.

Union Roofing Improvements

The last of the extensive improvements made by the Union Roofing & Manufacturing Company at their St. Paul plant covers the erection of an enormous tarred felt warehouse with an immense underground reinforced concrete tar well. The new building is 200 feet long by 70 feet wide and will be of massive mill construction throughout. The tar well underneath the building is 110 feet long and 65 feet wide, with a depth of 12 feet. This allows a storage capacity of over five hundred thousand gallons of tar. The top of the tar well, which is the ground floor of the warehouse building, is a solid reinforced concrete slab 1 foot thick. When completed this monolithic construction will stand a pressure of one thousand pounds per square foot.

The warehouse will be two stories, of heavy mill construction, and will be equipped complete with elevator service and other modern conveniences necessary to the handling of great volumes of stock. This new building, together with the complete plant, will soon be protected with an automatic sprinkling system, the preliminary work having already been started.

Union Floor Scraper

Geo. J. Bachmann, 501 Lyon street, Grand Rapids, Mich., has perfected and is manufacturing a practical, low-cost floor scraper, the "Union," which, it is claimed, overcomes completely the difficulty sometimes experienced with such machines. Some machines turn out non-uniform, wavy work and a wavy floor looks worse than a floor that was never scraped. This company has perfected a machine in the "Union" that does not wave a floor.

A few of its special features are the adjustable head, the automatic shaving remover with rubber shoe that leaves the floor clean for the wheels to roll on, and the firm handle arrangement. Moreover, the machine has enough weight to

**We
Want
To Tell
You
How**

**You Can Put Every Cent of the Dealer's
Profit Into Your Own Pocket**

You can save not only the dealer's profits but his excessive charges for installation and repairs.

You can deal direct with the manufacturers.

The Jahant Down-Draft Furnace

**Only Ten Dollars Down and Ten Dollars a Month With
Freight Prepaid East of the Mississippi River.**

This wonderful furnace has proven its superiority over others during the last **thirty years**. It is without a doubt the best heating system ever devised.

It saves from one-third to one-half in fuel bills, because the patented down-draft burns hard or soft coal, wood or lignite, without cinders or clinkers, giving the full heating value of every particle of fuel.

THE JAHANT DOWN-DRAFT FURNACE

is scientifically correct. Every part is cast of the best **New Gray Pig Iron**; no sheet steel is used; the fire pot will last a lifetime; **cracking is impossible**.

A strong "Guaranty Bond" goes with every JAHANT, which allows a **three hundred and sixty day free use of the furnace**.

You run no risk, as we supply special plans, full instructions and **give free, all necessary tools**, so that any man who can drive a nail can successfully install a JAHANT.

Let us tell you something about the conveniences and good points of our furnace, its economy, its healthfulness and how you can save money.

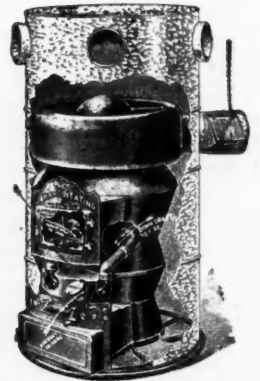
We have an interesting and money-making proposition to make to every carpenter and builder.

Write today for our book.

THE JAHANT HEATING COMPANY

"Building furnaces for thirty years".

100 Main Street, AKRON, OHIO





Asbestos "Century" Shingle Roof
Residence of Dr. A. F. Gates, Hammond, Louisiana
H. C. Peck, Hammond, Architect and Contractor

Asbestos "Century" Shingles

"The Roof that Outlives the Building"

You roof a Building to protect it from weather, from fire and time. Then choose a roofing that is itself weather-proof — fire-proof — time-proof.

Asbestos "Century" Shingles are the only roofing that actually improves on the roof. Dense and elastic shingle-like sheets of asbestos fibre cement, that mature like every other concrete with exposure to weather, to freezing and thawing.

Fire cannot burn through them, chip, crack or flake them.

An Asbestos "Century" Shingle Roof outlives the building and needs no painting or repairs.

Made in a great variety of shapes, in several sizes and three colors—Newport Gray (silver gray), Slate (blue-black), and Indian Red.

Ask your Roofer for new quotations. Write for Booklet, "Roofing 1909."

The KEASBEY & MATTISON COMPANY, Factors, Ambler, Pennsylvania

TIME WILL TELL—BUT NOT ON



"First Cost
is
Last Cost"

Galva-nite Roofing

"Easy To
Lay."

The very name "GAL-VA-NITE" carries with it a positive feeling of satisfaction. The carpenter or builder who either specifies or uses this high grade ready roofing on a building can rest assured that the owner will be satisfied. GAL-VA-NITE marks that degree of perfection among roofing materials which characterizes it as the "STANDARD" of moderate priced ready roofings. It has made good in all climates and under all conditions. The fact that it needs no painting or after attention when once on the building, makes it especially in demand by house owners who have long since tired of the expense and trouble of patching up leaky roofs. GAL-VA-NITE is waterproofed with a triple coating of mineral asphalt and weatherproofed with a heavy "armor-plating" of flaked mica, which makes it impervious to the ravages of rust and the dangers of flying sparks and fire-brands.

Better let us send you FREE SAMPLES and ROOFING BOOKLET. A postal today will bring them to you. Ask for DETAIL 9. Address the manufacturers.

UNION ROOFING & MFG. CO. 1100 East 7th St. ST. PAUL, MINN.

WE HAVE DISTRIBUTING WAREHOUSES IN THIRTY-FIVE CITIES



"BRADFORD REDS"



Trade-Mark Reg. U. S. Pat. Office.

BRICK MANTELS,
ROMANS and
ORNAMENTAL SHAPES

Ask the Man
WHO BOUGHT THEM.
Or
The Bricklayer
WHO LAID THEM.

Bradford Pressed-Brick Co.
BRADFORD, PA.

*Announcement
of Johnson's Plan
to every Reader*

*We want to send
a Working Sample
Plasto-Filler Free
of this Paper*

JUST fill out Coupon on next page—we pay postage and all. We are making this special offer and cordially invite you to accept it, because we want you to find out right away how much better Johnson's Plasto-Filler is than anything else for filling in cracks, holes or crevices and for leveling up depressions.

Johnson's

You must have had trouble at one time or another with whatever kind of fillers you have been using.

*Now you can drop putty, plaster-paris and all other unsatisfactory, troublesome fillers and use Johnson's **Plasto-Filler.***

It will save you hours of work and trouble on the tedious task of filling nail holes, screw holes, floor cracks and wall crevices.

It's Economical to Use

S. C. Johnson & Co.

"The Wood Filler"



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



IT takes a finish equal to hardwood—does not discolor—does not sink with change of moisture—or climate. It is sent to you ready for use. Just moisten with water. You mix only as you use it, avoiding all waste and all expense of oils. You do not have to mess with it.

We will also send our free Guide Book for finishing and refinishing wood.

Plasto-Filler

It contains a complete color card and full information regarding advantages of Johnson's Wood Dye, Johnson's Prepared Wax, Johnson's Under-Lac and other of Johnson's Wood Finishes.

We want you to test all of these Johnson materials at our expense. Cut off coupon while you think of it. Start right away giving your trade better satisfaction by using Plasto-Filler.

to Use and Saves Work and Time

on & Son, Racine, Wis.

Wood Finishing Authorities"

I accept your offer of Free Booklet Edition A. C. B. 8, and one sample Johnson's Plasto-Filler.

Name.....

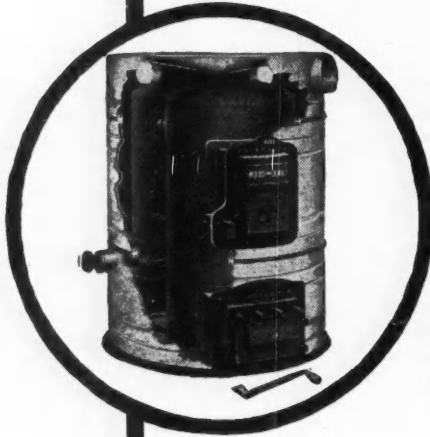
Address.....

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

The Front Rank Steel Furnace

**Reduces Your Fuel Bill—
Because it does not Waste
—Burns any Kind of Fuel**

Distributes heat evenly and plentifully
in the coldest weather.



Let us help you
arrange your heating
plans— We
make no charge
for furnishing
estimates.

Our latest Cat-
alogue gives com-
plete details and
other heating in-
formation. It will
pay you to send
for it — It's free.

*Write us today and tell us, please, the
name of your local Furnace dealer.*

Haynes - Langenberg Mfg. Co.

4045-4057 Forest Park Boulevard : ST. LOUIS, MO.

TRADE MARK **B**

Amatite

ROOFING

Send For a Free Sample

PEOPLE who have "smooth surfaced" roofs on their buildings find it necessary to paint them continually to keep them serviceable.

This expense and labor can all be cut out by using Amatite.

Its real mineral surface absolutely does away with all painting.

If you will write for a sample you will get an exact idea of what Amatite looks like. This will be immensely more satisfactory than any description we could give—no matter how minutely done. It is really the only fair way for you to judge.

Amatite is so thoroughly durable and reliable without any care or attention after you have nailed it on that, were its cost twice what it is, it would be still the most economical roof to buy. Its durability is unapproached.

It is easy to lay and requires no skilled labor to do the work.

Write today for a sample of Amatite. Our nearest office will supply same at once with a booklet about roofing which will interest you.

BARRETT MANUFACTURING CO.

New York Chicago Philadelphia Boston Cincinnati Minneapolis
Cleveland Pittsburg New Orleans Kansas City St. Louis

hold it firmly to the floor. This weight is properly distributed. The "Union" cuts with a shearing cut, which is acknowledged to be the best. The blades can be sharpened in the machine.

In setting the blade allow it to go well back into the jaws and bolt tight. There are no eccentrics on this machine, as they work loose and allow the blade to clatter.

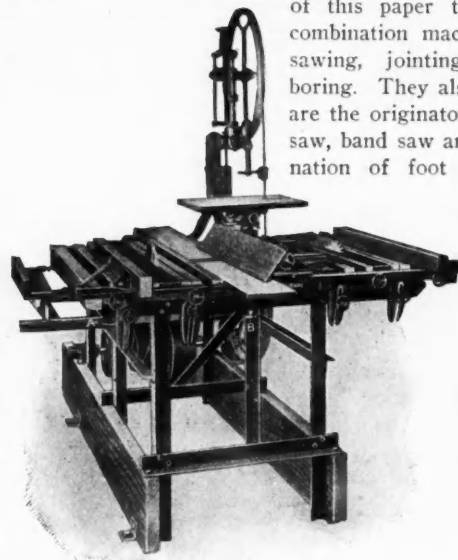
The "Union" can be run with one or two men, but will work to advantage with two men.



Combination Woodworking Machine

The Parks Ball Bearing Machine Company, Knowlton and Fergus streets, Cincinnati, Ohio, call attention in another part

of this paper to their No. 460 combination machine for circular sawing, jointing, grooving and boring. They also state that they are the originators of the circular saw, band saw and jointer, combination of foot and power machines, which have been growing steadily in popularity among carpenters and contractors during the past years, and which are especially adaptable for the needs of a well equipped shop.



The machine illustrated here is the Parks No. 410 heavy single table circular saw and 6-inch jointer, with boring or routing attachment, which makes a combination of three machines in one and all ready for instant use. Two men can work at this machine at the same time, one boring and the other using either circular saw or jointer. The guide of jointer can be used for rip saw for any width up to 12 inches wide. The guide on the left of circular saw will take any material up to 20 inches wide and has a guard for circular saw when jointing. From two to three horsepower is required for this machine, according to the amount of work. The machine is furnished in two sizes.

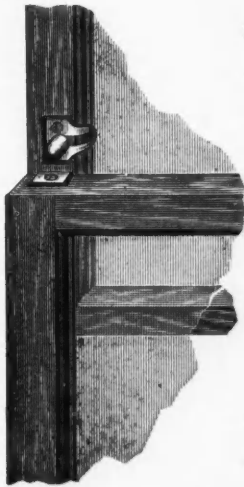
The Parks Ball Bearing Machine Company has for years made a specialty of foot and hand power machines which require a small amount of floor space and which at the same time will do the work necessary in a first-class carpenter or contractor shop, quickly, easily and without heavy engines to furnish power. A catalogue showing these combinations is issued by this company and can be had upon request.

Read These Letters

The "Little Shaver" portable saw rig, as advertised in this issue, is one of the best time and money-savers now on the market and these letters speak for themselves:

"Well Pleased with the Rig."—The saw rig ordered from you received in good condition. It is all you claim for it.—A. E. Huntington, Contractor, North Platte, Neb.

"Doing Excellent Work."—No more going to the mill to



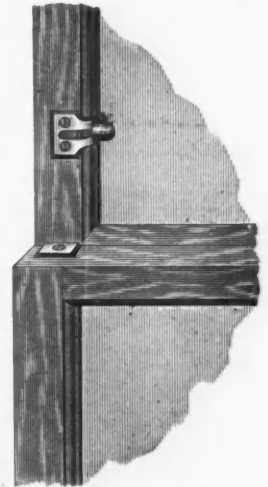
Ventilation Without Risk

IVES PATENT VENTILATING LOCK

A safeguard for ventilating rooms, allowing windows to be left open at the top, the bottom, or both top and bottom with entire security against intrusion, a permanent fixture easily applied and quickly operated, affording three times more protection to the window than the ordinary sash fastener.

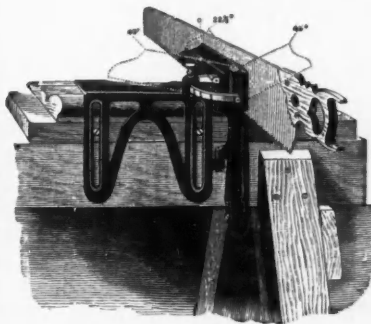
THE H. B. IVES COMPANY
NEW HAVEN, CONN., U. S. A.

88-page Catalogue Hardware Specialties mailed free



"SEAVEY" MITRE BOX

meets every requirement



Cuts any angle—special or regular.

Needs no special saw.

Lightest box made

Can be instantly applied.

The *only* Mitre Box.

Made so that it is attachable to inside or outside work without a special attachment.

Prices to-day from your jobber or write for the
"Green Book"

SMITH & HEMENWAY CO.

108-110 Duane Street,

NEW YORK ∴ U. S. A.



We tell you to put on a "Pioneer Roof," and forget it. Needs no paint or repairs. Sun-proof and rain-proof. Not affected by extremes of heat or cold. Suitable for all kinds of buildings—pitched or flat roofs. Comes in handy rolls. Easy to lay—anybody can do it—no special tools needed.

Now, then—Let us send you samples, a copy of our 32-page Roofing Booklet "A," and the name of our nearest agent

ASPHALT AND ASPHALT PAINT

The Pioneer Roll Paper Company are refiners of Asphalt and manufacturers of Asphalt Paint—which they supply direct from their factories in Los Angeles

California Agents for North-western Compo-Board Company

PIONEER ROLL PAPER COMPANY

Department 21, LOS ANGELES, CALIFORNIA

Porcelite Enamels

MEET ALL REQUIREMENTS

Inside



Outside

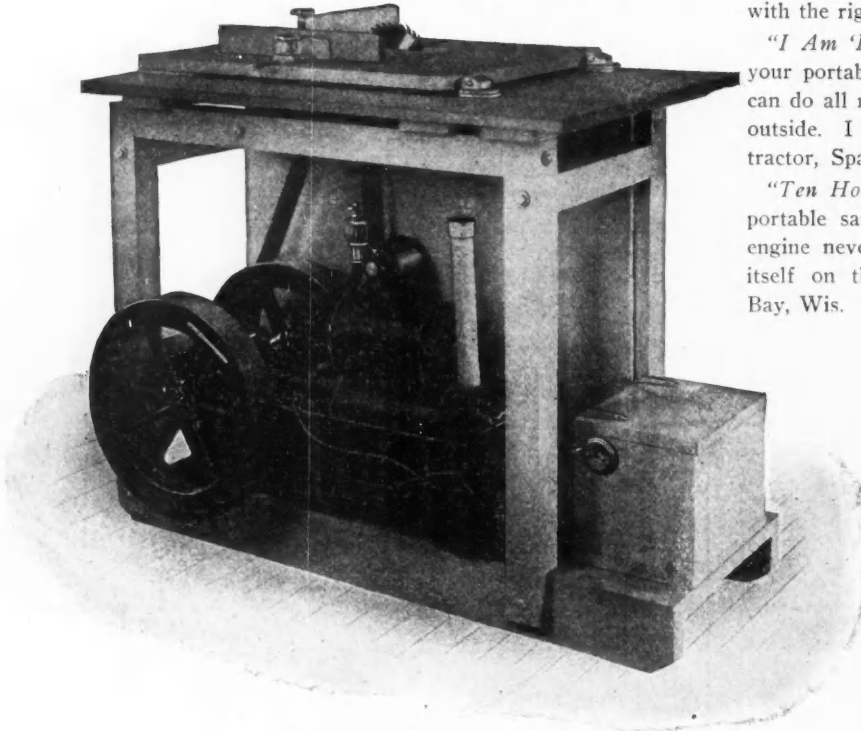
Exposures

THE THOMSON WOOD FINISHING CO.

PHILADELPHIA

JAS. H. RICE CO., Chicago, Western Distributors

have my millwork done. Do it all myself at home and on the job. The engine runs as smooth as an automobile and I am



more than pleased with the rig.—J. G. Roy & Co., Contractors and Builders, Springfield, Mass.

"Paid for Itself on One Job."—The portable saw rig I bought from you some time ago paid for itself on a flat

building I put up a few weeks ago. I moved the rig from floor to floor and sawed most every board in the building with the rig.—F. B. Thayer, Builder, Auburn, N. Y.

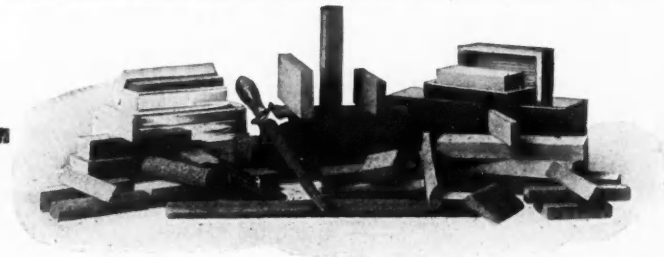
"I Am 'It' in Our Town Now."—Since having purchased your portable saw rig I have received more work, because I can do all my own millwork and do not have to have it done outside. I am pleased with the outfit.—A. J. Naughtin, Contractor, Spalding, Neb.

"Ten Hours a Day for Three Weeks."—We worked your portable saw rig ten hours a day for three weeks and the engine never run hot or troubled us a minute. It paid for itself on this one job.—Alfred Pihl, Contractor, Williams Bay, Wis.

Safe Scaffolding

The steel scaffold bracket manufactured by the Builders' Supply Company, of Detroit, Mich., for contractors and builders' use, has received the highest praise from every user of the brackets. They save one-half their cost on almost every job where used, both in time and materials. Either in the sheeting bracket, or the studding bracket, there is no adjusting or bolting of any kind necessary. They clamp solid on the studs of sheeting, allowing no side swaying whatever, and are absolutely safe; every bracket is tested before it leaves the factory.

With the increased use of brick veneer these brackets will pay for themselves on any fair size job, as all that is necessary is to leave out a brick where the bracket sets against the sheathing, which can be filled in afterward. There are over four hundred contractors using these brackets in Detroit



EVERY MAN WHO WORKS WITH TOOLS

needs Carborundum Sharpening Stones—
No other stone will put such a keen, even edge on a tool—
No other stone will do it so quickly and easily—

ASK YOUR HARDWARE MAN

If he doesn't keep Carborundum Sharpening Stones,
write direct to

THE CARBORUNDUM COMPANY
NIAGARA FALLS, N. Y.

Packed in wooden box, wrapped in oiled paper.



E. C. S.
KEEN KUTTER
Special Slim Taper Files

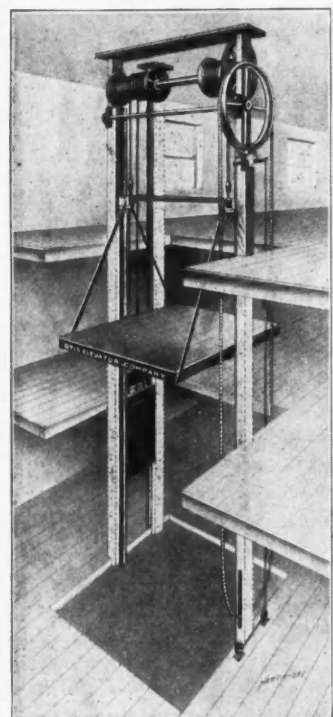
Particularly adapted for filing fine saws. These files are cut with a very thin edge and are in every respect the equal in quality and cutting of the larger sizes

Every one guaranteed, and if not entirely satisfactory, money refunded. If not at your dealer's, write us.

Address Div. No. A C., SIMMONS HARDWARE COMPANY (Inc.)
St. Louis and New York
U. S. A.

Free Sample Sent on Request.

O **H** **A** **N** **D** **P** **O** **W** **E** **R** **T**



STORE
\$ **75** TO **95**
SEND FOR FOLDER 26
ELEVATORS
OTIS ELEVATOR COMPANY

NEW YORK - CHICAGO - SAN FRANCISCO
AND ALL PRINCIPAL CITIES



CONGO ROOFING | **GUARANTEED**
By a Surety Bond

TO CONVINCING the public that 3-ply Congo Roofing will really last ten years, we furnish with every roll a bond of the National Surety Company backing up our guarantee.

THIS BOND gives you absolute certainty that our promise will be made good.

WE DON'T CONSIDER that the bond is necessary, but it serves to show how firmly we believe in the durability of our products.

ANY MANUFACTURER could say as we do, that his roofing will last ten years, but we show that we mean business when we back up the guarantee with a genuine Surety Bond.

THE ONLY THING for us to do under these circumstances is to make a roofing which will stand the test and outlive the guarantee period.

That is what Congo will do OTHERWISE, we could not afford to bind ourselves over to a Surety Company, and thus insure the thousands of Congo roofs which are being laid every year all over the country.

FREE SAMPLE

WE SHALL BE GLAD to send you a copy of the bond without charge. We will also send you at the same time a sample of Congo, so that you will see the reason for our confidence.

United Roofing & M'F'G. CO.
Successors to Buchanan-Foster Co.
555 West End Trust Building,
Philadelphia, Pa.
Chicago San Francisco

Be on the Safe Side



Petz
Patent Store Front Construction

Prominent insurance experts who recognize the fact that some bars actually break plate glass have recommended the Petz bar as safe, strong and reliable.

Merchants who want to get the most value out of their display window are insisting on the Petz Bar. It is artistic, strong, and allows glass to be set from the outside. It is indorsed by hundreds of prominent architects and builders.

Send for opinions of prominent users and our booklet, "Modern Store Front Construction." It describes and illustrates different forms of Petz Bars. Write today.

DETROIT SHOW CASE CO.
491 West Fort Street. (Sole Makers) DETROIT, MICH.
For sale by Fittsburg Plate Glass Co. at all its branches.

Canton Metal Ceilings

With Punched Nail Holes.

Produce

One half cost of erection.

Perfect Alignment.

Invisible Joints.

Canton Art Metal Co.

Canton, Ohio.

Eastern Branch.

**525 West 23rd Street,
New York City.**

Western Branch.

**206 South Third Street,
Minneapolis, Minn.**

alone in lots of from one to five dozen. When not in use or when required to move them they can be shut up in a very small bundle and take up little room in storing.



One essential point which cannot be overlooked is that there has never been reported an accident on a scaffold where these brackets were used, which fact every workman or contractor can appreciate. These brackets entirely eliminate this danger, which should be impressed on every builder in the country. See illustrations in their advertisement on another page.

Anderson's Automatic Floor Smoother

More than four years of practical experience and observation in the floor surfacing machine business have been embodied by Mr. E. W. Anderson in his new machine, the Anderson automatic adjustable floor smoother. From the

very beginning of this industry Mr. Anderson has been actively engaged in it. His work has taken him into all parts of the country and has brought him into intimate contact with the floor surfacing contractors and the operators of the machines of various kinds.

From these men—actually engaged in the business of floor surfacing—he has gained a thorough first-hand knowledge of the merits, as well as the shortcomings, of all the floor scraping and floor surfacing machines that have been developed and offered to the building public.

Moreover, this experience and intimate knowledge has enabled Mr. Anderson to design a machine which now, it is said, combines all the good qualities of all the others while escaping their faults, if any. This machine is now offered for the first time to the building public. It is known as the Anderson automatic adjustable floor smoother. It is manufactured by the Triple "A" Machine Company, 1020 Chicago Opera House building, Chicago, Ill.

It is said that the Anderson floor smoother is so made that it always does perfect work in scraping and sand-papering new or old, hard or soft wood floors. All contractors and operators who know what a floor surfacer is and the benefits coming from its use—but who are now dissatisfied in any way with their present equipment—men who want a *better* machine—will be especially interested in the Anderson automatic.

One of the wonderful new features of this machine is the automatic motor spring which is connected with the drive wheels. It is so arranged that it does away with the old back-breaking method of pulling a dead weight, furnishes momentum on the cutting stroke and doubles the operator's capacity.

This machine has two detachable weights and may be operated at 130 or 150 pounds. The knife clamp can be adjusted sideways (for shearing cut) and up or down to fit

No. 1



Fire Proof

STANDARD—Lock Joint—METAL SHINGLES
Ornamental, Easily Applied Guaranteed Weather Proof

CANTON MANUFACTURING CO.

We can save you money on
Cornice, Skylights,
Ventilators,
Metal Ceilings,
Roofings, Sidings,
Eave Trough,
Conductor Pipe

ABSOLUTELY STORM PROOF

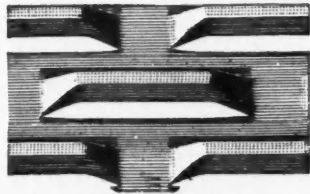
No. 2
Cata-
logue
FREE

No. 3

1320 E. 2d
Street
CANTON
OHIO




SYKES METAL LATH



The lath that is positively different to anything else made; different because it combines more good features.

Cup lath is the only Expanded Metal Lath

that can be plastered on either side—cannot be applied wrong because both sides are alike.

We make two kinds—Sykes Expanded Cup Lath, and Sykes Trough Lath. Both are supreme for their own purpose.

The top illustration shows Trough Lath, bottom cut depicts Cup Lath.

NO PICKLED LATH

Sykes Lath is absolutely guaranteed not to have been pickled in an acid bath. This means that the weight and thickness is not reduced and is less susceptible to rust.

Requires no furring out from studs because it is self furring.

It has been approved by U. S. Government and by leading architects, carpenters and builders throughout the country.

In fact, when we say it is the best ever made we are simply stating a proven fact.

Samples and prices mailed upon request.

Sykes Metal Lath & Roofing Co.
NILES, OHIO



WANTED CARPENTERS AND BUILDERS

to take up Slate Roofing in unoccupied territory everywhere. Only a few inexpensive tools needed. Slating easy to learn.

Sea Green and Purple Slate Roofs

outlast any building. They won't wear out, rust or decay. Are fire-proof. Afford clean cistern water and don't require constant repairs and attention. A profitable, growing Slate Roofing business can be established anywhere. Besides new work, there are hundreds of wornout tin, shingle, metal and composition roofs to be replaced. Your neighbors are tired of paying out good money for short-lived roofings. Furnish them with handsome, sanitary, fire-proof "Never-wear-out" Slate Roofs.

Carpenters and Builders: This is a money-making proposition, it costs nothing to investigate. LOOK INTO IT. WRITE TO US IMMEDIATELY FOR FREE BOOK OF INSTRUCTIONS AND PRICES ON SLATE AND TOOLS. WRITE TODAY.

American Sea Green Slate Co.
Box 36, Granville, N. Y.

This proposition only applies to territories not now covered by a Slate Roofer.

NOTICE CARPENTERS!

The Fifth Edition of

The Lightning Estimator

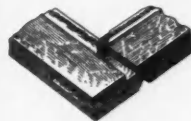
is enlarged and brought up to date. Teaches you to estimate housework in an easy, rapid, accurate and practical manner. Gives actual cost of each separate part of the labor and material. Guards against errors and omissions. Based on actual experience, not theory. Quickest reliable method in use today. Now is the time to post yourself on this vital part of the business. **Price postpaid, \$1.00.**

BRADT PUBLISHING CO.

1260 Michigan Ave.

Jackson, Mich.

FLY SCREENS and SCREEN DOORS



"See that Corner"

Notice that rails lap over stiles, which prevents the splitting of plowed edges, so common with most screens, but not with ours. They cost no more than the inferior.

Made to order neatly and promptly.

From a single screen or door to a thousand.

Wire fastened by the most improved **Standard Shoulder Strip Method.**

Mr. Carpenter, Builder or Contractor, write for free copy of our 1909 illustrated catalog.

STANDARD SCREEN CO.,
803-05 W. 14th St., Chicago, Ill.

BIGGER PROFITS

FOR THE CONTRACTOR
Who Uses The
WATROUS NO. 17 SCREEN HANGER

The same pieces, arranged to suit, will hang either a full or a half screen from either the top or side. Storm sash should be hung from the top, but this is the only way to hang a screen.

Only four screws to set instead of twelve, a saving in labor of two-thirds. A gauge mark locates the piece instantly, and makes mistakes impossible. A carpenter who has bought other hangers, could afford to throw them away, buy the Watrous No. 17, and make more money on the job. Mounted working model sent free postpaid to dealers or carpenters. Write to-day.

Finish either japanned or galvanized, with galvanized screws.

E. L. WATROUS MFG. CO.
DES MOINES : : IOWA

Granite

TRADE MARK

No Other ROOFING Roofing Has Such a Record

The ordinary ready roofing roll of 110 square feet is about half the diameter of a roll of **Granite Roofing**. This is because Granite Roofing is so much thicker and stronger and contains **so much more material**. **Granite Roofing** is not a light-weight, flimsy paper, but a high-grade permanent roofing, adapted for structures of all kinds.

It is used by railroads, manufactories and on all kinds of brick and stone buildings, where it gives good service for ten to twenty years, **without requiring repairs of any kind**. Yet, although its price is low, no other ready roofing can compare with it for service.

Drop us a postal, and we will send you a free sample and booklet.

Eastern Granite Roofing Co.,
19 Battery Place, New York. Chicago. St. Louis.

any desired pitch of a beveled or square edge scraper. The knives can be sharpened on the machine. The handle can be telescoped for use in short space and can be raised or lowered instantly to suit height.

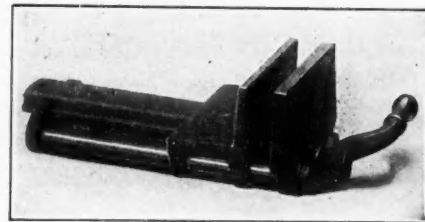


Accessories and attachments that go with the Anderson floor smoother are the AAA knife sharpener, which produces a perfect cutting edge; the AAA smoothing shoe attachment, which produces a uniformly fine finish, and a handy tool kit including knives enough to scrape 60,000 square feet of floor.

Mr. Anderson has such confidence in his machine that it will "make good" on all he claims for it that he will send the machine for a free trial to all readers of the *AMERICAN CARPENTER AND BUILDER* who are interested. Write for further information, Triple "A" Machine Company, 1020 Chicago Opera House building, Chicago, Ill., U. S. A.

Massey's Lightning Grip Vise

The Massey Vise Company have recently perfected and patented the improved, parallel bar, lightning grip vise, illustrated herewith. The sliding bars of this vise at their rear end are connected with the stationary jaw by a carrier, which causes a perfect alignment of the two jaws.



The end to end connection of the sliding jaw with the stationary jaw makes the vise very durable and practically unbreakable. The movement of the sliding jaw is easy, quick, positive and a quarter turn of the handle firmly fastens the work between the jaws.

The Massey Vise Company, 208-210 Michigan street, Chicago, make two sizes of these vises, 8 and 10 inch jaws, further particulars of which they will be pleased to furnish to all readers of the *AMERICAN CARPENTER AND BUILDER*.

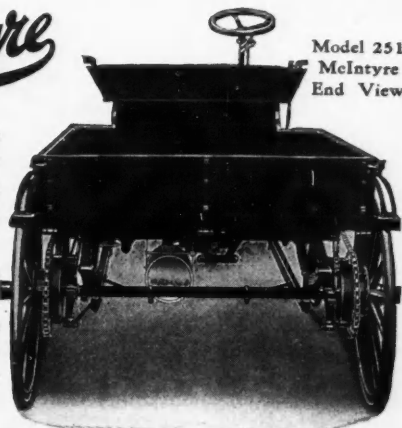
"Ideal" Hardwood Floor Scraper

Among the many new and important labor-saving devices manufactured during the past few years, is a machine for scraping hardwood floors. There is no branch of the carpenter trade so laborious as scraping floors by hand.

The "Ideal" floor scraper has several important features

The Car For Service

McIntyre



Model 251
McIntyre
End View

☐ Please do not judge the McIntyre Car by its low price. That is only an incidental feature.

☐ If added expense could improve this high-grade car, we should not have hesitated to ask a higher price.

☐ The McIntyre car gives its owner the utmost in long, hard service. Expense of up-keep is a negligible amount. Cost of operation, less than 1 cent a mile. Goes at any speed up to 30 miles an hour over country roads. It is an **economy, convenience** and source of permanent pleasure to its owner—always.

☐ Ask to know more about the McIntyre car. We have 20 Models to show you, comprising a type for every commercial purpose. Send postal today for McIntyre Catalog No. 143.

ADDRESS NEAREST OFFICE

W. H. MCINTYRE CO., Auburn, Ind.
256-7 Broadway, NEW YORK CITY 1730 Grand Ave., KANSAS CITY, MO.
418 Third Ave., MINNEAPOLIS, MINN. Tudhope-McIntyre Co., Orillia, Can.

Give Your Shoulders FREE PLAY

Don't make them sore and tired by wearing the old-style rigid-back suspenders, which tug, strain, and chafe with every move you make. Get a pair of

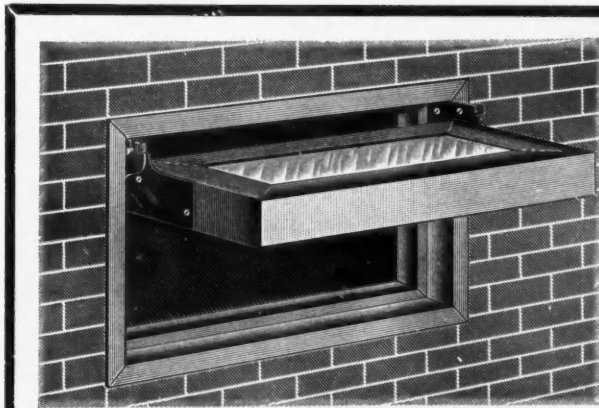


President Suspenders

and learn what real suspender comfort is. The sliding cord in the back of President Suspenders (which is not found in any other suspender) permits them to "give and take" with every motion of the body. They rest lightly upon your shoulders and allow you perfect freedom of movement. The Extra Heavy Weight, made especially for workers, outlasts several pairs of ordinary suspenders. Light and medium weight for dress wear. Extra lengths for tall men. Every pair sold with the maker's guarantee—satisfaction, new pair or money back. If your storekeeper cannot supply you, we will, postpaid, upon receipt of price, 50c. Get a pair today.

THE C. A. EDGARTON MFG. CO.

739 Main Street : : : SHIRLEY, MASS.



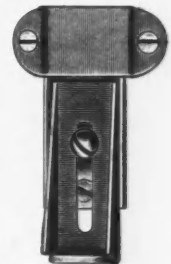
Diehl's No. 22 Basement Window Hinge.

DIEHL'S No. 22 BASEMENT WINDOW HINGE

The only bracket hinge made. It acts as a hinge and at the same time is a ceiling hook. They are self supporting. It is only necessary to use the hinge and you have both appliances. They save time and labor. Try them.

DIEHL'S No. 19 BASEMENT WINDOW FASTENER

It acts as a wedge and forces the window firmly against the stops. Trying to open the window from the outside will have a tendency to lock it more firmly. Therefore it is an excellent safe-guard against marauders and the like.



Diehl's No. 19
Basement Window
Fastener

DIEHL NOVELTY COMPANY
SHEBOYGAN, WIS.

TYPEWRITERS ALL MAKES

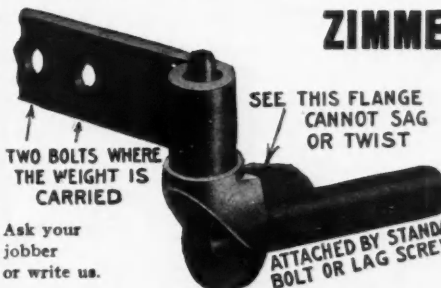


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writer. Any man can use one with
slight practice. : : : : :*



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ANTI-SAG STRAP HINGE

Ask your
jobber
or write us.

Highest Award Jamestown Exposition.

Easily attached for Heavy Barn and Fire Doors, Gates, Fire Shutters.
22 sizes. 6 inches to 6 feet. The strongest hinge ever offered; superior to
blacksmith hinge.

HARRY ZIMMERMAN & CO., Patentees,
25 Wood Street, FREMONT, O.

Eastern Selling Agents, G. F. S. ZIMMERMAN, 4 Arch St., Frederick, Md.

Genasco Ready Roofing

Genasco is economical roofing.

It costs a little more in the beginning because it is made of Trinidad Lake Asphalt, the perfect natural waterproofer and weather-resister.

The thing that makes the first-cost more makes the last-cost less. And last cost is what counts.

Get the roofing whose composition you know—the Trinidad Lake Asphalt roofing backed by a thirty-two-million dollar guarantee. Mineral and smooth surface. Look for the trade-mark. Write for samples and the Good Roof Guide Book.

THE BARBER ASPHALT PAVING COMPANY



Largest producers of asphalt and largest manufacturers of ready roofing in the world.

PHILADELPHIA

New York San Francisco Chicago

BUY A BOVEE FURNACE



Direct from the Factory
AND SAVE \$50.00 TO \$100.00
ON YOUR HEATING PLANT
They Actually Save from One-third to
One-half of the Fuel

We have one of the best equipped furnace factories in the west and make more than 30 different furnaces of seven leading styles and can furnish our customers with practically any size or style of furnace they may desire, either Upright or Horizontal, sufficient to heat a large church or school house, down to a cottage heating plant complete with all pipe, registers and fittings for \$55.00.

Our furnaces are the only furnaces having a perfect ventilating system for every part of the house.

We ship our furnaces cut to fit. Any handy man can install them without the aid of a tinner.

Catalogue and full specifications free.

Bovee Grinder & Furnace Works
50, 8th Street Waterloo, Ia.



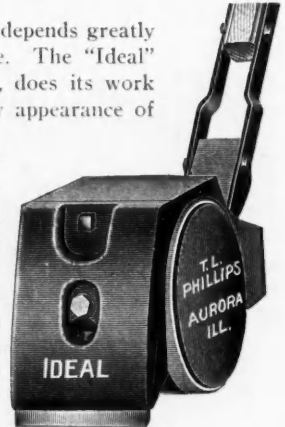
which makes it a superior article in its line. It is a high-grade machine in every respect.

The efficiency of a floor scraper depends greatly upon the firmness of the machine. The "Ideal" has much firmness, much rigidity, does its work very fast and eliminates the wavy appearance of the finished floor.

The "Ideal" will successfully scrape every square inch of floor in a room and will not mar the finished trim. It is equipped with the best rubber tires. The blades are of the best material for the purpose. A slight turn of one bolt firmly clamps the blade in place. It is said that the four blades furnished with the "Ideal" have at least three or four times the real wearing surface of those furnished with any other make. This is because the blades have no slots or holes in them. The blades can easily be sharpened without removing them from the clamp. The "Ideal" can also be used as a sander. It is extremely simple in construction as well as in its operation. It is impossible to get it out of repair by use.

No contractor and builder can afford to be without an "Ideal" floor scraper.

Try one and be convinced. They are manufactured by T. L. Phillips, Aurora, Ill.



Valuable Free Catalogue

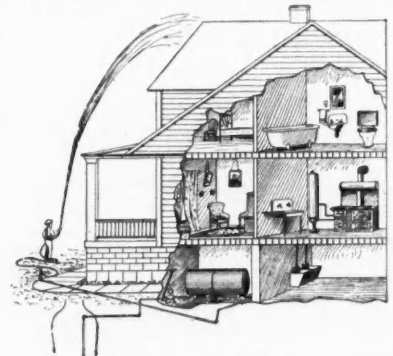
A new catalogue has recently been issued by The Central Machinery & Supply Company, of Chicago, who are advertisers in the AMERICAN CARPENTER AND BUILDER. It is known as their catalogue No. 108, and contains nearly 300 pages of valuable information, including illustrations and net prices of building material, such as plumbing supplies, steam and hot water heating supplies and outfits, gasoline engines, iron pipe, iron and brass valves and fittings, hot water heaters, metal roofing, ready roofing, rubber belting, hand pumps, bathroom outfits and hundreds of articles entering into building construction on which they can save contractors and owners much money.

They sell everything in this line direct, at factory prices.

Some of the noteworthy special features of this catalogue are the departments devoted to descriptions, illustrations and prices on pneumatic water supply systems for country homes of which one of the illustrations shown here is an example. Also the extensive departments on hot water heating, which covers several pages, and the departments given over to plumbing supplies, bathroom and kitchen outfits, as well as metal roofing, ready roofing, etc.

Taken as a whole this catalogue is one of the most complete of its kind ever published, and should be in the hands of every contractor, house owner or prospective builder.

In addition to their new catalogue this company has published a handy little booklet, which they call their "Free



Mantels for Every Purpose

Original Ideas in Mantels suitable for Bungalows, Cottages, Concrete or Cement Houses.

Investigate our new Combination Mantel Fireplaces—ideal for Flats and Apartments.

Lorenzen Mantels are Ahead

The styles are modern—the designs are distinctive—the workmanship is better than other makes sold at higher prices.

Every mantel is made by experienced workmen from highest quality air seasoned lumber in various woods and finishes. The prices are as varied as the style—all the way from \$3.00 to \$250.00.

Our enormous stock is mirrored, and priced, in our catalog—the most magnificent ever issued. Send your name **now** and receive a copy as soon as it comes from the press.

Dollars for Contractors and Owners in Our Proposition

Our latest innovation, the combination **Mantel-Fireplace**, will coin extra dollars for mantel dealers. Something new! Handsomer, richer, and vastly superior to any brick fireplace. We explain this to anybody writing. **Write today**

LORENZEN "The Mantel Man"

315 N. Ashland Avenue. Chicago

THE BRUSH RUNABOUT

No car in the world compares with the Brush Runabout in low cost of maintenance or in simplicity, durability, convenience, reliability and ease of riding.

We make these claims knowing our ground absolutely. They are based on facts we have proven during the many years we have been connected with the automobile business, as well as the two years we have been manufacturing and selling the Brush.

You are probably surprised at that statement. You may even say: "Why, I don't believe I ever saw one of your cars."

Well, we don't doubt it, even though there are almost 2,000 of them in use. When you distribute that number over the United States and eleven foreign countries they can't be very thick in every locality.

But in a few months you will see the Brush everywhere. Watch for the little gray car with the black stripes—and you will always see it deliver the goods.

There is a larger demand for the Brush this year than we can supply, even though we are running our factories twenty-one hours a day. This we know.

We know also that the car is right, so it's only a question of increasing our capacity to meet this demand for a simple, staunch, reliable runabout which will do all that is demanded of it.

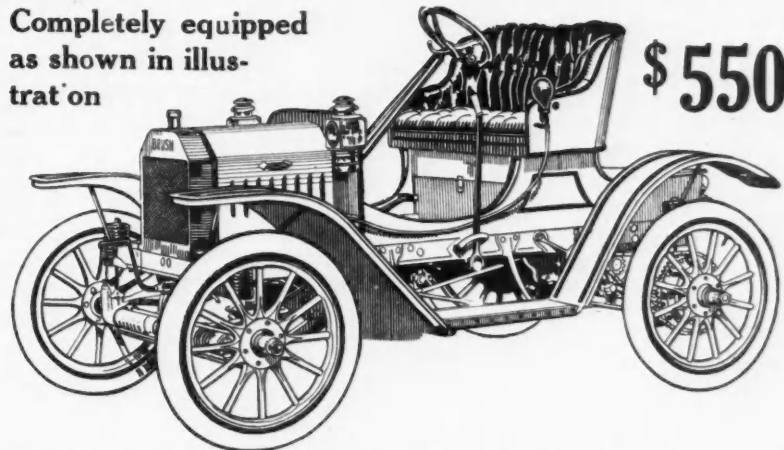
Please understand this isn't a speed car—one of the mile-a-minute kind. It's not an imitation of a big automobile with the complications left in and the strength left out. It's a runabout.

When Brush designed it, he didn't waste a minute trying to copy any of the big cars. His experience had taught him that more is expected of a runabout than of a big car, and that's why he spent over a year on the original design.

Don't lose sight of the fact that Brush is acknowledged to be the greatest of all small-car designers and that over twenty thousand automobiles of his design are in use.

Have you noticed what the foreign makers are doing? The manufacturers of such prominent machines as Renault, Clement, De Dion-Bouton and Darracq are building cars similar to the Brush.

Completely equipped
as shown in illustration



\$550

No, possibly you are not interested in what the Frenchmen are doing; but you are interested in a tried and proven automobile that you can buy for \$550—

A car that will carry two passengers and baggage over any road (up Pike's Peak, if you want to go)—a car which is easily operated—one you can maintain for less than half what it costs to keep a horse and two-passenger vehicle.

If it were possible we would like nothing better than the opportunity to take you through our factories and show you how the Brush is made. This, with a chance to demonstrate the performance of the car, would settle the question to our mutual satisfaction.

Since this isn't possible, we want to send you the name of our nearest dealer, with descriptive literature containing illustrations and specifications; also a little story about how the car has won endurance and hill-climbing contests which no car at anything like the price has even entered, to say nothing about winning.

No matter whether you want a car for business or pleasure, or both, you will always find the Brush on the job. Its uses are legion. Let us show you what it will do for you.

You know, we can sell you exactly the same car on solid rubber tires for \$500.

BRUSH RUNABOUT CO.

761 Baltimore Ave., DETROIT, MICH.
Established 1906

Members A. M. C. M. A.



See Here! Mr. Carpenter,

That trademark is something for you to remember, for every good live man wants and will have first-class tools, and experience has proved that the Simonds is the world's best hand saw.

If you're more than an *average* man, you're looking for the best saw. Every hustler wants a saw *with an edge that holds*, and that's the Simonds and you'll always know it by the trademark.

That trade-mark means that this saw is

MADE OF SIMONDS STEEL

made especially for the Simonds Saw in Simonds Mills.

By our patented process, we get the most evenly and correctly tempered saw on the market. No one else can quite make it, they don't know how. We are advertising, so you won't forget the Simonds trademark.

If you will only try the Simonds Saw, you will agree with us, and the hundreds of Carpenters already using them, that

Simonds Saws are The Best, And They ARE The Best.

Each Simonds Saw comes packed in a separate case. Remember the trademark when you buy. Every saw absolutely guaranteed free from imperfections in workmanship or material.

When you need a saw buy a Simonds. Let us know the kind and size you want and we will tell you the name of our nearest dealer and will also send you a free copy of "Simonds Carpenter Guide," a useful and instructive booklet.

Simonds Mfg. Co.

Fitchburg, Mass.

Chicago
San Francisco

New York
Portland

New Orleans
Seattle

Roofing Guide." This roofing guide and their catalogue No. 108 are sent free to all requesting same. The Central Machinery & Supply Company are located at 2567 Archer avenue, Chicago, and are reliable in every way.

Window Washing Made Easy

We are living in an age of mechanical achievement. During the past twenty years our methods of living and working have been literally revolutionized and the "inarch of events" is making lighter the burdens of mankind and contributing to the comforts and happiness of life.

A unique little attachment has been sold quite extensively in Canada and is now being introduced into the United States by the Patented Window Attachment Company, 51-53 North State street, Chicago, Ill., owners of the rights for this country. Briefly described, the attachment consists of a set of hinges for each sash that are disengaged when not in use so that the windows operate as usual. Small pivots on

each sash swing out and drop into small sockets fastened to the left hand side of the frame. These pivot-hinges bear the weight of the sash and permit its being swung out into the room, the right hand guide strip being removed. These strips are cut to a neat bevel and held in place by knurl screws so it is but a moment's work to remove them. The counterweight rope at this side is fastened to the sash by a small hook that is easily disengaged, a device at the pulleys holding the rope in place.



Both Sashes Swung
Into Building

By the use of this simple little device a sash can be swung out into the room without the least trouble and can be washed on both sides by standing on the floor in one's normal position. The upper sash drops down and is swung into the room the same way so that a window can be washed in half the time required by the old method; the operator is never off the floor and there is no more danger than there is in dusting a chair. This feature commends it to every property owner for it is applicable to private residences, flats, office buildings, hotels, schools and hospitals. Its use means that the housewife can keep her windows clean without inconvenience; it means that there is no danger to life or limb in

cleaning the windows in the highest sky-scraper and this in turn means a considerable economy in building management, for professional window cleaners can be dispensed with. Windows can be cleaned oftener and the work can be done at night if so desired. The device is inexpensive to install and can be attached to any window. It behooves the progressive architect who is looking to the future interests of his client to specify these attachments on all buildings designed. We might add, also, that the company is offering attractive inducements for agents as the attachments will be introduced to all sections of the United States at once.



Lower Sash Swung
Into Building

Would You Break Your Neck for a Dollar?

You would not. Neither would you wish to have members of your household fatally injured or permanently disabled while washing windows by the old method. Why not give your clients the same consideration? Show them that you are in touch with the world of invention by specifying our Simple Window Attachments.

Easy to install. Never get out of order

So Simple a Child Can Wash the Windows Now

The only cutting done is the stops on right hand side of windows to allow windows to swing in. The attachment with a screw driver is all that is required after sawing stops to swing any sliding window up to 6x8 foot



Lower Sash Swung into Building



Both Sashes Swung into Building

No mutilation of sash or frame. They can be installed on any sliding window, old or new. Nothing to break or wear out. Simplicity, economy, safety and comfort

All women have a horror of cleaning windows, and justly so, as without this improvement it could only be done imperfectly and with great danger to life and health, besides being embarrassing and hardly modest.

This device can be applied to old and new windows, and no alteration of the frame or sash is required, nor is there any injury to or defacement of the woodwork. Anyone old enough to clean a window can use it. There is absolutely no interference with screens, shades, curtains, awnings or double windows.

Send for List of Prominent Buildings Where Already Installed

Made of Steel and finished in Oxidized, Dull Black, Dull Brass and White Nickel

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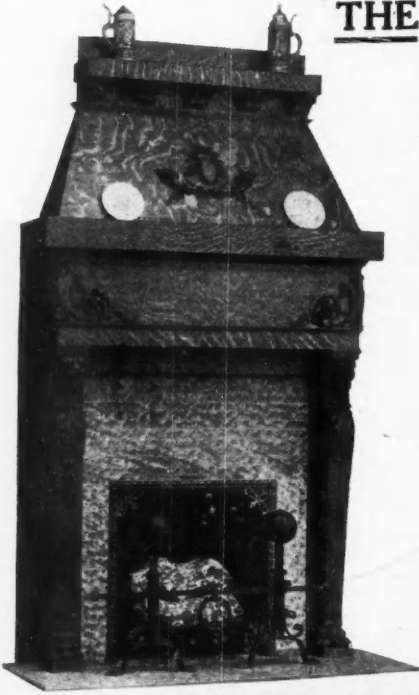
The Patented Window Attachment Co.

(Not Inc.) W. J. BLAKE, Manager

51-53 North State Street :: :: :: CHICAGO

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Nothing but thoroughly seasoned, kiln-dried stock enters into BURRITT MANTELS. The workmanship is first class and the finish all that can be desired. If you, Mr. CONTRACTOR, have not already written for one of our catalogues "A," do so to-day—NOW! We will quote you liberal discounts f.o.b. your station.

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GRATES LININGS
ANDIRONS DAMPERS, Etc.

ARE SHOWN IN CATALOGS "H" and "F"

Tiles for Bathrooms and Fireplaces

Write Us Concerning Your Needs

THE A. W. BURRITT CO.

"The Mantel Folks"

349-473 Knowlton St., BRIDGEPORT, CONN.



**Miracle
One-Man
Brick
Machine
Price
\$100**

**Rapid,
Durable,
Strong,
Everlast-
ing.**

Ask for our Catalogue "K" covering full line of Concrete Tools, Machinery, Pipe Molds, Culvert Forms, Concrete Mixers (batch and continuous), and all kinds of equipment for Cement workers everywhere.

**Miracle Pressed Stone Co.
Minneapolis, Minn.**

Largest Mfrs. of Concrete Machinery in the World.

HERCULES

BLOCK MACHINES

ARE THE FASTEST, SIMPLEST,
STRONGEST AND

BEST MACHINES BUILT

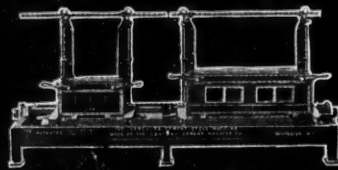
AND WE CAN PROVE IT.

**THEY EXPAND TO MEET
EVERY DEMAND**

THE ONLY machine making any size of stone from a 3 inch block to a 6 foot water table.

THE ONLY face down machine that allows for a really coarse WET mixture with fine facing.

THE ONLY machine on which four 16 inch stone can be made at ONE time, or two 20 inch, 24 inch or 32 inch stone at one time.



**THE HERCULES IS AN OLD
ESTABLISHED MACHINE**

built along correct lines and endorsed by the leading contractors and builders. They are used in all parts of the world.

A Few Facts REGARDING Hercules Machines

They have been in constant use for nearly six years.

They have furnished stone for more large important buildings than any other machine made.

They are used by the United States Government.

They produce two-thirds of the blocks used on the Island of Porto Rico.

They have just been used in the construction of a \$60,000 concrete block church in Dublin, Ireland.

They are producing stone at the present time in block plants in Rochester, N. Y., at the rate of over 5000 blocks daily.

Send for catalogue.

**Century Cement
Machine Co.**

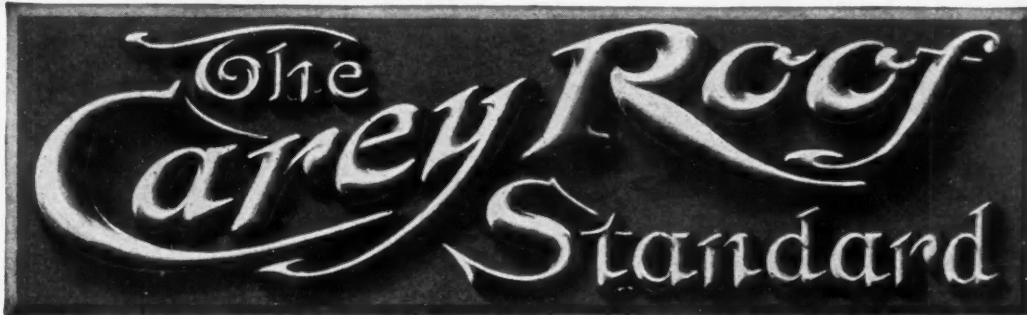
279-289 St. Paul St.,
ROCHESTER, N. Y.



EVERY man who designs buildings; who makes contracts for their erection; every builder who delights in producing a thorough, workmanlike job—every dealer who wants to handle the best—owes it to himself and to those who rely on his judgment—to know roofing values. To this end, we want to send you a large sample of Carey's Roofing—free and postpaid.

You will be interested in noting how we have succeeded in combining rare strength, wear- and weather-resisting qualities with remarkable elasticity. And, mind you, it's an elasticity that doesn't "die out."

If you are sufficiently interested to ask for them, we will send you special samples taken from roofs that have stood for fifteen years and upward—and are just as live and "springy" today as when first applied. The secret lies in the wonderful flexible cement compound—a special combination of Asphalt and other ingredients—peculiarly prepared and tempered—and found only in



THERE is not an ounce of tar in Carey's Roofing—no paper. You know that tar will run, and that paper will not "stand up" under the elements. The Carey Roof is proof against water, wind, snow and ice. Unequaled as a fire retardant—endorsed by Fire Underwriters—proved by a hundred conflagrations. (Send for our book of "Fire Tests.") The Carey Roof is absolutely standardized—in manufacture, quality, thickness and weight—there is no variation—in one foot or ten thousand. It is a waste of time, energy and capital to attempt to "build up" a roof of anything like the same exact high quality.

THE Carey Patented Lap covers all nail heads and perfectly seals every joint. Easily applied—a hammer, knife and brush are all the tools required. There are no "specifications" to follow—no materials to mix. Carey's Roofing is the best proposition for dealers—because of its uniform high quality. It is recognized as the best roofing, and it is the best-advertised roofing on the market. Send coupon today—for big free sample of Carey's Roofing and our richly illustrated book giving pictures of great factories and other buildings—Carey-roofed—with the full facts and many valuable practical suggestions. Write at once.

The Philip Carey Manufacturing Company, 30 Wayne Avenue, Cincinnati, Ohio

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The Philip Carey Mfg. Co., 30 Wayne Ave., Cincinnati, O.: I accept your offer to send large sample of Carey's Flexible Cement Roofing and your "Book-About-Roofs"—free—postpaid—and without obligation to me.

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DON'T BE HELD UP for an exorbitant sum in order to possess these conveniences, for we will sell you the material at lowest wholesale prices.

THERE IS NO MYSTERY about the pipe work for plumbing. Look at the picture. The large vertical pipe is the stack. The smaller vertical pipe is the vent. All fixtures are trapped to prevent odor or sewer gas escaping into the rooms, and are so connected as to be properly vented. This is a fair type of Sanitary installation. We will arrange any variations for you to supply you the most perfect arrangement for your home.

Whether in the city, where you have running water and sewerage, or in the country, where you have to provide your own water system and dispose of your own sewerage, you can have these improvements. We will sell you all the material of all kinds needed, make you working drawings, and tell you how to do the work.

JUST SEND US A PLAN of your house for our free estimate of all the material required to put in these modern conveniences.

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Remember we guarantee our plant in every way. You can't get a better, even if you pay twice as much. Write for information blank.

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We are offering the entire factory output of mill ends of Extra High Grade Vulcan Roofing. This is the regular \$3.00 grade of Ready Roofing, but there are two or three pieces in each roll of 108 square feet, or enough to lay 100 square feet. Fire Proof! not affected by Heat or Cold! Permanently Weather Proof. Stock limited. While it lasts at **95c** per roll.

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I am much pleased with the hot water heating plant, the pneumatic water supply system, the bath room outfit and kitchen sink that I purchased from you for my home. Every part of this plant is thoroughly satisfactory. We have extremely cold winters here but the heating plant heats the house perfectly. In purchasing this from you I have saved about \$400.00.

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The hot water heating plant which you sold me for my house is perfect.

G. R. Daniels,
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We will sell you a Complete Plant or a Single Fitting. No order too large, none too small.

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The hot water heating plant purchased from you for my 11-room house, which I installed, following your plans, is thoroughly satisfactory. I have no difficulty in heating my house from 75 to 80 degrees in coldest weather.

I expect to purchase quite a few plants from you this year to install in other houses. I also bought a pneumatic water supply system and

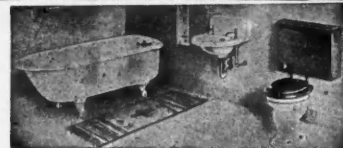
bathroom outfit with the necessary piping to connect it all up. I did all the work myself and the entire outfit works perfectly. Five to ten minutes' pumping twice a week supplies us all the running water we want. I think almost any man would be able to follow your plans and do the work.

WILLIAM GESSERT, Menominee Falls, Wis.

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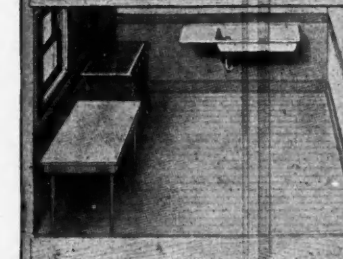
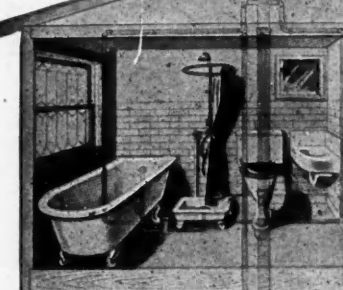
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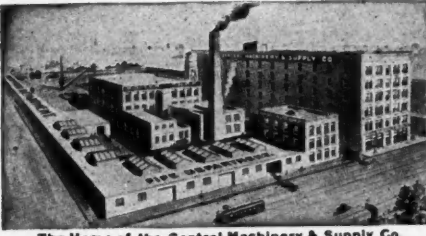
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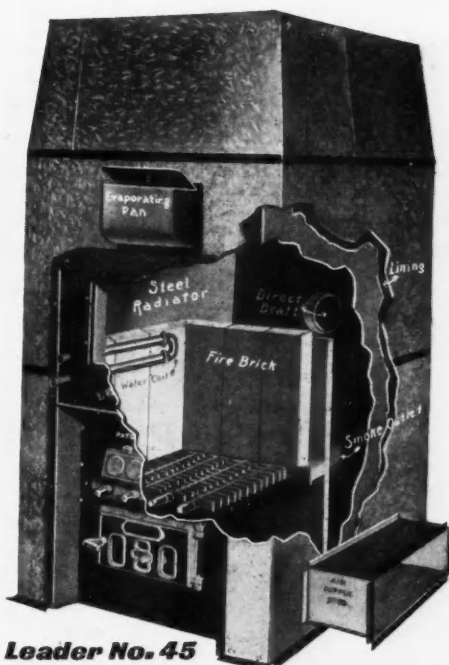


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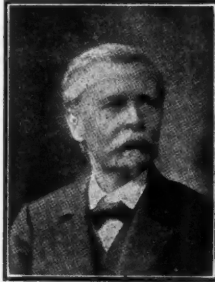
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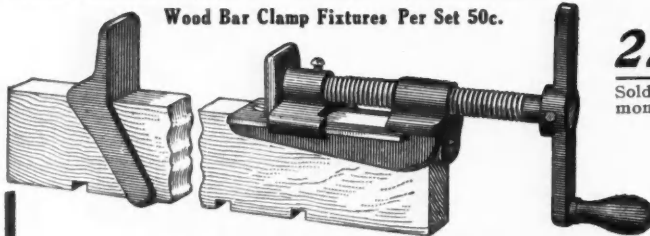
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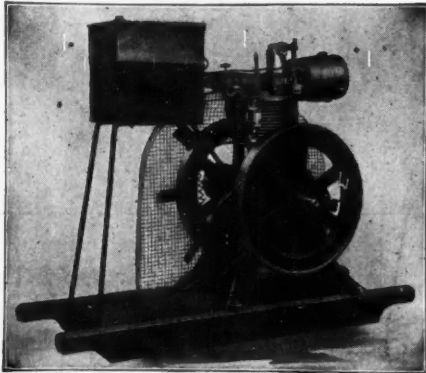
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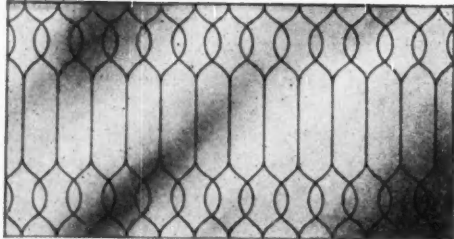
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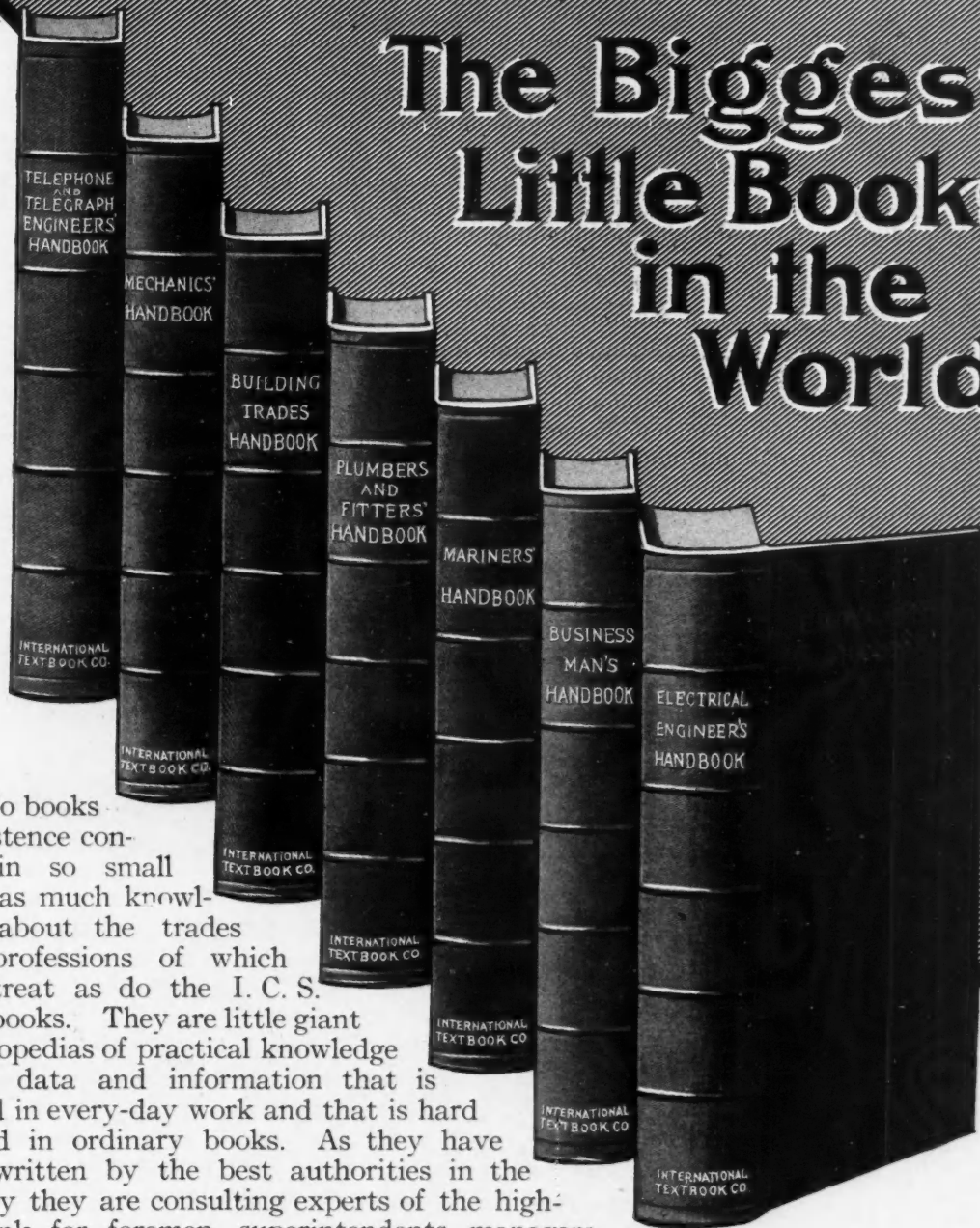
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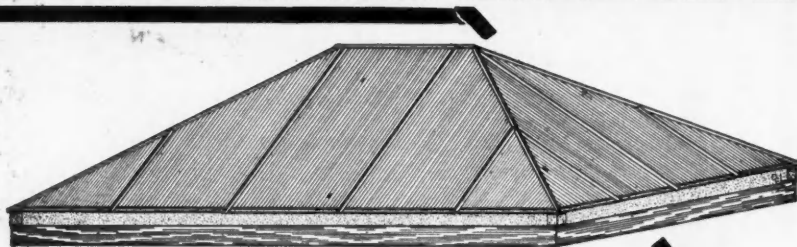
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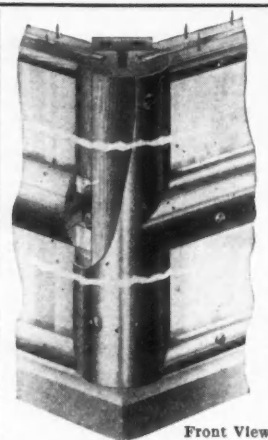
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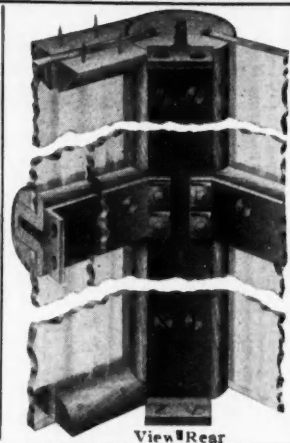
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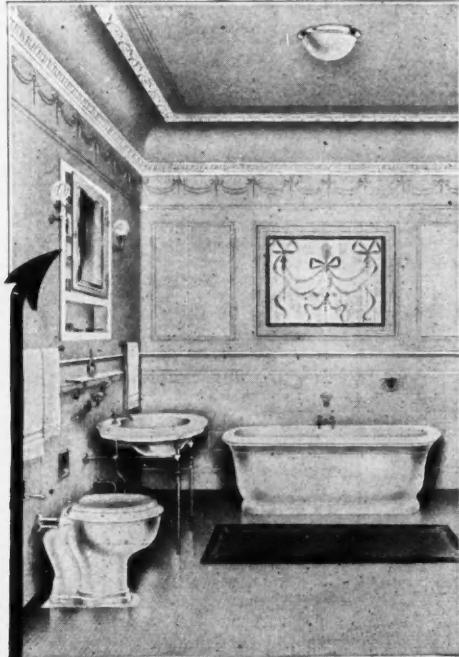
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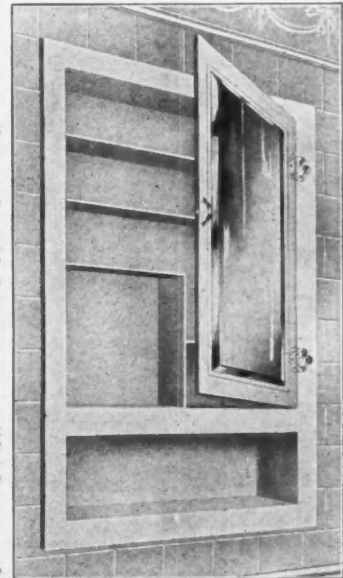
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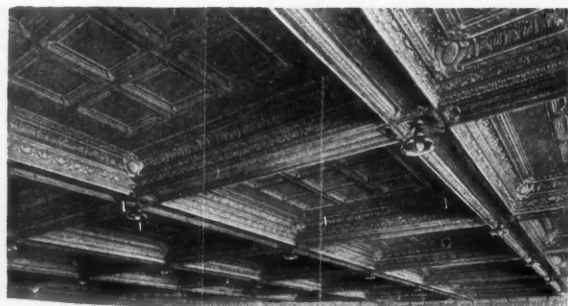
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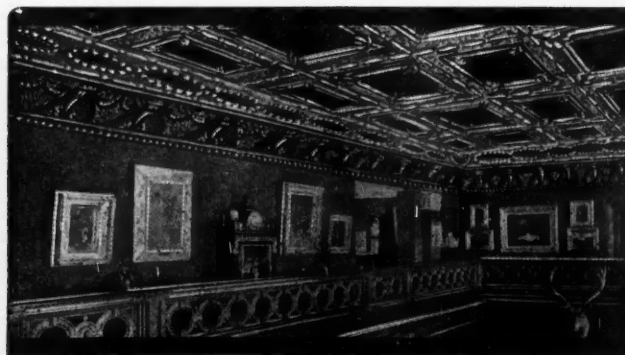
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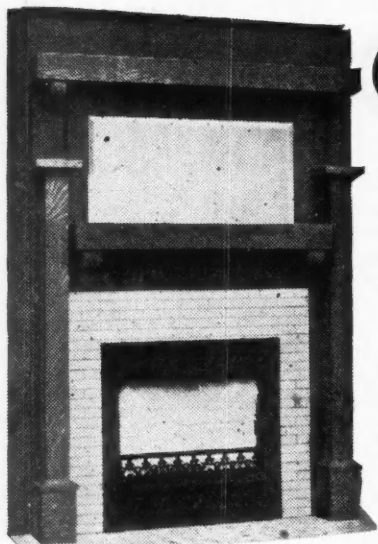
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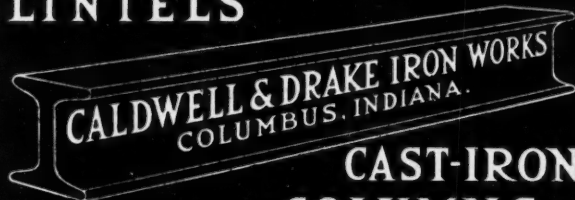
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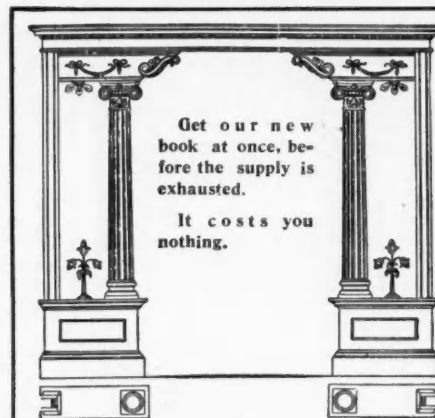
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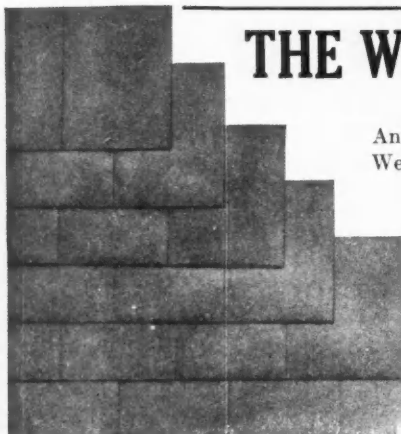
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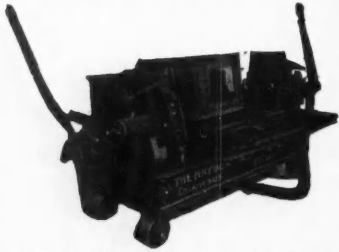
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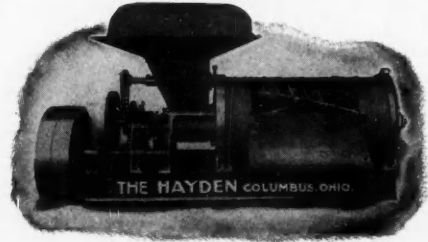
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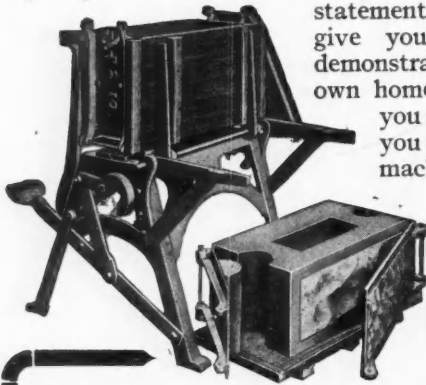
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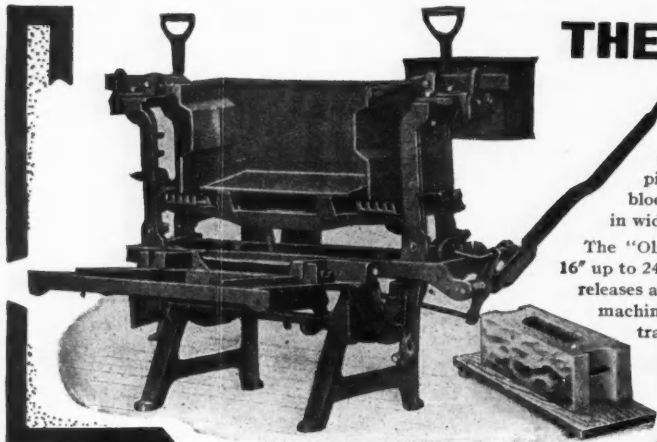
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Window Trim

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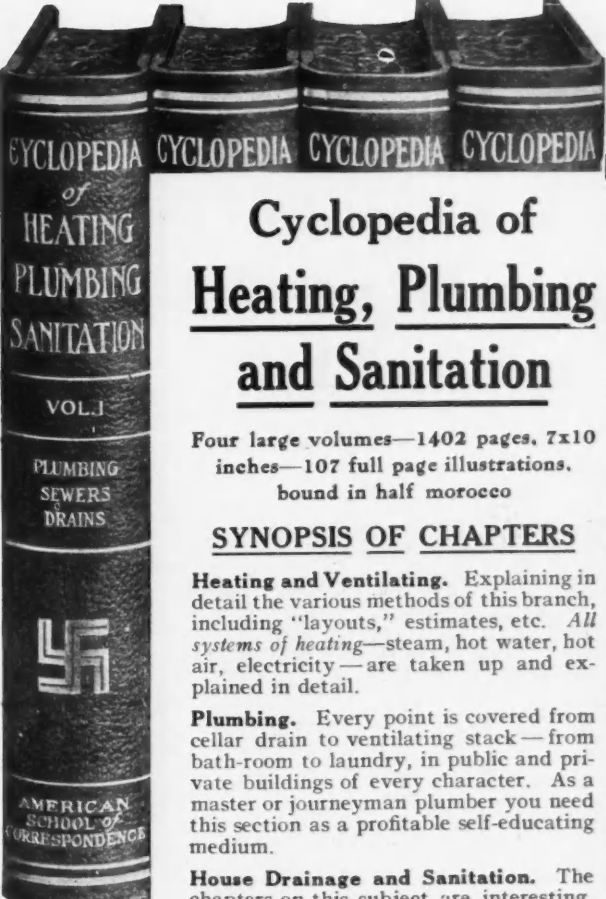
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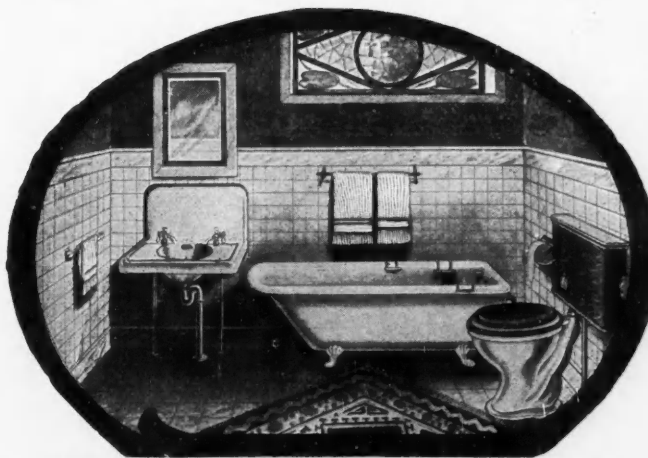
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624 Trussed Concrete Bldg., DETROIT, MICH.



\$50.00 Buys This High Grade Bathroom Outfit!

Clean—Sanitary—Odorless—Newest Designs—Best Appliances—Finest Nickel Trimmings

Here is an example of our ability to save you from 40 to 60 per cent. in the purchase of high grade plumbing fixtures. We guarantee that every article used in this outfit is absolutely brand new and first-class in every particular.

THE BATH TUB is spotless white porcelain enameled, with heavy roll rim and of very graceful shape.

THE LAVATORY is beautiful, spotless white porcelain enameled with full set of nickel plated trimmings.

THE CLOSET is the latest and most sanitary, vitreous syphon jet; polished solid oak seat and tank.

THE ACCESSORIES include bath seat, nickel plated soap cup, two towel bars and toilet paper holder.

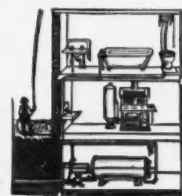
NO JOINTS TO WIPE, all threaded pipe connections.

This is our No. 3 1/2 outfit, and our price of \$50.00 absolutely includes all of the plumbing fixtures shown in the illustration, properly crated and packed for shipment.

This is but a sample of the many different styles that we offer for sale. Fifteen different combinations ranging in price from \$25.00 to \$200.00. Our prices will save you one-half of what your plumber would ordinarily charge you.

We furnish a written binding guarantee with every outfit that we sell. If any material is not fully up to our representation or your expectation we will exchange at our freight expense or refund your money.

OUR BOOK ON PLUMBING MATERIAL contains charts, drawings and diagrams; shows how any ordinary mechanic can install plumbing fixtures without wiping joint, also tells how to secure perfect sanitation. We send it free if you mention where you have seen this advertisement.

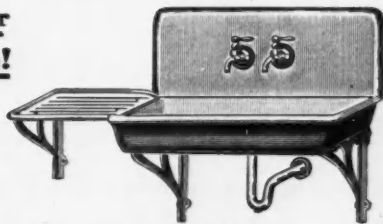


\$48.00 Buys a Modern Air Pressure Water Supply System

You can live in city comfort even though your home be on a farm. From \$48.00 upwards you can buy a complete outfit needed to give you these comforts. With our comprehensive instruction book you can install the outfit yourself. Let's tell you more about it. Our interesting book on water works systems is free for the asking. Remember it gives ample fire protection and reduces your rate of insurance. Other systems at prices lower than you can duplicate elsewhere. Write for prices.

\$185 Buys Complete Hot Water Heating System For This House!

For \$185.00 we can supply the complete hot water heating system for the house shown in the accompanying illustration. Perhaps this low price will surprise you, as it has thousands of others who have sent us their specifications for our estimate on a heating system for their homes. What is your idea of cost for a system that would be adaptable to the requirements of your home? Are you like thousands of others who labor under the delusion that a heating system is expensive, and a luxury entirely beyond the means of an ordinary person? If so, we urge that you write us for specifications on the complete cost for a hot air or water heating system for your home. Our astonishingly low prices will surprise you. We will sell you a plant that will pay for itself within a few years in the economical consumption of fuel alone.



KITCHEN SINK.
Genuine white porcelain enameled heavy cast iron roll-rim; modern design; complete with heavy cast iron brackets, enameled iron roll rim drain board, Fuller flanged faucets and lead trap to wall. Size of sink 18x30. Only \$11.50.



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Solid brass heavily N. P. Instantaneous Water Heater. Heats the water as fast as it flows through it. Capacity 2 1/2 gallons per minute. From 50 to 120 F. H. Economical; most rapid heater on the market. Automatic valves; reversible spout; guaranteed brand new and perfect in every way. Put through two field inspection tests before shipment. Running water the moment you turn on the gas.

Names of these customers furnished upon request.

Chicago House Wrecking Co. Chicago, Ill.
Dear Sirs:—
The heating plant you sent me is installed and working fine. Everything is entirely satisfactory in every way.
Wishing you entire success,
I remain
Yours truly,
Nome, Alaska

Iowa City, Ia., April 6, 1909.
Chicago House Wrecking Co. Chicago, Ill.
Dear Sir:—
Please send me one of your catalogs. I have one of your Hot Water Heating plants installed in my house since 1906 and it gives fine satisfaction. I am more than pleased with it all the way through. Yours very truly.

Syracuse, Ind., March 5, 1909.
Chicago House Wrecking Co. Chicago, Ill.
Dear Sir:—
I have my heating plant installed and it works fine. Can heat my place red hot if I want to.
Yours very truly.

Garrett, Ind., Feb. 6, 1909.
Chicago House Wrecking Co., Chicago, Ill. Gentlemen:—
You will remember me buying a Hot Water Heating Plant of you last fall. I wish to state that it has given perfect satisfaction and I am sure you will sell many more plants in this place. Yours very truly.

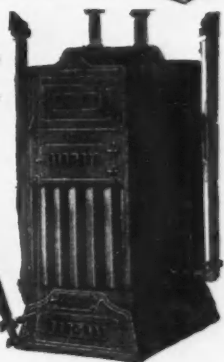
Spickard, Mo., Dec. 9, 1909.
Chicago House Wrecking Co., Chicago, Ill. Gentlemen:—
Will you please send me your complete instruction book? The Hot Water Heating plant I bought of you this fall is absolutely perfect beyond question.
Yours respectfully,



No matter how large or small your home, you should install a hot water heating system. It is more economical than a stove and will give you the comforts of an up-to-date home. We sell you the material and furnish complete plans and instructions and you can install the plant yourself or hire an ordinary mechanic. Thousands of persons have done it, you can do likewise and save 75 per cent.

Every heating plant we sell is backed with an absolute guarantee of satisfaction. When you install one of our plants in your home you are sure of receiving an outfit that will maintain an even amount of heat in all rooms of your home, condition to which you eliminate the ordinary nuisance and bother of smoke, soot and ashes customary where stoves are used. A home equipped with a hot water heating system is up-to-date and will sell much more readily than an unheated house.

Get our estimate on a plant for your home.

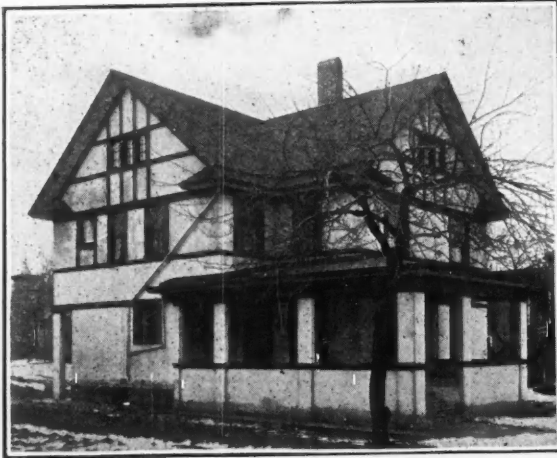


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Chicago House Wrecking Co. 35th and Iron Sts. Chicago, Ill.



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This Beautiful House was Built by
The Jackson System of Economic Building

It is concrete; strong and warm. It is fire-proof. It is absolutely damp-proof. It costs less than a frame house of the same size and design.

The Jackson System is not a "stucco" method. It uses a solid, durable, poured concrete wall. A dead-air space makes it damp-proof. With it no lumber is wasted for forms.

These are astonishing statements; but they are true. Let us prove them. Write to-day for particulars and for money-making proposition.

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"The Miles" Improved Block Machines

Make the Best Block Face down. Adjustable, Rigid, no Springs or Cogs to bother. Wet mix used. Prices right. Ask about our Metal Lined Universal Adjustable Sill, Cap and Step Mold.

The Miles Mfg. Co. (Inc.)
 109 Cortland Street,
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Annual Output
 Six Million Barrels

The uniform high quality, the regular setting properties and good popular color of Universal Portland Cement recommend it to the building contractor for concrete work of all kinds.

30 Tons' Pressure

GUARANTEES

UNIFORMITY OF PRODUCT

THE SOMERS

uses the "wettest" mix of any block machine on the market.

The Somers Makes Money

We can prove it | You can guarantee it

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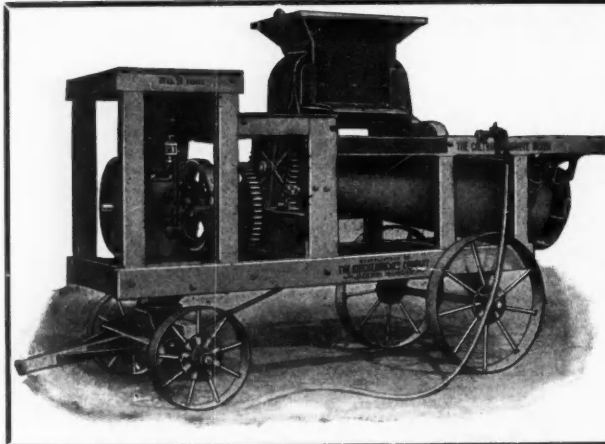
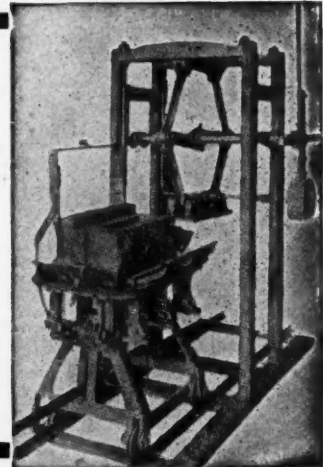
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2 Blocks Per Minute

FASTEST MACHINE MANUFACTURED

The machine does the work, not the man

It makes an absolutely damp-proof wall



"She Is A Dandy"

Shoshoni, Wyo., June 1, '09

Cement Machinery Co.
 Denver, Colorado.

Gentlemen:—Excuse me for being so slow about writing you in regard to the No. 10 Coltrin Mixer, but will say *she is a dandy*. We have been running it every day since the 15th of April and not a break of any kind so far and no trouble with the engine.

Yours respectfully,
CROSS & HARRISON
 By A. E. Harrison

COLTRIN CONCRETE MIXERS
 Shipped on trial to any part of the
 UNITED STATES

THE KNICKERBOCKER CO.
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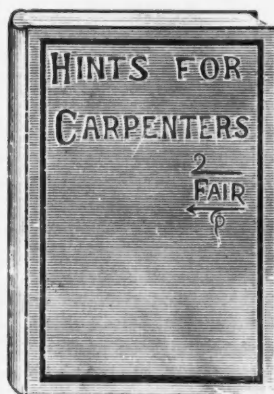
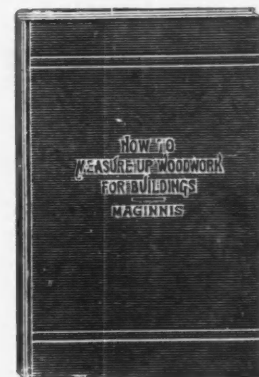
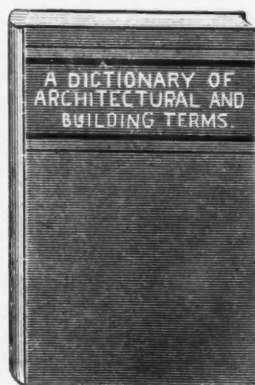
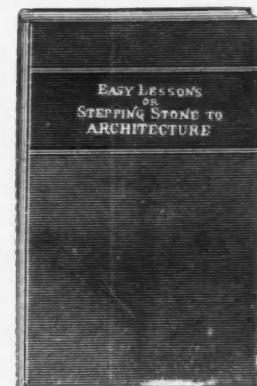
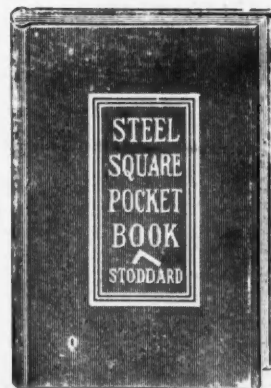
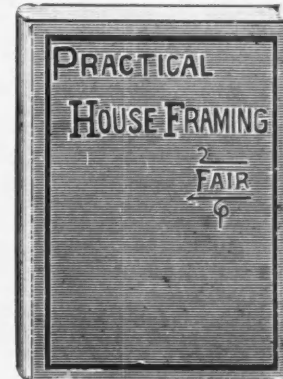
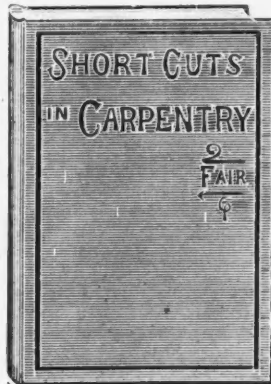
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for Building Mechanics Sent Free on Request.

Industrial Book Co.

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Concrete Roofing Tile Machinery

Manufacturers in United States

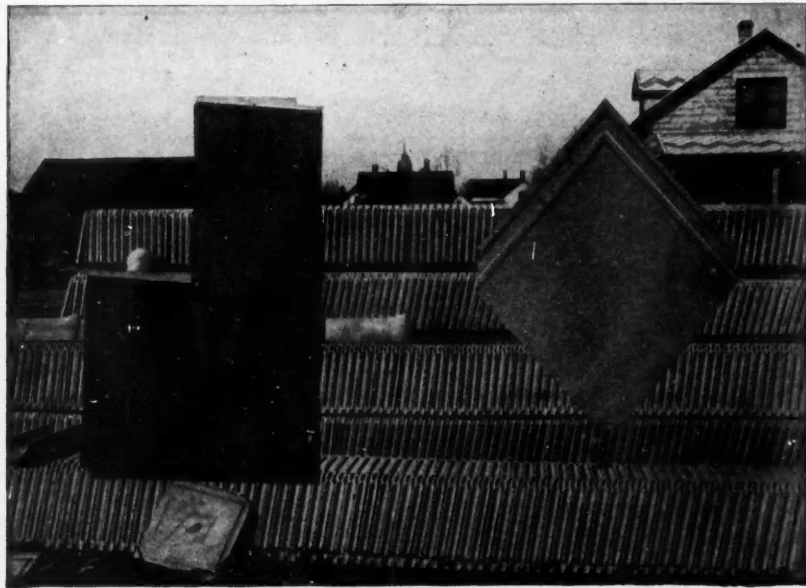
**Europa and New Era
Concrete Roofing Tile**

**Handsome, Sanitary,
Enduring, Economical**

The crowning triumph of mechanical skill and genius

Costs less than any other Roofing Material, presents a much handsomer appearance; outwears all other Roofing.

"THE ROOFING TILE WITH ARCHITECTURAL STYLE"



Europa and New Era Concrete Roofing Tile, Showing Different Size and Form of Tile

Made in practical sizes; all colors; not affected by heat or cold; does not absorb the carbonic acid of the atmosphere; will not radiate heat. Lowers Insurance Rates. *The Manufacturing of Concrete Roofing Tile* is one of the most profitable industries in the country. We Build Roofing Tile Machinery. Information cheerfully furnished. Write for catalogues.

THE AMERICAN CEMENT ROOFING CO.

623 Columbus Savings & Trust Building

COLUMBUS, OHIO



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 48 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

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 634 No. 6th St., TERRE HAUTE, IND.

What kind of a Cement Block Machine do you expect to buy?

If you want a machine which builds the best and strongest hollow blocks, 6", 8", 10" and 12" thick, veneer blocks 3", 4", 5" and 6" thick, all of these rock bevel and plain face, 4" and 8" high, and all lengths up to 24", a machine which builds circular blocks, angle blocks of any desired degree, porch piers 12" to 24" square chimney blocks of all sizes, gable blocks, joist blocks, in fact everything in the block line, then drop us a line and we will acquaint you with the most complete machine ever made.

**The U. S. Standard
Continuous Concrete
Mixer**

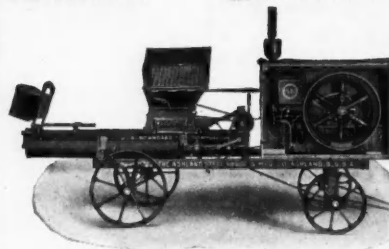


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**ACCURATE
AUTOMATIC**

**CONVENIENT
CONTINUOUS**

**REASONABLE
RELIABLE**



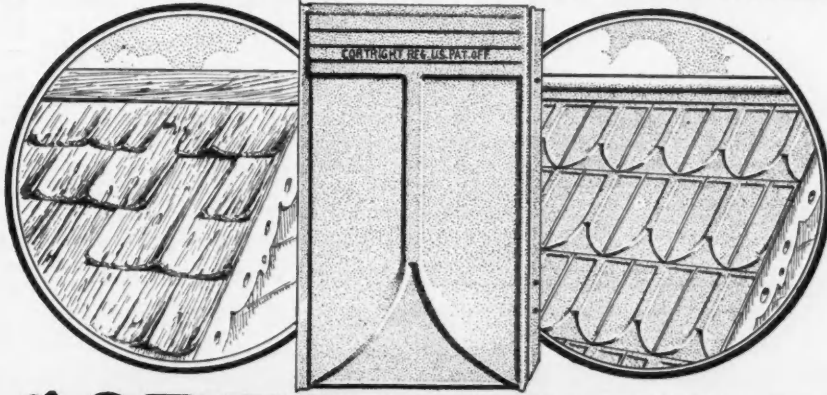
For bridges, abutments, culverts, retaining walls, sidewalks, basements, foundations, block and tile factories it has no equal. Absolutely accurate in measuring the ingredients. Built with two or three hoppers. Mechanical principles essentially new and patented.

MANUFACTURED BY

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ASHLAND, OHIO, U. S. A.

Government & Foreign Sales Department,
B21 Produce Exchange, N. Y., U. S. A.

CANNOT SPLIT OR CURL LIKE WOOD SHINGLES CONTRACTORS AND BUILDERS



CORTRIGHT METAL SHINGLES

For the detailed advantages of "Cortrights" send us your name so we can send them to you. They are so cheap to buy and so cheap to lay that you can reduce your bids and yet increase the quality of the roofs. Write today, right now.

CORTRIGHT METAL ROOFING COMPANY, PHILADELPHIA AND CHICAGO

Your greatest asset in obtaining new business is your past work.

It is the contractor and builder who shows the greatest foresight in selecting materials that will give the most permanent satisfaction, who builds the most substantial reputation.

Permanency is the quality most appreciated by the property owner, so the greater the permanency your work gives him the better satisfied he is.

What defaces a property more than an unsightly roof? Can you point with pride today to buildings you constructed 18 and 20 years ago? The best of architecture and construction can be defaced by an unsightly roof.

Cortright Metal Shingles **outlast the building itself**; are just as tight and handsome after 20 years as when first laid.

our free book "Concerning That Roof."

**ROOF SLATES
BLACKBOARDS**

The E. J. Johnson Co.
38 Park Row, New York
QUARRY OPERATORS
BLACK, GREEN, PURPLE, RED

Booklet, Samples and Prices on Application

Interior and Exterior
**CAPITALS
AND ORNAMENTS**

Detroit Decorative Supply Co.
Limited
810 14th Avenue, DETROIT, MICH.
Most Complete Catalogues Ever Issued.

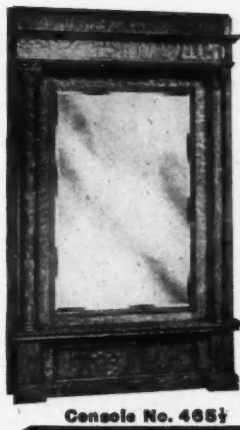
Practical Art Metal Ceilings

Quickly and easily applied. We are the only manufacturers who cut the beads in the dies after casting. Result — Square and accurate plates—which will save you time and labor in cost of erection.

Send for Catalogue No. 2 which shows 200 new and original designs.

Manufactured by
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Also manufacturers of Radiator Shields, Fire Proof Window Frames and Sash, Gal. Iron Fronts, Hip Shingles, Cornice, Skylights



Console No. 4654

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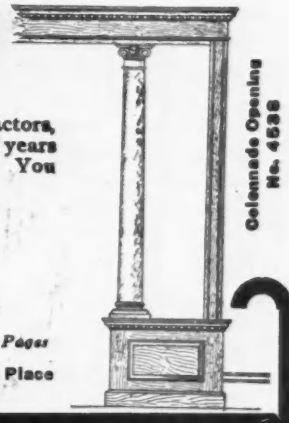
We are Specialists in the manufacture of

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We Offer Special Inducements

Write to day for our New Catalog No 17—112 Pages

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Shingles That Last. Never Leak. Never Need Repairs. Made in Painted Tin, Galvanized Tin and Copper.

**Won't Rot Like Wood
Won't Crack Like Slate**

1883 1909

It is a superlative article that increases in demand after 26 years in use.



The only absolutely protected or covered Lock.
No chance here for the lock to flood and leak.

We want an Agent in every city and town. A profitable business and satisfied customers is the experience of the man who handles WALTER'S Shingles and Tiles. Write for Catalogue, Samples and Price.

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LOOK! LISTEN!


Mr. Contractor:
This is the new improved combination concrete block machine. Makes blocks face down, wet and medium process. Three distinct machines in one combination.



Lever and lift core with wood or iron pallets. Equipped with beautiful Rock Face and Ornamental Plates. Large equipment at **LOW PRICE**. Write for our Special Price and do it now.

Detrick Concrete Stone Co.
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You Are Interested In Perfect Blocks—



Blocks which can't be beat in *appearance*—Blocks which will *stand the test*—Blocks which are *accurate* as to *shape and size*. You are interested in being able to make such Blocks at the *Maximum Speed* and at the *Minimum Cost*. Let us show you the way. Ask for Booklet.

DAYTON CONCRETE MACHINE Co.
Successor to
Detrick Concrete Machine Co.
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DAYTON OHIO

WE WANT YOU to Know (the) BOOS ADJUSTABLE MACHINE

makes blocks 6", 8" and 10" wide, 16" and 20" long, and 8" high.

5 Days' Free Trial
Prove the "Boos" in actual service. Use it—prove it for 5 days. Then, if you are satisfied, buy it.

Get Catalogue B.



Coltrin-Boos Mfg. Co.
Jackson, Mich.

PERFECTION HAND CONCRETE MIXER

A Time, Labor and Money Saver



We show here our newly improved Hand Concrete Mixer. It has many superior points which will pay you to investigate. It is not a large unwieldy machine and it can be moved with ease almost anywhere. It will mix as much concrete as many much larger mixers, and not only do it better but with much less expense both in first cost and cost of operating. It can be run by *power* if desired.

Write for circular "A" giving further information and special prices.

SIDNEY ELEVATOR MFG. CO., Sidney, Ohio

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Barrett Manufacturing Co.	606	Hess Warming & Ventilating Co.	627	Richards Manufacturing Co.	529
Bates & Edmonds Motor Co.	527	Hitchings & Co.	539	Rodgers & Co., R. M.	528
Berger Mfg. Co., The	630	Hotel Euclid Co.	528	Roth Bros. & Co.	539
Bishop & Co., Geo. H.	542	Hower, J. K.	622	Sackett Plaster Board Co.	599
Bovee Grinder & Furnace Works	614	Hurley Machine Co.	529	Samson Cordage Works	545
Bradford Pressed Brick Co.	603	Industrial Book Co.	641	Sargent & Co.	536
Bradt Publishing Co.	611	International Correspondence Schools	625	Schaller-Hoerr Co.	633
Braunsdorf-Mueller Co.	535	International Equipment & Engineering Co.	523	Sears, Roebuck & Co.	Cover
Brush Runabout Co.	615	Iszard-Warren Co.	536	Sears, Roebuck & Co.	646
Builders Supply Co.	530	Ives Co., The H. B.	607	Sedgwick Machine Works	535
Burlington Venetian Blind Co.	537	Jackson Co., F. M.	640	Seneca Falls Manufacturing Co.	537
Burritt Co., The A. W.	618	Jahant Heating Co.	602	Shelby Springs Hinge Co.	542
		Johnson & Son, S. C.	604	Sheldon & Co., E. H.	622
Caldwell & Drake Iron Works	632	Johnson Co., The E. J.	643	Shultz, C. H.	631
Canton Art Metal Co.	610	Kanneberg Roofing & Ceiling Co.	628	Sidney Elevator Manufacturing Co.	644
Canton Mfg. Co.	611	Karol, B. B.	541	Sidney Tool Co.	535
Carborundum Co.	608	Kawneer Manufacturing Co.	598	Silver Lake Co.	537
Carey Co., The Philip	619	Keasbey & Mattison Co.	603	Simmons Hardware Co.	609
Central Machinery & Supply Co.	620	Kees Manufacturing Co.	544	Simonds Manufacturing Co.	616
Central Mantel Co.	630	Kipplinger, G. J.	524	Slatington Slate Co.	628
Century Cement Machinery Co.	618	Knickerbocker Co., The	640	Smith & Hemenway Co.	607
Champion Safety Lock Co.	532	Lorenzen & Co., Chas. F.	615	Smith Machine Co., H. B.	539
Chicago & Alton R. R.	631	Lufkin Rule Co.	536	Somers Bros.	640
Chicago Embossed Molding Co.	643	Lupton Sons Co., David	627	South Bend Machine Mfg. Co.	634
Chicago Grille Works	632	McIntyre Co., W. H.	613	Standard Screen Co.	611
Chicago House Wrecking Co.	631	McKenna, David	622	Stanley Rule & Level Co.	541
Chicago Machinery Exchange	531	Mack & Co.	544	Starrett & Co., L. S.	530
Chicago Spring Butt Co.	546	Mallory Manufacturing Co.	538	Star Expansion Bolt Co.	540
Coltrin-Boos Mfg. Co.	644	Marsh, H. C.	546	Star Scraper Co.	527
Concrete Stone Mold & Machine Co.	634	Marshalltown Trowel Co.	536	Stebbins Hardware Co.	624
Cortright Metal Roofing Co.	643	Mattison Machine Works Co.	542	Stoddard, Dwight L.	624
Coulson & Co., J. W.	626	Mayhew Co., H. H.	538	Sykes Metal Lath & Roofing Co.	611
Crescent Machine Co.	527	Mead Cycle Co.	622	Taylor Manufacturing Co., James L.	534
Crescent Machine Works	544	Metallic Weatherstrip Co.	637	Thomson Woodfinishing Co.	607
Crook, John M.	524	Miles Manufacturing Co., P. B.	640	Tower & Lvon Co.	539
		Millers Falls Co.	533	Triple A Machine Co.	525
Dayton Concrete Machine Co.	644	Millers Falls Co.	528	Trussed Concrete Steel Co.	638
Defiance Machine Works	533	Miller Manufacturing Co., A. W.	524	Typewriters Emporium	613
Detrick Concrete Stone Co.	644	Miller Slate Co., O. A.	622	Union Roofing & Mfg. Co.	603
Detroit Decorative Supply Co.	643	Miotke, Jos	529	United Building Materials Co.	614
Detroit Show Case Co.	609	Miracle Pressed Stone Co.	618	United Roofing & Mfg. Co.	609
Diehl Novelty Co.	613	Montross Metal Shingle Co.	637	Universal Manufacturing Co.	537
Diston & Sons, Henry	543	Morrill, Chas	546	Universal Portland Cement Co.	640
Dixon Crucible Co., Jos	543	Mullins Co., W. H.	628	Voltz Manufacturing Co.	637
Dow Wire & Iron Works	628	Mulvey Manufacturing Co.	543	Watrous Manufacturing Co., E. L.	612
Dunn & Co., W. E.	634	Myers & Bro., F. E.	535	Weber Manufacturing Co.	527
Dutro Manufacturing Co.	Cover	National Manufacturing Co.	Cover	White Co., David	533
		National Sheet Metal Roofing Co.	644	White Lily Mfg. Co.	623
East Bangor Consolidated Slate Co.	624	Nicholls Manufacturing Co.	542	Whitman & Barnes Mfg. Co.	540
Eastern Granite Roofing Co.	612	North Bros. Manufacturing Co.	540	Winthrop Asphalt Shingle Co.	632
Edgerton Mfg. Co.	613			Woods, A. W.	632
Edwards Manufacturing Co.	630			Zimmermann & Co., Harry	613
Eller Manufacturing Co.	630				
Excelsior Slate Co.	622				

NOTICE TO ADVERTISERS

New copy, changes and corrections for advertisements must reach office of American Carpenter and Builder, 185 Jackson Boulevard, Chicago, not later than August 20 in order to insure insertion in September number.

We Can Save You 25 to 50 Per Cent

LET US PROVE IT!

Let us prove to you that we can save you from 25 to 50 per cent and furnish you a quality of mill work and lumber that is far superior to the kind that is generally sold. WE HAVE SATISFIED OVER 50,000 MILL WORK AND LUMBER BUYERS DURING THE PAST YEAR. We have saved money, furnished bright, clean materials of the very highest grade and filled orders in less time than would be possible from any other source of supply. **We Can Satisfy You and Save You Money.** If we fail to satisfy you, if we fail to save you money, if we fail to furnish you the highest grades of material and if we fail to ship in less time than your local dealer, then return the shipment to us, WE WILL RETURN YOUR MONEY AND PAY THE FREIGHT CHARGES BOTH WAYS.

Compare these prices with the prices you are now paying, then bear in mind our special Building Materials and Mill Work Catalog contains from five to six thousand special bargains. Every price is at least as low or lower than the average wholesale prices.

\$2.80 for this handsome Sash Door, made of White Western Pine. Cat. No. 63A777

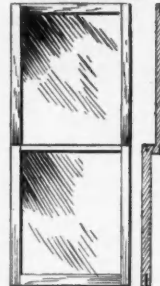


Four-Panel Door
No. 63A6877. Yellow Pine, size 2x6, 1 1/2 inch thick. Price...\$1.75c



Cross Panel Door
No. 63A6882. Yellow Pine, size 2x6 feet, 1 1/2 inches thick. Price...\$1.42

\$1.01 for this 24x28, 2-lt. checkrail window, glazed with A quality glass. Cat. No. 63A7186. Size, 24x28.



This special Building Materials and Mill Work Catalog will be mailed free on request; it illustrates and describes, and names the lowest prices on all the material that is required in building a modern building. This catalog fully explains how the average carpenter or builder who uses our prices as a basis of cost invariably gets the job and satisfies his customers.

This special catalog has valuable tables, explaining how to cut sizes, window frames, storm sash, etc. This catalog also explains how to get valuable building plans, blue prints of specifications with an itemized bill of materials of any one of sixty modern homes, free of charge.

No live, up to date carpenter, contractor or builder can afford to be without this special Building Materials and Mill Work Catalog.

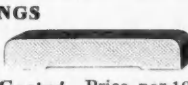
On request we will send you by return mail this beautiful Mill-Work-Catalog, our wholesale lumber price list and our Book of Modern Homes, all valuable books which will enable you to increase your business by the way of lowering your cost as well as offering suggestions which it would be hard to get in any other way. Send today for catalog No. 592

O. G. Base. Size, 1 1/2 x 7 1/2 in. Per 100 lineal feet in random lengths. No. 63A7565. Clear Soft Wood...\$2.57 No. 63A7566. Nona White Pine...\$3.21 No. 63A7567. Yellow Pine...\$2.77



Casing. Size, 1 1/2 x 4 1/2 in. Price, per 100 lineal feet in random lengths.

No. 63A7559. Clear Soft Wood...\$1.54



Quarter Round Molding.

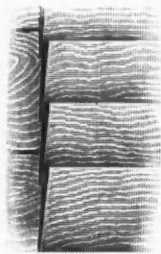
Prices*are for 100 lineal feet in random lengths.

No. 63A7784. Soft Wood, size 1 1/2 x 1/2 in. Price...\$23c

LUMBER SHIPPED DIRECT FROM THE BIG SAW MILLS TO YOU, HIGHEST GRADE AT WHOLESALE CARLOAD PRICES.

\$14.40 per 1,000 feet for Clean Soft Wood Siding.

No. 63A7386



SEND FOR SAMPLES

WE CAN SAVE YOU \$100.00 ON THE AVERAGE CARLOAD OF LUMBER AND FURNISH YOU A BETTER GRADE THAN IS SOLD BY THE AVERAGE LUMBER DEALER

Do not order a dollar's worth of lumber without first getting our Wholesale Price List and order blank, the simplest and earliest list published which will enable you to order any size, order from us in less time than you could order in any other way; no possible chance for mistakes. The list contains 175 different sizes and kinds of the best grades of lumber.

To prove that we sell lumber at less than wholesale prices, we print here below a few items picked at random from our lumber price list. Compare these prices with the prices asked by your local dealer and see how easy it is to save \$100,000 on the average carload of lumber.

2x4 - 8 feet long No. 1 grade Pine.	Price, each piece.....	\$0.08
2x4 - 12 feet long No. 1 grade Pine.	Price, each piece.....	.13
2x4 - 16 feet long No. 1 grade Pine.	Price, each piece.....	.15
1x6 - 16 feet long No. 2 grade Pine.	Price, each piece.....	.06
1x12 - 10 feet long No. 1 grade Pine.	Price, each piece.....	.21
1x12 - 10 feet long No. 1 grade Pine.	Price, each piece.....	.14 1/2
1x8 No. 3 Sheathing. Price per 1000 Ft. Board Measure.		9.00
No. 2 lath 3/4 inch by 1 1/2 inches, 4 ft.	Price, per bundle of 50 pieces	.04

Don't delay, but write for this new lumber price list today! Simply say: "Mail me your Wholesale Lumber Price List" and we will send it to you by return mail, postage prepaid.

SHINGLES 83¢ PER BUNDLE

Nº1 LATH 9¢ PER BUNDLE

Nº2 SHEATHING BOARDS 12 FT. 6¢ EACH

Nº2 SHEATHING BOARDS 10 FT. 4¢ EACH

SEARS, ROEBUCK & CO., CHICAGO

Steam and Hot Water Heating



\$117.22
For a complete Steam Heating Plant for this house.

\$144.42
For a complete Hot Water Heating Plant for this house.

WE have a heating proposition that will interest you. Highest grade goods; big stocks; prompt shipment; **two years written guarantee**; money saving prices.

Send us a rough sketch of the building you want to heat and let us give you a **FREE ESTIMATE** for either steam or hot water, including boilers, radiators, piping, valves and fittings and a complete set of working drawings, made up especially for you by our heating engineers, showing you just how to

run your pipes and making it an easy matter to **successfully install** a steam or hot water heating plant that will do its work right and be a wonderful money saver.

We send you free our 80 page catalog, "Modern Systems of Home Heating", the very day we receive your request. This book tells you exactly what you want to know about the heating proposition, fully describes our line of Boilers, Radiators, Fittings and accessories, names prices **beyond the reach of competition** on everything you need.

Don't order a heating plant or supplies from any one without first sending for our 80 page Book. It tells you **how to buy** and whether you send us your order or not you'll say it's a valuable book to own. Send today for our Heating Book No. 592.

We Manufacture Plumbing Goods and our prices on strictly high grade supplies represent the manufacturing cost with one profit added.

No jobbers' or middlemen's profit for you to pay when you buy from us. As an example, look at our price on this strictly A grade Bathroom outfit here illustrated. Think of it! A high grade outfit consisting of a 5-foot guaranteed, high grade, white enamel, cast iron Bath Tub, with heavy nickel plated brass connected waste and overflow fuller bath cock and supply pipe; an 18x21 circle lavatory with a 4" apron, complete with nickel plated brass trap and supply pipes; a strictly up to date, low down syphonic action closet, highly finished. Our price on this entire outfit is only **\$38.95**.

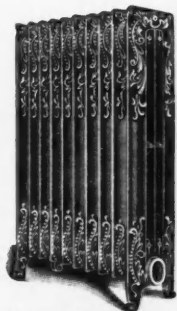
Our Plumbing Goods Catalog is full of just such bargains as this. And don't forget that the quality in every case is guaranteed absolutely high grade. We know our goods and our prices will interest you. Send today for our Plumbing Goods Catalog No. 592



Strictly A grade in every respect, \$38.95. We do not carry or sell any defective or second-hand Plumbing or Heating Material.



Steam and Hot Water Boiler. \$30.25 and up—almost as cheap as stoves.



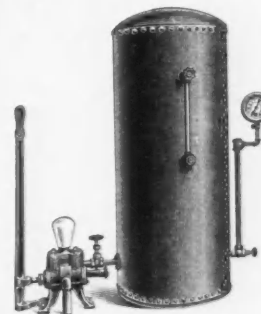
38-inch Steam Radiator. Highest quality made, 38c per foot.

\$53.25 OWN YOUR OWN WATER WORKS

Our pneumatic water supply outfit brings you all the conveniences of a city water works system. **Water in the kitchen, for the bathroom or anywhere in any of your buildings.**

Our Pneumatic Water Supply Outfit costs you nothing when you consider the comforts and health benefits it brings to your family. It does away with the old style attic tank with its stagnant water, leaky joints and frozen connections. Being an air pressure system it aerates the water, kills poisons and supplies you with clear sparkling water. It gives you a pressure of from 40 to 60 pounds. It is excellent for sprinkling or fire protection.

Our 6-Foot Tank Outfit consists of one Black Steel Pneumatic Tank, 30 inches by 6 feet, 220 gallons capacity; one Special Double Acting Hand Force Pump with brass lined cylinder and air compressor attachment; one Pressure Gauge; one Water Gauge, complete with glass, brass guards and try cocks; one 1-inch Gate Valve; one 1-inch Check Valve; one 1/2-inch stop and Waste Cock; one 1/2-inch Hose Bibb, together with pipe and fittings cut and fitted as shown in illustration. Simple to install with our plain instructions.



No. 42A2044 Price complete as described.....\$53.25

SEARS, ROEBUCK & CO. CHICAGO

TIME-SAVERS

Wherever "National" Ornamental Butts have been used they have met with the unqualified endorsement of Contractors, Architects and Builders alike.

The fact that they save fully **one-half the time required to hang doors** has made them popular with the building trade.

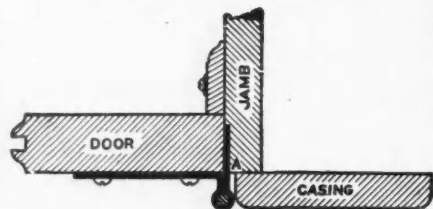
The drawing at the bottom of this page shows the method of attaching the O. B. The butt part is mortised into the jamb first. The door is then set and wedged into place and the ornamental leaf is screwed to the surface of the door. **Note this is but one side to mortise.**

The No. 450 Butts here illustrated are our latest design. They are made of specially selected Cold Rolled Steel, highly polished, and are double plated. All sizes are made with beveled edges, giving them a very rich appearance. They are threaded at both ends, making them reversible.

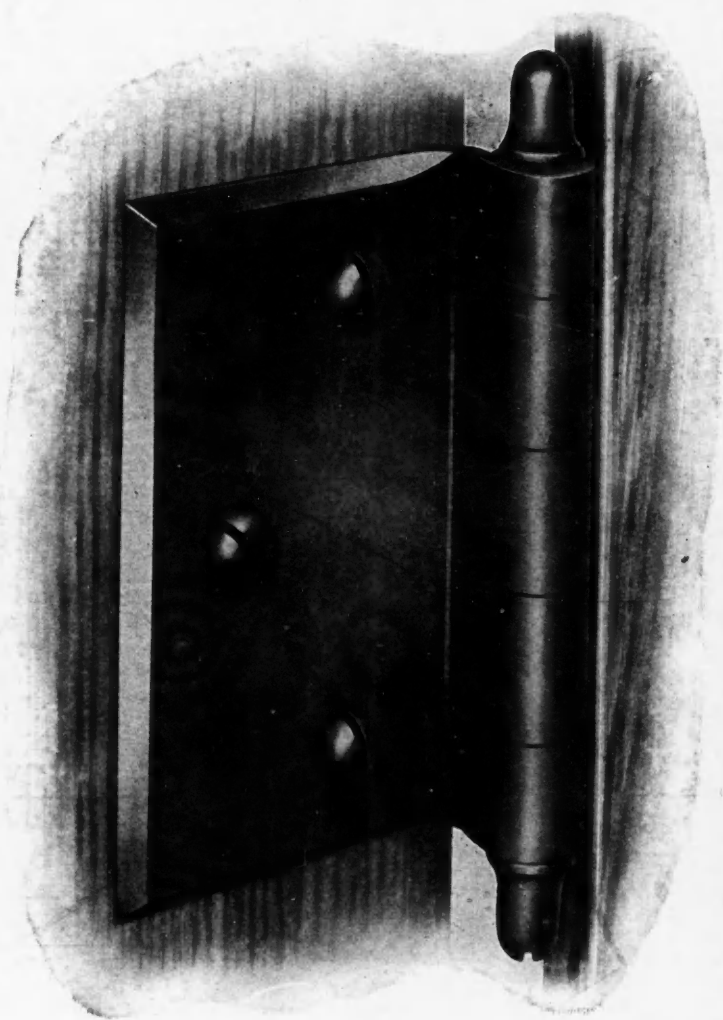
The false tip has the slot for a screw-driver, making it easy to remove should the threads become corroded. The slot also distinguishes the top from the bottom of the butt.

Save half the expense of hanging doors and get "National" Ornamental Butts from your dealer. If he does not have them, send us his name and we will see that you are supplied.

Also ask for booklet "Ornamental Ideas"—it will give you some good pointers.



National Mfg. Co.
STERLING, ILL.



No. 450—Cut full size, 3½-inch

