

AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER

CEMENT AND ITS USES
IN MODERN BUILDING



Through 47 Twenty-Penny Nails Without Injuring His

ATKINS SILVER STEEL SAW

Read Mr. Bekefi's Letter!

Cleveland, O., Aug. 6, 1909.

Dear Sir:

I am answering your letter of July 27th., 1909, wherein you ask me if I am satisfied with your special tools. You know very well if I was not satisfied with them I would not buy them, and I am able to tell you more about it because I am an experienced woodworker from Europe and in my time I have seen more tools than you have in your whole manufacturing experience and life.

In my opinion the **Atkins Perfection Silver Steel Saw** is the **King of the World**. To show you as to what test it can be put, I will relate a circumstance of last week where it showed itself to have no equal. You may not believe it, but I have quite a few witnesses to prove it.

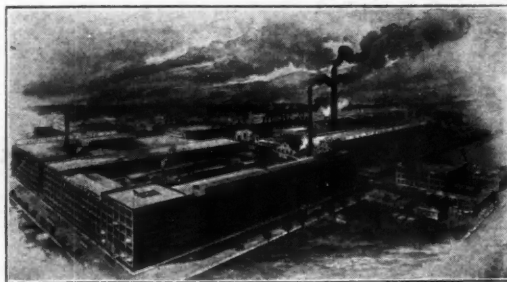
At the Sherwin-Williams Paint Co., I was cutting out a stairway through a floor that was made from two by fours and overlaid with maple flooring. On that job I cut through 47 twenty-penny nails and a good many eight-penny ones. Louis Schmitt, the foreman, was with me at the time, L. Davis, the master mechanic, as was also J. C. Beardsley, the general superintendent. They all wanted to know what kind of a saw I used on that job. I told them that I had the **King of the World** and that it was made by the **Atkins** people of Indianapolis, Ind., and they certainly are the **tool kings of the world**. There is no use in talking, they have no equal when it comes to making tools. They are at the head of the list, not only in the United States, but in the **whole world**.

And I can say that I have tried a good many tools but have never been able to buy one that could come up to Atkins tools. And in the long run they are the cheapest because they outlast all others in the market. As I have not much time now I will thank you for remembering me, and will close, remaining

1417 Twenty-fifth St., N. W.

Sincerely yours,
V. L. Bekefi.

In Cleveland, Mr. Bekefi has a reputation second to none as a high-class, skilled artisan.



The Home of the Atkins Saw

E. C. Atkins & Co., Inc., Indianapolis, Ind.

Largest Exclusive Saw Manufacturers in the World.

His experience in sawing nails was not a surprise to him, because he knew his *Atkins Silver Steel Saw*. But it will probably surprise many carpenters who still think that old style saws are "good enough."

Atkins Saws are made to cut wood, not metal—made to cut wood fast and easy—but the statement above proves that in case of an emergency or accident, they will not be found wanting.

No other saw will stand so much hard usage, stay so sharp, or last so long, because no other steel ever put into a saw is even in the same class with Atkins "*Silver Steel*."

Better than Razor Steel

It's a fact that Atkins Silver Steel is better steel than you'll find in most of the high grade razors. Carpenters tell us that other saws have to be filed 3 to 4 times more often than the Atkins.

The blade is scientifically taper-ground—not merely given a little bevel on the back. Tapers **all the way** from tooth edge to back—thickest at the tooth-edge. Doesn't bind or buckle in the wood.

Fitted with the Atkins Perfection Handle, which prevents the usual wrist-cramp. But you can have the old-style handle, if you prefer.

Our Guarantee: If you don't find the *Atkins Silver Steel Saw* to be the best saw, the easiest running, fastest cutting saw you ever touched, take it back to the dealer and get your money back.

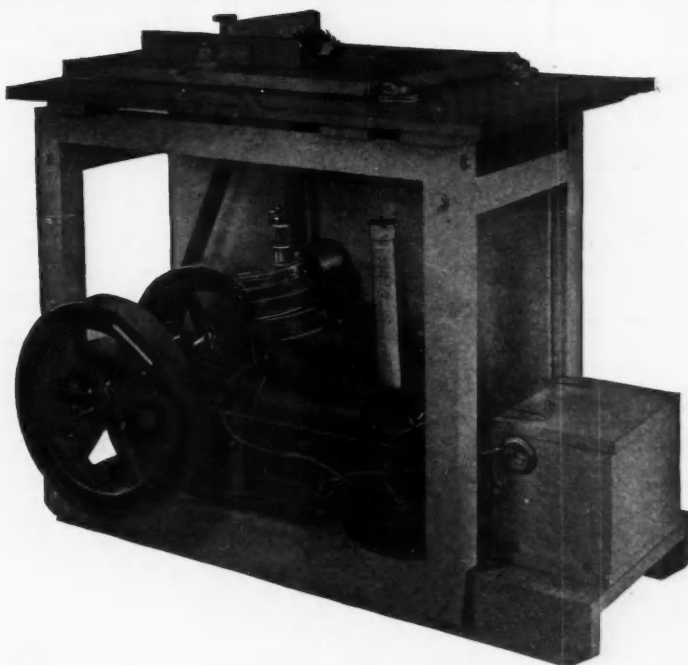
Be sure the blade says "*Silver Steel*"—that's our best saw.

FREE TO CARPENTERS

Write us today (enclosing 10 cents in stamps to cover postage) and we'll send you **free** a good strong Nail Apron, together with our Carpenter's Time Book and our handy booklet, "*Saw Sense*."

Address Carpenters' Department

ON THE JOB



This Portable Saw Rig Complete

Strongly crated, ready to start when it reaches you, weighs 520 pounds. With the outfit is included:

- One eight-inch Rip Saw
- One eight-inch Cross-cut Saw
- One ten-inch Cross-cut Saw for Bridging
- One half-inch Dado Head
- One two-inch Jointer Head and Attachments
- One Emery Wheel
- One extra Spark Plug
- One Wrench and Oil Can
- One Belt Tightener attached to engine

This rig is absolutely guaranteed to be as represented or money back without any argument.

Let us have your order for one of these time and money savers. The rig will make you independent.

WRITE FOR OUR ATTRACTIVE FOLDER AND PRICE

Inter-State Equipment & Engineering Co.

OLD COLONY BLDG.

CHICAGO, ILL.

WATER
FIRE
AND
LIGHT
-NING
PROOF

"TITELOCK" METAL SHINGLES

ARE THE EASIEST AND QUICKEST SHINGLES TO LAY

VENTILATING
"TORPEDO"
SKYLIGHTS



EMBOSSED
"MILCOR"
CORNICES

"Invisible Joint"
STEEL
CEILINGS
SEND FOR CATALOG

MILWAUKEE
CORRUGATING CO.
MILWAUKEE, WIS. KANSAS CITY, MO.

EAVES TROUGH,
CONDUCTOR PIPE,
ELBOWS, RIDGE
ROLL SHEET METAL
ROOFING and SIDING
SEND FOR PRICE LIST



GOOD LATHES

HIGH speed lathes capable of hardest kind of turning—lathes that are convenient, strong and durable—lathes that don't give trouble—that is the only kind we make.

We build them in three sizes, 12, 16 and 20 inch; two styles, single and double end. We can make immediate shipment of any size or style.

Write for Circular B-12

The Cordesman - Rehtin Co.
Cincinnati, Ohio

"Faultless" Back Rest For Wood Turners

A rest that supports stock from three sides; one that prevents all vibration and allows turning stock down to a hair's breadth. A ball-bearing rest that does not burn, blacken nor mar stock in any way. A rest that may be opened, closed or removed in less than a second. The only back rest without a fault. We sell it on an absolute guarantee and will give money back if not satisfied.

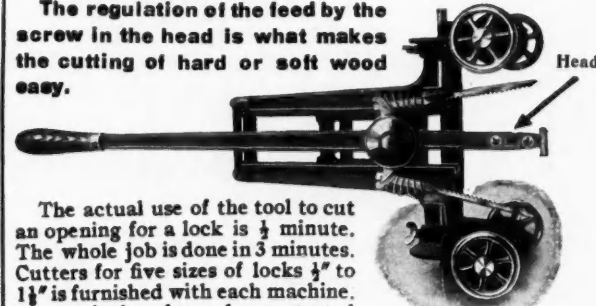
Write for photographs and full particulars

The Cordesman - Rehtin Co.
Cincinnati, 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.



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. Makes floor scraping simple and agreeable. It embodies the mechanical principles of the plane. Planes and scrapes floor at one operation. Does better work than most hand work. "Wavy" floors prevented. Most rapid scraper on the market.

Be an agent in your locality for the floor planer of the future.

Particulars on request.

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

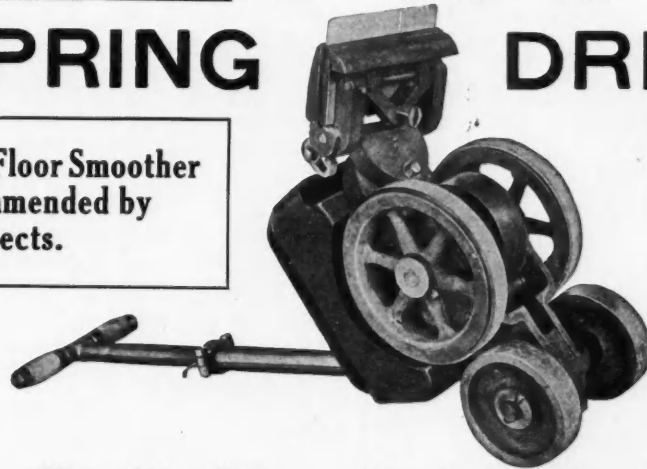
The Easiest
Running Machine
on Earth.

TRIPLE
A

Saves 90% of Your
Floor Scraping
Time Over Hand
Scraping.

SPRING DRIVEN

The Only Floor Smoother
Recommended by
Architects.



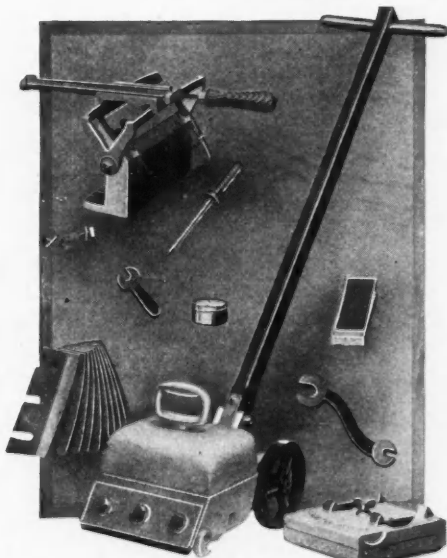
Easily adjusted to all
kinds and conditions of
floors. Guaranteed to
give satisfaction.

SENT ON FREE TRIAL.
ANYWHERE—

FLOOR SMOOTHER

Manufactured by TRIPLE "A" MACHINE COMPANY, 112 Clark Street, Chicago

The Only Floor Scraper That Does the Real Business



The Acme Floor Scraping Outfit

Such is the voluntary expression of a contractor who has tried the Acme Floor Scraping Outfit. Read what he says.

Newkirk, Okla., Jan. 5, 1910.

Mr. Jos. Miotke,
Milwaukee, Wis.

Dear Sir:—The Acme Floor Scraping Outfit arrived O. K. and have tested the same to my satisfaction and found it satisfactory in every particular and am pleased to say it is the first and only scraper I ever seen that does the real business and I consider the sharpening device and sander indispensable attachments.

Find enclosed draft in payment for the same.

Yours truly,
T. A. TODD.

The above contractor sent for the Acme Floor Scraping Outfit ON TRIAL. It did not cost him one cent to do this and if the outfit had not proven satisfactory he had the privilege of returning it AT MY EXPENSE.

I send out hundreds of machines on this basis. WILL YOU LET ME SEND YOU AN OUTFIT ON A WEEK'S FREE TRIAL?

Write me today for booklet and full information.

JOS. MIOTKE, 247 Lake Street, Milwaukee, Wis.

TRY BEFORE YOU BUY

Let us send you the "LITTLE GIANT" Floor Scraper—Freight Prepaid. Absolutely FREE of any expense to you whatever

A request from you brings the "Little Giant" Floor Scraper to your door—you send no money and we pay all expenses. After you have given it a fair trial and have tested it as thoroughly as you know how, and have found it satisfactory, pay for it. If you do not think it is the best floor scraper made, return it.

TRY IT ON YOUR OWN FLOOR

You can try the "Little Giant" Floor Scraper on your own floor and the trial costs you nothing. All that we ask is that you give it a fair trial. You be the judge and jury. Every carpenter and contractor can afford to invest in one as the time and money saved will pay for the machine in a very short time. By using the "Little Giant" Floor Scraper you will be in a position to estimate much lower than your competitor and therefore have more work. Can you afford to be without this machine?

20,000
"Little
Giant"
Floor Scrapers

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 above liberal proposition.



We are making a Special Price for February

Hurley Machine Company

31 South Clinton Street, CHICAGO
1011 Flatiron Building, NEW YORK
73 First Street, SAN FRANCISCO

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.

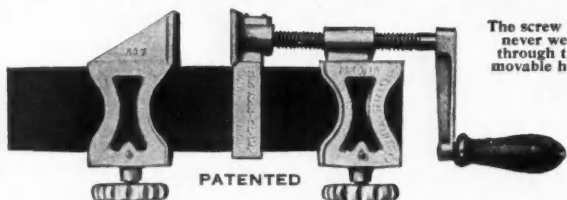
SENT ON APPROVAL

GEO. J. BACHMANN
No. 501 Lyon St.
Grand Rapids, Mich.



WE PAY THE FREIGHT

The TODD Clamp Will Save You Money



The screw will never wear through the movable head.

Quick adjustment. No steel bars to spring. Clamping range unlimited. No notches to weaken the bar. Heads always square with the work. Send for circular giving full description.

BROWN SPECIALTY MACHINERY CO.,
Jackson Boulevard and Clinton Street, Chicago

Hotel Cumberland New York

S. W. Cor. Broadway at 54th Street



Near 50th St. Subway Station and 53rd St. Elevated. "Broadway" cars from Grand Central Depot pass the door.

Headquarters for
ARCHITECTS
and
BUILDERS

Near Depots, Shops and Central Park.

New and Fireproof
Strictly Firstclass

Rates Reasonable

\$2.50 with Bath and up.

Ten Minutes Walk to Twenty Theatres

Harry P. Stimson, formerly with Hotel Imperial
R. J. Bingham, formerly with Hotel Woodard

Send for Booklet

If You Have Power

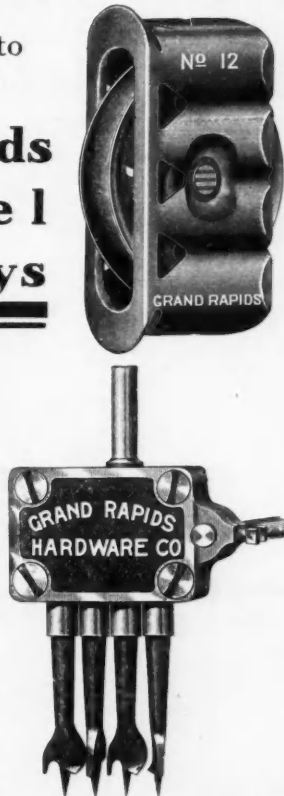
You cannot afford to use any but the

Grand Rapids All-Steel Sash Pulleys

and the Grand Rapids Mortising Bit. Bores mortise at one punch. Used in common boring machines. We make boring machines too. Write for sample pulleys and prices.

Grand Rapids Hardware Co.

35 Pearl Street,
GRAND RAPIDS, MICH.



DIEHL'S Screen Door Catch No. 51



Cut shows the inside construction of the catch. This is the only Catch made that has a double leverage, so that the spring always pulls across the corner and still has a direct leverage on each arm. This spring will never lose its tension, as it does not expand over one-eighth of an inch and is enclosed in a solid steel casing.

Samples can be had on receipt of ten cents.

MANUFACTURED BY
DIEHL NOVELTY CO.
SHEBOYGAN :: :: WISCONSIN

Say! For Metal Ceilings Write

Illinois Metal Ceiling and Supply Co.

23 Lake St., Chicago
Telephone Central 514

We Furnish and Apply them



Floor Scraper Satisfaction

Used in all parts of the World

That's why I can guarantee every scraper that leaves my shop—

I know what the Weber is doing and what it can do for you, and when I tell you it is the only perfect floor scraper made I know it's so. It is the only machine ready for instant use in either direction—really two machines in one—and by scraping both ways you can scrape twice as much floor space in half the time and for half the money, at the same time accomplishing better results than with any other floor scraper made. The blades on

The WEBER DOUBLE ACTING Floor Scraper

are perfectly adjusted and may be set at the correct angle, easily and quickly, to scrape any kind of wood—maple, oak, yellow pine, fir, it makes no difference what. The blade holder is attached to a flexible frame by means of half-ball-and-socket bearings—absolutely preventing chattering and leaving of waves in the floor.

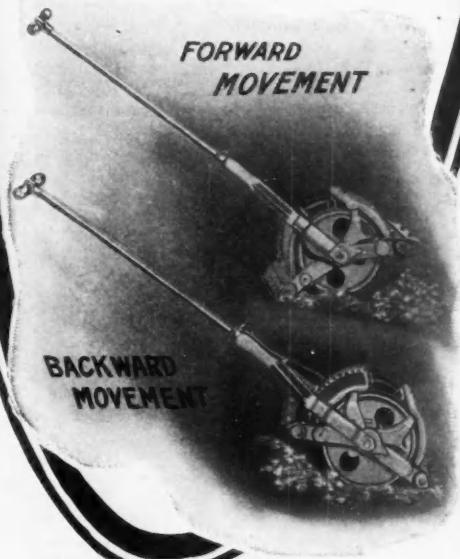
I want you to prove these points to yourself. Try a Weber—free at our expense.

Try other machines, too and make comparisons. Satisfy yourself beyond all question of doubt that the Weber is the only perfect and practical scraper on the market.

I'll pay the freight

Free descriptive booklet, price list, and other information on request—but don't buy a floor scraper until you have seen a Weber in action.

John F. Weber, President
WEBER MFG. CO.
670 71st Ave., WEST ALLIS, WIS.



Remember—THE FOX PAYS FOR ITSELF



Fox Floor Scraper No. 1

A Perfect Machine for Perfect Work.

“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



FOX MFG CO.
Brooklyn, Wis.

“THE PORTER” Wood Turning Lathes

for wood turners and pattern makers. Furnished complete with countershaft, rests, steps, bolts, center and face plate. A high grade machine at a reasonable price. We also make Hand Jointers, Shapers, Swing Cut-off Saws, Pony Planers and Post Boring Machines. *Better get our Catalog.*

C. O. PORTER MACHINERY CO., Grand Rapids, Mich.



WOOD TURNING LATHE

ACKERMANN

Floor Scraper

If you are a carpenter, builder or contractor you need the **Ackermann Floor Scraper**. If you want a machine to **scrape floors** the Ackermann means more to you than a “machine on trial.” We have given more attention to the **working parts** than the selling points. We keep improving the machine—not the way to sell it. **But—** you can **use** an Ackermann Floor Scraper **at our expense**. We ship at our expense to **prove** the machine is what you want. And, if you can show that the Ackermann does not do **more work, easier work** and **better work** than other floor scrapers, you **get the machine free**.

J. B. Ackermann Co.
100 Pearl Street
GRAND RAPIDS,
MICH.

Knife Sharpening Device

A new feature is the Ackermann New Knife Sharpener—which insures a sharp edge all the time and which works automatically. It means a big saving in time and labor. The request brings the machine to your shop for you to use free.



FRESH AIR IN THE BED ROOMS

Don't cut holes in the storm window frames. Hang them with **Gossett Hinges** and swing them out at the bottom for ventilation. Special fasteners lock them securely, opened or closed. Easily put in place, just hook them on. No tools or ladder needed because of the **PATENT GUIDE FLANGES**



Easily taken off to wash windows. Full length screens can be hung with the same fittings. Screens and windows last longer. They'll not be left on after their season, it's so easy to make the change. No loose parts to get lost, nothing to wear out. 50,000 doz pairs sold this year. If your dealer can't show you **Gossett Hinges** send for complete set for actual test. Free to carpenters, contractors and planing mills.

1/2 SIZE **F. D. KEES MFG. CO.**
Box 522 BEATRICE, NEB.



Reliable

Write for description and prices

Contractors find the **Reliable Jack** easy to operate, strong, less expensive and more durable. Capacity five to ten tons.



Ideal

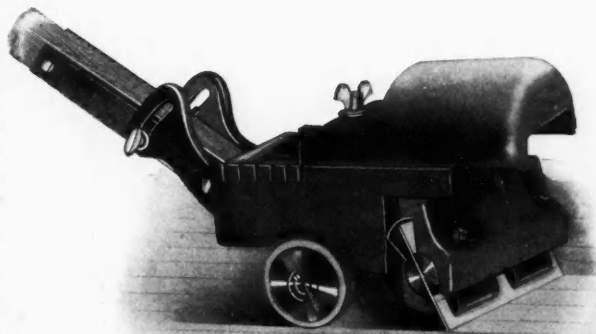
Ask your dealer

THE ELITE CO.
ASHLAND : : : : OHIO

The Adjustable Floor Scraper

Will do more and better work with less labor than any other Scraper made

It is the only one having such a wide range of adjustments that it can be readily adapted to any kind or condition of floor, hard or soft wood, old or new. The handle may be adjusted to the height of the operator. The blade may be adjusted to any vertical or lateral degree. Adjustment of weight over blade anywhere from 15 to 50 pounds. Adjusted weight over blade is permanent; not governed by pressure upon the handle, insuring a uniform cut.



My Free Trial Offer

The "Adjustable" will be sent to you **FREIGHT PREPAID** and you can test it on your own floor. You can be your own judge. If you don't want to keep it, it won't cost you a cent. Write and let me tell you more about it.

Don't Buy Any Floor Scraper Until I Have Told You About **THE ADJUSTABLE**

H. P. DIDRIKSEN

Sole Distributor

1008 High Street

SOUTH BEND, IND.

The Black Hawk Floor Scraper

Simplest, Cheapest and Best on the Market

Weight, 75 lbs.



Also Attachments for Floor Scrubbing, Wax Polishing, Tile Rubbing, at Small Extra Cost. Put on in an instant at small extra cost.

Retails at \$18.00. Enameled dark blue and gold.



IF YOU ARE LOOKING

For a First-class Draw Knife with Closing Handles, Here It Is



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

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

CARPENTERS and BUILDERS!

Do not Buy a Floor Scraper without first trying

THIS HIGH - GRADE MACHINE

Shipped on Approval at Our Expense
Adjustable Blade Holder
Rubber Bumpers

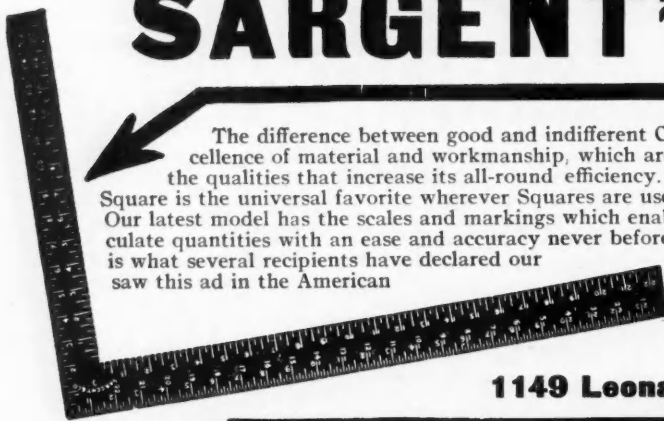
Over 1,000 in use in the New England States alone



Universal Floor Scraper Co.

Rooms 1323-25 Williamson Bldg., Cleveland, O.
110 EXCHANGE STREET, WORCESTER, MASS.

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

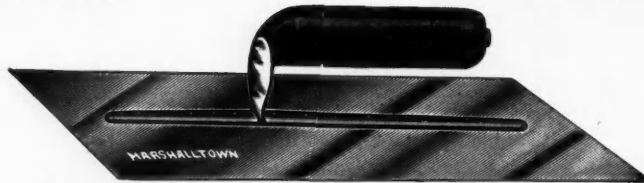


Wide Heel Brick Trowel
Made of Best Quality Crucible Trowel Steel.
Leather Handle.



Philadelphia Pattern
Best Quality Crucible Trowel Steel.
Wood Handle.

Send For
Catalogue



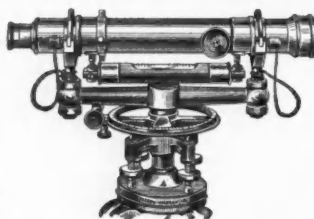
Send An
Order

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" Surveying Instruments



In 1909 over three times as many "Sterling" Transits and Levels were sold as in 1908.

Their rigid construction, lightness and absolute accuracy compel recognition.

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

ISZARD-WARREN CO., Inc.
136 N. 12th Street PHILADELPHIA, U. S. A.

LUFKIN Tapes & Rules

are Standards of Accuracy, Durability and Workmanship.



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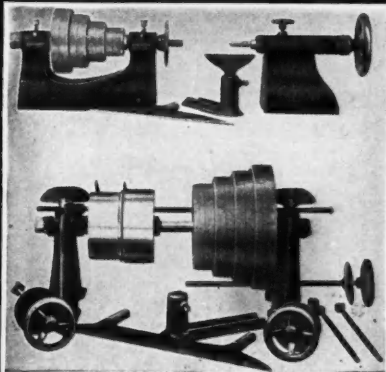
THE LUFKIN RULE CO.

SAGINAW, MICH. NEW YORK LONDON, ENG. WINDSOR, CAN.

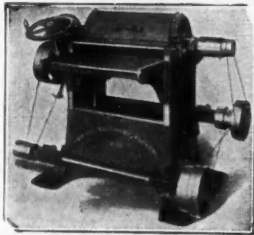
Do Your Own Millwork!!

Stop paying somebody else profit—put it in your own pocket. Be in a position to estimate below your competitors. You can do this by installing your own Machinery

Money-Saving Machinery



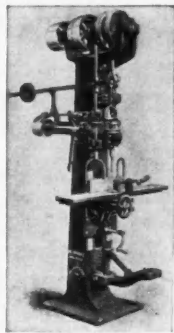
Wood Turning Lathe and Countershaft
16 and 20-in.



Chicago No. 35 Pony Planer



Chicago No. 7
Improved Swing saw



New Hermance No. 1
Heavy Power Mortiser

THE contractor and builder who installs his own woodworking machinery can easily estimate under his competitors. Modern economic conditions demand it. Money you expend in millwork is profit for somebody else—the profit that rightfully belongs to you.

500 Machines in Stock

For a small investment contractors can obtain sufficient machines from us to make them independent. We have new machines, direct from manufacturers, and many rebuilt machines as good as new. 500 machines are constantly in stock at our warerooms.

Prices are Favorable

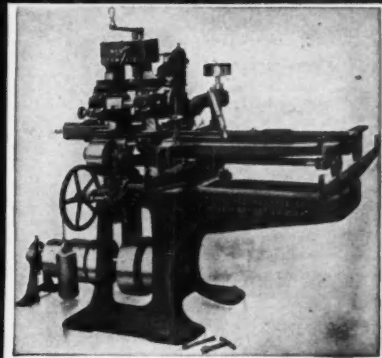
Our line is the most complete in the country and our prices are most favorable. All our machinery is of special construction to secure fine finished surfaces and reduce sandpapering to the minimum.

Send for Lists and Circulars

Our monthly list of rebuilt machines (free to contractors) shows just the machines you ought to have. Write today.

Chicago Machinery Exchange

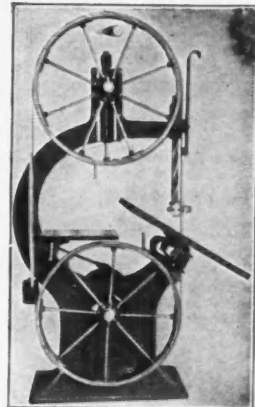
159-161 North Canal St., CHICAGO



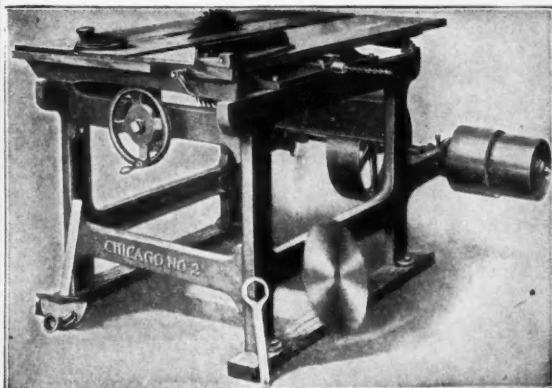
New Hermance No. 3 Tenoner



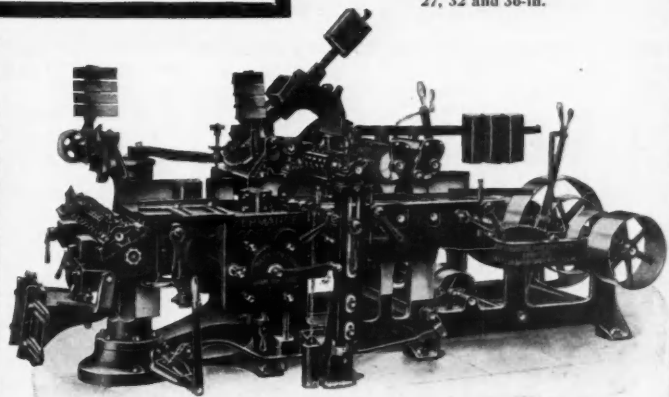
Chicago Hand Jointer
8, 12 and 16-in.



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



Chicago No. 2 Combination Saw Table
An excellent machine for ripping, cutting-off, mitering, dadoing, etc.



Hermance New 1909 "Wide-Open" Moulder
Up-to-date and a little ahead



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

CONTRACTORS' Portable Combination Woodworker

GAS, GASOLINE or ELECTRIC POWER

Rip Saw
Cut-off Saw
Jig Saw
Dado Head
Molder and Shaper
Jointer
Sander
Boring Machines
Emery Wheels

A practical machine for every contracting builder, jobbing shop, cabinet maker, etc., combining nine machines, so assembled that they do not conflict. Large table surface. The power, 4-H. P. Engine, is rigid in the frame and machine can be used in the shop or on the job.

We Furnish Machine, Engine and Tools Complete.

Send today for circular fully describing the best combination woodworker ever built.

Used by Contractors, Lumber Yards and Railroads Everywhere

C. A. & F. G. Diffin
Builders' Exchange
PHILADELPHIA, PA.

COMPLETE OUTFIT PRICE \$15.00 HAND AND FOOT-POWER MACHINERY

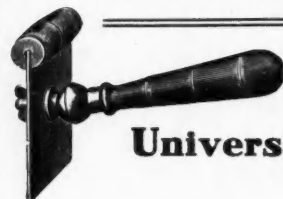
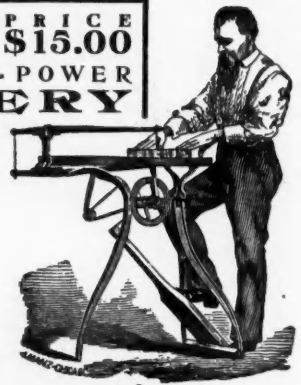
Our No. 7 Scroll Saw is warranted to be made of good material and workmanship, and to saw pine 3 inches thick at the rate of one foot a minute.

Send for Catalogue.

W.F. & Jno. Barnes Co.

74 Ruby St.

ROCKFORD, ILL.



STARRETT

Universal Scraper

Eight sharp cutting edges. Instantly adjusted by ball joint connection. Blade may be instantly set at any angle. Neatest and best scraper made.

Send for free Catalogue No. 186

The L. S. Starrett Co. Athol, Mass. U.S.A.

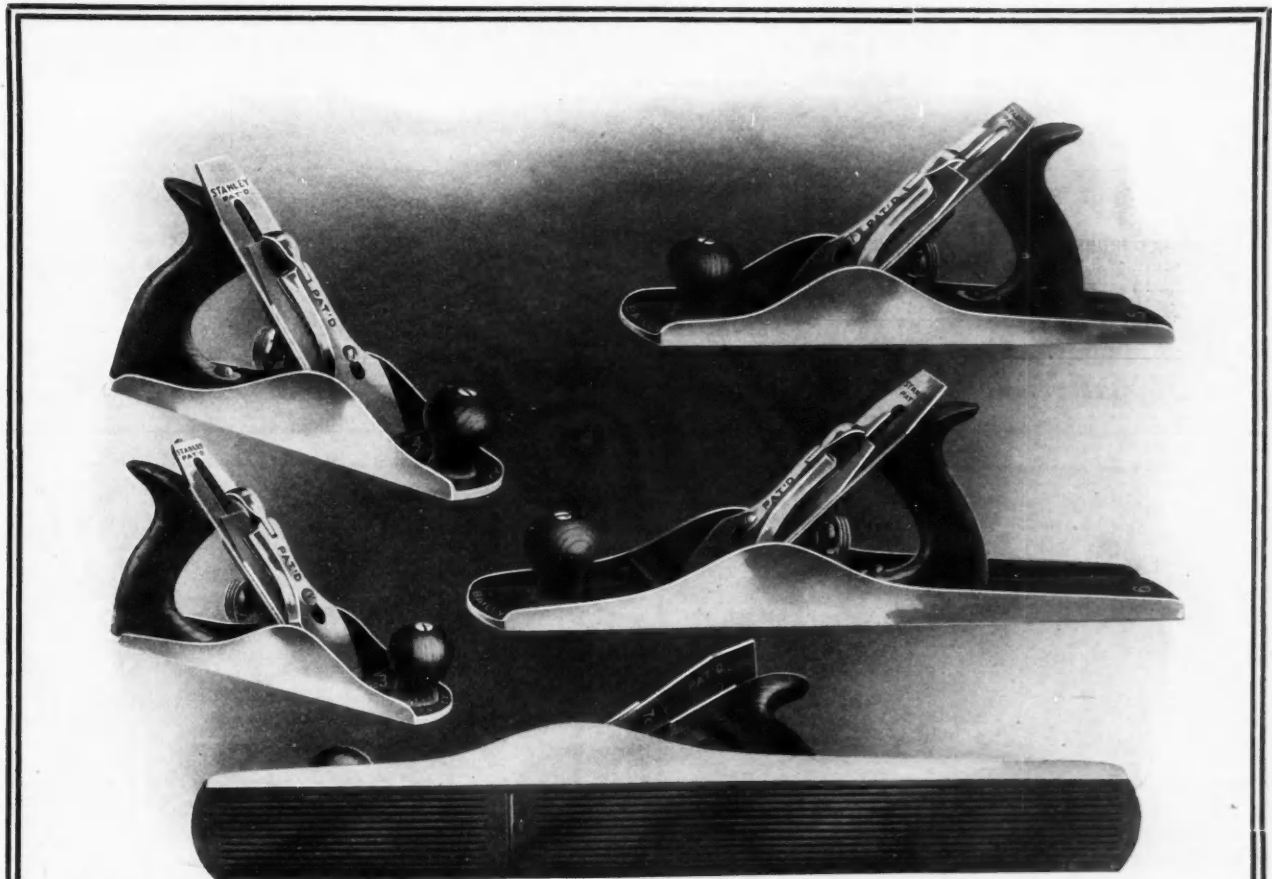


RUSSELL JENNINGS AUGER BITS IN SETS

Our standard and quick-boring bits are put up in sets of 32 1/4 quarters, 13 bits 1/4 to 1 1/8. These sets are packed in a handsome hardwood box or in a canvas roll. We make no charge for box or roll, but never sell them separate from the set of bits. Other sets put up in paper boxes only.

RUSSELL JENNINGS MFG. CO.
CHESTER, CONN., U. S. A.

21-15



Copyright, 1909, by The Stanley Rule and Level Company

Stanley Tools

THE "BAILEY" Iron Plane has been the standard for over forty years and during that period has always maintained the leading position. From time to time other Iron Planes made in imitation of this celebrated Plane have appeared upon the market. These imitation Planes are often put up with numbers and labels designed to make the consumer think that he is obtaining the "BAILEY" Plane.

We are the sole manufacturers of the "BAILEY" Plane. Every Plane has the name "BAILEY" and the number cast in the bottom and the name "STANLEY" is stamped on each cutter.

Always insist that your order be filled with Planes made by the Stanley Rule & Level Co., which carry with them a guarantee backed by a company who have been manufacturing Carpenters' and Mechanics' tools for over half a century.

STANDARD
THE WORLD
OVER

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

EVERY
TOOL
GUARANTEED

Patent Applied For

WITH NO MORE COST TO YOU

SEE THESE HARDENED ENDS AND CORNER
LOOK FOR LABEL ON SQUARES

WE HARDEN THE CORNERS OF ALL OUR FRAMING SQUARES ALSO NOS 100-1, 2 and 3 STANDARD SQUARES

Nicholls Manufacturing Co. Sole Manufacturers Ottumwa, Iowa

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

THE "LIGHTNING" AUGER BIT

WARRANTED



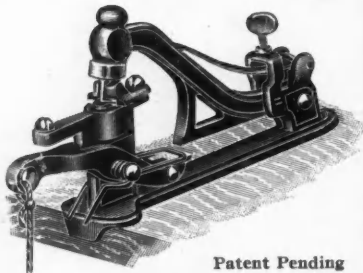
WARRANTED

It will bore through any kind of wood in common use about twice as quickly as the best and fastest heretofore on the market. The worm has a double thread terminating in two cutting points.

The double thread with the specially formed twist secures its double quick work without increase of power. Only by actual test can the great advantages of the lightning bit be fully realized. Secure from your dealer or sent by mail. Price postpaid.

1/8	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
\$0.28	.28	.28	.28	.32	.34	.38	.42	.50	.50	.55	.55	.62	.62	.73	.73	.85	.85

TOWER & LYON CO., 95 Chambers Street, New York, N. Y.



Everybody using a saw has need of the improved "Buckeye" foot power saw set. Formerly the "Foote" Hammer Saw Set.

This Saw Set is guaranteed to set any saw from the finest tooth to the two man cross cut saw perfectly, and with great speed, as it is operated by foot power, leaving both hands free to handle the saw.

Patent Pending

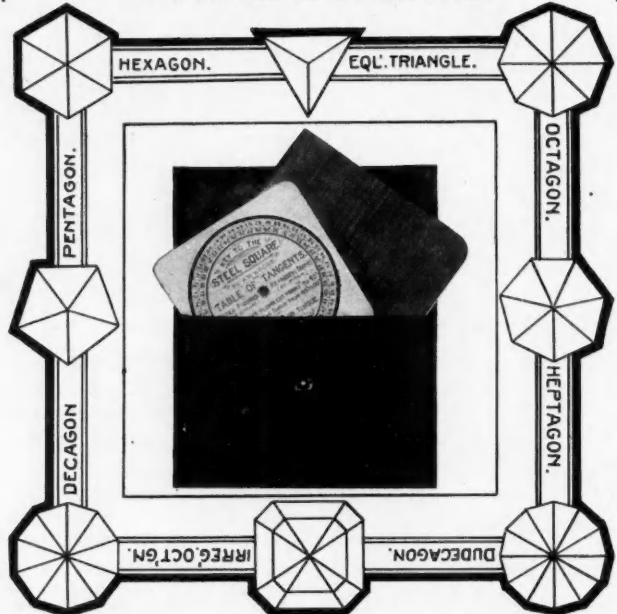
Requires very little space in the tool chest.

Weights 2 1/2 lbs., retails for \$1.50. Ask your dealer for it, or will send one to any address prepaid on receipt of \$1.50. Write for special proposition to agents. We also manufacture a full line of Saw Vises, Chain Drills, Hollow Augers, etc. Catalog to dealers upon request.

BUCKEYE SAW VISE CO., 2044-50 West 65th St., Cleveland, Ohio

ALFRED W. WOODS' KEY TO THE STEEL SQUARE

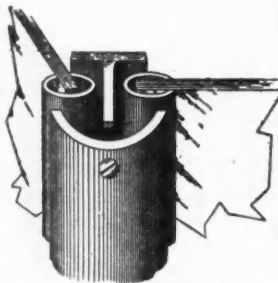
A WONDERFUL INSTRUCTOR



It should be in the possession of every carpenter, or those having work in angles. It tells the whole story of how to use the common steel square, to obtain the cuts in degrees, or by inch rise per foot run for all kinds of framing.

Price \$1.50. Postpaid

AMERICAN CARPENTER & BUILDER
185 Jackson Boulevard, CHICAGO



The Universal Sash Bar

Makes any angle, allows for setting of building, keeps windows from frosting.

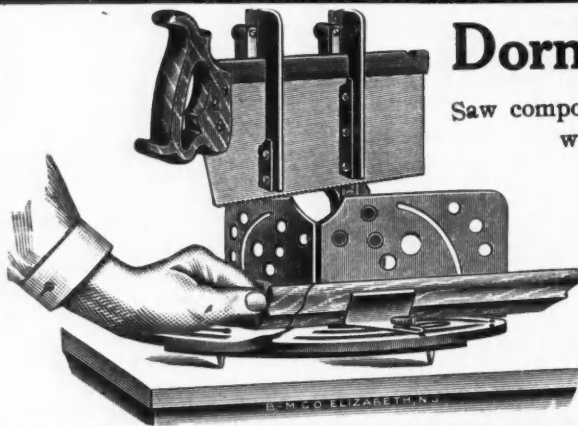
Standard Store Front Construction of the World

Glass set from the outside

Write for latest catalogue

Voltz Manufacturing Co.

1101-1103 S. 8th St. - - St. Joseph, Mo.



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




Compound Mitre

MANUFACTURED BY

Braunsdorf-Mueller Company

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



This hook bolt can be inserted or removed through a one-inch hole bored in the sheathing. It hooks around the studding. Where it is desired to plaster inside before scaffold is down, a piece of 2" x 4" turned flat-wise may be used to fill in.

\$13.95 (If you send cash with order) pays for 1 dozen of these 4-ft. brackets, f. o. b. cars, Bloomfield, N. J.

Prompt Shipments Guaranteed.

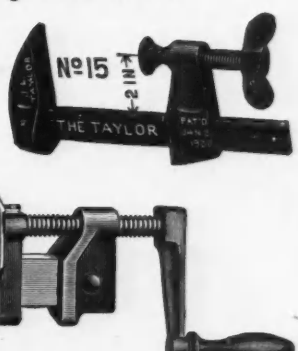
If you wish to try a pair, before ordering in quantity, write for terms of special trial offer.

THE TAYLOR STEEL SCAFFOLD BRACKETS

LAST A LIFETIME

A single pair will CARRY A TON without even springing. Write for Catalogue and Prices.

Quick Acting Self-Locking Screw Clamps. 21 Different Styles.



Let us tell you about our Improved Gripping Device, and the Special Grade of Steel we use.

JAMES L. TAYLOR MFG. CO., Bloomfield, N. J., U. S. A.

"OHIO" CHISELS

Are made from a High Grade of Tool Steel, Skillfully Treated, Correctly Tempered, Accurately Ground.



Every "Ohio" Tool is fully warranted. They have been on the market a great many years and the experienced mechanic who does not care to take any chances on tools of doubtful quality always insists on having "Ohio" Tools from his dealer. He knows them to be good tools, with keen and tough cutting edges.

Look for this trade mark when buying Planes, either Iron or Wood, Chisels, Drawing Knives, Auger Bits, Gouges, Spoke Shaves, Bench and Hand Screws, Cabinet Makers' and Manual Training Benches, Etc. Write for our Catalogue No. A, if you are interested in GOOD TOOLS.



Registered **OHIO TOOL CO., Columbus, Ohio**

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.

BOURNIVAL & CO., St. Barnabe, P. Q., Agents Canada



Self-Setting Planes are not like other planes. Why not try one, and if it is not worth to you twice its cost, return it at our expense and we will return you the amount you paid us, and the trial will not cost you a nickel. During Feb'y, 1910, we will receive this advt. as \$1.00 if the balance of the list price of a plane is sent us from where the Self-Setting Planes are not sold.

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.



SECTIONAL VIEW—showing ADJUSTABLE IRON THROAT.

If you send only the ten addresses, no matter where they live, we will send you circulars and a carpenter's hard, tough pencil. If you send a two-cent stamp we will send you another pencil. February 1, 1910.

GAGE TOOL CO., Vineland, N. J.

SOMETHING DIFFERENT

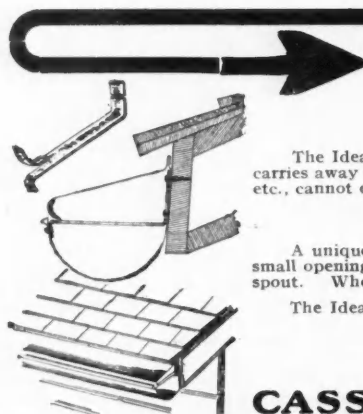


All other air coolers use fans. We draw the fresh air directly inside the combustion chamber where cooling is needed. Our cylinder is more durable than any water cooler. Guaranteed against defect for Five Years. Put an engine in your shop that cannot "freeze up." Find out about the

only successful air cooler on the market. Stationary and portable.

We use 33 1/3% less gasoline and would like to prove this claim to you on a 30-day free trial. Address

Gade Bros. Mfg. Co., Main Street, Iowa Falls, Iowa



CASSENS IDEAL EAVES TROUGH TAKES WATER ONLY

The Ideal completely overcomes the disadvantages of the old style open gutter. It satisfactorily catches and carries away the water that falls on your roof. Its use insures clean, healthful cistern water. Leaves, trash, gravel, etc., cannot enter it. Neither can birds build nests in it. Therefore it is never clogged.

Ice Will Positively Not Break Down the Trough

A unique and important feature of the IDEAL is that it will not fill with snow and ice. When it sleet the small opening (about one-eighth inch) is quickly closed. This prevents the bursting of the trough, also of the down spout. When it thaws the ice melts, and the entrance opens automatically before the water from the roof reaches it.

The Ideal can now be erected with a Wire Hanger if face-board has mouldings.


Special Propositions to Contractors, Builders and Architects

Write for free booklet

CASSENS MFG. CO. Edwardsville, Ill.

CASSENS IDEAL EAVES TROUGH
PAT. NOV. 22, 1906. OTHER PATENTS PENDING.

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 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

GOODELL MITRE BOX

Made of STEEL - Cannot Break



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

Send for Circular "C"

GOODELL MFG. CO., Greenfield, Mass.

PLUMBERS' SUPPLIES

AT WHOLESALE



When in the market for Plumbing Supplies and you wish to

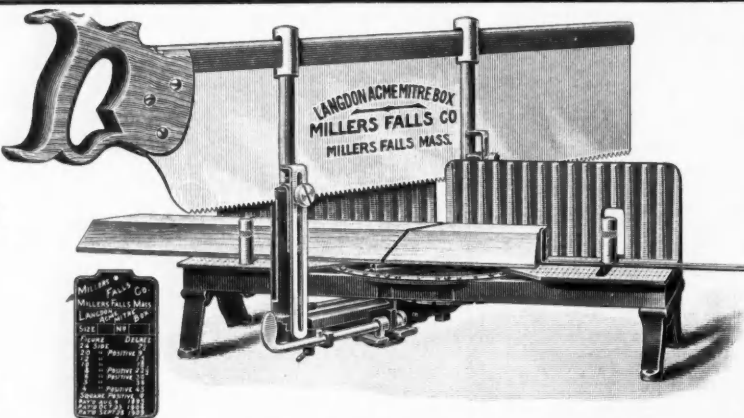
SAVE 20 to 40 Per Cent

on every article, write for my free illustrated Catalog. The only house that sells first class guaranteed goods at wholesale prices direct. Shipments are promptly made from a very complete stock.

Small orders are as carefully handled as large ones.

B. B. KAROL, 768-772 W. Harrison St., Chicago, Ill.

THIS IS THE MITRE BOX YOU WANT



It's a LANGDON ACME and is made in three sizes put up with varying lengths of saws.

The advantage over other styles are too numerous to mention in this advertisement, but our pocket catalogue tells the whole story. You can have one of the catalogues by asking for it. It illustrates our full line of tools.

Millers Falls Company
28 Warren St., New York, N. Y.

Disston

SAWS

Expert workmen usually prefer a **FIRST CLASS SAW**, and you'll find usually that when a workman shows off a new saw, the other men ask—
"If it's a **DISSTON**."

This fine reputation has been guarded for years.

The care given to the making of **DISSTON Steel** has made **DISSTON Steel** world-famous.

The **DISSTON Saws, Tools, and Files** made from that Steel are made by **EXPERT workmen**—some of the men have been making **DISSTON Saws** for 25, 30 and 40 years.

No matter what reasonable test you give a **DISSTON** it **PROVES** its quality by **ACTUAL SERVICE**.

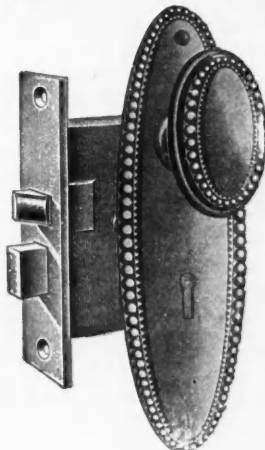
Because mechanics have recommended the **DISSTON Tools** to other mechanics, you find the **DISSTON Saws** the Saws you See from Sea to Sea.

If your dealer cannot supply you promptly write us

BRANCHES — Chicago, Cincinnati, Boston, New Orleans, Memphis, San Francisco, Portland, Vancouver, Toronto.

Henry Disston & Sons, Inc.

KEYSTONE SAW, TOOL, STEEL AND FILE WORKS
PHILADELPHIA, PA., U. S. A.



IT'S UP TO YOU

Let us show you how to save money on builders' hardware for that next job.

No. 5155. Lock set, old copper finish, as per cut.

Per dozen sets, **\$4.75**

REHM Hardware Co.
1501 Blue Island Ave.
CHICAGO, ILL.

JOIST HANGERS

For Wood Timbers,
Concrete Blocks
or Iron Beams.

Many Sizes in Stock

Special Shapes to Order

Steel Post Caps Wire Floor Clips
STRAPS, BOLTS, PIN ANCHORS

BLACKSMITH WORK AND
IRON FOR CARPENTERS'
REQUIREMENTS

Telephone Yards 403

Chas. Mulvey Mfg. Co.
35th and Ashland Ave.
CHICAGO, ILL.



PERFECTION DOOR LOCK MORTISER

Makes a perfect mortise without brace and bit or chisel. The only machine of its kind in the world. Worth its weight in gold to the twentieth century contractor and carpenter. You cannot afford to be without it. Automatic, ball bearing, can be set for any size mortise, any size bits furnished.

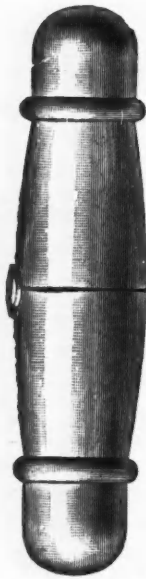
This bit moves up and down while boring



PERFECTION MFG. COMPANY
407 E. Rich St., COLUMBUS, OHIO

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

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



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



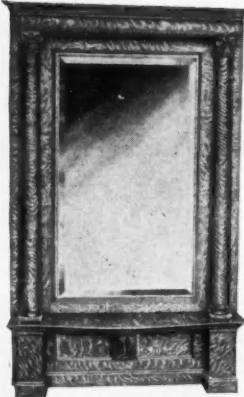
COLUMNS AND CONSOLS

In quality and price our work is not surpassed.

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

Send for 48-Page Catalogue No. 15

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

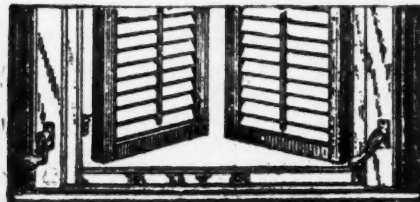


Consol Design No. 1.

Northwestern Grille Works

CHRISTENSEN BROS., Props. 1820-24 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

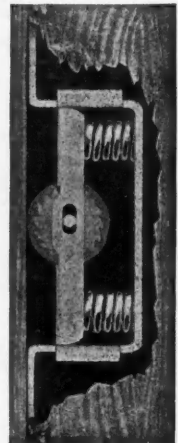
The "AUTOMATIC" SASH HOLDER

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.



"Last a Lifetime and Give Satisfaction To the End"



BUTT CHISEL

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

TRADE MARK



THE CELEBRATED BARTON TOOLS

send direct for catalogue. Be sure to specify "CARPENTER'S CATALOG."

MAC K & COMPANY, 20 BROWN'S PLACE ROCHESTER, N. Y.

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

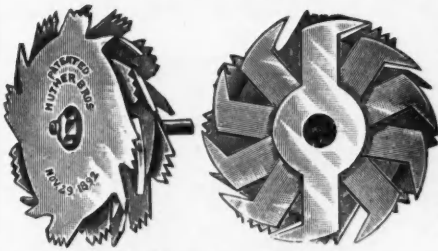
"SILVER LAKE"

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.

Huther Bros. Patent Groover or Dado Head



Can be used on any Circular Saw Mandrel.

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

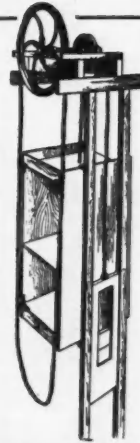
of concave ground, smooth cutting circular Mitre Saws, for either rip or cross cut; Grooving Saws for all kinds of special work; Lock, Corner Cutters, Concave Saws, etc.

Try our Scraper Blades and you will use no others.

HUTHER BROS. SAW MFG. CO.

1000 University Ave.

ROCHESTER, N. Y.



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 erecting ever issued

SEND FOR SPECIAL PAMPHLET

R. M. Rodgers & Co.

174 Washington Av., BROOKLYN, N. Y.

No. 8 "UNION" COMBI-NATION SAW



A well-built, light power machine, at a low cost, has a wide range for work, will rip stuff up to 3 1/2 inches thick, also cut off, mitre, and with attachments, bore, edge-mould, groove, dado, etc.

The No. 8 Union Saw may be easily connected to electric motor or gasoline engine and complete outfit mounted on skids to move from one job to another.

Send for Catalog A

describing our complete line of Foot, Hand and Light Power Wood-working Machinery.

The Seneca Falls Mfg. Co.

218 Water Street

Seneca Falls, N. Y.

U. S. A.

182

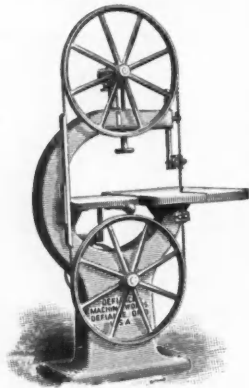
"DEFIANCE" WOOD-WORKING MACHINERY

For Manufacturing

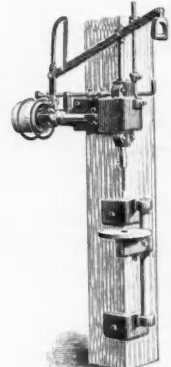
Automobile Wheels and Bodies,
Carriage and Wagon Hubs, Spokes, Rims and Wheels,
Wagons, Carriages, Shafts, Poles, Neck Yokes, Single
Trees, Hoops, Handles, Spools, Bobbins, Insulator Pins,
Balusters, Table Legs, Oval Wood Dishes and for
General Woodwork.

Invented and Built By

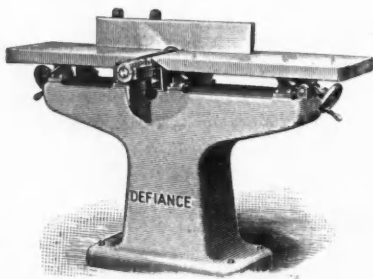
The Defiance Machine Works
Defiance, Ohio



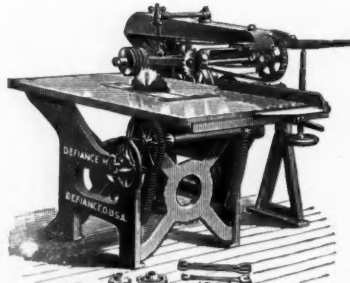
28" Band Saw



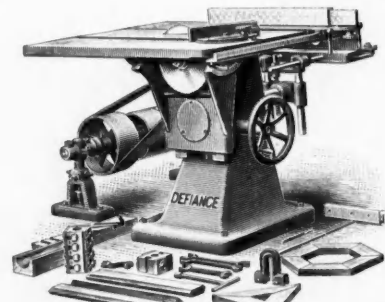
No. 15 Post Borer



12" Hand Planer and Jointer

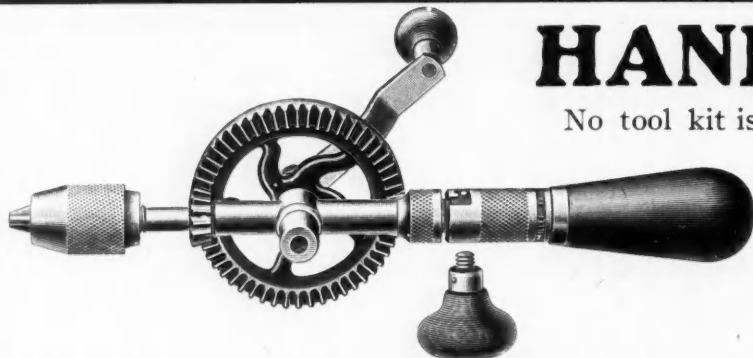


No. 3 Power Feed Rip Saw



No. 8 Variety Saw

HAND DRILLS



No tool kit is complete without a Hand Drill.

We make them in a variety of styles and sizes. Prominent dealers everywhere sell our make of tools, which are unapproachable in quality and style.

Ask for catalogue, illustrating our full line.

MILLERS FALLS COMPANY, 28 Warren Street, NEW YORK, N. Y.

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



CUSTOM-MADE FLY SCREENS

Our work is far superior to the usual output of local mills and has a style and finish not obtainable from those who do not make a specialty of fine screens.

Our screens have waterproof coped joints and the frames are weather proofed before the finishing coats are applied. Best grades of Wire Cloth, enameled, galvanized, genuine bronze, fastened by the most approved methods.

Intending purchasers may have free, by mail, samples of woods, finishes, wire cloth, and a copy of catalogue and price list. Agencies in nearly all large cities. Agents wanted in smaller cities.

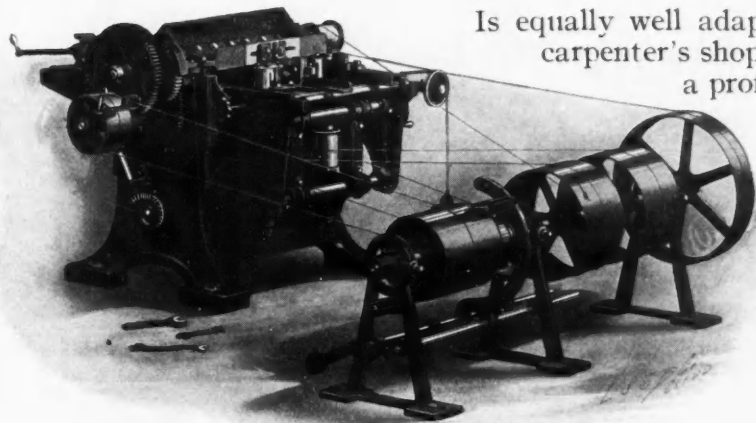
Special terms to Contractors and Builders.

A. J. PHILLIPS & CO.
FENTON, MICH.

25 Years' Experience

3 1/2 Acres of Floor

The Crescent Planer and Matcher



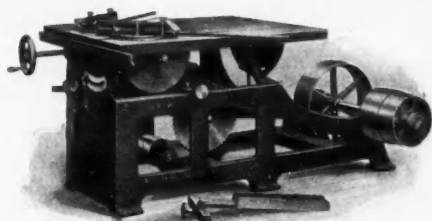
The most complete machine on the market

Is equally well adapted for use in a planing mill or a carpenter's shop. The machine is a time-saver and a profit-maker. On it you can plane one side and match both edges of a board at the same time. Two sides of the head are drilled and tapped for planer knives, and the other two sides are slotted for special molding knives. Machine will plane $23\frac{3}{4}$ inches wide by 6 inches thick. Will match 12 inches wide by 2 inches thick. Change from matcher to planer is quickly made. Ask us for further information. The price is very reasonable.

Get our 1909 Catalogue and find out all about this splendid tool and our elegant line of band saws, disk grinders, planers, Variety Wood Worker, jointers, shapers, saw tables, etc.

The Crescent Machine Co., 224 Main St.,
LEETONIA, - OHIO

Results Prove the Value



Study the construction of this Saw Bench

It has two arbors. Both can be fitted with Saws, or one with a Dado Head, as may be desired, and by a few turns of a hand wheel either can be brought into operation while the machine is in motion.

For Further Particulars, Address,

H. B. Smith Machine Co.

Smithville, N. J., U. S. A.

New York Chicago Atlanta Memphis

ROTHMOTOR DIRECT DRIVE BAND SAW

CONVENIENT

Saves time, space. Eliminates belts, shafts—Spells cleanliness

EFFICIENT

Consumes little power—means small power bills.

MODERN

Always a feeling of satisfaction—has much advertising value to you.

RELIABLE

Always ready—A poorer outfit may break down when you have an important job on.

DURABLE

Never wear out—Low maintenance cost.



ROTH BROS. & CO.

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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.

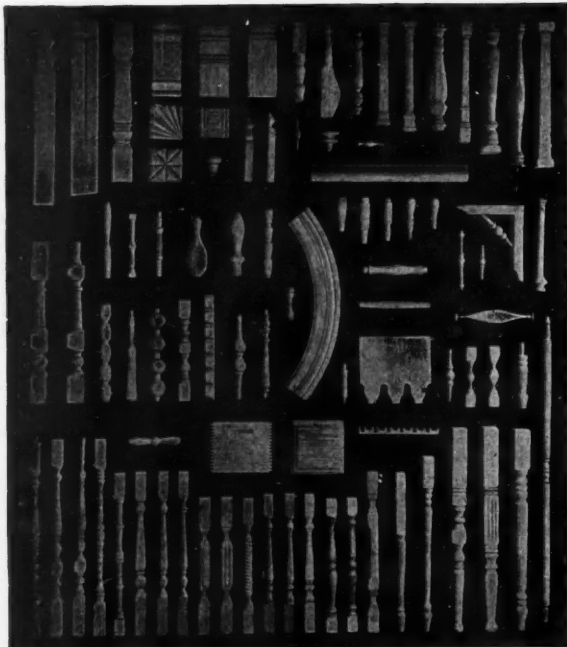


We have had a Chemist experimenting for years to originate a purity of steel with a fine grain and tough body that would stand up under such a fearless warranty as we place on our "GREYHOUND" brand of saws. We now have it. We know its worth as well as its value. As workers of steel we understand it. 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.

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But Did You Ever See One Capable of Doing Such a Wide Range of Ornamental Work as This?

Those samples were all made on our Universal Turning and Variety Machine The Machine that has earned for itself the reputation of being the "busiest and most profitable tool in the Shop."

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C. W. MILLER.

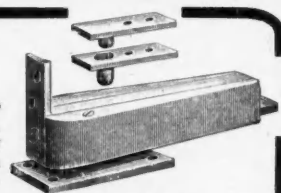
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Convenience! PHOENIX SLIDING BLIND CO.
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They have a carpenter's gauge which greatly simplifies the hanging of a door.

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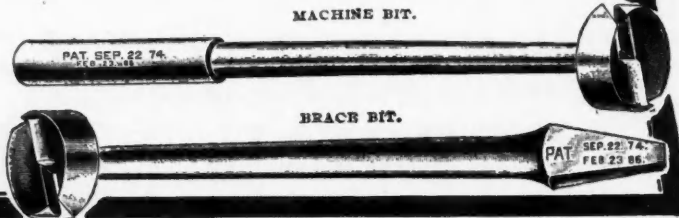
Doesn't matter how hard the wood is, no consequence whether it is full of knots, or the grain awkward to negotiate. The Forstner Bit works with equal smoothness under any condition and leaves a true polished surface on every job.

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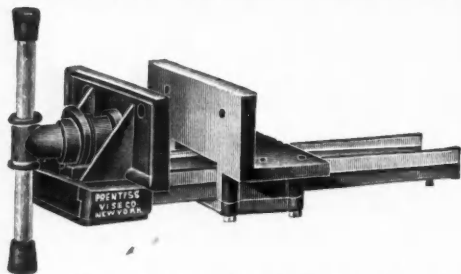
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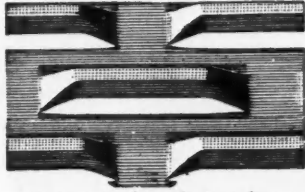
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The lath that is positively different to anything else made; different because it combines more good features.

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.



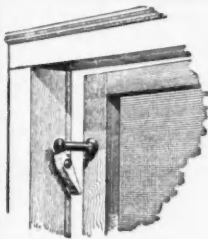
NO PICKLED LATH

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.

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Sykes Metal Lath & Roofing Co.
NILES, OHIO



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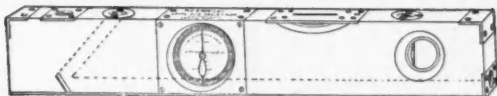
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With Automatic Double Ratchet

Adjustable Ball Bearings—Cut Gears

Differs from all others in what it does and how it does it.

The little shifter between gears converts it instantly into a plain drill—A Left-Hand Ratchet for removing taps, etc.,—A Right-Hand Ratchet,—or an Automatic Alternating Right and Left Hand Ratchet, the bit turning continually to the right regardless of the motion of the crank. A great advantage at close quarters where only a short throw of crank can be obtained. A real time-saver.

Lever A—For change of speed with forefinger, without releasing hold on crank or removing bit from hole.

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A PRODUCT OF RECOGNIZED SUPERIORITY

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



Chicago Spring Butt Company,
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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.

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THERE'S a future ahead of the fellow who is sorry when the whistle blows.



Forestry Service Favors "Odd Lengths"

SINCE the early establishment of the lumber manufacturing industry in the United States it has been the general custom for manufacturers to produce lumber only in lengths of even feet. Probably no single step in the production of lumber has been so unnecessarily wasteful as this one. Manufacturers have long recognized the wastefulness of the practice, but not until recent years has the rapid exhaustion of our timber supply brought about interest sufficiently

deep to lead to the curtailment of this unnecessary waste.

As already noticed in these columns, the last annual meeting of the National Lumber Manufacturers' Association at Seattle, Washington, recommended that odd as well as even lengths be made standard in flooring, ceiling, partition, finish, moulding, drop and bevel siding; and urged its affiliated associations to adopt odd lengths as standard in these forms. The Pacific Coast Lumber Manufacturers' Association immediately adopted the recommendation, and began an active campaign for the universal manufacture of odd as well as even lengths in several forms of planing mill products.

At the present time practically all of the largest mills operating in the Pacific Northwest have begun to manufacture odd lengths in flooring, ceiling, siding, finish and rustic, and are placing such lengths on the market. This is an important advance step in the policy of timber conservation.

In order to show the actual amount of the saving, an investigation was made by the United States Forest Service at a number of mills in the states of Oregon and Washington before the manufacture of odd lengths was put into practice. The figures compiled as a result of this investigation were obtained by observing the trimming of the various forms of planing mill products at the trimming saw in the mill, and by keeping an accurate record of the amount of clear material of each form *which was wasted, because of the custom of manufacturing even lengths only.*

In the manufacture of flooring, it was found that the waste amounted to 1.67 per cent of the total amount manufactured; in rustic, 1.66 per cent; in ceiling, 2.81 per cent, and in siding, 2.7 per cent. The average waste in all forms investigated amounted to 2.07 per cent of the material run through the machines. This percentage, while seemingly small, assumes large proportions when it is considered that approximately 750,000,000 feet of lumber is manufactured into planing-mill products annually in the states of Oregon and Washington.

The *yearly waste* in the manufacture of this amount

of lumber, according to the figures of the Forest Service, amounts to 15,000,000 board feet, in these two states alone. This amount is equivalent to the annual growth of wood on approximately 30,000 acres of good timberland in that region. As a matter of conservation this item is of great importance because the waste is absolutely unnecessary and represents the highest class of clear lumber.

While Pacific Coast manufacturers are doing their best to save this waste, the retailer, in certain instances, is strongly opposing the manufacture of odd lengths. It is his contention that the present building practice is founded upon even lengths, and that the saving to the manufacturer by the new practice is merely transferred as a loss to the consumer, and that, after all, there is no real gain.

In reply to this it must be said that the number of odd lengths pieces manufactured forms only from 10 to 50 per cent of the total amount produced, the average number being approximately 20 per cent. In the construction of modern frame buildings it is customary, especially in that section of the country which is subject to severe weather conditions during the winter season, and generally throughout the country in the construction of first-class residences, to use sub-floors and sheathing as a nailing base. It is well known, also, that the dimensions of rooms or walls of a building are as likely to be in odd feet as in even feet, and therefore it is reasonably certain that all of the odd-length material which would be manufactured could easily be used, resulting in an ultimate saving, not only to the manufacturer, but also to the consumer.

The Forest Service is deeply interested in this matter, inasmuch as it affects directly the conservative use of the country's timber supply, and convinced of the practicability of using odd lengths, it fully endorses the action of coast manufacturers in undertaking their manufacture and sale. Studies are under way to discover what the loss is in the southern states, where pine manufacturers have not as yet begun the production of odd lengths, except for the export trade, which demands them.

The odd-lengths movement can be greatly encouraged by a demand on the part of the consumer for this class of material when it is practical for him to use it. If the consumer would demand odd-length material for such parts of his buildings as actually require such lengths, the demand could hardly be supplied if all mills adopted odd lengths as standard.



COMPOSITION ornamental products are now largely replacing what was formerly hand carving. They not only save work and expense, but as a rule look well and seem to be fairly satisfactory. There is of course some hand carving yet, but it is generally of the massive order, and not the intricate and fine line patterns.

COURT DECISIONS AFFECTING BUILDERS



PAYMENT OF DISPUTED CLAIMS.—When one owes a fixed sum, the payment or tender of a less sum, accompanied by the statement that it is in full, accepted by the creditor, does defeat a collection of the balance; there being no consideration for the surrender of the balance, but when the parties do not agree on the amount of the debt, and the debtor tenders a less sum than is claimed by the creditor in satisfaction, and the creditor accepts it, the obligation is discharged. The right to name the terms on which a tender by a debtor in payment of a disputed claim shall be accepted rests alone with the debtor, and the creditor must either accept the tender with the conditions attached or reject it. A material man sold lumber to a contractor subject to inspection and acceptance by the engineer of the owner. A part of the lumber delivered was rejected by the engineer after the same had been put into the building, and the contractor threw the same aside, and notified the material man of the rejection. A dispute arose as to the liability of the contractor for the rejected lumber, and he sent a check to the material man for the amount which he claimed was due in settlement. The material man accepted the check. Held that the payment settled the claim.—*Cunningham vs. Standard Construction Company, Kentucky Court of Appeals, 119 Southwestern Reporter 765.*

WAIVER OF BUILDING CONTRACT PROVISIONS.—A builder's contract provided for the construction of a building under the direction of an architect as the agent of the owner, and further provided that no alterations should be made in the work as described by the plans and specifications, except upon the written order of the architect, and that extra work would be paid for only when the price had been agreed upon and affixed to the order given by the architect in writing and countersigned by the owner previous to the performance of the same. Held that the architect alone could not by verbal agreement waive this provision of the contract. A clause in such a contract, providing for a written demand by the builder for additional time in which to complete the building is legal, but may be waived by the owner entering into supplemental contracts for extras which require additional time for the completion of the building. Unless otherwise provided in the contract, a builder is not entitled to additional time because he has been delayed in the construction work by ordinary rains, for such might reasonably have been contemplated when the contract was made; nor is he entitled to additional time for delays caused by accidents or unexpected conditions against which he could have provided in his contract.

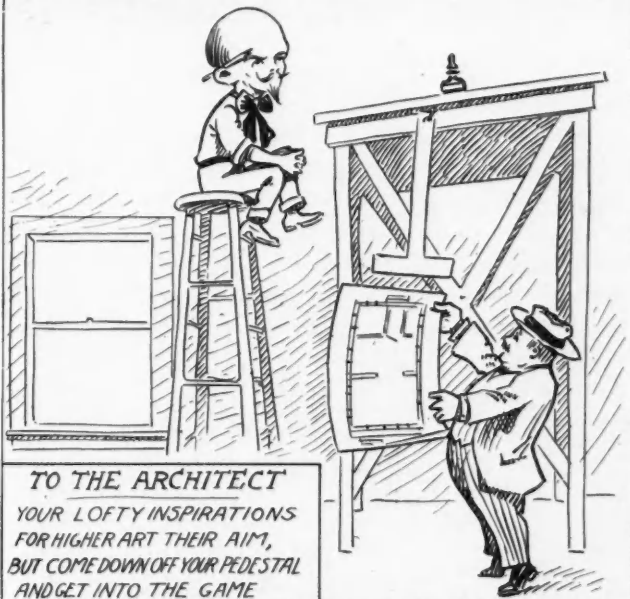
Carter v. Root. Nebraska Supreme Court. 121 Northwestern 952.



TO THE CONTRACTOR
YOUR SMILE IS QUITE EXPANSIVE
WHEN A CONTRACT IS IMMENSE,
FOR WE UNDERSTAND YOUR TRYING
TO KEEP UP THE EXPENSE.



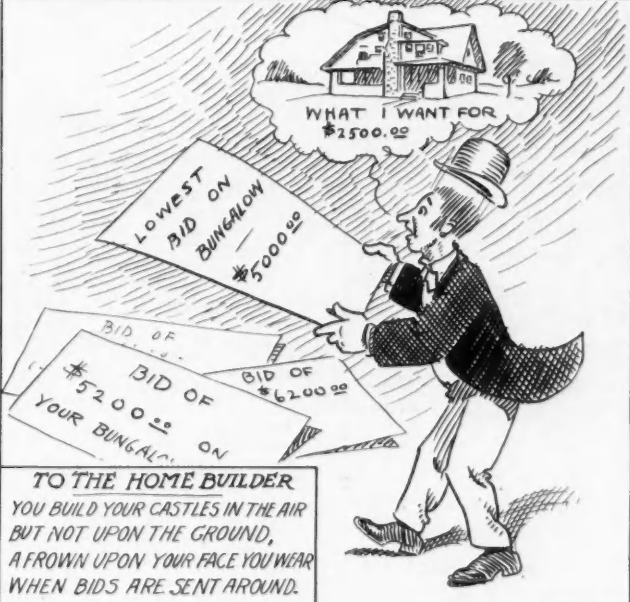
TO THE CARPENTER
AS A CUT-UP YOU'RE AMUSING
THE FRISKIEST EVER KNOWN,
BUT YOUR BILL FOR EXTRA LUMBER
CAUSES NOTHING BUT A GROAN.



TO THE ARCHITECT
YOUR LOFTY INSPIRATIONS
FOR HIGHER ART THEIR AIM,
BUT COME DOWN OFF YOUR PEDESTAL
AND GET INTO THE GAME



TO THE CEMENT MAN
YOU SAY THE DAY IS SOON TO COME
WHEN EVERYTHING BENEATH THE SUN,
WILL BE COMPOSED OF HARD CEMENT
BUT WE THINK YOU WOULD SOON REPENT

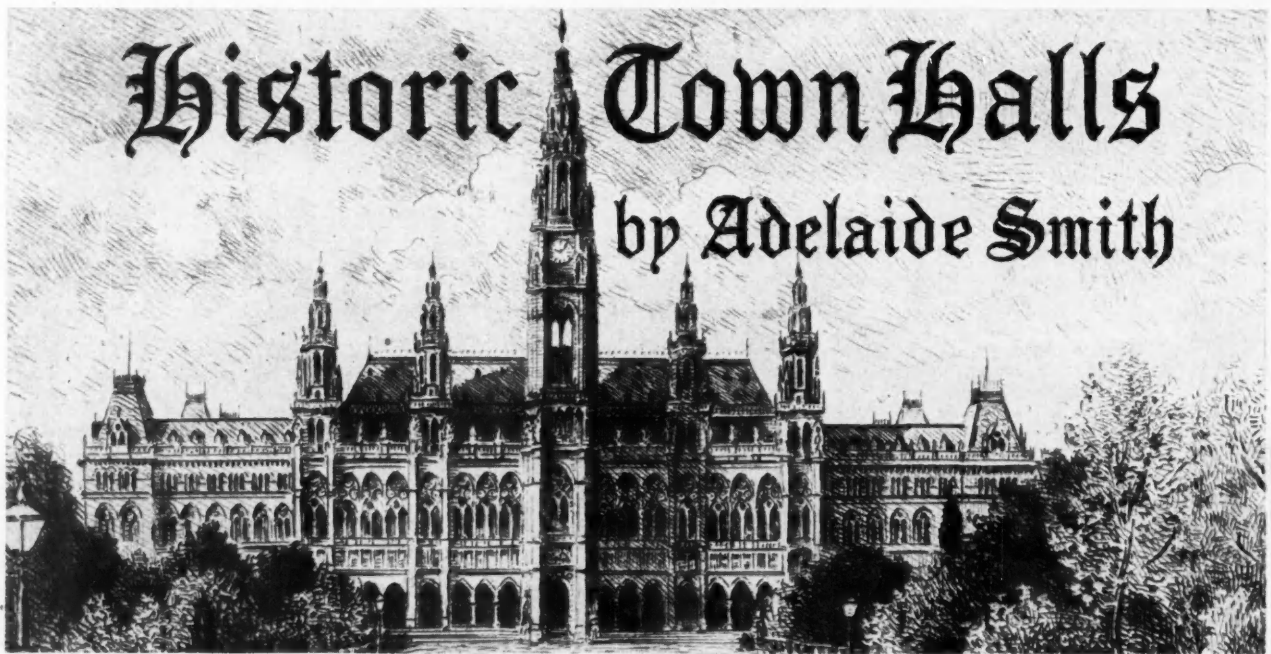


TO THE HOME BUILDER
YOU BUILD YOUR CASTLES IN THE AIR
BUT NOT UPON THE GROUND,
A FROWN UPON YOUR FACE YOU WEAR
WHEN BIDS ARE SENT AROUND.



TO THE MANUFACTURER
IT PAYS TO ADVERTISE YOUR WARE
WHERE PEOPLE READ AND PEOPLE CARE,
WE SEE UPON YOUR FACE A SMILE
A SMALL INVESTMENT BRINGS A PILE.

Some Valentines



Vienna's Town Hall—An Example of Modern Gothic

CITIES the world over pride themselves in the part they have played in historic events. They are proud of the great men who were born in their midst, and last, but not least, they are proud of their public buildings. Deeds are enacted and recorded in history, famous men live and die, history and literature keeping their names alive to the world; but buildings alone defy the ravages of time and stand as living

memorials of the ages through which they have passed.

One must go to Europe to hunt for ancient buildings, for our own country is as yet in its infancy. In traveling about the United States one might ask the pertinent question: Are our buildings built to endure for centuries to come? It is the boast of the American today how quickly he can erect a building; not long ago one of our magazines contained a long, fully illustrated



A Typical German Rathaus—Leipzig, Built 1556

article on the rapid construction of a skyscraper, sixty days, more or less, being the time taken from start to finish. What is to be the result of this rapid building? One wonders how long this kind of a building will last, and even if it should remain for centuries, is there anything in it to make lovers of art hunt it out on their travels around the country?

One cannot travel through Europe without noticing everywhere quaint and beautiful old buildings, every one of which has something unique in its architecture, and the older it is the more attractive it seems to be. Striking comparisons to similar buildings in our own country could be all too easily made, but for the pres-



The Town Hall of Brussels, One of the Most Beautiful Buildings in Belgium

ent we will consider only the town hall, which means so much to the inhabitant of every town at home as well as abroad.

Consider first the German Rathaus, or town hall, of Leipsic, built in 1556, or a little over three hundred and fifty years ago. A striking feature is the clock tower, octagonal in shape, surmounted with a rounding top, above which rises a little cupola with rounded sides. The Gothic roof is ornamented with a long row of windows, alternately small and large, with an occasional little window higher up.

Many of the modern European buildings are devoid of artistic beauty, but here and there may be found something worth looking at. Vienna's Rathaus, built in 1873, shows Austria's idea of modern Gothic tendency in architecture. This is an immense building,



Hotel de Ville of Louvain, Belgium, Completed in 1463

most lavishly decorated. The central tower, with its tapering steeple, is surmounted by a colossal bronze figure of a knight, while four smaller towers adorn the front. Compare this modern building with one built in Brussels more than five hundred years ago. It is by far the most interesting edifice in Brussels, and one of



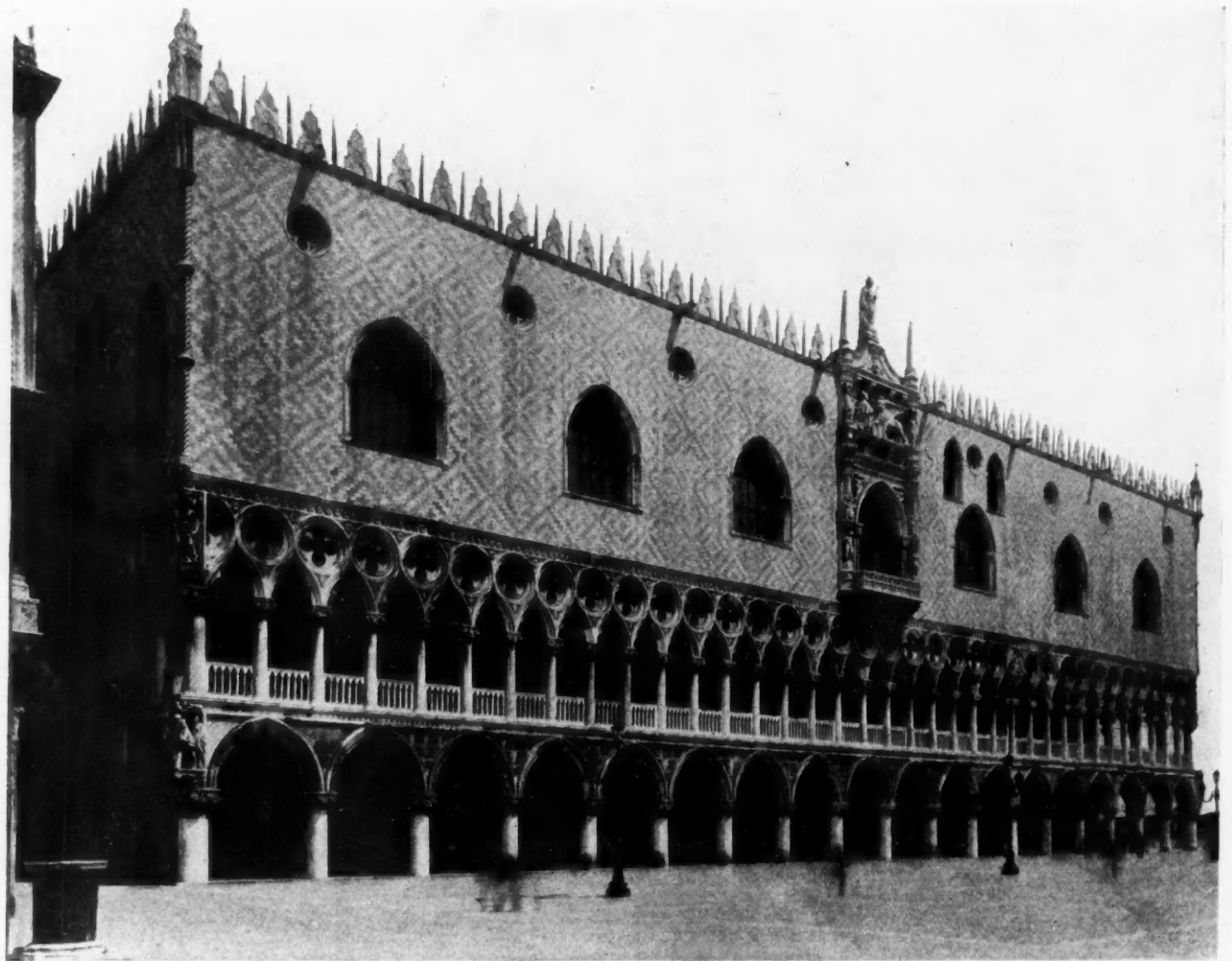
Town Hall of Rare Beauty at Compiègne, France

the noblest and most beautiful buildings of the kind in Belgium. It encloses a court, being nearly 200 feet long and 165 wide. The principal façade, towards the market place, is in the Gothic style; the graceful tower, 370 feet high, was completed in 1454.

One of the most interesting town halls in all Europe is to be found in Aix-la-Chapelle, or Aachen, in southern Germany, where the Emperor Charlemagne died in 814. Charlemagne elevated this town to the rank of second city in his empire, and made it the capital of his dominions north of the Alps. Today only the Rathaus, corn exchange, cathedral and a few gates re-

the oldest and most celebrated portrait of Charlemagne. What city would not be proud to possess such a Rathaus?

Nearly half a century before Columbus came to discover us, a Flemish architect was planning an Hôtel-de-Ville for the city of Louvain. It was fifteen years in building, and the result is that it stands today as the finest specimen of late Gothic architecture in all Belgium. Each of the three stories has ten pointed windows in the principal façade, and above these is a lofty roof, surrounded by an open balustrade. At the four corners and from the center of the gables rise six



Doges Palace, Venice—An Historic Building Which Is Still the Center of Civic Life

main of the city's ancient glory. The Rathaus, a plain Gothic structure, was begun in 1358 and completed in 1376, made partly from fragments of the ancient Carolingian palace. The façade is flanked by two towers; the west one partly belongs to the ancient palace, while the other is of the thirteenth century. A long flight of steps leads from the market place to the vestibule on the first floor, from which ascends a Gothic staircase, added in 1848. On the second floor is a large hall with a vaulting borne by four massive buttresses. The walls of the hall are decorated with eight frescoes, which rank among the finest modern examples of historical paintings—one bears the date of 744. Among them is

slender octagonal turrets, terminating in open spires. The three different façades are lavishly enriched with sculptures. The three on the lower story represent celebrated citizens of Louvain, those on the upper the sovereigns of the land. The prominent corbels (sculptured baskets of fruit or flowers) which support the statues are embellished with almost detached reliefs, representing scenes from Old and New Testament history. Inside the building is a museum and a picture gallery.

Our own Boston has been loath to part with some of her old landmarks, and so now she is the proud possessor of Faneuil Hall, our "Cradle of Liberty." Truly,

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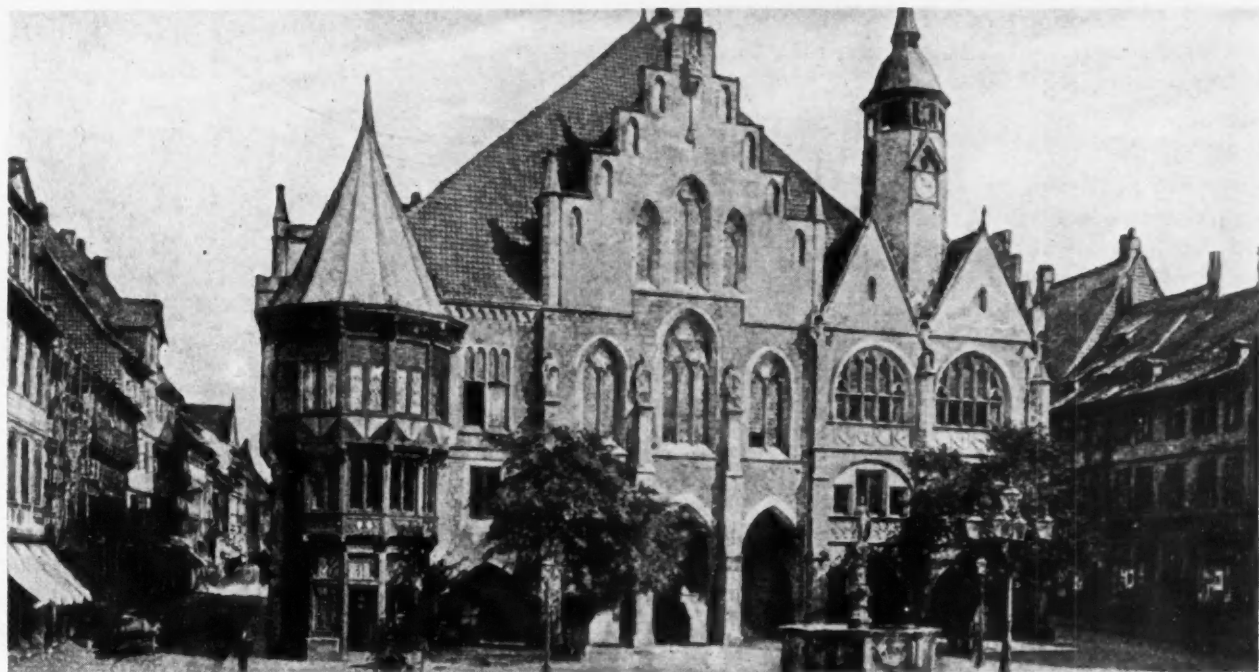


Principal Facade of the Hotel de Ville, Paris

it is not much to look upon, but to every loyal American the name of Faneuil Hall recalls the story of our struggle for freedom and independence. In 1740 Mr. Peter Faneuil gave the money and had this hall built, and then presented it to the town of Boston, whence its name. The year 1763 made this building famous, for in that year its walls resounded with the stirring words

of James Otis, that early apostle of freedom to the cause of liberty. But where else in all our wide country may we look for another town hall that would attract one out of the beaten track?

When one has lived in Germany the Rathaus becomes an objective point to him. He never has to hunt it up in any new town he may chance to visit, for he

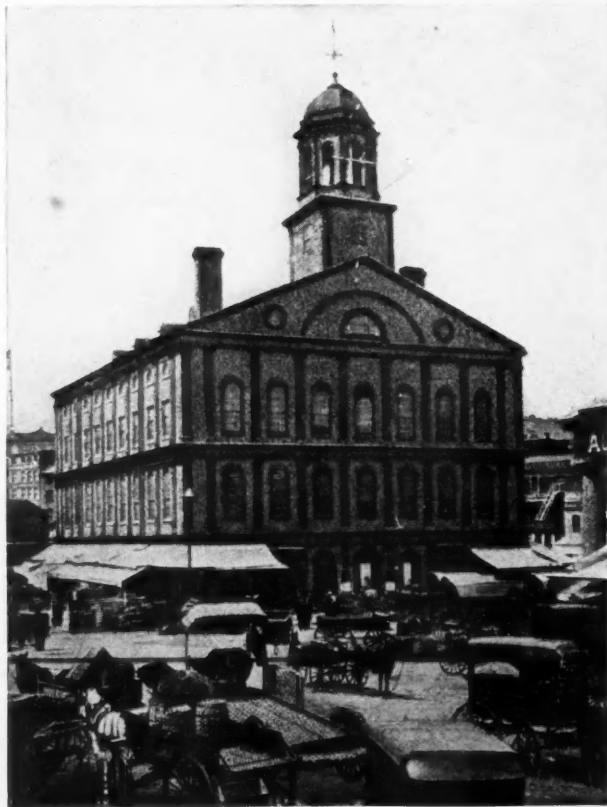


Artistic Old Rathaus at Hildesheim in North Germany, Built 1400

soon learns to know that it is always to be found on the market place in the center of the town. Thither he betakes himself often during a sojourn in a town, for here the various officials and magistrates have their headquarters. Hunting for a notary in an American town is like hunting for a needle in a haystack, but in Germany this necessary personage is always found at the Rathaus; and moreover, he puts his seal on your papers for twenty-five pfennigs (six cents) instead of for the customary American fee of twenty-five cents!

No corner of Europe has more artistically beautiful town halls than northern Germany, particularly in the

ings, the chief jewel among them being the Rathaus. It has pushed itself quite out of the line of the encircling houses, and has taken its stand most conspicuously to the front, or, in modern slang, it has "butted" right into the middle of the square. There it stands



"Cradle of Liberty"—America's Most Famous Hall

neighborhood of the Harz Mountains, where myths and legends abound, and numerous castles recall to mind the chivalrous stories of old. But castles have come and gone, and only their ruins remain; not so with the town halls, which were built by the people for the people, and which the people have protected as a sacred duty from generation to generation. Many artists go yearly to Hildesheim to paint its lovely old Rathaus, so charmingly softened in tints of brown and gray. Both exterior and interior of the building show the artistic energy spent by wood carvers and sculptors nearly five centuries ago, and bear testimony to the taste, the humor and the enterprise of the burghers of that period.

Just over the other side of the Harz Mountains lies the beautiful little town of Wernigerode, proud in its possession of another picturesque Rathaus. Little narrow winding streets lead to the market square, which is surrounded by a number of old Gothic build-



Historic Town Hall of Aachen Where Charlemagne Died

like a sentinel, with its two graceful tapering towers, and its clock-face looking down upon the smaller houses it has to guard. The burghers of Wernigerode periodically repaint the woodwork decorations of their Rathaus, and another six centuries of the same good



Quaint Rathaus at Wernigerode, Built in 14th Century

care should find the old building as well preserved as it is today. *Hoch soll es leben (long live) das Deutsche Rathaus!*



CEMENT BUILDING CONSTRUCTION

The Cement Plaster House

CONSTRUCTION AND DESIGN OF MODERN CEMENT PLASTER RESIDENCES, SHOWING THE POSSIBILITIES OF CEMENT IN CONNECTION WITH FRAME CONSTRUCTION

ONE of the most popular forms of suburban house built within the past twenty years is what is called the "stucco house." Three reasons may be given for its extensive use in suburban residential work: First, its cheapness; second, that it is applicable as an exterior finish to every kind of a house, no matter what material is used in the construction of the walls; third, any kind of an architectural effect desired can be produced by the use of this material.

Unfortunately, this form of finish has been criticised from the standpoint of lasting quality; owing, however, to failures directly traceable to poor workmanship. But stucco, when properly made and applied, will endure for an indefinite length of time. The man-

ner of mixing, the proportion of parts, the coloring, the application and care of the walls after the plaster has been applied, make of it a problem which requires expert skill in handling. An inexperienced workman—unless he gives the matter the utmost careful study, and acquaints himself thoroughly with the methods of approved practice—will be certain to come to grief, causing regret to the owner, and creating prejudice against cement as a siding material.

The effects which may be obtained are various and interesting. Cement siding may be colored or left natural. It may be finished smooth like the ordinary sand finish plaster, or it may be stippled. Rough-cast finish is obtained by throwing pebbles mixed with thin cement upon the wall before it has had time to harden thor-



Delightful Use of Cement Plaster with Exposed Timbers in the True English Style—Residence of A. H. Aylesworth, Wilmette, Ill.

oughly. Cement siding may cover the house entirely; or it may be combined with wood, brick or stone to form the wall. A very popular effect is obtained by using wood siding for the lower, and cement plaster for the upper part of the house.

Artistic effects in English half-timbered houses are due to the ease with which the spaces may be proportioned and arranged. There is an added advantage in the half-timber, in that the material in the smaller

It is essential that the casings, cornice, base and belt-ings be so made that the plaster shall be keyed to it. Strips of wood for the English half-timber effect are beveled on their edges as indicated in the drawing. Casings may be similarly beveled on their outer edges, except the head, which is tinned so as to turn the water. A more common method of making casings is to run a moulding entirely around the casing, allowing it to project over the outer edge about five-eighths



Uniqueness and Individuality of Design Are Characteristics of Cement Plaster—Home of Edward Middleton, Oak Park, Ill.

spaces is not likely to check from expansion and contraction.

Framing for Cement Plaster Houses

The construction of the frame for a cement exterior differs but slightly from that for wood siding. Usually the sheathing is put on the outside of the studs, as shown in diagram. Upon this is tacked tar building paper. The furring comes next. The strips are of various sizes, $\frac{5}{8} \times 1$ inch, 9 inch O. C. being one of the lighter forms; they are nailed vertically, irrespective of the position of the studding. Thicker furring is used when more air space is desired than can be obtained with the thinner strips.

of an inch. Such casings have an "apron" similar to that used on the inside.

The question of the relative merits of metal and wood lath is one that does not seem to be fully settled. In fact, both metal and wood have their advantages and disadvantages. Time will tell. At present both are used in about equal proportion, each having advocates with very decided opinions.

The advantage most frequently urged in behalf of metal lath is its rendering the wall fireproof. Its greatest disadvantage is its liability to rust. This disadvantage, it is claimed by manufacturers, is overcome by having the lath back-plastered so that the meshes

are completely embedded. This does not fully protect the metal, however; and to overcome the difficulty, metal lath galvanized or coated with protective paint is being placed on the market.

other, so that the slaked lime will run off. The lower end should have a sliding door, with the opening covered with a coarse wire screen which acts as a strainer, thus preventing any unslaked lumps from leaving the



Cement Plaster Is Popular for the Very Highest Class of Work, Often in Combination with Face Brick—Jas. A. Dick's Residence, Oak Park, Ill.

The advantages and disadvantages of wood lath are too well known to the reader to need repeating. The poor quality of the lath now generally found on the market, which is becoming poorer from year to year, and their liability to shrink, warp and buckle, render them far from ideal. Their cheapness has served to keep wood lath to the front in the outlying districts where fireproofing is not so much insisted upon.

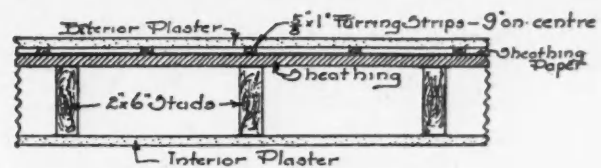
Cement Plaster—How to Mix and Apply

The best results are obtained with a mixture of lime-mortar and cement. Lime-mortar alone is not durable, while cement alone is liable to show hair-line cracks, and on account of quick setting is not so readily worked; but a mixture of the two produces a permanent finish and is easily applied. The character of the work governs to some extent the proportion of cement and lime-mortar to be used. Slake good double-strength lime in plenty of water and stir only enough to prevent the large lumps from burning. After being allowed to stand for a week or ten days, it is ready for use. The cement is then added.

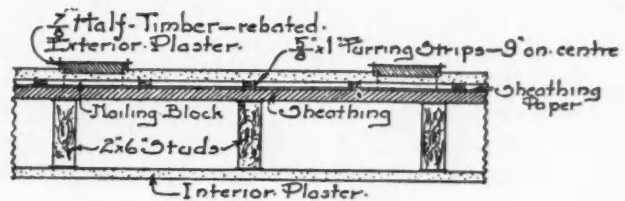
The lime is usually slaked in a box raised slightly from the ground, one end being a little lower than the

box. After the lime has completely slaked, it is run off into a crater of sand and the lime and sand are thoroughly mixed.

The cement is added just before the plaster is ap-



PLAIN PLASTERED WALL



HALF-TIMBERED WALL

Typical Wall Sections for Cement Plaster Houses

plied, and only a small quantity should be prepared at a time. The cement sets rapidly, and if this occurs

before application it will lose its value. If a large quantity of the cement-lime mixture were prepared, the cement would set before it could be used. This is an important point to be observed, and, if neglected, causes failure. The cement is first thoroughly mixed with sand, and then this dry mixture of cement and sand is worked into the lime paste. The proportions by volumes should be one part lime-mortar to six parts of cement and sand mortar, the latter mixed about 1 to 1. While the first coat is wet it is scratched deeply over the entire surface and as soon as it has sufficiently set to support the second coat, the second coat is applied.

If a thick plaster coat is desired, a third coat is applied when the second coat is dry, but usually the finish is obtained from the second coat. The finish may be either smooth, rough-cast, pebble-dash, or slap-dash.

beautiful white finish can be secured by using white sand and white cement, or by using the white sand with ordinary Portland cement. Lime paste also whitens the plaster.

Slap-dash.—A slap-dash finish can be secured by throwing on the second coat with a wooden paddle, but it takes an expert to do good work in this manner.

Pebble-dash.—A pebble-dash surface can be secured by applying the second coat fairly wet and then throwing clean pebbles into the fresh plaster. The pebbles should be about $\frac{1}{2}$ inch in diameter and should run uniformly. Before throwing them on the fresh plaster the pebbles should be wet. The work should be started at the top and the pebbles thrown with a sweeping motion such as is used in sowing grain. The pebbles must, of course, be distributed uniformly over the surface, and must be thrown against the fresh soft plaster



Rough Cast Stucco from Grade to Second-Story Windows, Shingles Above—Residence of Chas. Van Deursen, Kenilworth, Ill.

A rough-cast finish can be obtained by using trowels covered with carpet or burlap. It is not well to trowel the surface too much, as the plaster is liable to crack and fall off if the cement is disturbed after it has started to set.

Rough-cast.—To obtain the best results a slight excess of sand is used and the plaster should not be very wet. The sand should be large-grained and coarse, as this adds to the rough appearance of the surface. A

with sufficient force to embed them securely.

Care must be taken not to disturb the cement after it has started to set, and in order to avoid this, the surface must be covered with the pebbles immediately after the fresh plaster is applied. A plasterer by ordinarily quick work can cover a surface 6 feet square with plaster and then apply the pebbles.

Particular care must be taken to make the whole surface continuous; that is, one patch of plaster must

not be allowed to dry before the adjoining space is covered. If this precaution is not observed, cracks are likely to occur in the finished surface.

applying. A yellow tint can also be secured by using brown sand or gravel.

The finished surfaces should be protected for at least



Graceful Timber Ornamentation Is Easily Used with Stucco to Save Many Houses from Plainness

A similar finish can be obtained by mixing the cement and lime paste to the consistency of thick cream and then adding the washed pebbles in the proportion of 5 parts plaster to 1 part pebbles by volume. This mixture is applied either with a trowel or by dashing it on with a wooden paddle about 6 inches wide. The

two weeks with canvas curtains or bagging saturated with water.

Defects are liable to appear on cement plastered walls, (1) if too much cement is used; (2) if not applied with sufficient moisture; (3) if not troweled sufficiently; (4) if not protected from variations in tem-



An Artistic Combination of Rough Boards and Plaster; Inexpensive, Attractive and Substantial

finish is often tinted yellow, and for this purpose French yellow ochre is best. Enough coloring-matter is added to the mixture to give the desired tint before

perature and draughts of air.

It may be added that improper gauging of cement and lime often causes an uneven color. Experienced

plasterers overcome this easily. One who has done much of this says he thins down his lime putty so that it is so watery as to be used in mixing the cement.

The accompanying table shows the area which can be covered by one barrel of Portland cement mortar of various mixtures, with coats of various thicknesses.

AREA COVERED BY MORTAR

Mortar Produced from One Barrel of Portland Cement Mortar (3.8 cu. ft. Cement Paste) (No Lime)

Composition of Mortar	Thickness of Coat	Area Covered
1 Cement, 1 Sand	1 inch	67 sq. ft.
	$\frac{3}{4}$ "	90 " "
	$\frac{1}{2}$ "	134 " "
1 Cement, 2 Sand	1 inch	104 sq. ft.
	$\frac{3}{4}$ "	139 " "
	$\frac{1}{2}$ "	208 " "
1 Cement, 3 Sand	1 inch	140 sq. ft.
	$\frac{3}{4}$ "	187 " "
	$\frac{1}{2}$ "	280 " "

The color effects obtained with cement are many and are beautiful. Most of these effects are obtained, however, not as might be supposed, by mixing the dry colors in the cement, but by painting the cement after it has become dry and hard. There are two very good reasons for not mixing the colors in the cement. First, it is almost impossible to mix the mass so that it will dry with an even or uniform color. Second, most coloring matters weaken the cement. No coloring matter containing acids or anything that will act upon the alkalies in the cement, can be used; and vegetable or oil colors impair the strength of the cement.

The accompanying table indicates the mineral coloring materials which may be used for giving various colors and tints to cement mortar, and the proportions of coloring matter to cement:

MATERIALS USED IN COLORING MORTARS

Color	Mineral	Pounds Color to 100 pounds Cement	Pounds Color to Barrel of Cement
Gray	Germantown Lamp Black	$\frac{1}{4}$ to $\frac{1}{2}$	2
Black	Manganese Dioxide	12	48
Black	Excelsior Carbon Black	2	90
Blue	Ultramarine	5 to 6	20
Green	Ultramarine Green	6	24
Red	Iron Oxide	6 to 10	24
Bright Red	Pompeian or English Red	6	24
Sandstone	Red-Purple Oxide of Iron	6	24
Violet	Violet Oxide of Iron	6	24
Brown	Roasted Iron Oxide or Brown Ocher	6	24
Yellow or Buff	Yellow Ocher	6 to 10	24

When Paint Spots

In two-coat work poor lumber and thin painting often cause spots on paint. The oil penetrates into the wood more freely on crossed grained and other porous surfaces, and the result is flat places in the paint which fade more quickly than a glossy paint. This makes the work look spotted.

Spotting due to poor lumber and porous surfaces can be guarded against if more care is taken in applying the priming coat. Make it a point to thoroughly

fill all extra porous places with the priming coat, or go over such places twice before the second coat is applied to the entire building.

The practice of applying a coarse dark priming coat is another cause of spotting. This dark under coat is likely to show through in spots where the paint is put on too thin.

The use of too much Japan, fatty or poor quality oil, which makes the paint dry, tacky and soft, often results in mildew, which causes spotting and degeneration of the paint film.

Another cause of spotting is sufficient and improper brushing out of the paint, particularly on the priming coat. A great many painters still fail to realize that the priming coat requires as much care in applying as the second or finishing coats. Many jobs show "laps," and when the second coat goes over a priming coat which shows "laps," trouble usually results.

The surface has at least one more coat where the "laps" show than the balance of the job, therefore the paint is very likely to show spots when it fades out.



Waxing Cement Floors for Dancing Halls

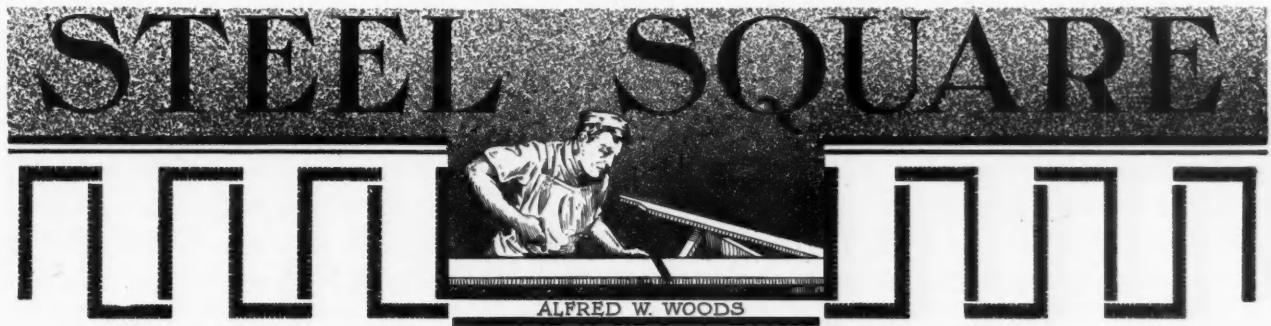
A method of waxing a cement floor so that the room can be used for dancing purposes is thus described in a recent issue of *The Painters' Magazine*: Cement floors are as a rule too porous to be waxed successfully without being first filled. Though rather expensive, shellac varnish is most convenient and best adopted for preparing the floors in the shortest possible time. Two thin coats of orange or brown gum shellac dissolved in denatured alcohol will give the proper foundation for the wax, which should be ordinary floor wax applied with a cloth or brush and polished with a weighted floor brush in the usual manner.



Safety Nets for Builders

Wire nets, similar to those used by high-wire acrobats, is what W. E. McEwen, state labor commissioner of Minnesota, proposes to compel builders of skyscrapers to use to catch falling workmen and save them from being mangled by falling a dozen stories to the ground.

He had previously advocated putting in temporary floors to prevent accidents when high steel-frame buildings are being erected. The item of cost connected with this is very large and contractors are not all willing to comply with his suggestion. Recently McEwen saw the wire nets in use in Toronto. A timber frame was put up at each opening and wire netting stretched over each. The netting used was similar to chicken fence, only stronger, and he considered it safer than plank flooring, as a workman falling 10 or 20 feet on the netting would bounce up unhurt. Mr. McEwen believes that he can require contractors to put in this kind of protection under the general safety appliance sections of the labor laws.



Problems of Roof Framing Solved

SECOND ARTICLE—THE RELATION OF THE HIP RAFTER TO COMMON RAFTERS—HOW THE STEEL SQUARE IS USED IN DETERMINING THEIR LENGTHS

IN the last number we illustrated how to lay out the common rafter with the aid of the steel square. We will now continue using the same example in connection with the corresponding hip, and in doing so we will again show the layout of the common rafter as in the previous article, but this time with the layout as it would appear with the corresponding hip. However, before proceeding further, we wish to make it clear why so elaborate

an illustration is used for a simple roof problem when a few lines would answer the same purpose. The object in this series will be to show the timbers in connection with the steel square and the rela-

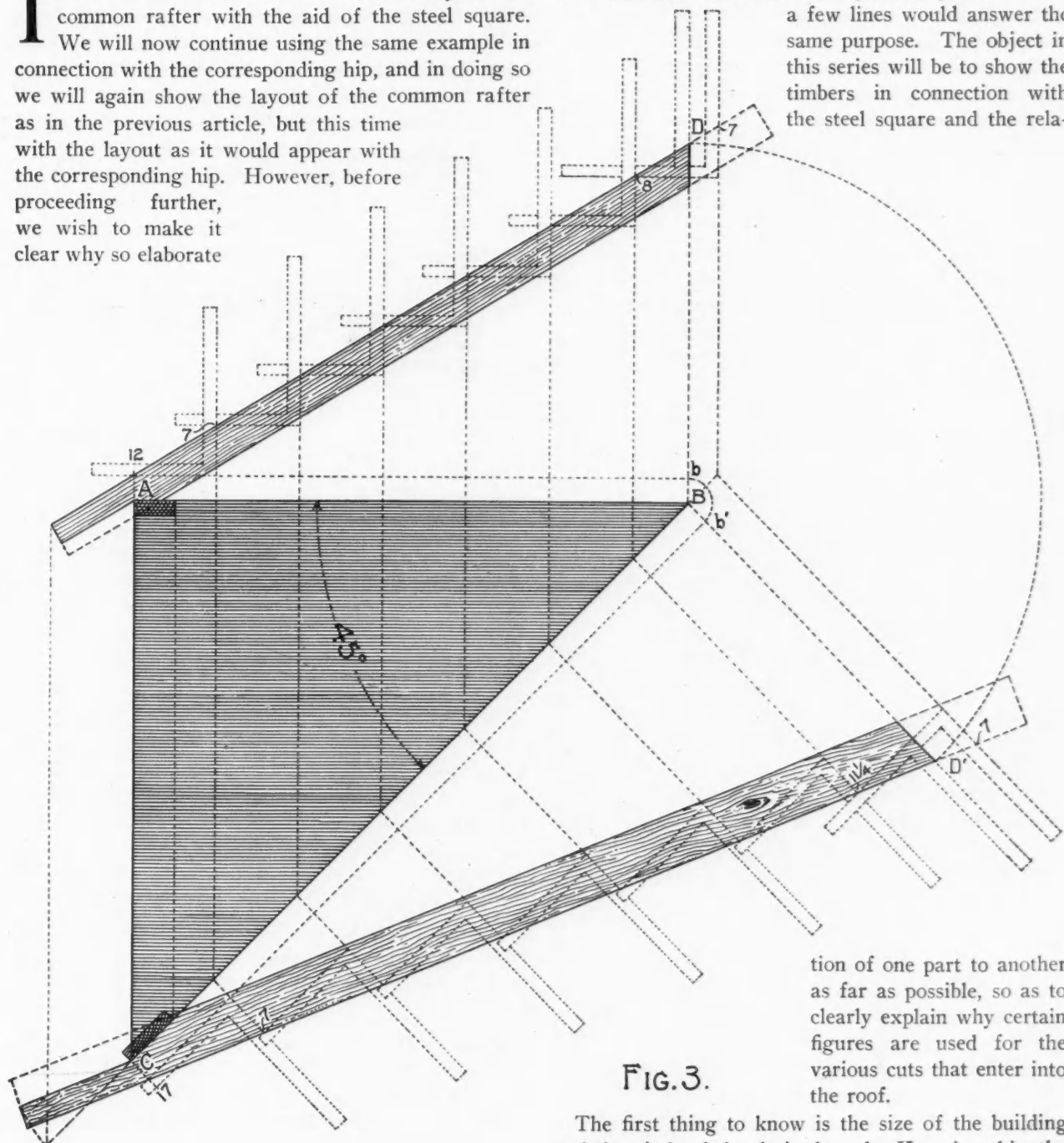


FIG. 3.

The first thing to know is the size of the building and the pitch of the desired roof. Knowing this, the

tion of one part to another as far as possible, so as to clearly explain why certain figures are used for the various cuts that enter into the roof.

dimension of the plan is at once fixed and forms the base from which to work. The experienced framer does this work mentally and applies his square to the timbers intelligently without having to resort to a diagram to first find the figures to use to obtain the desired results. But not so with the novice; he has to be shown and for that reason we are going to try to make this work plain.

The critic, we trust, will therefore pardon us for elaborating on simple things, because it isn't meant for him; he doesn't need it; it's for the other fellow who has not been in the harness so long. So, going back to the illustration, we first call attention to the plan. It is the shaded part in the form of a right angled triangle, because the subject is a square cornered building. A B represents the run of the common rafter, A C the tangent, or the distance that the common rafter rests from the corner of the plate. B C represents the run of the hip and rests at an angle 45 degrees from the run of the common rafter, because the pitch on either side of the hip is of the same slope. B D represents the rise given the roof. Now, as the run of the common rafter in this example is 6 feet 8 inches and the rise 7 inches to the foot, the square is placed seven times at 12 and 7. At the last placing of the square, and after marking along the tongue, the square is moved back along this line till the 8 inch mark rests at the edge of the rafter and the blade will give the proper plumb cut. This is plain enough and we trust everybody understands the work up to this point.

If there is to be a tail to the rafter to form the cornice, then square down on a plumbline directly under the starting point, to the depth desired for the tail as at A. This line should be at right angles to the tongue as shown in the illustration. Then slide the square down the edge of the rafter without change of figures till the tongue touches the desired depth on the plumbline, and mark along the tongue. This line will represent the seat cut of the common rafter, as shown at A. Proceed in the same manner for the hip as shown at C, placing the square on the edge of the rafter as many times as for the common rafter, but at 17 and 7 instead of 12 and 7. The reason of this is clearly illustrated by the dotted lines from one rafter to the other. The run of the hip has a gain of $\frac{5}{12}$ over the run of the common rafter. This added to one foot, as shown on the tongue of the square for the common rafter, brings it to 17 for the hip rafter. In other words, *17 is the diagonal for one foot square and is therefore a fixed number for the hip, the same as 12 is for the common rafter, and remains 17 for any pitch given the roof.* The square is placed the same number of times on the hip as for the common rafter, but at the last placing it is slipped back till $11\frac{1}{4}$ inches rests at the edge of the rafter, because that is practically equal to the diagonal of 8 inches square. The $\frac{3}{4}$ inches difference represents the $\frac{5}{12}$ gain that the run of the hip has

over that for the common rafter. The deduction for the ridge piece is obtained in the same manner as before mentioned for the common rafter; but in this, one-half of the diagonal thickness of the ridge piece should be allowed for instead of one-half of its thickness.

In the next article we will take up the backing of the hip and the effect it has in the framing—also the various cuts will be exemplified.

How to Fasten Mallet Handles

The old method of fastening mallets to handles by boring a hole through the head and inserting a wedge from the outside may be superseded by a new way that makes the tool much neater and one that conceals the wedge and eliminates all possibility of the head flying off since the wedge cannot come out. This new way is to bore a hole the size of the handle and three-fourths the distance through the head, then cut a slot in the handle and insert a wedge as shown in Fig. 1. Put the



Fig. 1



Fig. 2

wedge end into the hole bored in the head and drive it in. When the wedge touches the bottom of the hole (Fig. 2) it will be driven into the split of the handle, thus forcing the sides out and making a tight fit.

Metal Substituted for Mortar

Zinc instead of mortar was used for joining the stones of two elliptical arches of an eighty-two-foot span that supports a newly completed armored concrete bridge near Lyons, France.

Previous experiments having proved that the molten zinc—at 800 degrees Fahrenheit—caused no fractures in dry stones, the zinc was melted and poured between the stones, forming metallic joints an eighth of an inch thick. The substitution for mortar increased the cost about \$2.40 for each square foot of the bridge's horizontal surface.

Tests with cubical stones, two and one-half inches on a side, showed that zinc joints do not weaken stones having a strength of about 14,000 pounds per square inch, but are ten or fifteen per cent weaker than stones having a strength between 14,000 and 18,500 pounds. A less compressible metal is needed for very hard stones.

Cement points, when as thin as one-twenty-fifth of an inch or less, stood the tests equally well, but disintegration gradually reduces the original strength of joints of mortar.

How To Make Blue Prints

While most carpenters are familiar with blue prints, many are not acquainted with the method of producing them—which is not so complicated as is generally supposed. A short description of the subject should be interesting and valuable to many. By this method any one can make good blue prints.

The subject to be reproduced should be traced with very black India ink on cloth (vellum) or transparent paper. This serves as a negative from which any number of copies can be made.

A printing frame is required which may be made as shown in the figures and may be made any size desired.

The glass should be good double strength A. A. glass (thin plate being preferable). The back should be in sections hinged together, and with buttons as shown; these buttons should be beveled so as to press the back snugly up to the glass when they are turned into the slots in the frame. Fig. 2 shows the back view of the frame complete.

Now place the negative (tracing) face down in the frame and on this the chemically prepared paper and on this a heavy woolen or felt cloth; then put on the back and turn the buttons into the slots and place the frame, glass side up, in the sunlight, the brightness of which determines the time of exposure. Some papers print more quickly than others, requiring, therefore, a little experience on that line; but in most cases with a good direct light four or five minutes is sufficient.

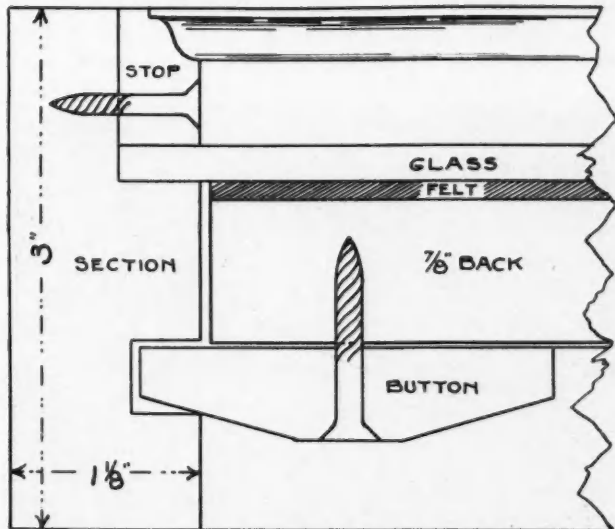


FIG. 1.

Take out the paper (not the tracing) and place it in water for a few minutes, gently rinsing the same by taking the paper by the edge and running it back and forth through the water till all of the chemicals disappear entirely, leaving the paper white where the black lines have kept out the sunlight, and elsewhere dark blue. Hence the name "Blue Print."

It will be seen by this that the chemicals are very sensitive to the light; and so the paper should never be exposed unnecessarily. It should be kept well wrapped

and in a dark, dry place and only a limited amount kept on hand, as it is liable to spoil.

A number of years ago it was quite the custom to buy the ingredients at the local drug stores and pre-

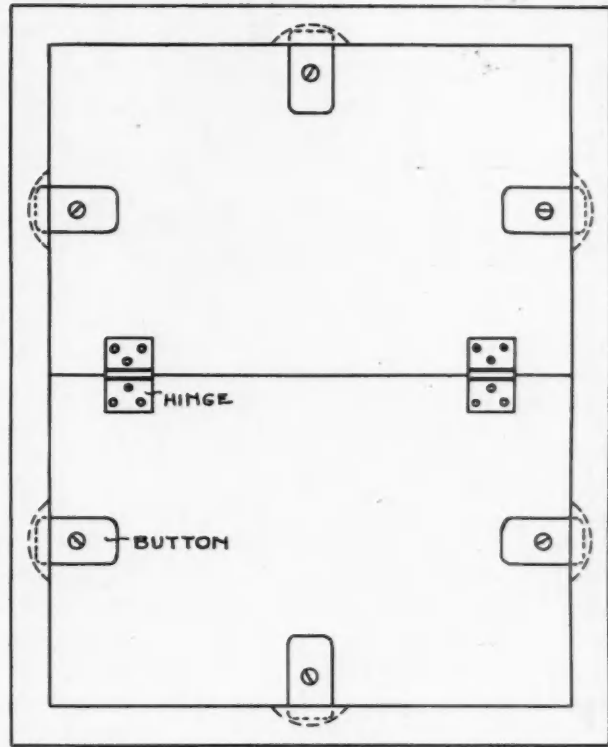


FIG. 2.

pare the paper for making the prints, but nowadays the ready prepared papers are so reasonable in price that one cannot afford to bother with preparing the paper, as the ready prepared goods can be had at any up-to-date book store at not to exceed 10 cents per yard in 10-yard rolls, or if they do not keep it on hand they will gladly get it on a few days' notice. Papers are now made to print very rapidly, from a few seconds to four or five minutes in good sunlight. In ordering, it is well to state what is wanted, whether rapid or medium. Without one has had experience in printing, it is better to order medium paper, because without experience one is very apt to spoil the paper by letting too much light get to it while arranging it in the frame.

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Best Test

"Tell me," said the lovelorn youth, "what's the best way to find out what a woman thinks of you?"

"Marry her," replied Peckham promptly.—*Catholic Times*.

+

Easter and Just as Good

"Why won't you go to the picnic?"

"Ah, I'm too tired. Let's soak a few sandwiches in lemonade and eat 'em on the kitchen floor."—*Louisville Courier-Journal*.



Surface Finishes in Concrete Work

VARIOUS ARTISTIC AND COMMERCIAL PRACTICABLE CONCRETE SURFACE FINISHES—HOW THIS KIND OF WORK IS DONE

THE ordinary concrete surface, it must be admitted, is anything but pleasing in appearance, being usually a smooth, lifeless surface of a somber grayish color. It makes but little difference what cement, sand or aggregate is used, or in what proportions they are mixed, the general appearance of the surface is the same. There may be the greatest difference in color, shape and texture of the aggregate used in two separate concrete surfaces, yet unless they are so treated as to bring out and expose the aggregate, the resulting surfaces will look alike. It is quite difficult to distinguish an ordinary, unfinished concrete surface in which bank gravel is the aggregate from one in which crushed red granite is used, but the same surfaces, if subjected to any one of a number of different methods of surface treatment, will present a marked and pleasing contrast in appearance.

Many architects have discouraged the use of con-

description of the methods employed in producing them. These surfaces were made in the Inspection Bureau laboratory of the Universal Portland Cement Co. They present only finishes that are commercially practical and that may be obtained by simple methods of treatment.

Fig. 1 shows a comparatively fine, even-grained surface, composed of one part cement and three parts of coarse sand, which passed a No. 4 and was retained upon a No. 8 mesh screen. Fig. 2 represents a finish made from a 1:3 mixture of cement, and $\frac{1}{4}$ inch to $\frac{1}{2}$ inch pebbles. These two surfaces are identical in every respect, except the size of aggregate. Fig. 3 represents a treated surface composed of one part cement to two and one-half parts of black pebbles, varying in size from those retained on a No. 10 sieve to those passing a $1\frac{1}{4}$ inch mesh. The cut gives but a poor idea of the pleasing contrast between the light

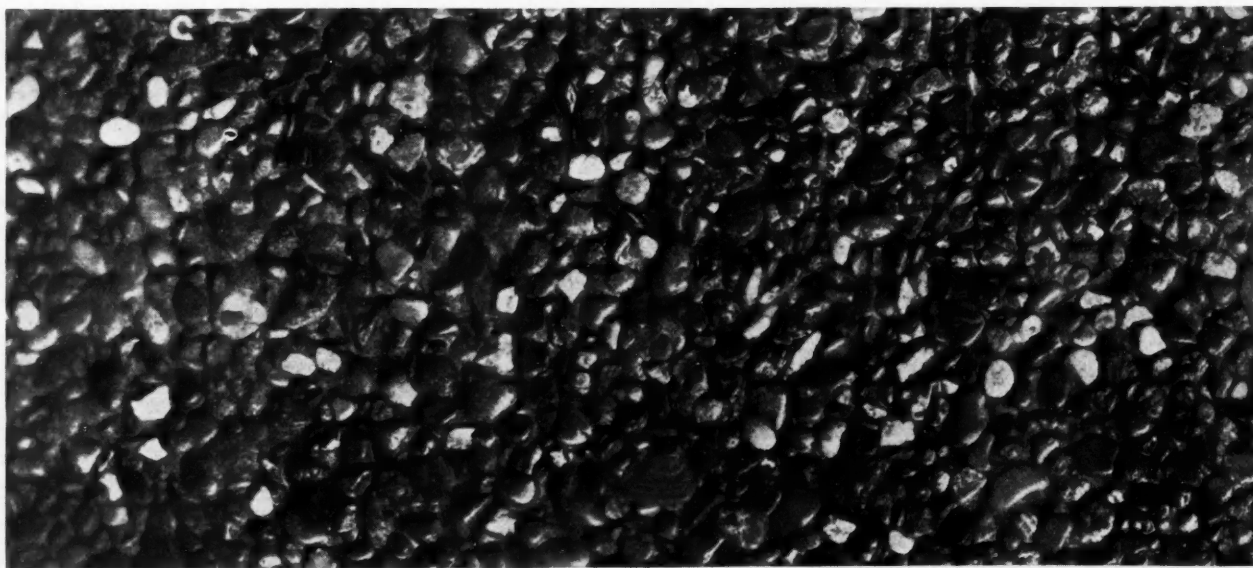


Fig. 1. Reproduction, Exact Size, of Brushed Fine Pebble Surface

crete for exteriors on account of its uninteresting sameness. With the purpose of correcting this false impression and of directing attention to the possibilities of artistic work along this line, we are presenting herewith a number of detail photographs, actual size, of some brushed concrete surfaces, together with a

colored cement background and the black pebbles, which stand out in bold relief from the surface.

Fig. 4 shows a decidedly pleasing, even-grained surface composed of one part cement and two and one-half parts red granite screenings, all of which passed a No. 8 and was retained on a No. 16 sieve. Fig. 5

is a reproduction of a surface composed of one part cement to two and one-half parts ordinary, quarter-inch, granite screenings, the material passing a No. 8 sieve being rejected. Both these surfaces are quite similar in every respect except in texture, that repre-

white marble chips and different colored pebbles and sands. But as the photographic reproductions do not reveal the colors, Figs. 4 and 5, while reproductions of surfaces in which red granite was used, answer equally well for those in which different angular ag-

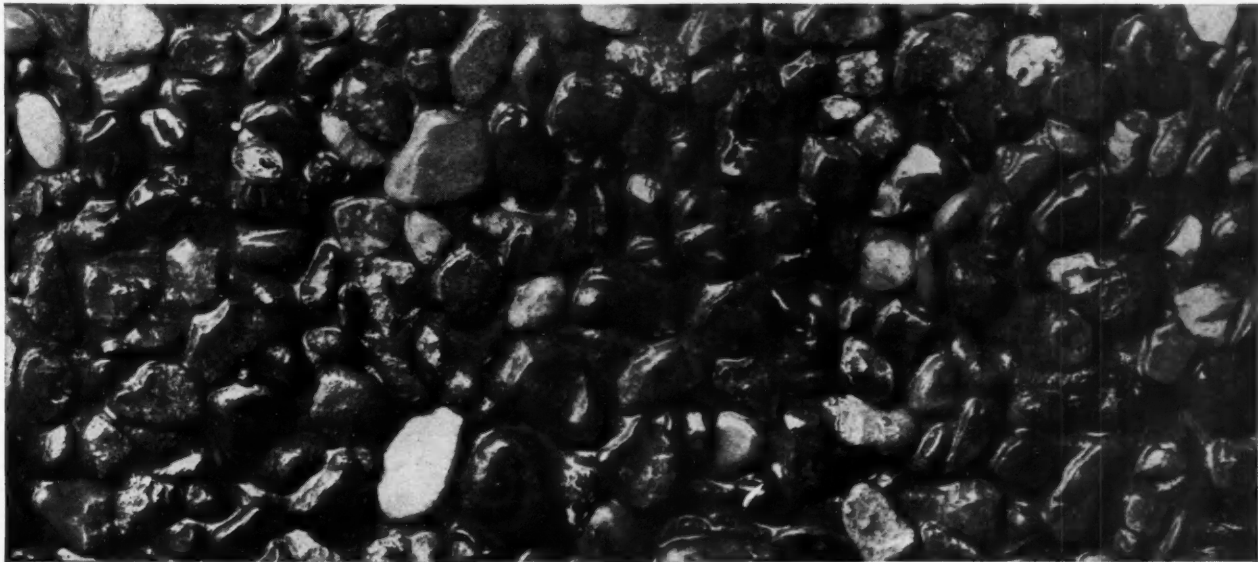


Fig. 2. $\frac{1}{4}$ to $\frac{1}{2}$ Inch Mixed Pebbles Produce This Striking Surface Finish

sented by Fig. 5 being of a rougher, coarser grained texture than the other. As the cement is barely perceptible on these surfaces both look very much like rough, undressed red granite, the color being practically the same as that of the screenings of which they were made.

By varying the kind, size and proportions of the aggregates, surface finishes of practically any desired color and texture can be obtained, the possibilities being limited only by the number of different aggregates available and the combinations of same. A great variety of finishes may be produced by using red and black granite and limestone screenings, black and

gregates were used, and Figs. 1, 2 and 3 for surfaces finished with various colored pebbles and sands.

All the cuts shown represent brushed concrete surfaces, the process consisting of simply brushing the surface with a stiff brush, permitting it to harden for a few days and then treating it with a dilute solution of hydrochloric acid, the method of procedure being as follows:

Having decided upon the general color scheme and texture of the desired surface the first step is the making and treating of small sample surfaces. A limited amount of experimenting with the materials available will always prove profitable. The color and texture

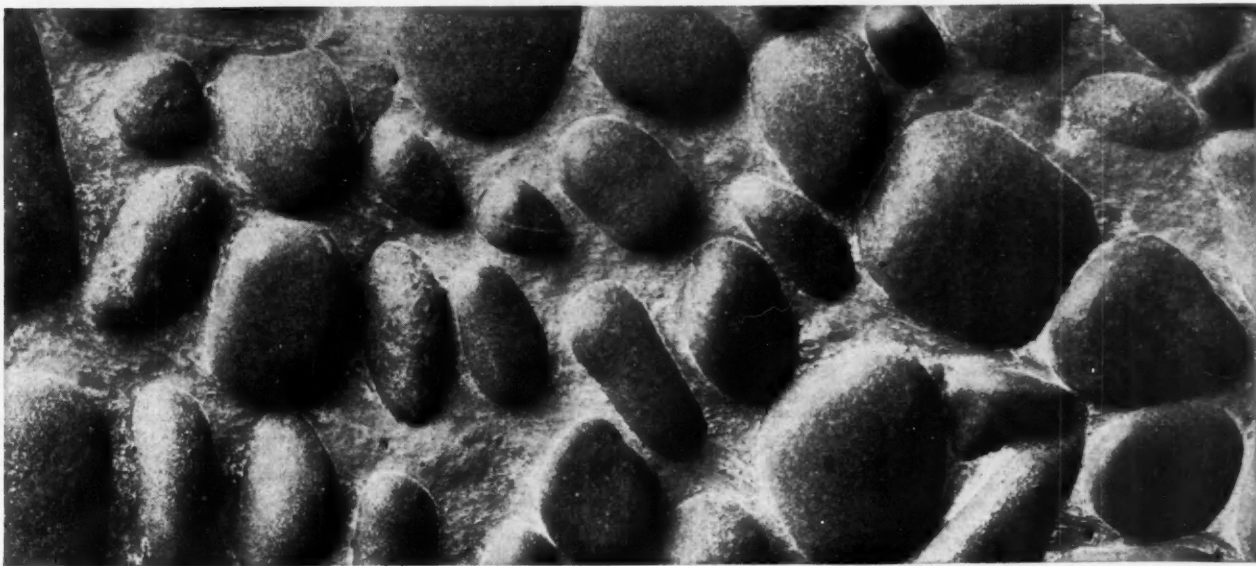


Fig. 3. Larger Stones Are Much Used in Monumental Work. By Selecting the Stones, Any Color Effect May Be Had

of the finished surface depend upon the color, size and proportions of the aggregates used, and the successful reproduction of the desired surface is dependent upon the proper selecting, grading, proportioning and mixing of the materials and the proper placing and finishing of the surface. Upon determining by experimenting the proper size and proportions of aggregates to produce the desired effects and the proper consistency of the mix, adhere strictly to them; that is, take the trouble to measure the materials for each batch of concrete and to gauge them with a measured amount of water. The results obtained will more than justify the extra expense this will entail over the all too prevalent method of measuring material by wheelbarrow loads and adding the water with a hose; in fact, uniform results cannot be obtained unless the work is done as pointed out.

The slightest imperfections and irregularities in form surface are transferred to the concrete, producing unsightly surfaces when left untreated, and a pleasing surface cannot be obtained by a nicety of form construction alone. For brushed surfaces, all that is required of the forms is that the face lagging be kept true to surface and the joints be tight. For surfaces too large to concrete in one day the forms should be so constructed as to permit of the removal of sections of the face form. This can be accomplished by setting the studs or uprights back a few inches from the

breaking up of the surface as indicated will greatly assist in the concreting if care is taken to end and start succeeding days' work at a course or joint.

The facing material should be from one to one and one-half inches thick, the remaining thickness of the work being composed of ordinary concrete, but the facing and backing must be deposited at the same time so as to make one solid mass, thereby insuring perfect bond. The facing material may be applied to the forms just ahead of the backing, which is placed against and rammed into it, or the backing may be placed first and then brushed back from the form with a spade and the facing material deposited between the backing and the form. Both these methods have been successfully used. A third and possibly the best method of placing the facing material consists of the use of what might be called a metal facing form or mold, constructed and used as follows: To short lengths of 3/16-inch iron plates 8 or 10 inches wide and 6 feet long, three 1 or 1 1/2-inch angles are riveted, placing an angle at the center of the plate and one about six inches from each end. One edge of the plate should be slightly flared to assist in depositing the material and this edge provided with handles. The metal facing plate is placed against the wall form with the handles up and the angles tight against the form. The space between it and the back of the wall filled with the concrete backing and the 1 or 1 1/2-inch space be-

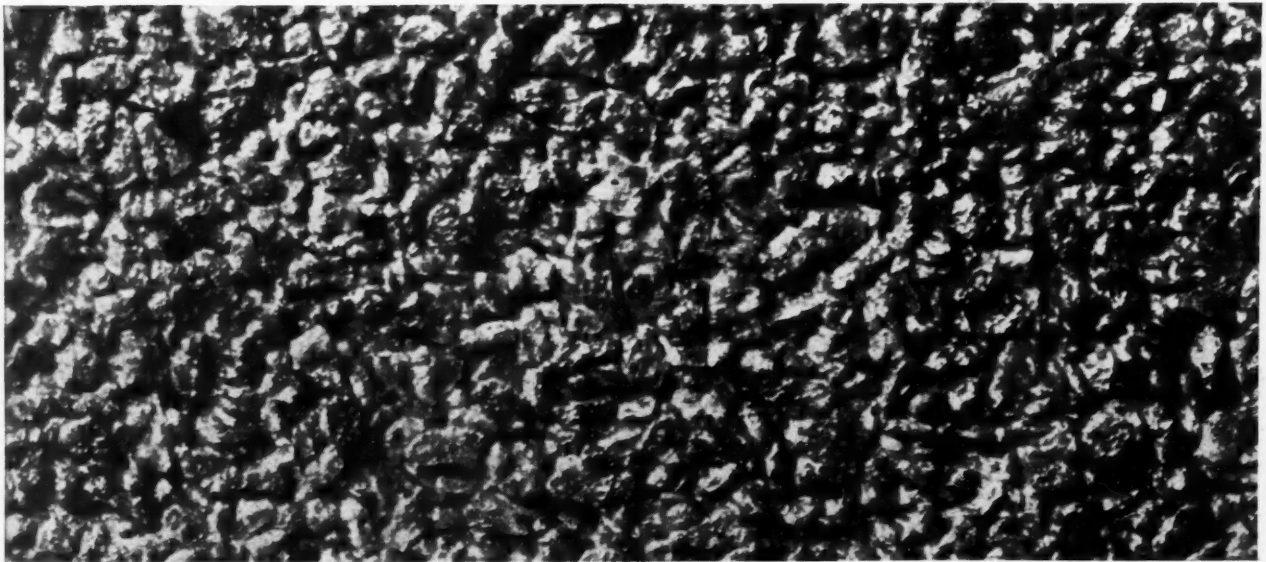


Fig. 4. Reproduction, Exact Size, of Brushed Surface Formed of Red Granite Screenings

face lagging and connecting both by means of cleats and wedges. The face forms should also be well oiled to prevent the concrete sticking to the forms. For large areas the introduction of buttresses and panels or the breaking up of the surface by horizontal joints or courses will add greatly to the appearance, the joints being simply indentations in the surface produced by beveled beads fastened to the forms. It is extremely hard to join two different days' work so that the joint is not perceptible and unsightly, and the

tween the metal form and the face form filled with the facing material. The metal form is drawn almost out, and after thoroughly tamping the backing against the facing the process is repeated.

For brushed surfaces the forms must be removed from the work as soon as possible and the concrete surface brushed while still green. It is not possible to state how old the work should be before removing the forms and brushing the surface. This will depend upon a number of conditions, the character of the

work, cement and aggregate used, consistency of the mixture, and very much upon the weather conditions. As a rule, in hot weather the forms can be removed

gate, erases all traces of form markings and produces a rougher, more artistic surface. The roughness of the surface breaks up the light, the color of the ag-

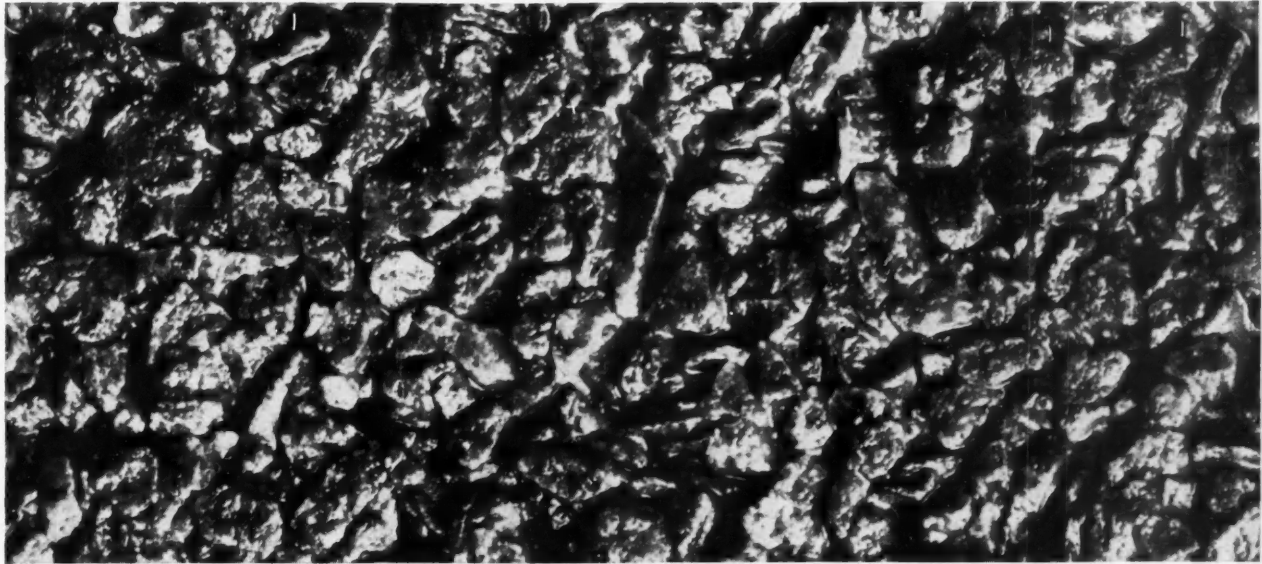


Fig. 5. Granite Screenings of Larger Size Exposed By Brushing and Washing

the next day and the surface brushed, but in cold weather the facing form cannot be removed so soon, several days or perhaps a week being required for the concrete to attain the necessary hardness and strength. Care must be taken that the brushing is not done too soon, as little particles of aggregate will be removed, resulting in a pitted, unsightly surface. On the other hand, the longer the surface stands before being brushed the more brushing it will require to remove the film of material that has flushed to the surface. Brushing should be done just as soon as it can be without removing particles of aggregate. When this can be done can only be determined by experimenting with the particular surface. An ordinary scrubbing brush with stiff palmetto fibers or a metal wire brush will answer for the work. Two or three days after the brushing the surface should be washed down with a dilute solution of commercial hydrochloric acid, one part acid to two or three parts water. The acid should be applied with an ordinary calcimining brush and the walls thoroughly rubbed, while wet with the acid, with a stiff vegetable fiber brush. The acid should not be allowed to remain on the surface for any length of time—not over half an hour—and should be washed off with a hose and clean water. It is important that the surface should be thoroughly washed after the acid treatment, for if it is not it will have a mottled, streaky appearance.

A desirable surface can be obtained by simply brushing and then washing with a hose and clean water, but the final acid treatment in connection with the brushing will produce a still better surface.

This method of treatment removes the film of mortar that has flushed to the surface, exposes the aggre-

gregate adds variety and life, and we have a pleasing, artistic, true concrete surface.

+

Illustrated Lectures at Cement Show

Mr. Percy H. Wilson, secretary of the Association of American Portland Cement Manufacturers, has announced an elaborate series of lectures to be given at the Chicago Cement Show, which will be held at the Coliseum, February 18-26.

The lectures deal with the diversified uses of concrete, and are divided into twenty-two subjects, as follows:

Mixing and Placing,	Concrete Bridges and Culverts,
Silos,	Jamestown Sea Wall,
Floors,	Concrete Steps,
Tanks,	Determination of Voids,
Stucco,	Selection of Aggregates,
Surface Finish,	Manufacture of Cement,
Sidewalks,	House Building,
Fireplaces,	Odd Uses,
Concrete Piles,	Factories,
Small Farm Uses,	Artistic Uses,
Concrete Poles,	Decoration With Colored Tile.

They promise to be among the most instructive of all the displays at the Coliseum, and will be interesting to everyone, on account of the variety of subjects. Three lectures will be given each day, at 4:30 p. m., 8 p. m. and 9 p. m., in the west end of the Balcony Annex. Each lecture will be accompanied by a continuous lantern slide exhibition, which will add materially to its attractiveness.

One glance at the list will be enough to bring most people to the lectures, for they deal with everyday subjects, presented in a most attractive and interesting manner.

Valuable Data for Builders

SECOND OF A SERIES OF ARTICLES ON BUILDING CONSTRUCTION—MATERIALS IN COMPRESSION—HOW TO DESIGN MASONRY FOUNDATIONS

By Paul T. Leshner

IN THE December number we were considering the tensile strength of materials, that being the strength exerted in resisting a *pulling* strain. The strength of just the opposite nature, that used in resisting a *pressing* strain, is known as compression or compressive strength.

ULTIMATE COMPRESSIVE STRENGTH OF MATERIALS

	Lbs. per Sq. In.
White pine, parallel to the grain.....	3,000
Hemlock, parallel to the grain.....	2,000
Spruce, parallel to the grain.....	3,000
Yellow pine, parallel to the grain.....	4,400
Oak, parallel to the grain.....	3,600
Wrought Iron.....	44,000
Structural steel.....	64,000
Cast iron.....	81,000

Use a factor of safety of four for timber, wrought iron and steel, and a factor of safety of six for cast iron.

The following are average working values conforming to the best practice. They are given in place of the ultimate values, because the ultimate values in these cases have a very wide range, dependent upon special conditions and workmanship.

COMPRESSION—PRACTICAL WORKING VALUES

	Lbs. per Sq. In.
Brickwork in lime mortar.....	100
Brickwork in gauged mortar.....	150
Brickwork in Portland cement mortar.....	200
First-class granite masonry.....	350
First-class marble or limestone masonry.....	250
First-class sandstone masonry.....	175
Granite capstones.....	700
Marble or limestone capstones.....	500
Sandstone capstones.....	350
Portland cement and stone concrete in reinforced concrete construction and in foundations.....	500
Best quality of Portland cement and cinder concrete in reinforced concrete construction.....	250
Rubble masonry in cement mortar.....	150
Rubble masonry in lime mortar.....	80

For the preceding values of masonry the height of a wall should not be more than sixteen times the least unsupported thickness of the wall, or the wall may fail by buckling or bending.

The height of a detached or free standing pier should not exceed ten times its least side.

Foundations

Wall footings should be placed directly under or preferably a little outside the center of the wall, which position tends to slightly tilt the walls inwards, but will be kept in place by the floor beams, etc. (See Fig. 2.)

The following proportions for the design of pier foundations of masonry and concrete are used in conservative practice.

For the capstone, Fig. 3, make "T" at least twice "A."

For the body of the pier use a batter or slope of not more than 1 inch in 2 inches.

For the footing make the offset "D" not more than one-half of "S." "S" is, in good practice, never more than about 16 to 18 inches.

SAFE BEARING VALUES FOR FOUNDATIONS

Rock.....	20	tons per square foot
Gravel.....	6 to 10	tons per square foot
Sand.....	6 to 10	tons per square foot
Gravel or sand with clay.....	4 to 6	tons per square foot
Dry clay.....	2½	tons per square foot

(1 ton equals 2,000 pounds.)

The high values are for the most compact materials. All of the above are assumed to be reasonably free from water, or anything which would occasion a lateral displacement.

A good rule to adopt when designing foundations is as follows:

"That which is below always determines the size of that which is to go above."

Problem 1. What size foundation is required to support a column that supports a load of 141,000

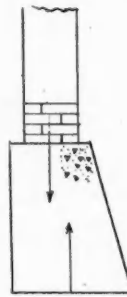


FIG. 2.

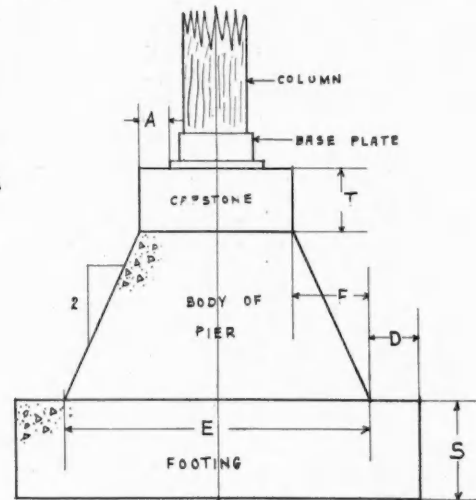


FIG. 3.

pounds? Assume the supporting soil to be a stiff dry clay, the body of the foundation is of good Portland cement and cinder concrete, and the capstone of granite. Assume our foundation to weigh 9,000 pounds, which makes our total on soil equal 150,000 pounds.

Solution: Calculation for Size of Base Plate. In the data already given we find that the safe compressive strength of a granite capstone is 700 pounds per square inch. To find the number of square inches required in the base of the column base plate, we will divide 141,000 pounds by 700 pounds, and we get for an answer 202, which is the number of square inches

required. We will use a 15-inch by 15-inch base plate, which has an area of 225 square inches.

Calculations for Capstone. From our previous notes we find that the safe working value for the best quality of Portland cement and cinder concrete to be 250 pounds per square inch. To find the number of square inches required in the base of the capstone we will divide 141,000 pounds by 250 pounds, and get an answer of 564, which is the required number of square inches. Will use a 25-inch by 25-inch capstone, 10 inches deep; the depth being made twice the distance "A." (See Fig. 3.)

Calculation for Footing. From our notes we find that dry clay has a bearing value of $2\frac{1}{2}$ tons or 5,000 pounds per square foot, and dividing our load of 150,000 pounds by 5,000 pounds we receive an answer of 30, the number of square feet required in the base of the footing. We will use a footing 5 feet 6 inches by 5 feet 6 inches and make the depth 16 inches.

Proportioning the Foundation. In the proportions given above it states that "T" should be at least twice "A" and in our case the base plate is 15 inches square and our capstone 25 inches square, therefore 25 inches minus 15 inches equals 10 inches difference or 5 inches on a side. Therefore 5 inches equals "A" and 2 times 5 inches equals 10 inches or "T."

For the footing, make the offset "D" not more than one-half "S," and as "S" in our case equals 16 inches, "D" will equal one-half of 16 inches, or 8 inches.

Calculation for Height of Body of Pier. The baten of the body of the pier should be in a relation of 1 to 2, as shown in Fig. 3.

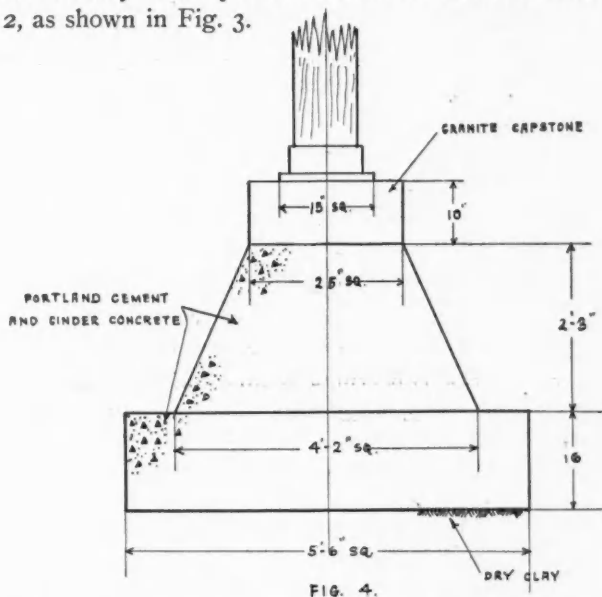


FIG. 4.

In our case the capstone is 25 inches square and the distance "E" (Fig. 3) is 50 inches. Now 50 inches minus 25 inches equals 25 inches, and this divided by 2 gives $12\frac{1}{2}$ inches, which is distance "F." The depth being in a proportion of 1 to 2 must therefore be 2 times $12\frac{1}{2}$ inches or 25 inches; say we make the depth 2 feet 3 inches.

A detail drawing of this foundation is shown in Fig. 4.



ALL'S not junk that litters!

Fortune's Favorite

"Some folks is born lucky," said Uncle Eben, "an' de man dat is born wif plain common sense is one of 'em."

In Doubt

"Did you ever have appendicitis?" said the insurance man.

"Well," answered the skeptic, "I was operated on, but I never felt sure whether it was a case of appendicitis or a case of professional curiosity."—*Washington Star*.

A Lost Art

"They say that a mummy just arrived in New York is that of the cook of Rameses II."

"That so? Well, somebody had the secret of keeping a cook," and the suburbanite sighed wistfully.

Entitled "Handspike Problem"

Poet—Will you accept this poem at your regular rates?

Editor—I guess so—it appears to contain nothing objectionable. Go to the advertising department and ask what the rates are. How many times do you wish it inserted?

Must Have Died

"Heard about Jinks?"

"No—what's happened?"

"He's quit drinking."

"Oh, poor chap! Did he leave his family well provided for?"—*Cleveland Leader*.

He Helped

The brakeman was a novice, and on his first run here there was a very steep grade mount. The engineer had more or less trouble to get up this grade, but this time he came near sticking. He almost lost his head. Eventually, however, he reached the top.


At the station that crossed the top, looking out of his cab, the engineer saw the new brakeman and said, with a sigh of relief:

"I tell you what, my lad, we had a job to get up there, didn't we?"

"We certainly did," said the new brakeman, "and if I hadn't put the brake on we'd have slipped back."

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

DETAILS of CONSTRUCTION AND FINISH



CHARLES P. RAWSON

We Want This Department to Be Very Valuable to Our Readers. If There Is Any Style of Finish, or Any Piece of Special Construction You Want to See Fully Detailed and Explained, Let Us Know. ¶ These Drawings Are All Made to Scale; They Can Be Easily "Taken Off" for Practical Use

AS announced last month, it is our intention to publish the complete details of the interior finish of a series of rooms, giving one room each month. We are in receipt of several requests for details of mission finish, or of a "plain, square" style without mouldings. This class of finish is very popular at the present time, and many architects and contractors are receiving calls for it. It is more artistic, more easily cleaned, and shows the grain of the wood to much better advantage than the moulded and beaded trim which has been so popular in years past.

Stair Hall in Mission Finish

We show herewith, therefore, the design and details of a stairway and seat in such a style. With a few changes, as to general arrangement, these details may be adapted to any work having requirements of a similar nature. The drawings are made to scale; that of the plan is one-quarter inch equals one foot; of the elevations, one-half inch equals one foot; and the details are one-half full size. An unusual feature of this design is the manner in which the rail joins the main newel. If a somewhat more elaborate treatment were desired, a wainscot three feet high with a cap similar to the top of the seat-end; a base as shown in the detail; and with narrow, plain, vertical panels between, could be made around the hall and up the stairway. Woodwork of this style is preferably made of oak and a light stain should never be used. A dark brown stain with a dull finish is more appropriate and gives the best effect.

Double Casement Windows in Brick Wall

Our constructive detail this month shows a double casement window with a stationary transom in a brick wall. The inside jambs are plastered, a method of construction which is growing in favor, especially in localities where lumber prices are high. In this way nearly all of the inside finish can be eliminated, a feature which is especially desirable in public or semi-public buildings. The illustration shows the window in plan and elevation, both inside and outside, drawn to the scale of three-eighths inch equals one foot. There are also construction details of sill, muntin,

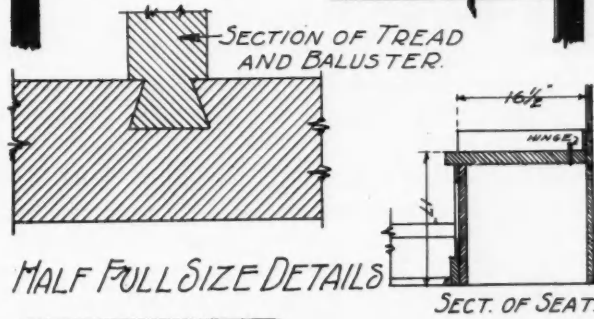
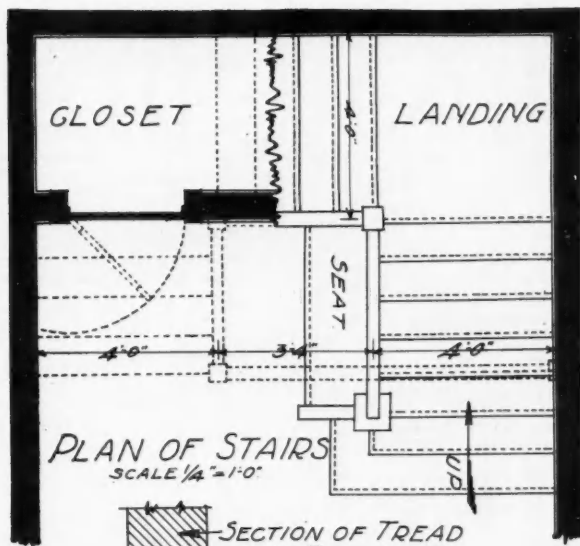
meeting-stiles, jamb, transom bar and head, all drawn to the scale of three inches equals one foot.

The advantages of the casement window over the ordinary double hung window are so many and so great that it is no wonder that their popularity and use is increasing so rapidly. It is not unlikely that eventually casement will entirely replace the unsightly double hung window, especially in residences. In Europe and South America the latter are almost unknown and the casement is the universal window. Once used in a home the owner will not only appreciate their beauty and convenience but also their great superiority as ventilators, especially in warm weather. With proper construction they can be made tight enough to keep out cold and water. The sash should be made strong, so that they cannot sag, and of seasoned lumber so that they will not warp. We do not advise rebating the jambs, as the construction is materially weakened thereby and the window is made no tighter.

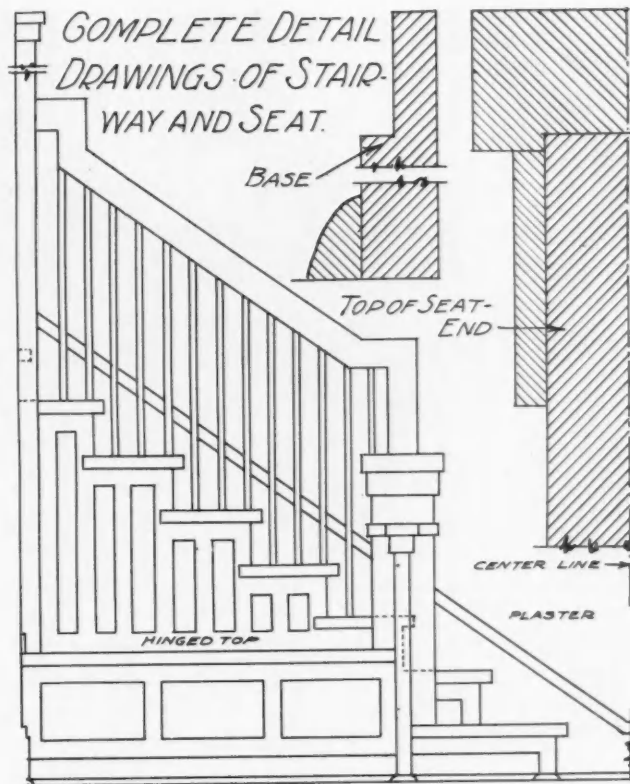
Windows of this kind may be used equally as well with a square top transom or with no transom at all. In work of this nature in a great majority of cases all finish, both inside and outside, should be painted white; but in this particular case the inside is finished in mahogany.

We wish to again call the attention of our readers to the fact that this department is open to all who desire information concerning details, and we shall appreciate such help as they can supply in making the department interesting and of practical service to them.

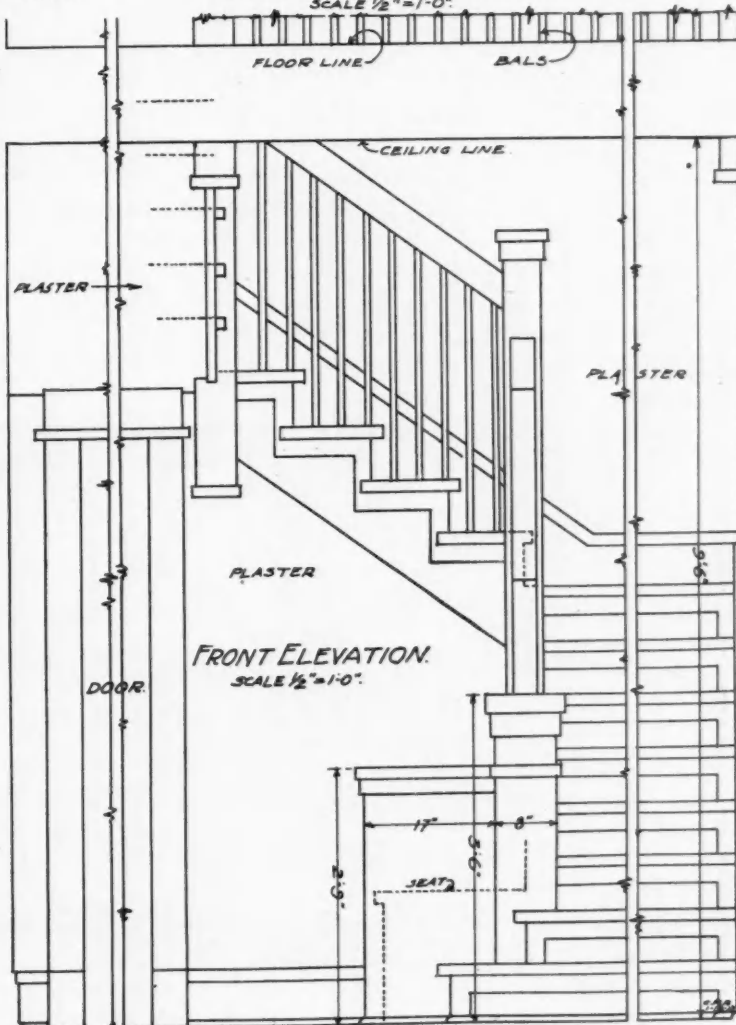
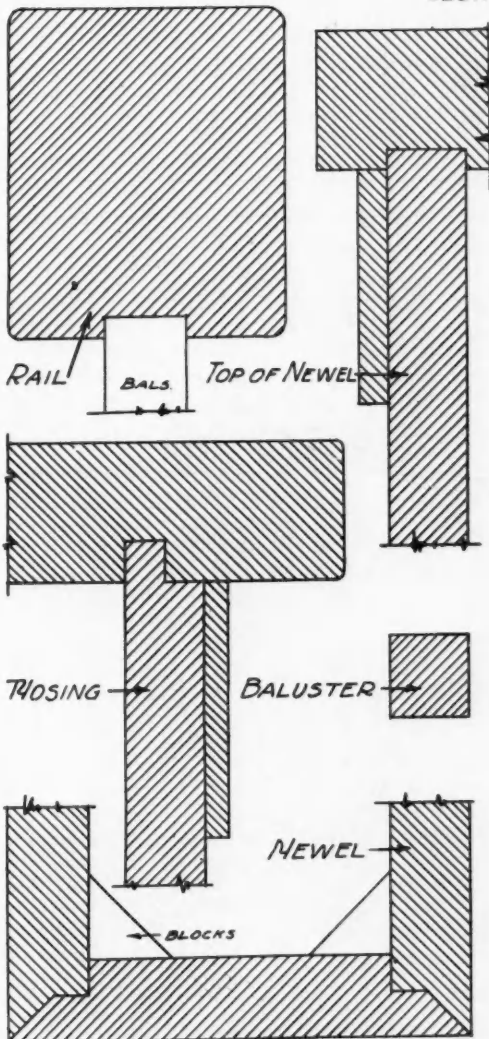
A new process has been discovered to manufacture lumber out of straw, a ton of which will make 2,000 feet of $\frac{1}{4}$ -inch boards. This will afford a demand for straw and will cause it to sell for perhaps \$5 per ton. It is said that the new lumber is knotless and without sap and almost indestructible. The lumber will be very desirable for interior finishings on this account. Railroad companies are considering the use of this kind of lumber for the interior of their coaches. This new discovery, if extensively carried out, will mean much to farmers, who usually burn or give away a lot of straw each year.



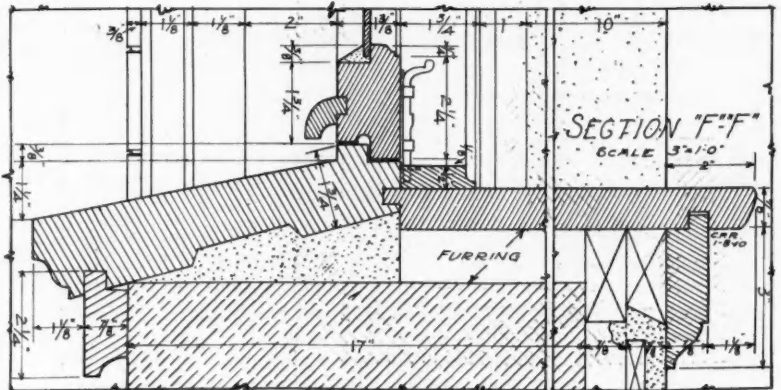
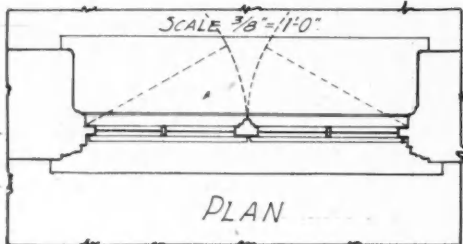
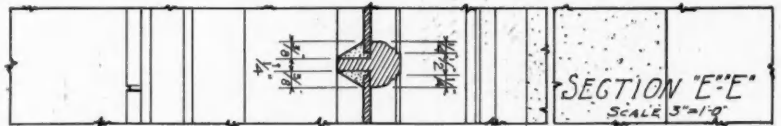
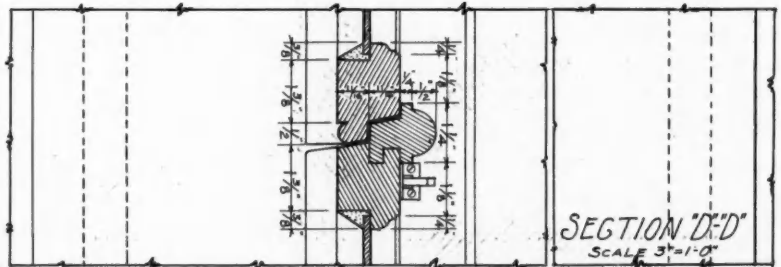
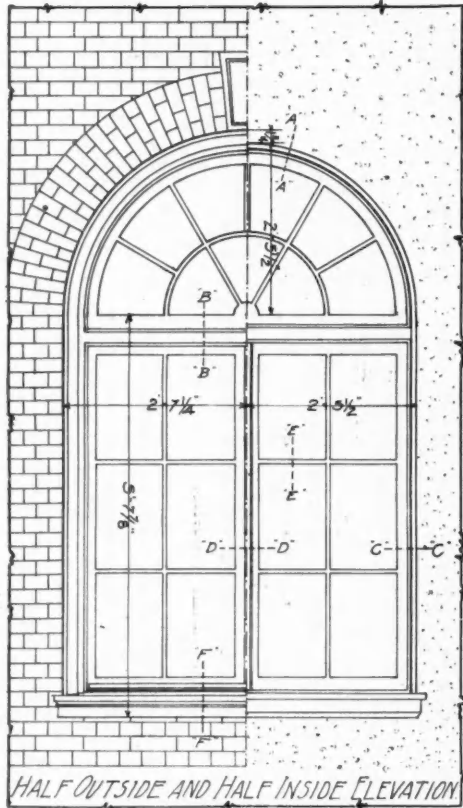
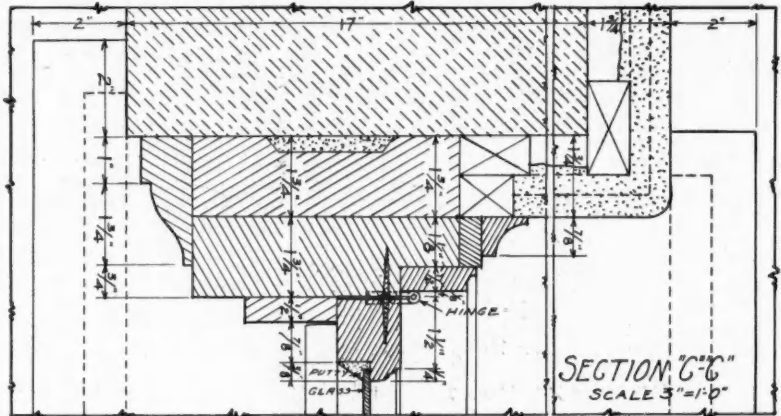
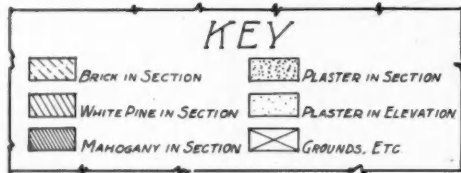
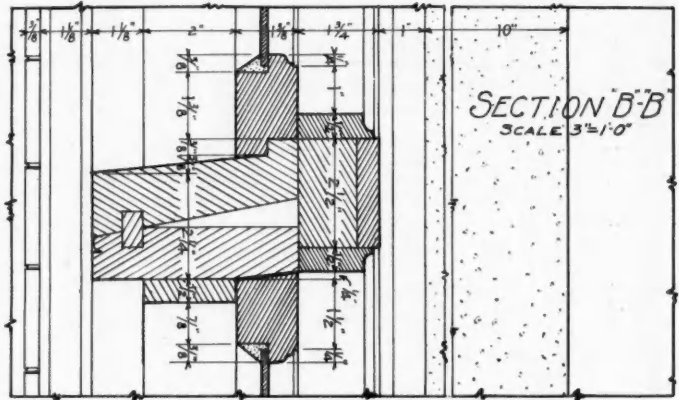
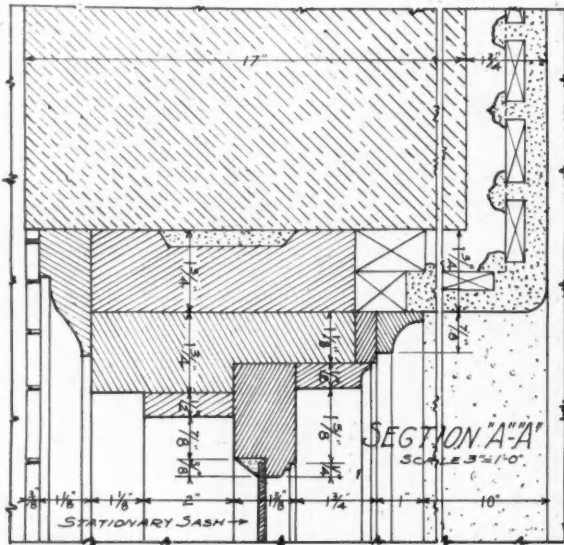
HALF FULL SIZE DETAILS



SIDE ELEVATION OF STAIRWAY.
SCALE $\frac{1}{2}'' = 1'-0''$



DETAIL OF DOUBLE CASEMENT WINDOW, WITH STATIONARY TRANSOM, AND INSIDE PLASTER JAMBS.





A Settle and Rocker of Mission Design

COMPLETE DETAILED INSTRUCTIONS, TOGETHER WITH DRAWINGS AND ITEMIZED STOCK BILLS, OF TWO GOOD PROJECTS FOR THE HOME SHOP

TO make the Mission settle shown in the accompanying picture there will be needed the following pieces. The widths and thicknesses in this stock bill are specified exact, that is, just the size they are to be in the finished piece. On a piece of furniture of this size it is just as well to order the pieces mill-planed to exact width and thickness. If no mill is at hand there should be added to the widths one-quarter of an inch. It is possible to get the exact thicknesses in most any lumber yard. It will be noted that many of the pieces are of the same widths and thicknesses; it may be found advantageous to combine like sizes into standard lengths.

STOCK BILL FOR SETTLE

Posts, 4 pieces, $2\frac{1}{2}$ by $2\frac{1}{2}$ by 40 inches, S-4-S.
 Rails, 4 pieces, 1 by 3 by 70 inches, S-4-S.
 Rail, 1 piece, 1 by 6 by 70 inches, S-4-S.
 Rails, 6 pieces, 1 by 3 by 21 inches, S-4-S.
 Supports for seat slats, 2 pieces, 1 by 2 by 70 inches, S-4-S.
 Panel crosses, 6 pieces, $\frac{7}{8}$ by $1\frac{1}{2}$ by 24 inches, S-4-S.
 Panel crosses, 4 pieces, $\frac{7}{8}$ by $1\frac{1}{2}$ by 27 inches.
 Front verticals, 4 pieces, 1 by 3 by 7 inches, S-4-S.
 Rear verticals, 4 pieces, 1 by 3 by 16 inches, S-4-S.
 Seat slats, 7 pieces, $\frac{1}{2}$ by 8 by 21 inches, S-4-S.

This piece of furniture, as well as the one whose description follows, should be made of oak. It may be quarter-sawed, though plain sawed makes up into mission furniture most appropriately. It is possible to have the pieces sandpapered at the mill, too, so that one needs concern himself with the making of the joints only and the wood finishing. If the pieces are ordered sandpapered specify fine sandpaper.

Begin work on the posts first, squaring one end, getting the length and shaping the second ends to slopes of 45 degrees.

Next, saw the rails to proper length. They are to be tenoned into the posts and due allowance should be made for tenons of good depth. In like manner saw the verticals to length. They, too, are to be tenoned and allowance should be made. A good size for the tenons of the rails would be $\frac{1}{2}$ inch thick by $2\frac{1}{2}$ inches wide by 1 inch long. Shoulder the four sides, being careful always to gauge from one or the other of the face sides. The verticals might be tenoned to a thickness of $\frac{3}{8}$ of an inch with a width of two inches and a length of $\frac{3}{4}$ of an inch. The verticals that form the ends of the panels, that is, that rest against the posts, should be tenoned on the two sides, but on one edge



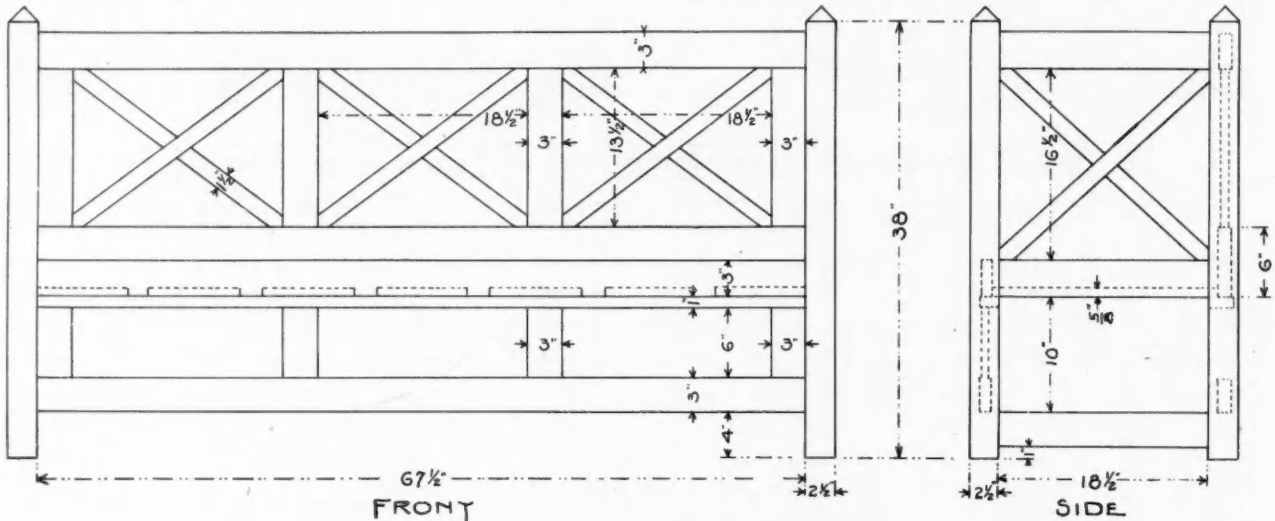
Settle of Mission Design That Is Easily Made

only. The other verticals are to be tenoned on four sides.

Saw the tenons on the verticals and lay out and cut their mortises in the rails and glue these parts together. The tenons on the rails should be cut before the assembling, however.

tenon ends before inserting the screws. Care should be taken to lay out these holes so that the lag screws entering adjacent sides of the same post shall not strike each other.

Cushions can be made of any of the materials commonly used for cushions. Spanish leather is most de-



MISSION SETTEE.

Lay out and cut the mortises in the posts, and then put the ends of the settee in the clamps after gluing.

When the glue has dried remove the clamps and cut gains in the posts so that the pieces that support the slats for the seat may enter a good quarter of an inch. Fasten the back piece to the bottom of the back rail, using heavy screws and putting in enough to support the seat firmly.

The crosses of the panels may now be cut and fitted to place. Having done this, the whole frame may be put together and put in the clamps.

To add to the strength, and for appearance, lag screws may be used as in the picture. They should be 3/8 by 4 inches. Three-eighth-inch holes should be bored in the posts and one-quarter-inch holes in the

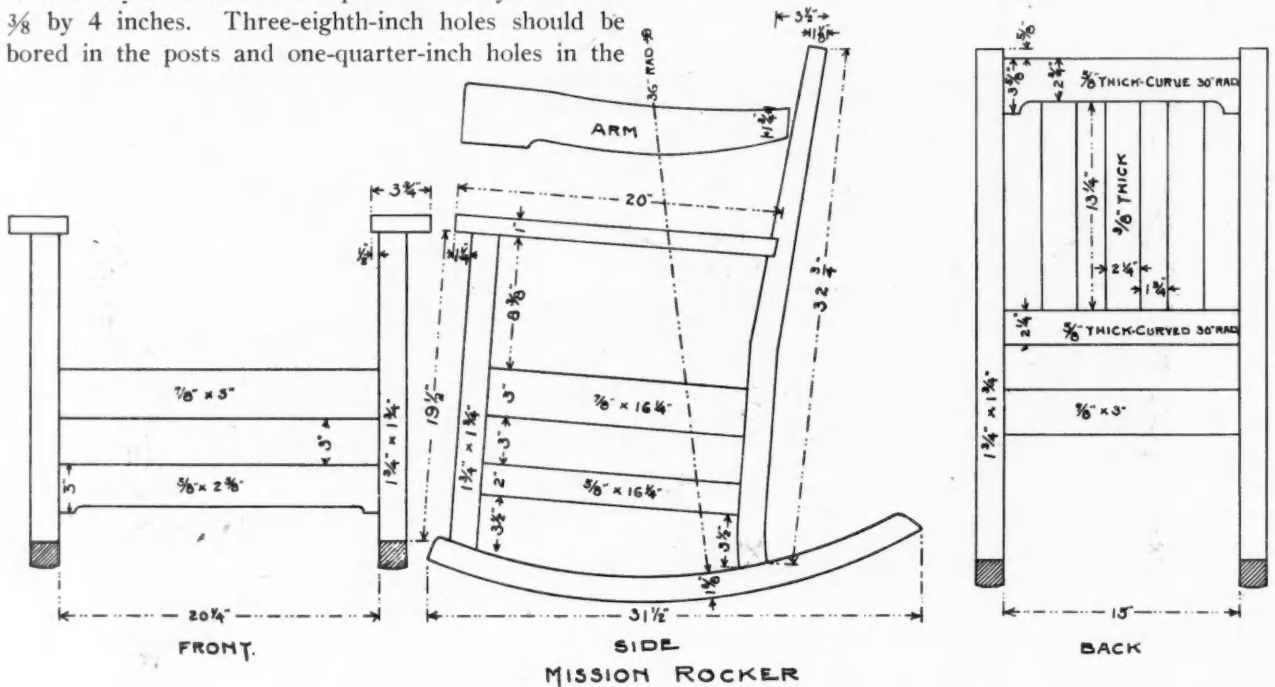
sirable but quite expensive. Cloth substitutes may be used instead if desired, and a satisfactory seat still result.

Mission Rocker of Modified Design

For the rocker there will be needed the following pieces:

STOCK BILL FOR MISSION ROCKER.

- Front posts, 2 pieces, 1 3/4 by 1 3/4 by 21 inches, S-4-S.
- Back posts, 1 piece, 1 3/4 by 6 by 34 inches, S-2-S.
- Front horizontal, 1 piece, 7/8 by 2 by 22 1/4 inches, S-4-S.
- Front horizontal, 1 piece, 5/8 by 3 by 22 1/4 inches, S-4-S.
- Back horizontal, 1 piece, 7/8 by 3 by 17 inches, S-4-S.



Back horizontal, 1 piece, $\frac{5}{8}$ by $2\frac{1}{4}$ by 18 inches, S-4-S.
 Back horizontal, 1 piece, $\frac{5}{8}$ by $3\frac{3}{8}$ by 18 inches, S-4-S.
 Side horizontal, 2 pieces, $\frac{5}{8}$ by 2 by $18\frac{1}{4}$ inches, S-4-S.
 Side horizontal, 2 pieces, $\frac{7}{8}$ by 3 by $18\frac{1}{4}$ inches, S-4-S.
 Back slats, 3 pieces, $\frac{3}{8}$ by $1\frac{3}{4}$ by 15 inches, S-4-S.
 Arms, 2 pieces, 1 by $3\frac{3}{4}$ by 21 inches, S-4-S.
 Braces, 4 pieces, $\frac{7}{8}$ by 3 by 3 inches, S-4-S.
 Rockers, 1 piece, $1\frac{3}{4}$ by 6 by 32 inches, S-2-S.

It should be noted that the above stock bill specifies exact thicknesses and widths except in the case of the rear posts and the rockers. Begin work on the posts first. The front posts should have one end of each squared first, after which they can be cut to exact length, being placed side by side with the squared ends evened in order to get this length. By exercising forethought the rear posts can be got from the one piece specified.

The shape of the arm is shown in the drawing. The arms are to be fastened to the front posts by means of dowels and glue and to the back posts by means of screws from the back of the posts. The heads are to be sunk below the surface quite a bit and the hole filled with a dowel, the projecting end of which is to be rounded so as to give the effect of a wooden button. The arms are to be "let in" to the rear posts slightly for added strength.

Next, prepare the curved parts of the back. These parts are to be worked to size, after which they are placed in a steam box and thoroughly steamed. The forms to which they are clamped when steamed should be curved slightly more than is desired for the finished piece. While these parts are drying go ahead with the other parts of the chair. Lay out and cut the tenons on the rails and the mortises in the posts.

Assemble the back, then the front and when the glue has dried on these parts put the side rails in place and glue.

Thoroughly sandpaper and scrape all the parts before putting on any finish. Leave no glue in the pores, for the finish cannot enter such places, and the result is a white spot.

The seat is of the simplest kind and is made by

stretching a canvas over the rails and tacking it on the under side. Cross weave upholsterer's webbing over this and fasten firmly. On the webbing place a cushion of elastic felt or hair. Place a piece of strong muslin over this and tack it and finally put on a covering of Spanish roan skin.

The seat shown in the picture is what is known as a "cobbler's seat," and is made by simply stretching the leather—not too tightly—over the rails without any webbing under it. It is a comfortable seat but not so attractive as the kind described above.

Cathedral Oak Finishing

A good finish for both the mission settle and this chair is obtained as follows:

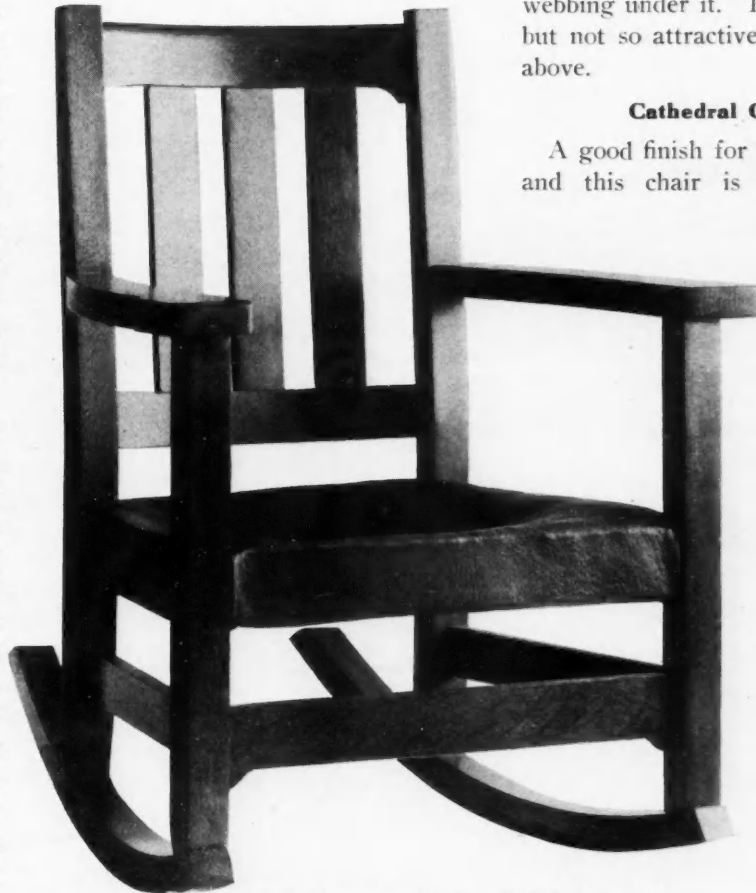
Put on a coat of Cathedral oak water stain. When this has dried sandpaper with No. 00 paper and then put on another coat diluted about one-half with water. Rub this lightly when dry and put on a very thin coat of shellac. This is to keep the filler which follows from discoloring the highlights. When the shellac has hardened sand lightly and put on a coat of paste filler. Use a light filler colored with Van Dyke brown in the proportions of one pound coloring matter

to twenty pounds of filler. Upon this filler, when it has hardened, put a thin coat of shellac. Sand lightly and follow with two or three coats of floor wax. The directions for applying the filler and the wax will be found upon the respective cans in which they are purchased. This gives a light brown effect and is known as Cathedral oak finish.



Building Dust Menace to Health

Looking to the abatement of the dust nuisance arising from the destruction of old houses, the building department of Richmond, Va., are advocating a measure requiring contractors to sprinkle the material as it is pulled down. Speaking of this nuisance attention was called to the fact that most of the houses razed were those that had been standing from generation to generation, and besides creating a great amount of dust they were liable to contain the accumulated germs of many years, thus being doubly a menace to those living nearby.



A Very Popular Piece with the Home Craftsman

Design for Modern City School Building

PERSPECTIVE AND FLOOR PLANS OF A LARGE, WELL-DESIGNED CITY SCHOOL BUILDING—A GOOD PERMANENT INVESTMENT

WHEN a man looks at his yearly tax assessment and sees the large amount set down as "school tax" he is apt to take a new interest in the matter of school buildings and their equipment;

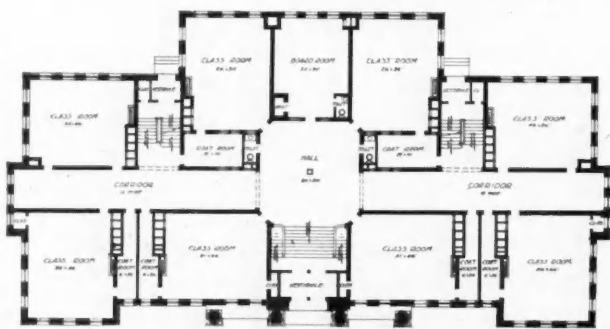
and again for payment; but when a good substantial school building is erected there is one investment that is permanent for years to come. For this reason every taxpayer is interested in seeing that the best



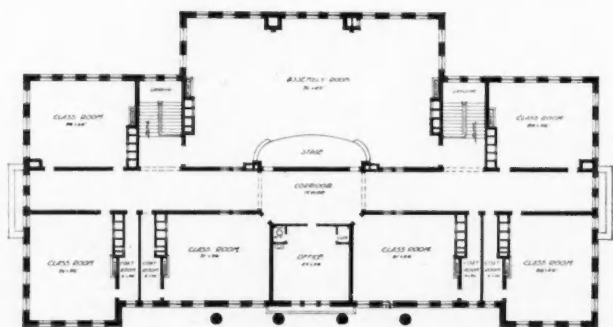
City School Building, Modern in Construction and Design, G. W. Ashby, Chicago, Ill., Architect

for they represent to him the permanent investment he has to help make in the cause of American education. The other factors of the schedule come up again

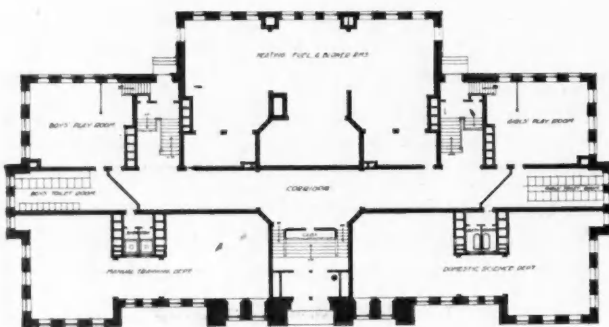
planned and most enduring kind of building is put up. Some school houses burn down or fall to pieces long before their time; others are designed in such a



FIRST FLOOR PLAN



SECOND FLOOR PLAN



BASEMENT PLAN

way that they get "out-of-date" while still staunch and good, and have to be pulled down to make way for a more modern, convenient structure. Either of these is a poor investment.

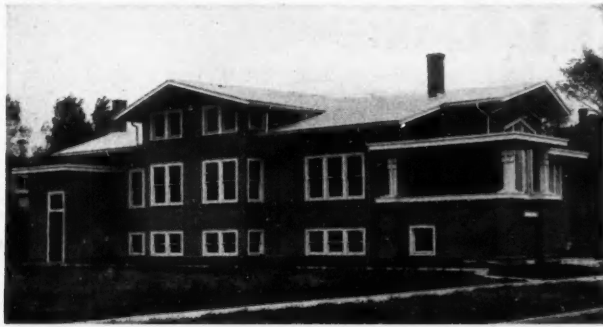
A special effort has been made in the accompanying design to plan a fireproof city school building that will always present a good appearance, wearing well, and will always be convenient to the needs of such a building and so never outlive its usefulness. The perspective gives an idea of the beauty of this building, and the floor plans show the arrangement of space.

Cement Plaster Church of Bungalow Design

A NEW NOTE IN CHURCH DESIGNING—BEAUTIFUL CEMENT PLASTER BUNGALOW (CHURCH PLANNED TO BE CONVERTED LATER INTO A PARSONAGE)

THE bungalow, which has been the dominating influence in residence work during the past few years, now seems to be extending its sway. The accompanying is a church of unmistakable bungalow lines, recently dedicated at Oak Park, Ill. It is striking in appearance; and, although some would doubt-

arranged for living purposes. As a church the central part of the auditorium extends to the roof; remodeled, this would be ceiled over, forming a large room above.



Side View

less object to it because of its lack of the old-time simple dignity of the church, it is hospitable and inviting and serves its churchly purpose very well.

The building is so planned that it can be very easily converted into a fine residence at any time. The diagram shows the present interior arrangement with large auditorium and also the lay-out of rooms if re-



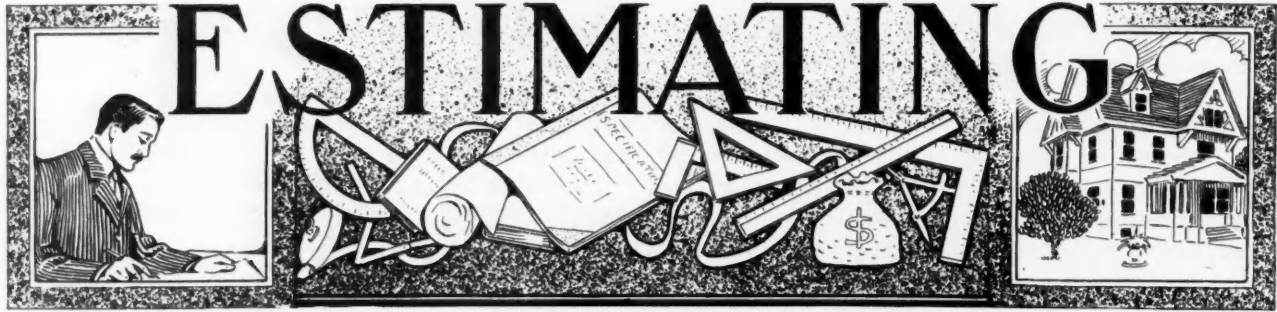
Floor Plan of Church

The Same Converted into a Residence

This design illustrates the use of cement plaster, rough finished, with wood ornamentation. Much of its success artistically is due to the use of this material.



The Bungalow Idea in Church Building—Trinity Lutheran Church, Oak Park, Ill., E. E. Roberts, Architect



How Much Will It Cost?

THE MOST ACCURATE METHOD OF ESTIMATING—DETAILED BILL OF QUANTITIES FOR MEDIUM SIZE MODERN HOUSE—COST OF LABOR AND MATERIAL AT OMAHA, NEBR.

By I. P. Hicks

ON THIS page is illustrated a square-built seven-room house having all modern conveniences. The rooms are all of good size, conveniently laid out and well supplied with closets. There is also a large attic and a basement with laundry, furnace room, vegetable room, etc. The special

matter desired to bring out in connection with this design is the system of estimating the cost of material and labor, which not only applies to this house, but to any other building as well.

The first step is to make out the bills of quantities from the plans, which is as follows:

EXCAVATING AND MASONRY.

216 yards excavating, 35c.....	\$ 75.60
15,000 brick laid in foundation wall, \$12.50	187.50
96 sq. yds. cement floor in cellar, 50c	48.00
41 lineal feet, 8x12 flue chimney, \$1	41.00
Total excavating and masonry.	\$352.10

LUMBER BILL.

	Board Feet
2 6x8x16 ft. girders	128
2 6x6x14 ft. posts	84
1 6x6x24 ft. sill	72
3 6x6x14 ft. sill	126
5 6x6x16 ft. sill	240

	Board Feet
26 2x10x14 ft. first floor joists...	607
26 2x10x16 ft. first floor joists...	693
5 2x10x20 ft. first floor joists...	167
26 2x8x14 ft. second floor joists...	485
26 2x8x16 ft. second floor joists...	555
27 2x6x16 ft. attic floor joists...	432
6 2x6x12 ft. attic floor joists...	72
11 2x6x14 ft. attic floor joists...	154
10 2x6x18 ft. attic floor joists...	180
10 2x6x20 ft. attic floor joists...	200
12 2x6x12 ft. lookouts	144
3 2x8x18 ft. porch joists.....	72
16 2x8x14 ft. porch joists.....	299
4 2x8x12 ft. rear platform.....	64
16 2x4x16 ft. porch ceiling.....	171
6 2x4x14 ft. ceiling over pantry	56
6 2x4x10 ft. ceiling over rear entry	40

	Board Feet
14 2x4x12 ft. rafters, front porch	112
8 2x4x16 ft. rafters, rear entry.	85
6 2x4x12 ft. rafters, bay window	48
134 2x4x18 ft. outside studding...	1,608
54 2x4x18 ft. 1st story partitions	648
60 2x4x16 ft. 2d story partitions	640
45 2x4x16 ft. plates	480
22 2x4x14 ft. basement partitions	205
40 2x4x12 ft. for 4 dormer windows	320
3 2x4x20 ft. hip rafters.....	40
8 2x4x18 ft. rafters	96
30 2x4x16 ft. rafters	320
10 2x4x12 ft. rafters	80
30 1x6x12 ft. No. 1 com. for braces	180
6 1x6x16 ft. No. 1 com. for ribbon boards	48



Seven-Room House of Neat Design, Estimated in Detail to Cost \$3,700

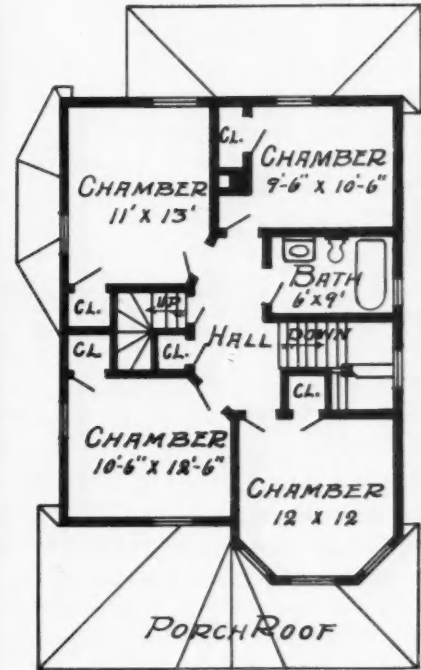
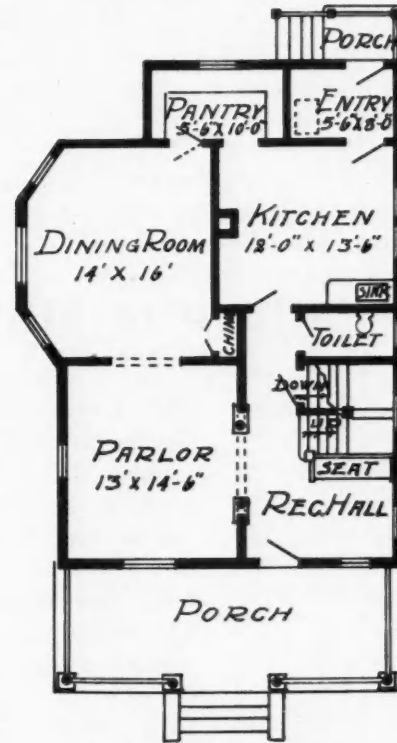
	Board Feet
20 1x3x18 ft. No. 1 com. for backing	90
20 1x4x12 ft. No. 1 com. for bridging	80
40 2x2x18 ft. No. 1 com. for furring	240
6 2x10x12 ft. select for cellar stairs	120
Total board feet framing lumber	10,481
10,481 ft. framing lumber, \$27..	\$283.14
500 ft. No. 2 10" Y. P. Shiplap, basement partitions, \$27..	13.50
1,155 ft. No. 2 10" Y. P. Shiplap, 1st story rough floor, \$27	31.18
3,000 ft. No. 2 10" Y. P. Shiplap, outside walls, \$27..	81.00
1,960 ft. No. 2 8" Y. P. Sheathing, roofs, \$27..	52.92
17,750 clear R. C. Shingles, \$4..	71.00
900 lbs. No. 2 tarred felt building paper, 2c..	18.00
3,400 ft. 1/2x4" clear R. C. Siding, \$30	102.00
1,714 ft. 2 1/2" face clear S. Y. P. fig., \$50	85.70
750 ft. 2 1/4" face x 3/4" clear plain R. O. fig., \$85..	63.75
1,040 ft. 3 1/4" face No. 2 flat grain Y. P. fig., for attic, \$36	37.44
290 ft. 1x4x18 ft. clear fir fig., front porch, \$50..	14.50
36 ft. 1x4x12 ft. clear fir fig., rear platform, \$50..	1.80
280 ft. 3/4x4x18 ft. No. 1 Y. P. Ceiling, front porch, \$32..	8.96
700 ft. 3/4x4x12 to 16 ft. No. 1 Y. P. Ceiling, cornice plander, \$32	22.40
240 sq. ft. 1x8x12 to 16 ft. clear fir finish, cornice, \$50	12.00
90 sq. ft. 1x4x12 to 16 ft. clear fir finish, cornice, \$50	4.50
400 sq. ft. 1x12x12 to 16 ft. clear fir finish, cornice, \$50	20.00
120 sq. ft. 1x6x12 to 16 ft. clear fir finish, cornice, \$50	6.00
60 sq. ft. 1 1/2x8x16 ft. clear fir finish, cornice boards.	3.00
45 sq. ft. 1 1/2x12x14 ft. clear fir finish, outside steps..	2.25
120 sq. ft. 1x12x12 yellow pine finish, for pantry and closet shelves, \$50..	6.00
30 sq. ft. 1 1/2x12x12 ft. yellow pine finish, counter shelf in pantry, etc., \$50..	1.50
Total lumber bill	\$942.44

MILL WORK.

4 porch columns, \$3.50.....	\$ 14.00
3 porch newels, 50c.....	1.50
2 pieces porch rail bottom, 14 ft. each	1.40
2 pieces porch rail top, 14 ft. each	1.40
1 piece porch rail top, 16 ft.	.80
1 piece porch rail bottom, 16 ft.	.80
320 lineal ft. 1 1/4x1 1/4x10 to 16 ft. plain baluster, 2c..	6.40
600 lineal ft. porch lattice, 60c.	3.60
146 lineal ft. 4 1/2 inch crown mould, 2c	2.92
168 lineal ft. 4 inch crown mould, 2c	3.36
80 lineal ft. 3 1/2 inch crown mould, 1 1/2c	1.20
386 lineal ft. 2 inch bed mould, 1c	3.86
130 lineal ft. 2 inch watertable, 1c	1.30
160 lineal ft. 7/8 inch cove mould, 1/2c	.80
80 lineal ft. 3/4 inch quarter round, 1/2c	.40
140 lineal ft. 1 1/2 inch band mould, 1c	1.40
Ridge finish	4.00
6 cellar window frames, \$1.50..	9.00
6 cellar sash, 12x16, 2 lt. 1 1/2", \$1	6.00
3 jambs for doors in cellar, 2' 8" x 6' 6", 50c.	1.50
3 4-panel doors, 2' 8" x 6' 6" x 1 1/2", \$1.90	5.70
1 front door frame 3' 0" x 7' 0"	3.00
2 outside door frames, 2' 8" x 6' 8", \$2.25	4.50
1 front window frame, 44x16&40	3.00
4 window frames, 30x28, 2 lt., \$2.25	9.00
1 mullion frame, 28x24, 2 lt.	4.50
3 frames, 20x24, 2 lt., \$2	6.00
1 sash frame, 30x20	1.50
2 elliptical frames, 20x30, \$2.50.	5.00
2 frames, 24x26, 2 lt., \$2.25.....	4.50

6 frames, 30x26, 2 lt., \$2.25.....	\$ 13.50
4 dormer frames, 28x18, 2 lt., \$2.	8.00
1 window, 44x16&40, 1 1/2" D. S.	4.00
4 windows, 30x28, 2 lt., 1 1/2" D. S., \$2	8.00
2 windows, 28x24, 2 lt., 1 1/2" D. S., \$1.60	3.20
3 windows, 20x24, 2 lt., 1 1/2" S. S., \$1	3.00
1 sash, 30x20, 1 1/2" S. S.	.80
2 elliptical sash, 20x30, divided, 1 1/2", \$2	4.00
2 windows, 24x26, 2 lt., 1 1/2" D. S., \$1.50	3.00
6 windows, 30x26, 2 lt., 1 1/2" D. S., \$1.90	11.40
4 windows, 28x18, 2 lt., 1 1/2" S. S., \$1.50	6.00
1 cased opening with col. and pedestals, oak	40.00

4 doors, 2' 8" x 6' 8" x 1 1/2", 5 cross panel, pine, \$2.40.....	\$ 9.60
3 doors, 2' 6" x 6' 8" x 1 1/2", 5 cross panel, pine, \$2.40.....	7.20
5 doors, 2' 4" x 6' 8" x 1 1/2", 5 cross panel, pine, \$2.30.....	11.50
4 set Y. P. door jambs, 2' 8" x 6' 8", 60c	2.40
4 set Y. P. door jambs, 2' 6" x 6' 8", 60c	2.40
6 set Y. P. door jambs, 2' 4" x 6' 8", 60c	3.60
344 lineal ft. Y. P. 8" base, 3c..	10.32
344 lineal ft. Y. P. floor mould, 1/2c	1.72
160 lineal ft. picture mould, 1 1/4c	2.00
58 Y. P. plinth blocks, 1 1/2x3 1/4x 10", 4c	2.32
60 casings, 6 ft., 360 ft., 2c.....	7.20
26 casings, 5 ft., 130 ft., 2c.....	2.60



1 set jambs, plain cased opening, oak	\$1.00
3 set jambs, half pine and oak, 90c	2.70
14 set yellow pine jambs, 60c..	8.40
16 oak plinth blocks, 1 1/2x4 1/4x 10, 8c	1.28
6 pieces oak casings, 4 3/4x7 ft., 42 ft., 3c	1.26
12 pieces oak casings, 4 3/4x6 ft., 72 ft., 3c	2.16
14 pieces oak casings, 4 3/4x6 ft., 84 ft., 3c.	2.52
92 lineal ft. oak head casing, 8 and 12 ft., 3c.....	2.76
92 lineal ft. oak fillet, 1c.....	.92
96 lineal ft. oak cap mould, 2c..	1.92
92 lineal ft. oak embossed mould, 1 1/2c	1.38
36 lineal ft. oak window stool, 3c	1.08
36 lineal ft. oak window apron, 2c	.72
112 lineal ft. oak window stops, 1c	1.12
42 lineal ft. oak door stops, 1 1/2c	.63
170 lineal ft. oak base, 5c.....	8.50
170 lineal ft. oak floor mould, 1c	1.70
170 lineal ft. oak picture mould, 1 1/2c	2.55
Front stairs and hall seat, oak..	72.90
1 front door, 3' 0" x 7' 0" x 1 1/2" oak, B. P.	18.00
2 outside doors, 2' 8" x 6' 8" x 1 1/2" pine, glazed D. S., \$5....	10.00
2 doors, 2' 6" x 6' 8" x 1 1/2" 5 cross panel oak and pine, 1/2, \$3.50	7.00
1 door, 2' 8" x 6' 8" x 1 1/2" 5 cross panel, oak and pine, 1/2..	3.60
1 door, 2' 4" x 6' 8" x 1 1/2", 5 cross panel, oak and pine, 1/2..	3.50

196 lineal ft. head casing, 8 and 12 ft., 2c	3.92
172 lineal ft. fillet, 1/2c.....	.86
180 lineal ft. cap mould, 2c.....	3.60
236 lineal ft. door stops, 14 feet, 1c	2.36
238 lineal ft. window stops, 14 feet, 1c	2.38
2 china closet doors, \$1.85.....	3.70
5 drawers, \$1.20	6.00
2 flour bins, \$1.75.....	3.50
Attic stairs	18.00
Total mill work	\$481.12
CARPENTER LABOR.	
26 1/2 squares framing floors, \$1.8	26.50
8 1/2 squares laying rough floor, \$1	8.50
2,450 ft. laying finish floor, \$1.50	36.75
2,300 ft. smoothing finish floor, \$1.50	34.50
1,040 ft. laying attic floor, \$1.25.	13.00
25 1/2 squares framing outside walls, \$1	25.50
3,000 ft. sheathing outside walls, 80c	24.00
3,400 ft. siding outside walls, \$1.50	51.00
Add for 50 lineal feet mitered corners, per ft. 10c.....	5.00
19 1/2 squares framing roofs, \$1.25	24.37
1,960 ft. sheathing roofs, \$1....	19.60
17 1/2 thousand shingles, \$2.....	35.50
Add for 100 lineal ft. valleys, 6c	6.00
Add for 140 lineal ft. hips, 6c..	8.40
2 1/2 squares framing porch floors, \$1.50	3.75
2 1/2 squares framing porch ceilings, \$1	2.50
312 ft. porch floor, \$1.50.....	4.68
280 ft. porch ceiling, \$1.....	2.80
Setting 4 porch columns, 50c....	2.00

Cause of the Failure

A careful inspection of the wreckage removed the mystery. It was a clear case of failure by dry rot in the timber posts. I discovered that many of the 14 and 15 inch oak posts were completely burned off at the upper ends under the caps. Usually about a foot to 18 inches was thus burned off, though in some cases 2 to 3 feet would be practically gone and in one instance 5 feet of a 15-inch post was burned off.

The remaining portions of these posts were sound and in prime condition, excepting a char of half an inch to an inch in depth, which would scarcely have injured their strength.

It is a peculiar fact that of the twenty-five posts thus far found which have failed from the cause mentioned all have burned off at the upper end. A few show a partial burn at the bottom and a few from which the iron caps were knocked off in falling, but are not burned, show well rotted dry punk wood at the center, but in no instance was this rotting at the bottom nearly so serious as at the top. No satisfactory reason for this excess of decay at the top has yet been found. Another interesting fact is that the yellow pine posts were in much better condition than the oak posts. Thus far only four pine posts have been found burned off, and evidence of rot in the ends of the pine girders is slight. A few have been attacked, but none discovered that were in a serious condition at this time.

None of the 16-inch basement posts are now accessible, so it is not known whether they are burned or not. They will be an interesting study when the debris is removed.

It is evident that the final collapse of this framework was due to burning out of the dry punk wood produced by dry rot in the posts and it is very probable that initial failure resulted from the same cause. It is also quite possible that the same trouble produced the early collapse of the roof.

In my opinion this building was rapidly approaching a dangerous condition, even though no fire had occurred. The majority of the heavy oak posts on the three lower floors must have retained but a small proportion of the strength they were supposed to possess. The outside shell at the top was all the sound wood that remained. The time must inevitably have come when a concentration of load on some floor, due to stacking of stock or the movement of a large machine, would have caused serious settlement and perhaps a collapse.

I have never known a case of this kind before. An inquiry among the insurance authorities of the city has not produced record of a similar instance, although it is probable that failures of this kind have occurred. Evidence on the subject may be secured from some of the insurance companies whose business covers the manufacturing plants of New England, where heavy

timber construction is much more common than in this vicinity.

It is quite apparent that this subject is of vital interest to owners of this type of building, as well as to insurance companies who carry risks upon them.

Dry Rot and How to Prevent It

Dry rot is a well-known fungous disease of wood, which is sure to develop when green or wet timber is encased so that air may not circulate around it. Most building specifications require that the ends of wooden beams encased in walls shall have an air space around them to prevent dry rot. The rules of the factory mutual insurance companies of Boston specify that wooden posts shall have a 1½-inch hole bored through them and two ½-inch holes crosswise near the top and bottom to prevent checking. No mention is made of this provision being a preventive of dry rot, but it is quite certain that if the posts in this building had been thus bored they would not have rotted. The timber was doubtless only partially seasoned and the placing of the 4-inch socket caps upon it effectually excluded the air from the ends, giving the moisture no chance to escape. As a result dry rot developed, and has been slowly progressing until practically the whole cross section of the posts had been reduced to a dry punk, which could be broken by the fingers and would ignite from a match. The worst feature of this kind of decay lies in the fact that it proceeds from the interior, the outside seasoned shell of the timber giving no indication of the rottenness within. It is possible that the manufacture of paper in the building may have produced a moist atmosphere, which aided the decay after it had once begun. Another interesting point in connection with the matter is that this condition has been brought about in a period of 18 years. It was about 25 years ago that the late Edward Atkinson began to advocate the merits of slow burning mill construction, in which heavy timber framing of this character was employed. A large number of factories and warehouses have been erected since that time of similar construction. It is important to know how many of them are getting into a dangerous condition by this slow method of deterioration. If the posts of such buildings have been bored as described above they are probably in as perfect condition today as when installed, but unfortunately all building specifications have not made boring of posts a requisite, and where buildings were erected, as this one was, not conforming to slow burning construction, it is very likely this provision of post protection was seldom employed. The soundness of posts in such buildings today will depend upon their degree of dryness when installed, the snugness with which the caps fitted, as well as the atmospheric conditions of the building, whether dry or damp, and other things such as painting, etc. It is well known that painting of timber before it is thoroughly seasoned is conducive to dry rot.

Fortunately the condition of such posts can easily

be ascertained by boring a half-inch hole through them.

While yellow pine will yield to dry rot under favorable surroundings, still it is not so susceptible to the disease as oak, and it is known that certain rot fungi will attack hardwoods and not attack resinous woods like pine. It may be that the yellow pine timber in this building was less affected by the rot than the oak

because the particular fungus which caused the trouble would not thrive in pine, or it may have been much better seasoned than the oak. At least it is encouraging that the yellow pine apparently resisted the disease best, for the day of oak construction is nearly gone and the larger proportion of such construction in the past twenty years has probably been of pine.

From House to Home via Planting

THE architect, carpenter and builder can make a house beautiful architecturally, perfect in its detail and solidly erected, but their combined efforts cannot make a home. Too many people do not recognize this fact until after the house is constructed. The surroundings should be planned with as great care and attention to detail and effect as the house itself. The best efforts of the architect's art may be partially nullified by careless or misdirected plans in the surroundings of a structure.

The house will become a home only when it is properly wedded to the site upon which it is erected and becomes a part of the landscape. The one way to accomplish this union is by the judicious planting of

picture shows the beginning of making it from a house into a home by the planting of shrubbery. This effect was attained in one season at a small expense.

Any house owner can attain as good or perhaps a more artistic effect this year. Unite your house to its surroundings by shrubbery planting. Set out your trees—sturdy, hardwood specimens that will in a few years make stately pyramids of foliage and furnish grateful shade. Do not plant short-lived, soft-wooded trash like Carolina poplars; and above all, adorn your home grounds, no matter how small, with some of the hosts of flowering shrubs that furnish beauty from spring until frost.

Those contemplating planting should make their ar-



Bleak, Bare and Uninviting

trees and shrubbery. The planting of trees necessitates a wait of a few years before the effect is secured; but the lack of trees may be compensated by producing immediate effects with shrubbery. Shrubbery gives its beauty the same season it is planted. Unsightly foundations, startling in their newness before mellowed by time, may be hidden by artistic planting of shrubs, which will unite the structure to its ground. Higher growing bushes may be planted at corners or in bays and give the building an artistic appearance of permanence that cannot otherwise be attained except by years.

One of the accompanying illustrations shows a home in the making. The bare building is a house—nothing more. There is nothing homelike or inviting in its appearance save its possibilities as a home. The other



The First Year's Planting Begins the Change

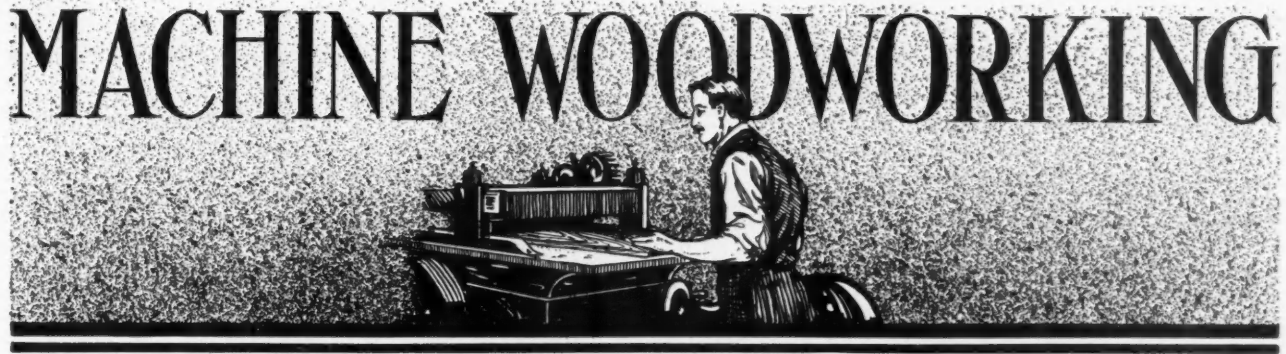
rangements at once, as the earlier planting is done the better the shrubs thrive, and orders placed now receive the best attention from nurserymen.



1,600 Years to Complete a Church

At Troyes, in France, was solemnly inaugurated a church which has taken sixteen centuries to build, as it was begun in the third century and was completed but recently.

This is St. Urban's church, built by order of pope Urban on the site of the house in which he was born. Only the foundations were laid during pope Urban's lifetime, and though the building has long been consecrated, the last remaining stones were laid this year. The church is a gem of Gothic architecture.



Moulder Knife Combinations

THE SECOND OF A SERIES OF ARTICLES ON THE USE OF KNIFE COMBINATIONS FOR MOULDING WORK—
SPECIAL ADVANTAGES AND ECONOMY POINTED OUT

By Charles Cloukey

NOTWITHSTANDING the desirability of combinations, there are some patterns of casing coming into vogue lately which can be better run with solid knives than with combination, and these are the various oval faces. It is possible to set two knives so as to cut a true arc or ellipse, as the case may be, as in Fig. 10, but a solid knife will save much time and always leave a smooth top to the casing. The two-piece knife will not permit much more latitude in thickness and width than will the solid cutter, and when the attempt is made to adjust the double cutter to wider or narrower patterns the contour of the face is so distorted as to be decidedly noticeable.

A large per cent of the moulder operators will not bother with a template for the side heads on account of having to raise and lower the heads so often, but this need not stand in the way of the most economical use of the template or scale on the side heads. These templates should not be made like the ones already described, but should be wide enough to stand on the bed

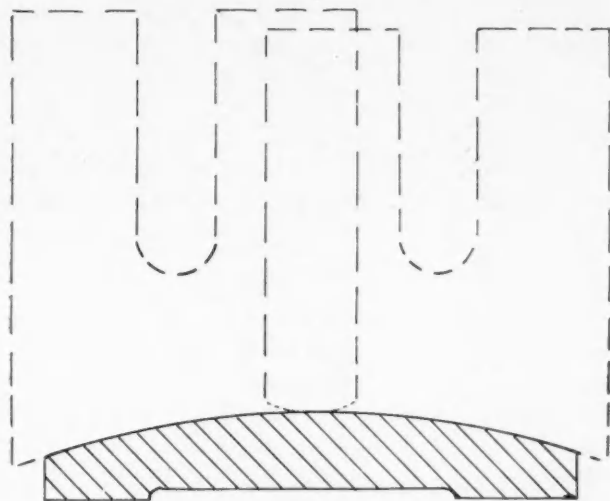


Fig. 10

of the machine and reach over to the head, as shown in Fig. 11. As all the details cut by the side heads are determined in height or depth by the horizontal of

the bed, it will not make any odds how high or low the head sits, just so that there is room to bolt the cutters on in their proper places.

The subject of rapid settings on the moulder has been one of considerable asperity of discussion, some little boasting and no little doubt. One man asks how one could change eight knives on each head in five minutes. If any one made such a claim it has never come to my notice, but I have seen upwards of thirty changes and runs made in a working day of ten hours, but many of the changes were easy and the runs short. About the best day's work the writer ever did was to run 12,000 feet of moulding on sixteen changes in one day of nine hours.

However, a study of Fig. 1 (January number) will give some idea of the rapidity with which changes may be made when things are handy and orders lucky and well managed. Here are four sizes of round edge casing, the template of which is shown in Fig. 3, and it is easy to see that all the changing to be done is to start with the wider pattern and when the last board is in, follow it up with the next in width until the top knives barely leave the unfinished piece. Then stop the machine and by the template move the outside rounding cutters to their new position, which should not take over one minute, then start up and feed through to the outside head and stop feed. Now loosen the pressure bar a little and pull the wide piece clear of the machine by hand. Now go back and run the outside head into the finished line of the narrower casing, the end of which should have been stopped as nearly opposite the center of the head as possible, and start up the feed. The outside stops may be set up without stopping the machine again, and the second run joined onto the first without having the machine actually at rest more than a single minute. This is one of the things the boosters fail to mention, and there are other changes just as easy and just as quickly made. For instance, there may be half a dozen patterns of the same width casing, in which case one follows the other to the top head, when the machine is stopped and the new casing backed off

so that the new setting will swing clear; after the cutters are changed the machine is started without further delay. Any one can see that by the use of the template these changes may be made very rapidly.

Another class of changes is represented by Fig. 4, which is a series of ogee base and casings, in which the ogee knives are set on the inside and so do not have to

record-breaking changes, the proper knives are brought to the operator with the order; and the stock to be run is placed within easy reach. The knife man in the moulding department of a busy mill holds an important

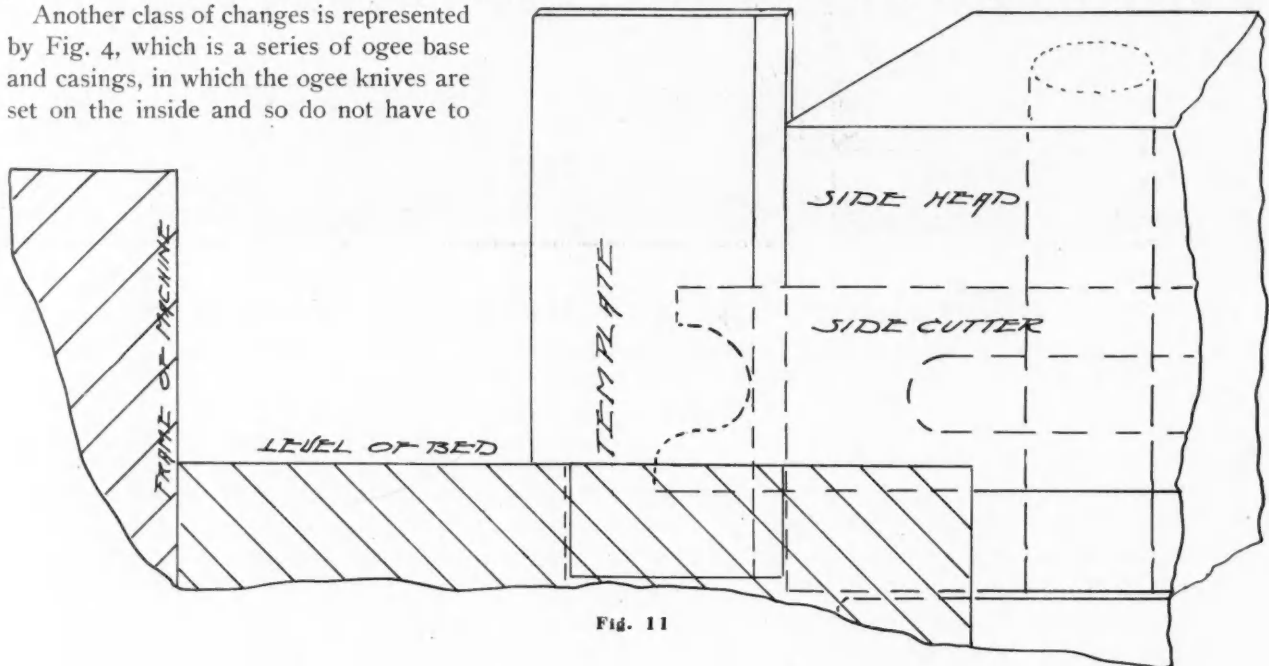


Fig. 11

be moved for the different widths of stock. It will be seen by the previous explanation that these changes may be made up to a certain limit without even stopping the machine; it being only necessary to halt the feed so as to run the outside head in to surface the edge of the narrower sizes. Perhaps these changes may be made with only a loss of fifteen "feed" seconds, and again the boosters who make twenty to thirty changes a day fail to explain how it is done.

Of course, in this class of changes it is necessary to stop and shift the backing out knife on the bottom head when the discrepancy in width throws it too much to one side, but no moulder man of spirit will stop to change it on a difference of a quarter inch.

Another quick change is from casing to apron of the same width and similar pattern. Take round edge trim, for example; the machine is stopped and one set of upper knives and the backing out knives removed and the machine started again with the loss of a bare minute or even less. Perhaps there will be a run of $5\frac{1}{4}$ inches casing, to be followed by a lot of inside jamb stock of the same width. The casing should be run first and then the pattern cutters removed, the belt to the bottom head thrown off and the machine started again. If the bottom cut on the casing was heavy it might be necessary to lower the tail bed a little, and if the jambs were to be run down to the same thickness as the casing, the backing out knives would have to be removed. In either case the time occupied in the change should be less than two minutes.

It may occur to the man who does his own grinding and whetting that some time should be allowed for these necessary operations, but in the cases of these

position and generally has an opportunity to earn all the salary he can get. If he is a careful man he will regrind his bits to fit the templates when sharpening, and so maintain a uniform pattern. He should have

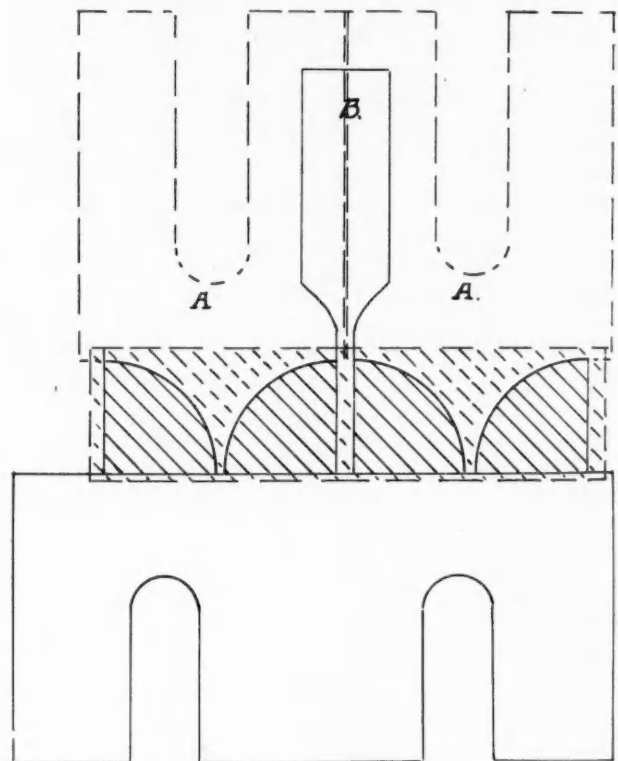


Fig. 12

charge of the template file and furnish the moulder man with the necessary template as well as with the sharp cutters. If he makes a set of knives for a new

pattern of moulding, using the proportional scale, he should be able to lay out a template for the operator to set up by in the first place, but it would be well for him to make the first marks light so that they might be erased if necessary to correct them a little.

For ordinary length runs it does not pay to keep two knives of a kind in shape to follow each other exactly on the cutting line, as it takes too much time to fit and set them, while it is a fact that with a feed in the neighborhood of forty feet a minute or less, it is hard to tell the difference between the cut of one knife and two.

Neither does it pay to grind all the knives used in pairs to a running balance, but to have a good assortment of auxiliary balancers to slip in the slots beside the light knives, or some bolts with heavier nuts and washers to make up the difference in weight of the cutters themselves. Another matter to be watched when picking out knives to make up combinations, is to pay some attention to the running balance of the pairs to be used together. Perhaps the scales will register a pair of cutters exactly the same, but the one that must do the cutting will be much heavier in front of the slot, while its balancer will be a short, wide one. It is evident that the reaction of cutting will partially overcome this discrepancy, but the operator should use judgment and slip in one of his pieces of bolts to even up the centrifugal strain. The test of an even balance is the still and quiet running of the arbor, and the experience of the moulder man with his balances will soon make him wise in the matter of fixing up balances for the pairs he wants to use.

Examples Illustrated

Fig. 12 shows a set-up on quarter round to be run in gangs of two or more pieces at once. The knives should be separated, as shown at A A, and the pairs of mouldings cut apart by the small straight knife, B. Owing to the delicate nature of the points of these cutters it is best to fit them in cutting pairs—that is, so that both knives of a pair will cut—for it sometimes happens that if but one knife is doing duty and runs into a hard knot, it will be either bent back or broken off. The narrow knife, B, is held under a clip which

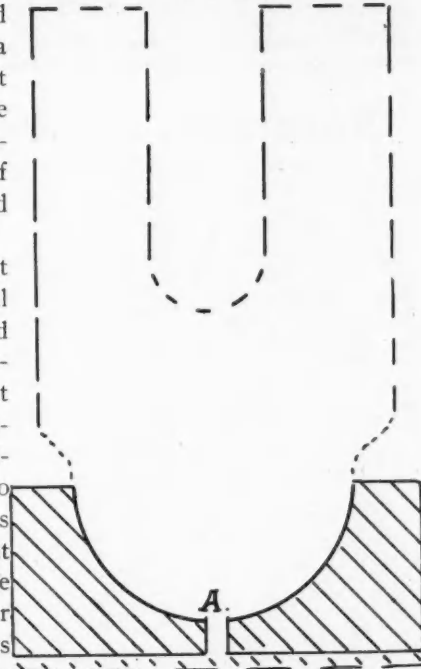


Fig. 13

serves the purpose of a washer as well. They are very handy for grooving and parting knives, as they take up so little room on the heads.

The running of small moulds in gangs is very economical when the mouldings have to be gotten out of regular lumber, because they will not only run one to the inch in width, but by running ten on a ten-inch machine, or eight on that sized machine, the item of profit looms up in a gratifying manner.

Fig. 13 shows a cove or scotia to be worked in pairs, and may be repeated as in the case of quarter round with the difference that the row of cove cutters will have to balance with the surfacing knives in order to make room for the parting knives on the other two faces of the head. This will necessitate using the cove cutters singly, and if the small parting end of the knife at A should not prove strong enough, it may be ground off and another pair of parting cutters put on the other faces of the head.

In all of this kind of work it is important to have a pressure bar that will fit the top of the mouldings, so that they may be held in place without splitting the thin web left to be removed by the bottom knife, or the side cutters will spoil the two outside moulds by taking off too much or too little.

As suggested before, it is advisable to use solid cutters for oval patterns wherever convenient, as it is a delicate matter to set up so as to make a perfect lap on a rounding face so nearly flat.



How to Make a Dowel-Cutting Tool

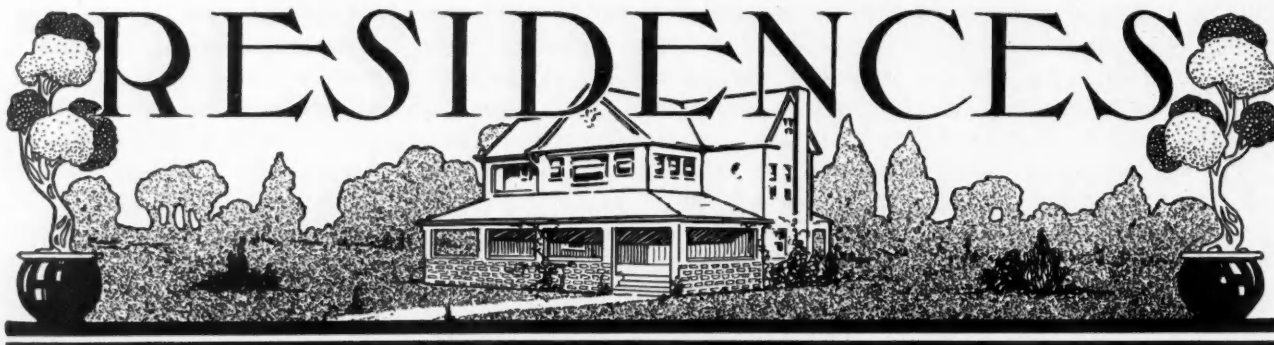
Secure a piece of steel about $\frac{1}{4}$ inch thick, $1\frac{3}{4}$ inches wide and 8 inches long. Drill various sized holes through the steel, leaving the edge of each hole as sharp as the drill will make them. Cut off a block of wood the length necessary for the dowels and split it up into pieces about the size for the particular dowel to be used. Lay the steel on something flat, over a hole of some kind, then start one of the pieces of wood in the proper size hole for the dowel and drive it through with a hammer. The sharp edges on the steel will cut the dowel as smooth and round as if it were turned in a lathe.



Montreal's Ice Palace

The Parks and Ferries Committee of the Montreal city council recently granted the Montreal Carnival Committee permission to erect an ice palace on Fletcher's Field between Rachel and Mary Ann streets, and the work of constructing it has been commenced by the contractors, Messrs. Corriveau & Brunett.

Designs for this structure were invited by the committee and tenders were taken. Those submitted by Architect Theo. Daoust were finally adopted, as the tender by Messrs. Corriveau & Brunett upon his plans was the most satisfactory. The estimated cost of the ice palace is \$6,300.



Complete Plans for a Summer Residence

FULL SET OF ARCHITECT'S DRAWINGS OF A LARGE AND COMFORTABLE, WELL-DESIGNED BUILDING TO BE USED AS A SUMMER HOME

WITH the increasing prosperity of the country a greater number of people every year become interested in summer cottages and summer homes, to be built in the country, by the water or in the mountains. Some of these are the simplest and frailest kind of little houses—just enough to provide a shelter during three or four weeks in mid-summer. Others are more pretentious, being carefully planned, solidly built and of good size so that they can be

sided with rough boards laid 10 inches to the weather, stained brown. Outside trim is white, doors and sash bright green. The roof is slate; interior finished in birch.



Proper Position of Dining-Room Windows

The following comments, taken from a recent issue of a Pittsburg paper, covers a point which may not be



Summer Home Designed for Mr. B. C. Buxton and to Be Erected on a Mountainous Site near Middletown Springs, Vermont

occupied in comfort from spring till late fall and can accommodate good-sized parties.

One of this latter kind is shown in the accompanying plans. Yet in spite of its fine appearance, large size and thorough construction, the cost of this house is not great. It is to be built on a mountainous site overlooking the valley at Middletown Springs, Vermont. The broad side faces the valley, giving a superb view for miles around from every room. The house is

without interest to contracting builders over the country.

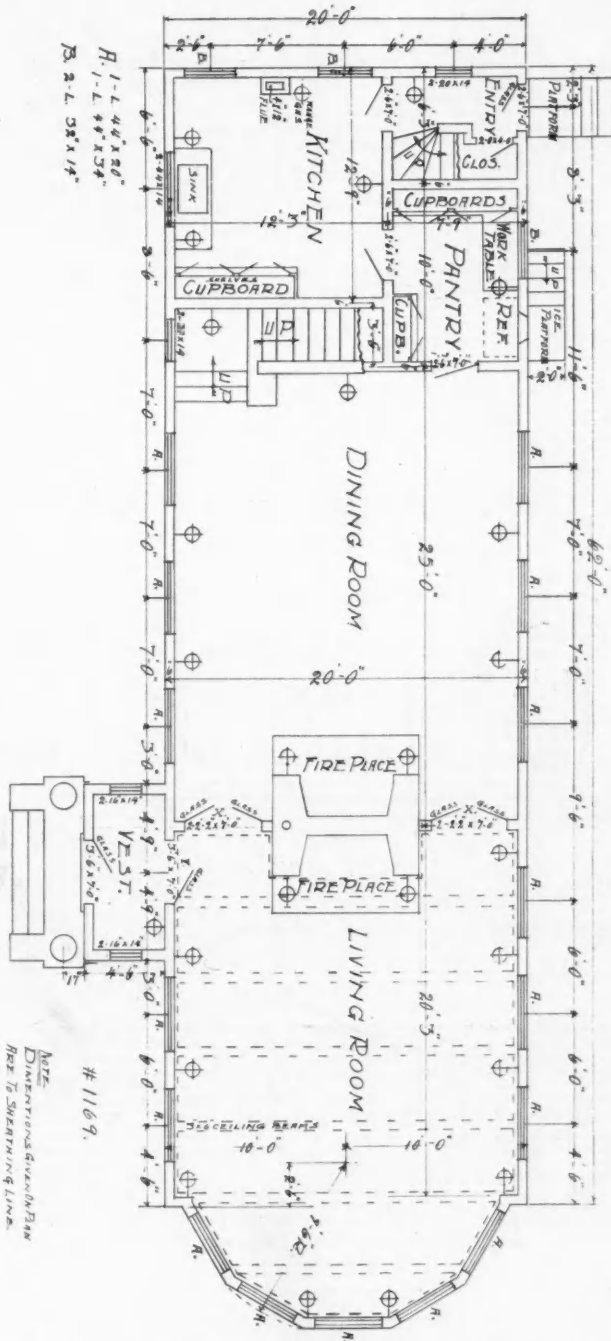
A man who last week bought a home in the suburbs said yesterday that he looked at nearly a score of houses in different localities before making a selection. The property he bought cost him \$7,000, and he says he had trouble in finding what he wanted—a house with a window in the rear of the dining-room. He says that speculative builders make a mistake in

putting dining-room windows in the side of the room, instead of in the back, especially when a house is built on a 20 to 30 foot lot that is not on a corner. "In 75 per cent of the houses I looked at," this man said, "the fireplace and china closet or fireplace and pantry door were in the rear or end of the dining-room. Side windows had to be depended upon for light, and with

at the side instead of at the end of the room, but that he had never given the matter much thought. That may be one of the reasons why some builders have trouble in finding buyers."

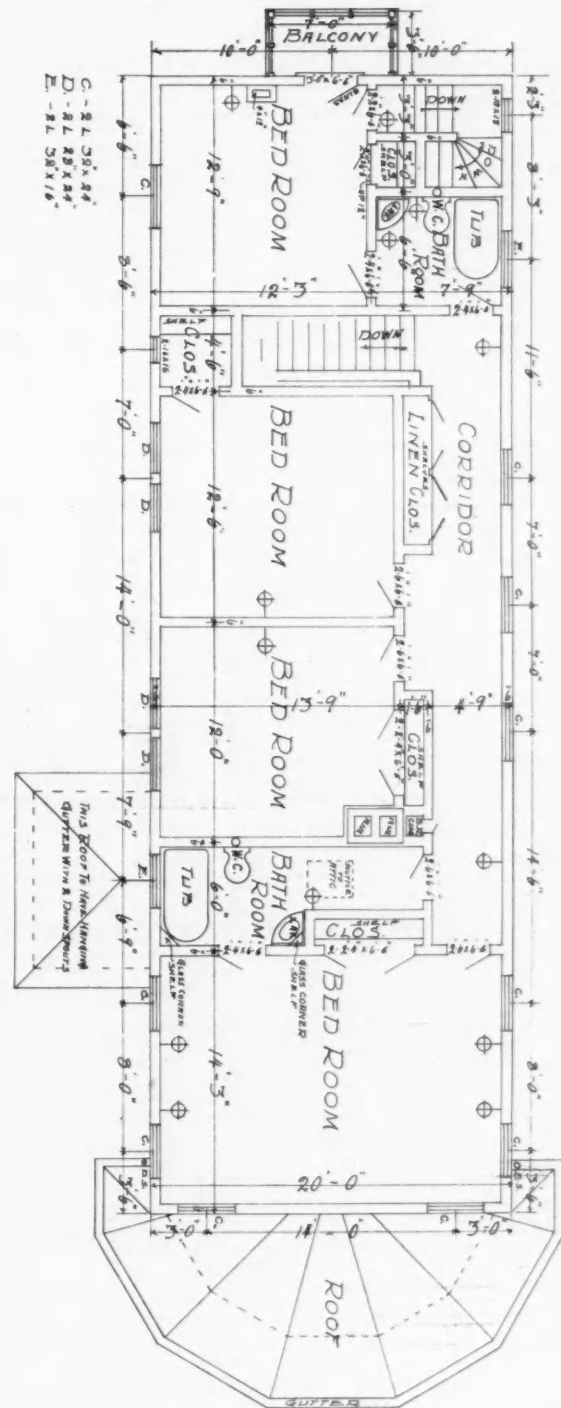
Mantelpieces

"It has long been a question," says John D. Adams



FIRST FLOOR OF HOUSE ON OPPOSITE PAGE

a house on the adjoining lot the side-windowed dining-rooms were all much darker than they would have been had the fireplace, china closet, etc., been built on the side and the windows in the rear looking out onto the back yard. One builder admitted that it would cost very little if any more to have built the fireplace



SECOND FLOOR PLAN

in a recent number of the *Woman's Home Companion*, "for those of good taste, as to where the average landlord obtained the ugly mantelpieces which are used in so many rented houses and apartments. What horrors

of machine carving, scrollwork, meaningless curves, complicated shelves and brackets which were apparently meant only to catch dust, together with an

grate; it ought to be one of the most attractive furnishings of the room; it ought to be built on lines of simplicity and sound proportion, and have an air of



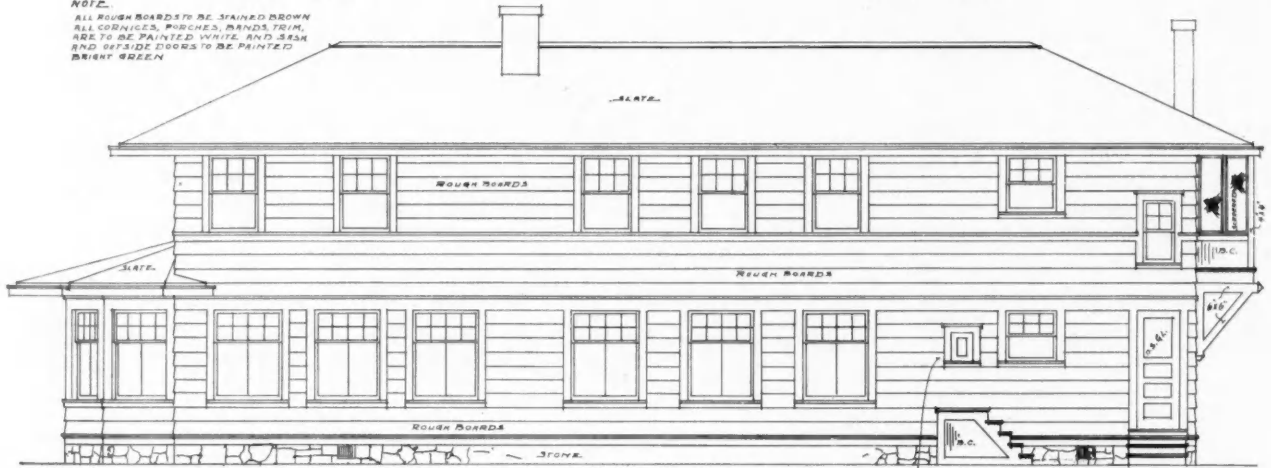
FRONT ELEVATION



LEFT SIDE

RIGHT SIDE

NOTE.
 ALL ROUGH BOARDS TO BE STAINED BROWN
 ALL CORNICES, PORCHES, BANDS, TRIM,
 ARE TO BE PAINTED WHITE, AND SASH
 AND OUTSIDE DOORS TO BE PAINTED
 BRIGHT GREEN

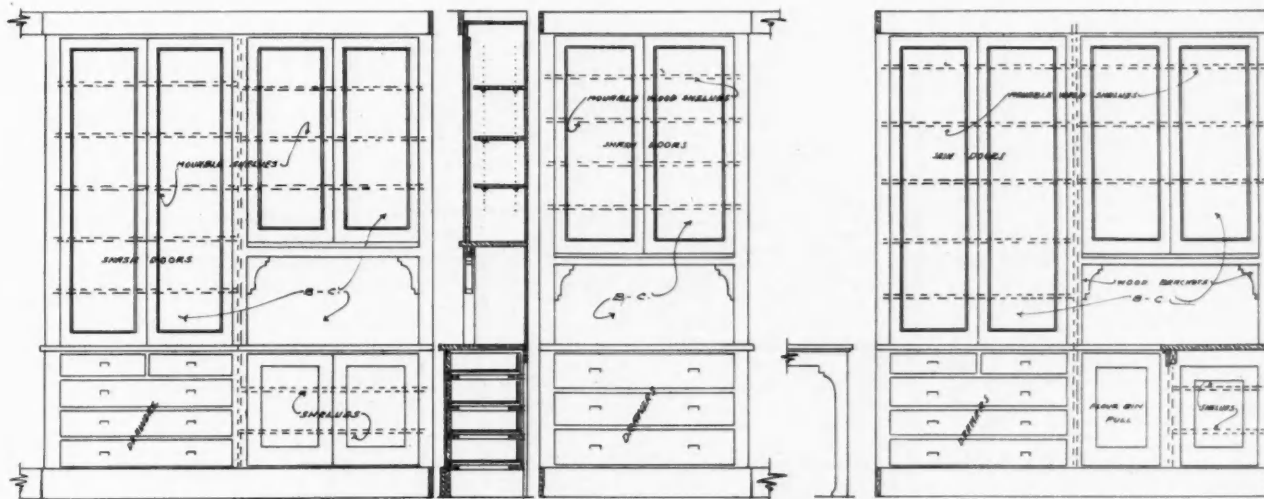
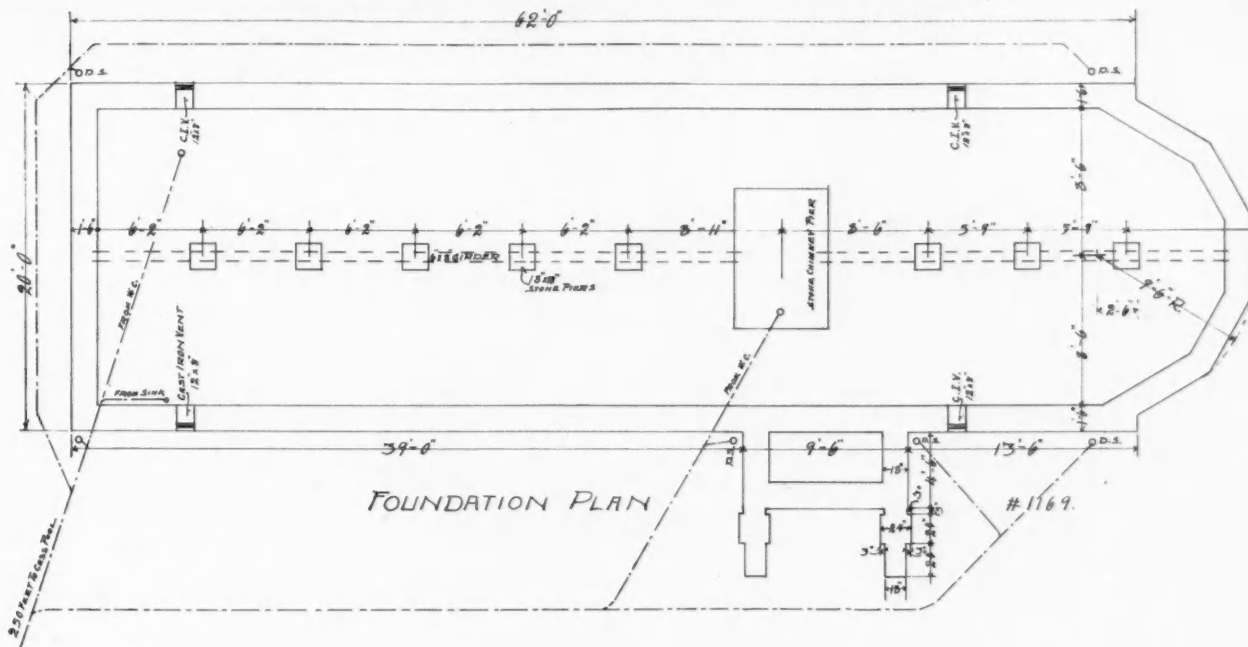


REAR ELEVATION (SEE PAGE 646 FOR PERSPECTIVE)

absolute lack of fitness to the proportions of the room in which it was located—how many people have groaned before such a mantelpiece and realized that it was impossible through reasons of economy to replace it?

“A mantelpiece ought to serve as a frame for the

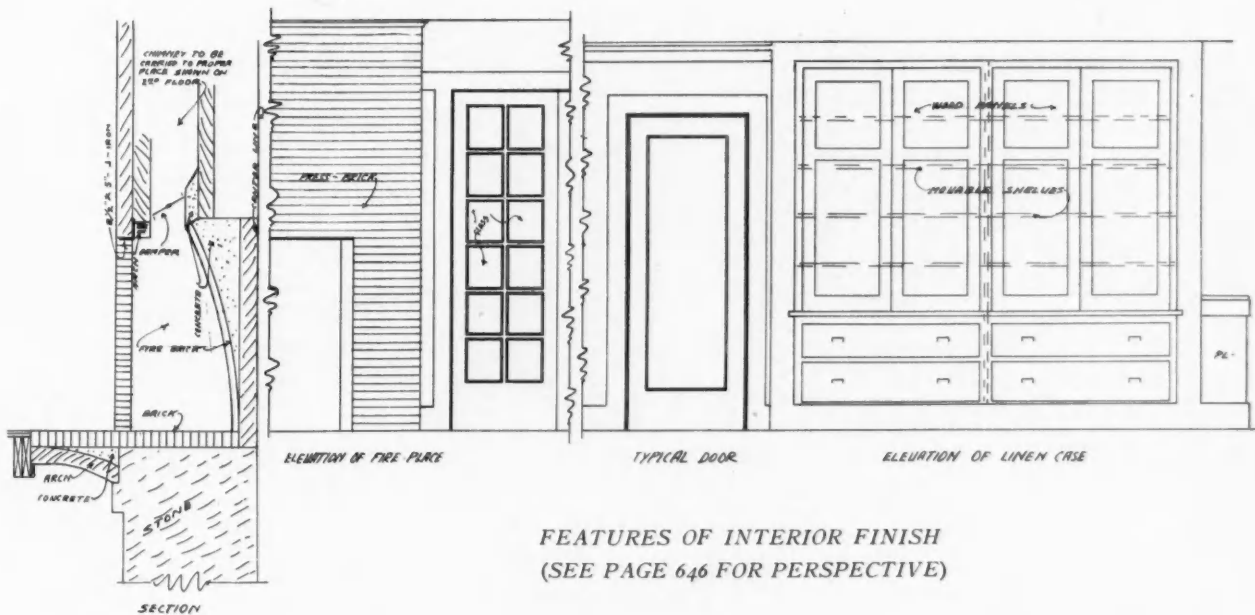
strength and stability about it; it should have space to hold a chosen piece of pottery or two and a copper jug, a few books, perhaps a flower-holder and a small picture. Most important of all, it should be an integral part of the room in which it is located, and not a big, misplaced, bad-style ornament.”



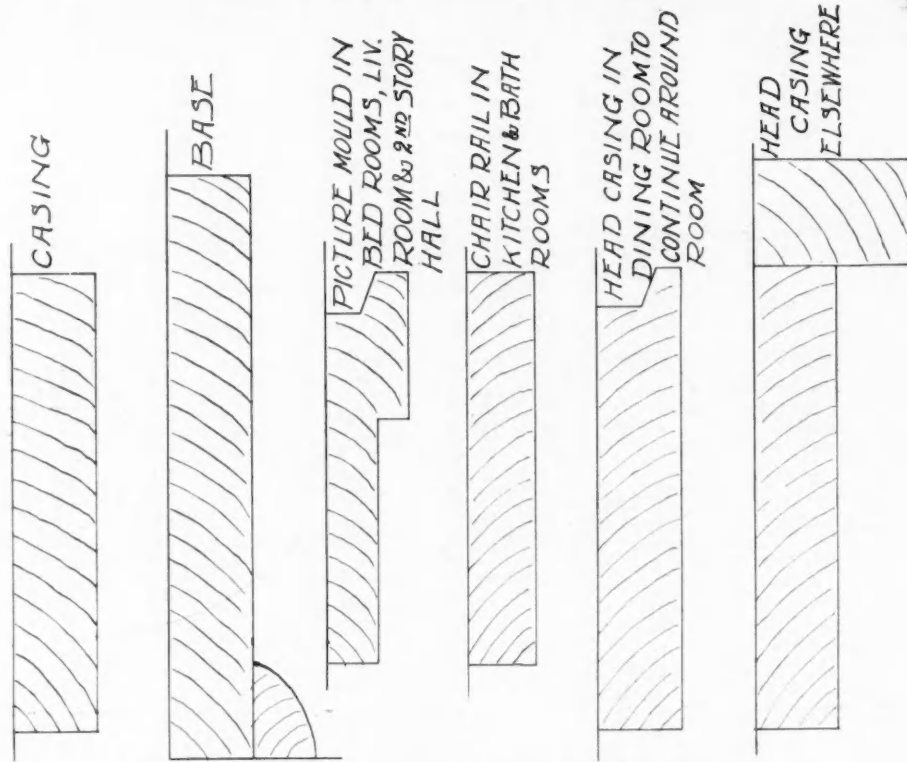
CUPBOARD IN KITCHEN

SECTION FOR CUPBOARD IN PANTRY ALL CASES.

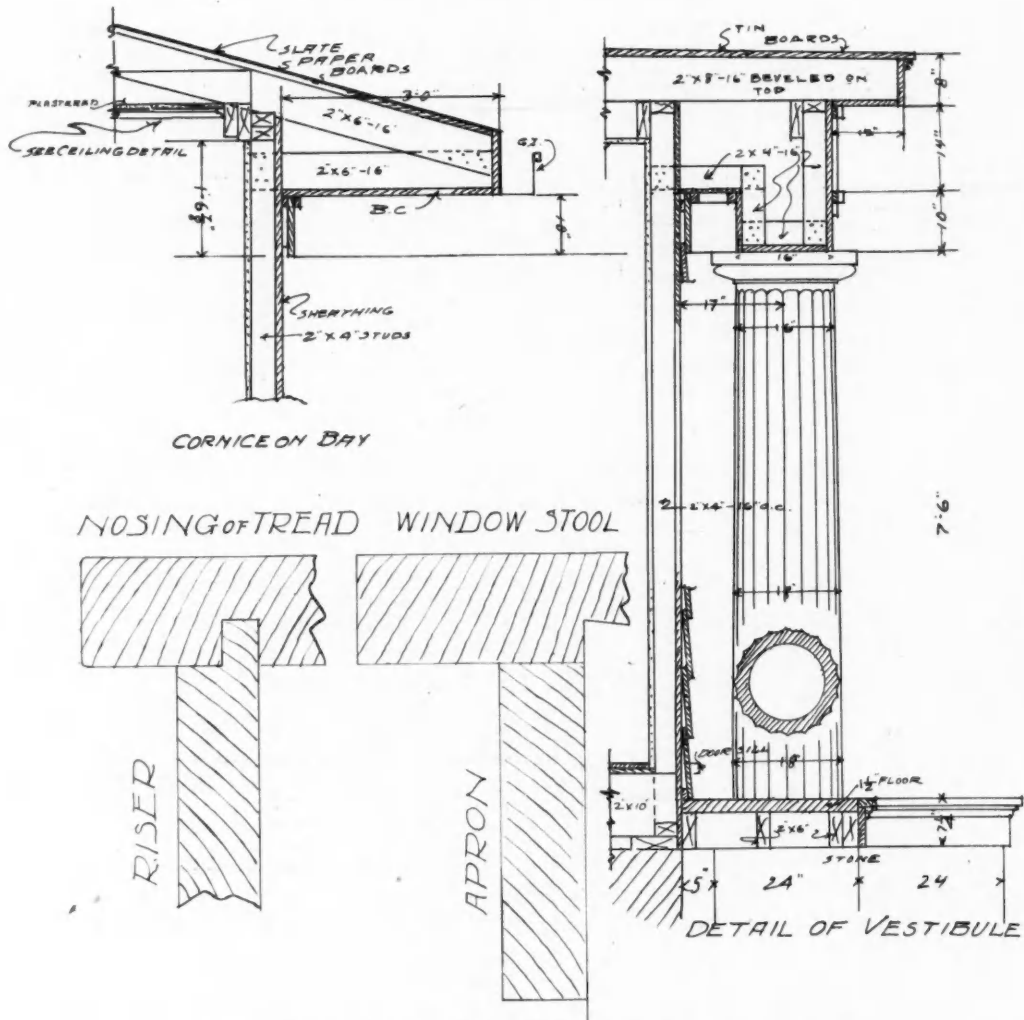
CUPBOARD A SECTION OF WORK TABLE IN PANTRY.



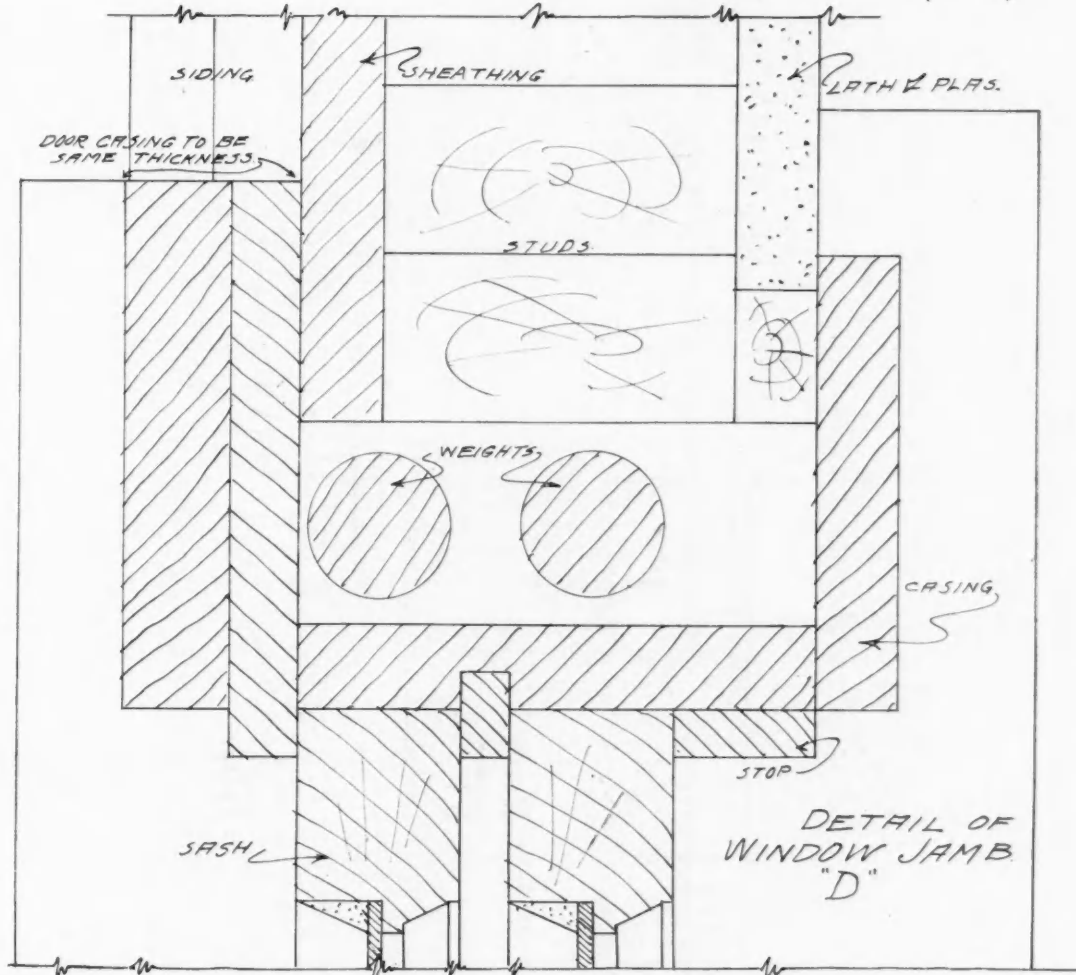
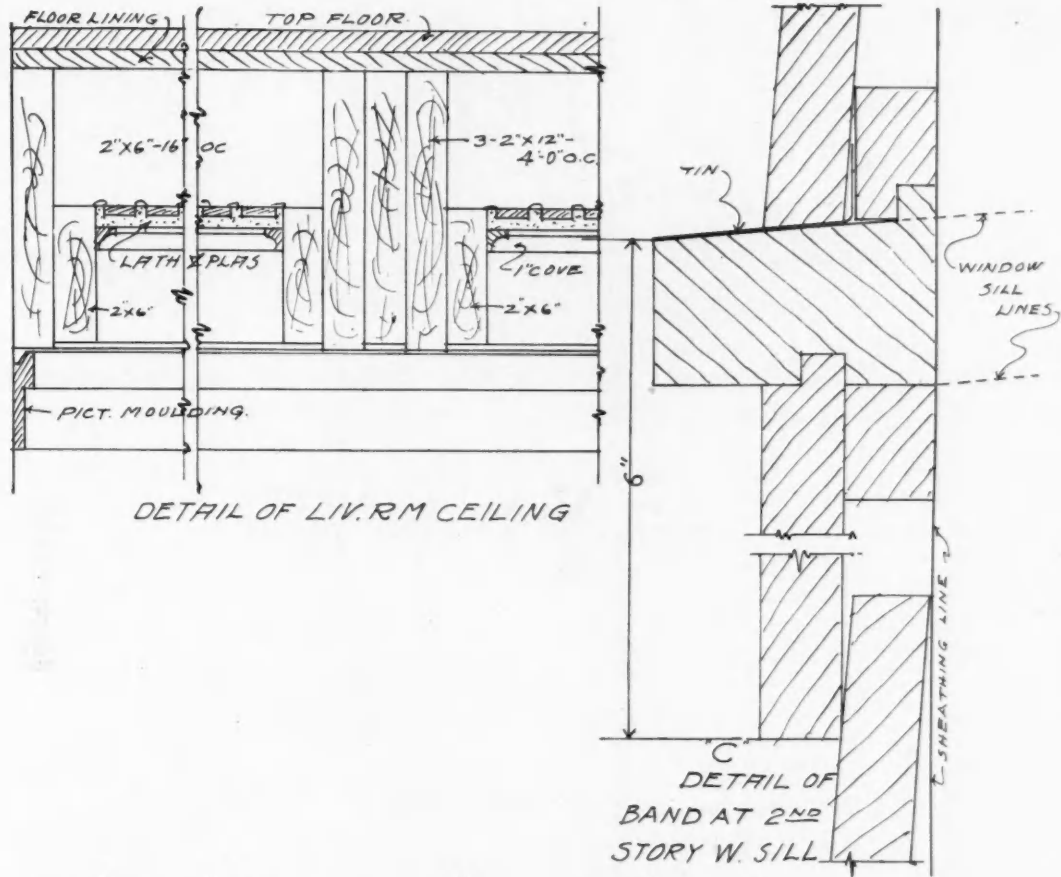
FEATURES OF INTERIOR FINISH (SEE PAGE 646 FOR PERSPECTIVE)



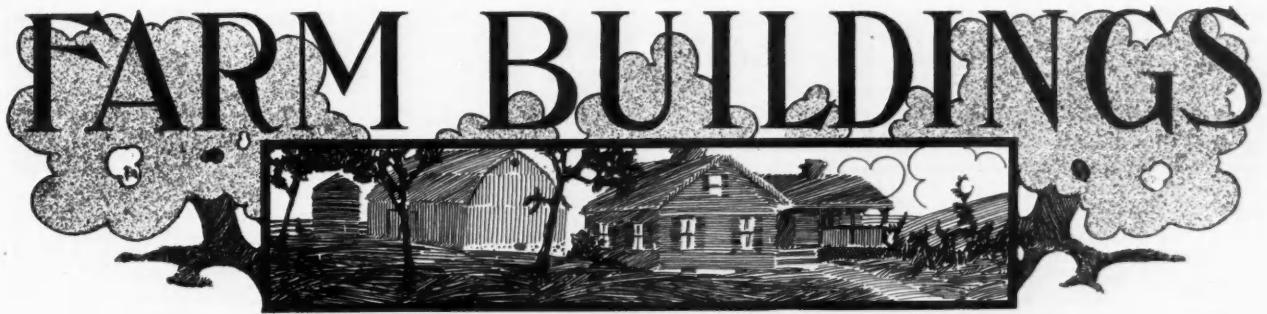
DETAILS OF INSIDE TRIM



DETAILS OF CONSTRUCTION AND FINISH OF HOUSE SHOWN ON PAGE 646



DETAILS OF CONSTRUCTION—HOUSE SHOWN ON PAGE 646

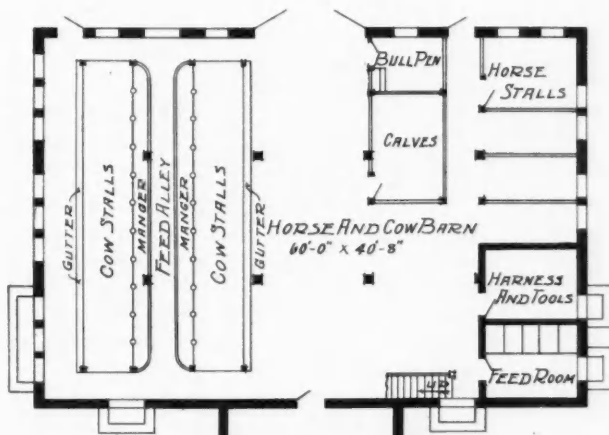
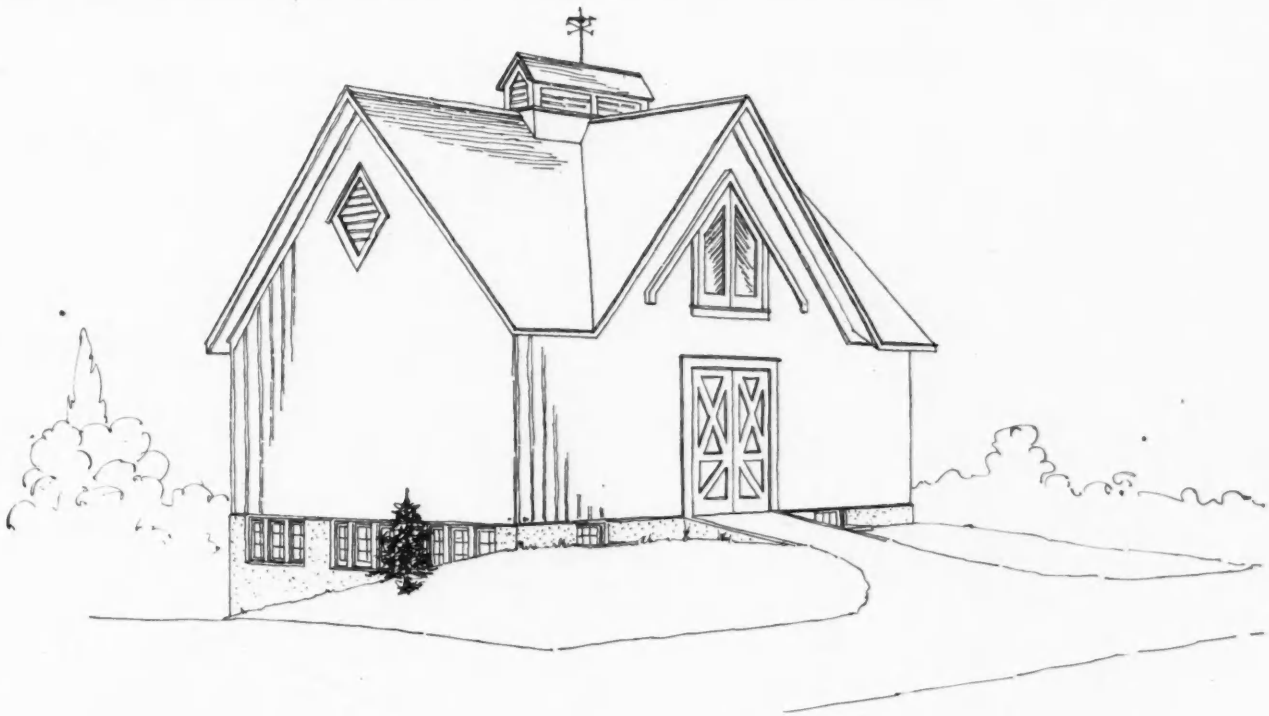


Arrangement and Design of Bank Barn

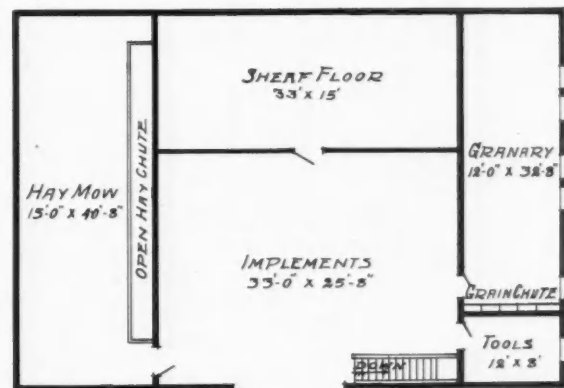
PERSPECTIVE AND FLOOR PLANS OF A MEDIUM-SIZE HORSE AND COW BARN TO BE BUILT ON A SLOPING SITE

AT THE request of one of our readers we are offering a design for a bank barn, sixty feet by forty feet eight inches, which will stable 22 milch cows and four horses in the basement section

and provide for feed and implement storage on the main floor. This is one of the most popular barns with the farmers; it makes a fine appearance, yet it is not expensive to put up.



Basement Plan of Barn



Main Floor Plan

CORRESPONDENCE



He Keeps Them All

To the Editor:

Sheffield, Pa.

I think this (January) number is the best yet! Your new department of construction and finish is fine, and your heavy timber framing is something we carpenters of heavy work need. The roof framing article is just what I like, something with the square with the *figures* showing; keep the *letters* off! With best wishes from a faithful reader who never missed a copy and has them all yet.

F. A. STONER.

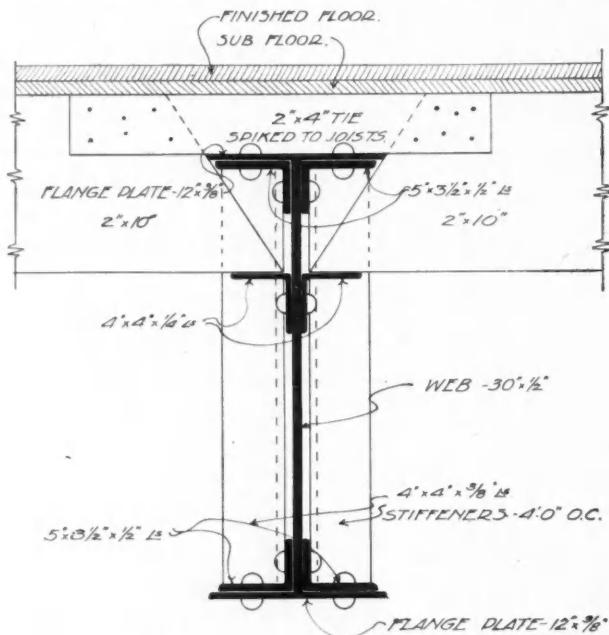
Steel Girder for Lodge Hall

To the Editor:

New London, Iowa.

As I have been a regular subscriber for several years and have not bothered you very much, now I would like to ask you to help me solve a problem.

I am intending to build a building 38 or 40 feet wide and 60 feet long. I want to use the lower story for a garage and the second story for a lodge room; and I want to know what is the best way to hold up the second floor, as I do not want any posts below, as they would be greatly in the road. I, for myself, had in mind to use an I-beam to lay the joist on, but I do not know what size they should be to carry a lodge-room



floor with that length span. Will you please figure it out for me, and if you have any other way you think would be better, also submit it.

L. WALLAR.

Answer: It would not be possible to use an I-beam for this building and get sufficient strength. The floor will sometimes be used for dancing, and it would be necessary to have the construction very rigid.

The accompanying sketch shows the construction of a steel plate girder of sufficient size to furnish the required strength

and stiffness. These should be placed 12 feet on centers and carried on cast-iron plates built into the brick wall. The walls should also have a pilaster built under each end of the girder.

It is not safe to build a building of this character without providing yourself first with complete plans, prepared by a thoroughly competent architect. The saving of materials and contractor's time should offset the cost of the plans, and you will be able to obtain a much more artistic building, and one whose construction is safe.

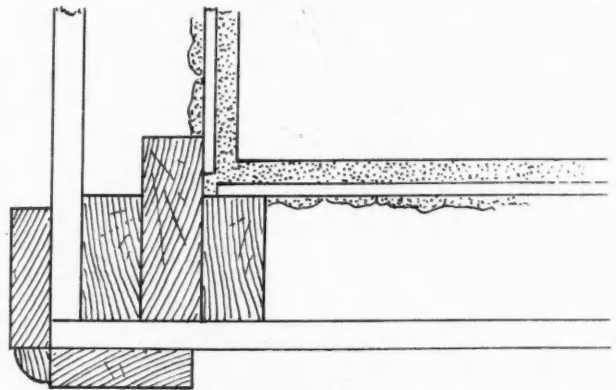
EDITOR.

Framing the Corner Post

To the Editor:

Chappell, Neb.

Since I am a member of the AMERICAN CARPENTER AND BUILDER family, I am sending a descriptive sketch of a very



good corner post for frame buildings. It consists of two 2 by 4's with one 2 by 6 in the center; and all spiked together.

I think it is better than any that I have seen, as it leaves no hollow space when the corner boards should have solid nailing. I think this corner has some advantage over Mr. Rieveley's corner post in the December number.

W. W. HARTMAN.

Floor Deafening

To the Editor:

Barryton, Mich.

Brother A. H. Mullen's method of floor deafening is all O. K. for a new floor; but in a floor already laid you could not put down an extra layer like that on account of stairs and doors.

We have a school house built some six or seven years ago and there is no sound deadening between the first and second floors. The school board suggest lifting the floors and putting in a floor between the joists, say 4 inches down; then plastering with wood pulp plaster on false floor and also up on sides of joist to top; then laying floor lining and deafening felt with finished floor on top. Please let me know whether the scheme is practical.

N. MYERS.

Answer: We consider this a practical and satisfactory method of floor deafening. It does the business.

Can the brothers suggest other methods that are better?

EDITOR.

Proper Fireplace Construction

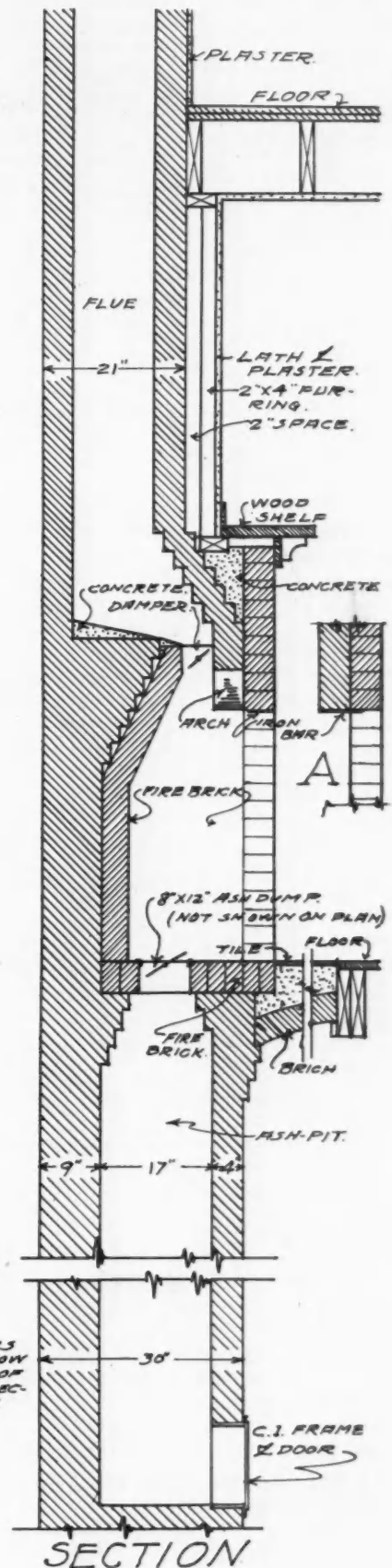
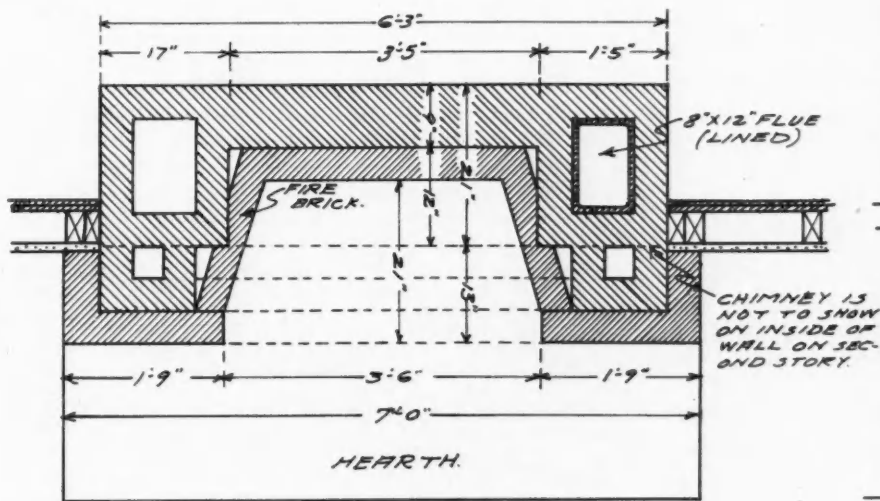
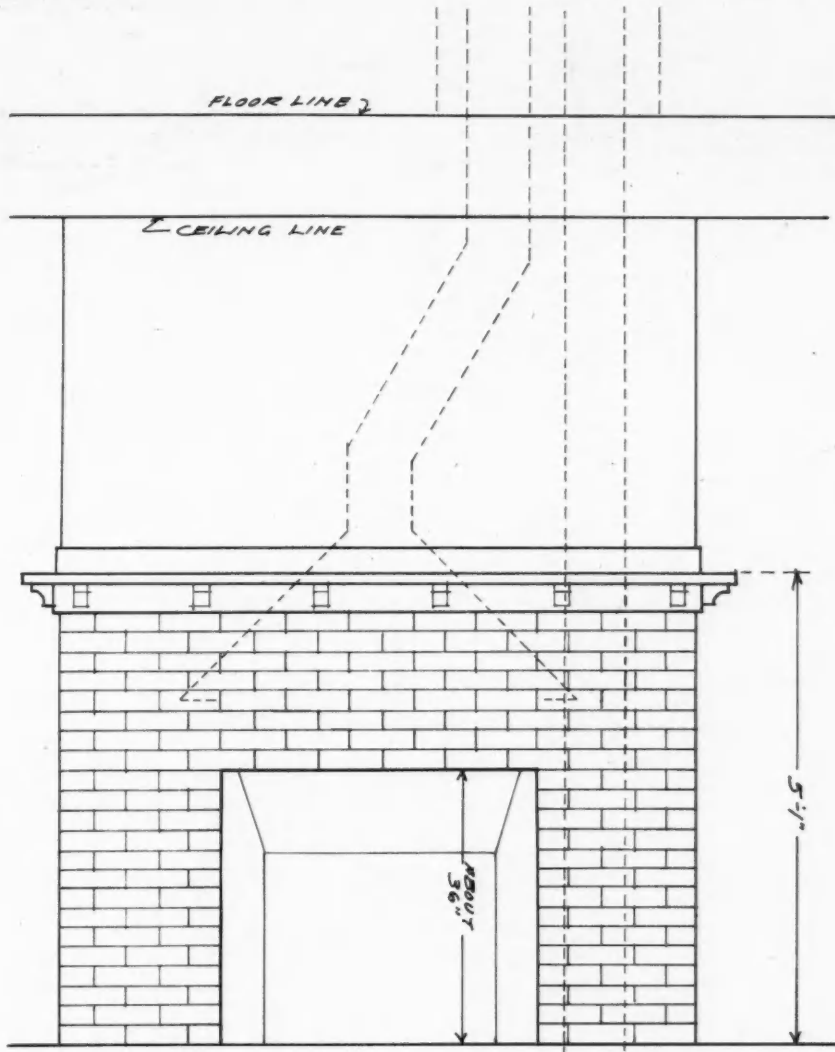
To the Editor:

Cleveland, Ohio.

I enclose herewith a rough sketch of a fireplace and chimney. My problem is to construct a fireplace at the end of a room 14 by 26 feet. I wish to have the fireplace project a

suitable distance into the room, but want to avoid having the chimney project into the second-story room above.

You will confer a great favor upon me if you will give me your opinion as to the practicability of constructing such a chimney as I have shown in the accompanying sketch. Do you



CHIMNEY IS NOT TO SHOW ON INSIDE OF WALL ON SECOND STORY.

think, with the proportions of the fireplace shown that I would get the proper draft?

I think the subject of fireplaces and chimneys would be of great interest to your subscribers.

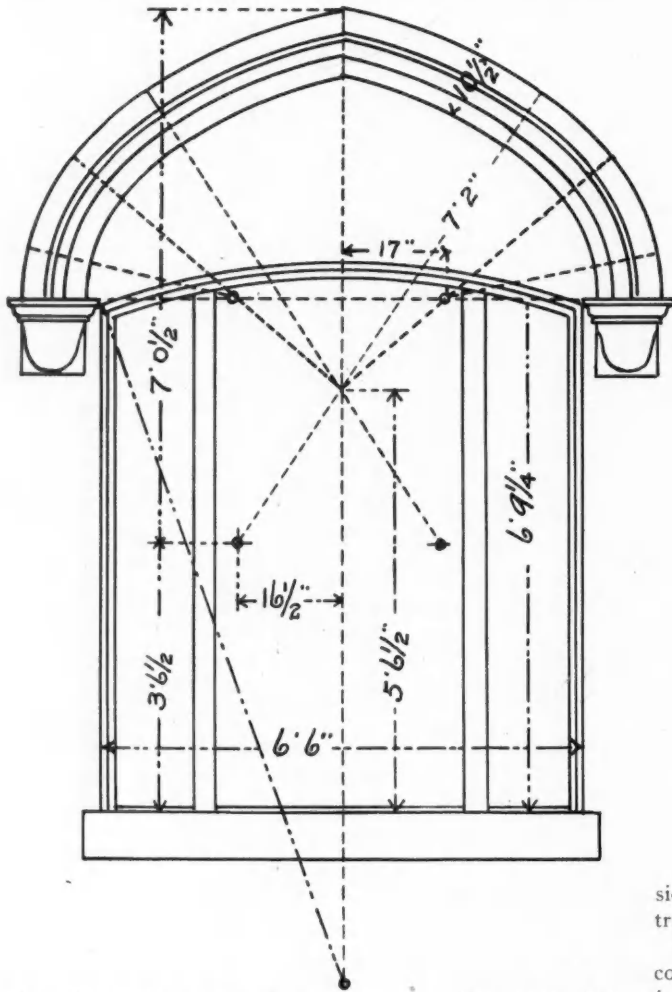
H. T. GETLINS.

Answer: We would suggest that the arch above the fireplace opening be made as shown by the accompanying drawing rather than as shown by "Fig. A.," which shows the method indicated by Mr. Getlins, and which is liable to cause the fireplace to smoke.

EDITOR.

Who Will Help Him?

To the Editor: West Philadelphia, Pa.
 Being a subscriber of the AMERICAN CARPENTER AND BUILDER I would like to have a little advice. Enclosed you will find a sketch of a front door entrance with hood over same. You will see by the inside view that it is to be plastered. Now what I want to know is a method of cutting the ribs, as each one will have a different radius. I want the ribs to set on 8-inch centers for wire lathing. Will you or some of the readers show a method of getting the radius of the different



ribs. I shall be glad to see it in the next issue as I think possibly other readers would be glad to see it as this will be something new—something we don't run into every day. These ribs are to run out from the top of the door, which has a segment head, making it all the more difficult for one that does not thoroughly understand how to do these things.

O. B. FETTERS.

Expansion and Contraction in Roofs

To the Editor: Kaysville, Utah.
 1. How is a concrete roof designed to permit expansion and contraction without causing cracks?

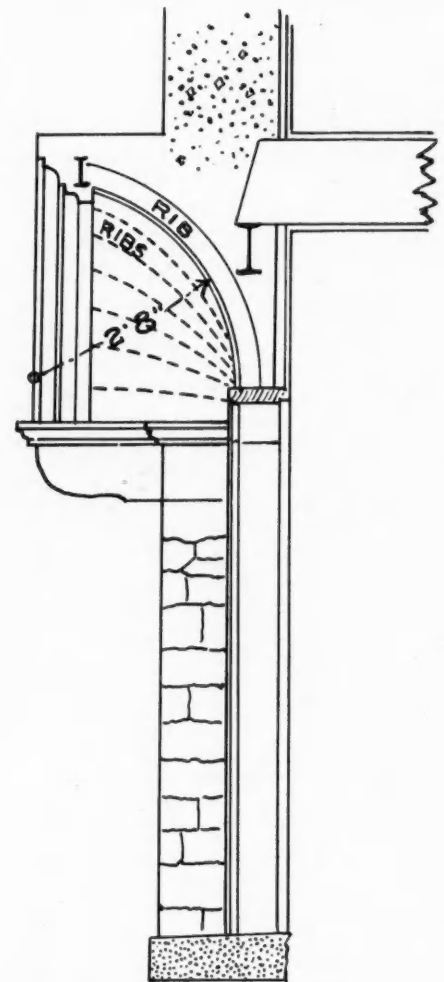
2. Is it necessary to make provision for expansion and contraction in large areas of pitch and gravel roofing?

3. How is destructive expansion and contraction prevented in very large areas of flat seam tin roofing?

Is paper (providing it is not tarred paper) injurious to roofing tin, and will tin roofing last longer if laid directly on the sheathing boards and no paper between sheathing and the tin?

WILLIAM ALLEN.

Answer: 1. The design of the roof having proper reinforcing rods running two ways across the roof, or by the proper use of expanded metal lath, will prevent dangerous cracks when a good rich mixture of concrete is used. Steel and concrete have practically the same coefficient of expansion, therefore there is but little tendency for one to shrink away from the other. If this roof is large sized and supported by steel trusses, an allowance is made at one side for the expansion



of these trusses by placing a roller on one end of each truss.

2. It is not necessary to make provision for expansion and contraction in pitch and gravel roofs unless it is in the manner just described, referring to expansion of steel trusses.

3. In flat seam tin roofing a common method of fastening the sheets to the roof is by means of strips of tin about 1 1/2 x 4 inches, called "cleats." These cleats are locked over the upper edge of the sheet about every 14 inches and then nailed to the roof. When the next sheet (above) is laid, the cleat is concealed. These cleats permit the roofing to expand and rise somewhat without straining the tin or drawing the nails, and are recommended for good work. For very large roofs, however, provision for expansion should be made by standing seams.

In regard to the use of paper under tin roofs, common practice advises the use of good grade of felt paper to act

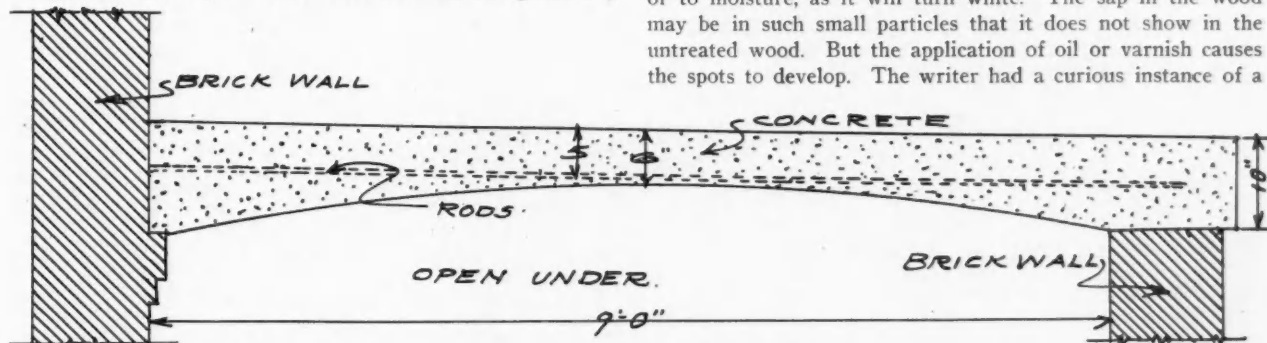
as a cushion under the tin and also to prevent noise of rain, etc., being transmitted to the rooms below. It is advisable to paint the tins on the under side before laying. If tins are laid on bare boards, be sure to cover all knots and resin streaks with a thick piece of building paper.

EDITOR.

Reinforced Porch Floor

To the Editor: El Paso, Ill.
I write to ask if a concrete porch floor of the span shown in the sketch will need reinforcing? Jos. A. REICHEL.

Answer: We would not advise you to build this floor without reinforcement; would suggest that you use 3/8-inch rods 6 inches on centers; the bottom of the rods being about 5



inches below the finished floor. While with ordinary loading, and with the forms left in place, there might be no danger of breaking, still it would hardly be wise to build a porch of this kind without reinforcement to take the strain of an extra load which might be applied to it. EDITOR.

Safe Load for Floor Joist

To the Editor: Louisville, Ky.
I take the privilege of asking you a few questions which I hope you will answer with credit to yourselves as you have always done.

What would be a safe load for 2 by 10 inch joist, 20 feet long, placed 16 inches on centers? Or 2 by 10 inch joist, 20 feet, placed 12 inches on centers? I. W. SHAW.

Answer: With 2 by 10-inch timber joist 20 feet long when used in a floor and placed 16 inches O. C., for quiet loads if the ends of the joist are free to move, a load of not greater than 720 pounds per joist should be used. This would be equivalent to a floor load of twenty-seven pounds per square foot. For 12-inch centers this same joist will support the same load, 720 pounds, but the joist being closer this would be equivalent to 36 pounds per square foot of floor area. If this floor is to be subjected to severe shocks and jolts, use only half this amount in either case.

In using these figures it is understood that the weight of the floor and dependent ceilings are figured into the 720 pounds, and that all joist are of clear stock, free from knots, cracks or blemishes of any kind.

The factor of safety used is 10 for quiet loads and 20 for shocks. The reason for this small load is that the length of the beam allows a rather large bending moment to occur at the center of the beam. EDITOR.

Trouble with White Pine Doors

To the Editor: Hamilton, Ont.

We have had some trouble with our white pine doors as regards the sap stain appearing after the doors have been varnished or oiled. The doors are sent out perfectly clear as regards stain, but after they have been varnished the white sap turns. We should like it very much if some of the practical readers of the paper, especially among the millmen, would give us any information they have in regard to this matter, stating whether it is the fault of the varnish, dampness of the

building, or what is the probable cause of the trouble and how it may be prevented.

M. BRENNER AND SONS.

Answer: While this may possibly be due, at times, to the use of inferior varnish containing rosin, the writer believes that trouble of this kind is largely caused by the impossibility of removing the sap acids from the wood by the modern processes of air seasoning and kiln drying. In the old-fashioned rafted lumber, these acids were dissolved out of the wood by the action of the water. Discoloration by sap can, to a great extent, be prevented by first coating the wood with shellac; but of course the planing mill cannot well do this, because it might interfere with subsequent staining, and moreover, the shellac should not be used where it is exposed to the weather or to moisture, as it will turn white. The sap in the wood may be in such small particles that it does not show in the untreated wood. But the application of oil or varnish causes the spots to develop. The writer had a curious instance of a

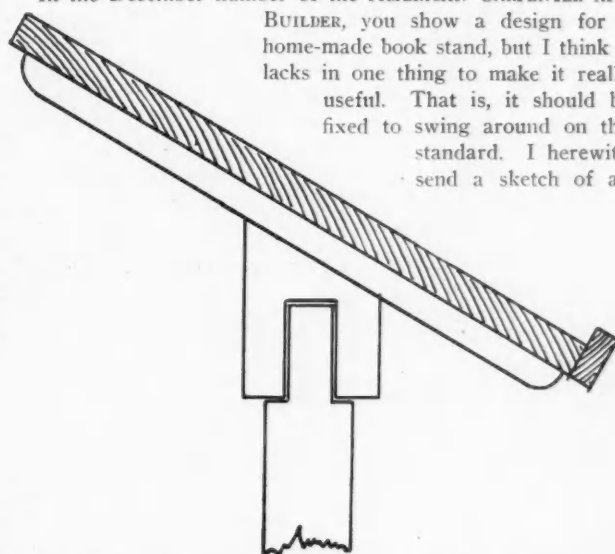
white pine door, which appeared to be perfectly clear and free from sap, yet when it was finished with a pale blue enamel, one panel turned decidedly greenish. After making a number of efforts to remedy the trouble, the door was taken apart and a new panel was inserted instead. When the enamel was planed off the surface of the defective panel, there were seen under a magnifying glass, innumerable tiny spots of sap, each one scarcely bigger than a pin's point, yet these were responsible for the greening of the blue enamel.

Moisture in the wood might cause stains, especially if rosin varnish were used, but without further particulars than our correspondent sends us, it would be impossible to tell the cause or to suggest any remedy that would apply to every case. EDWARD HURST BROWN.

Swivel Top for Book Stand

To the Editor: Portland, Ore.

In the December number of the AMERICAN CARPENTER AND BUILDER, you show a design for a home-made book stand, but I think it lacks in one thing to make it really useful. That is, it should be fixed to swing around on the standard. I herewith send a sketch of an



addition that will do the work. A piece 3 by 3 by 4 inches with a 1-inch hole 2 inches deep in the bottom, and the top cut at an angle of a little less than 45 degrees will answer the purpose and the finished product will be better. This is no experiment. A. A. T.

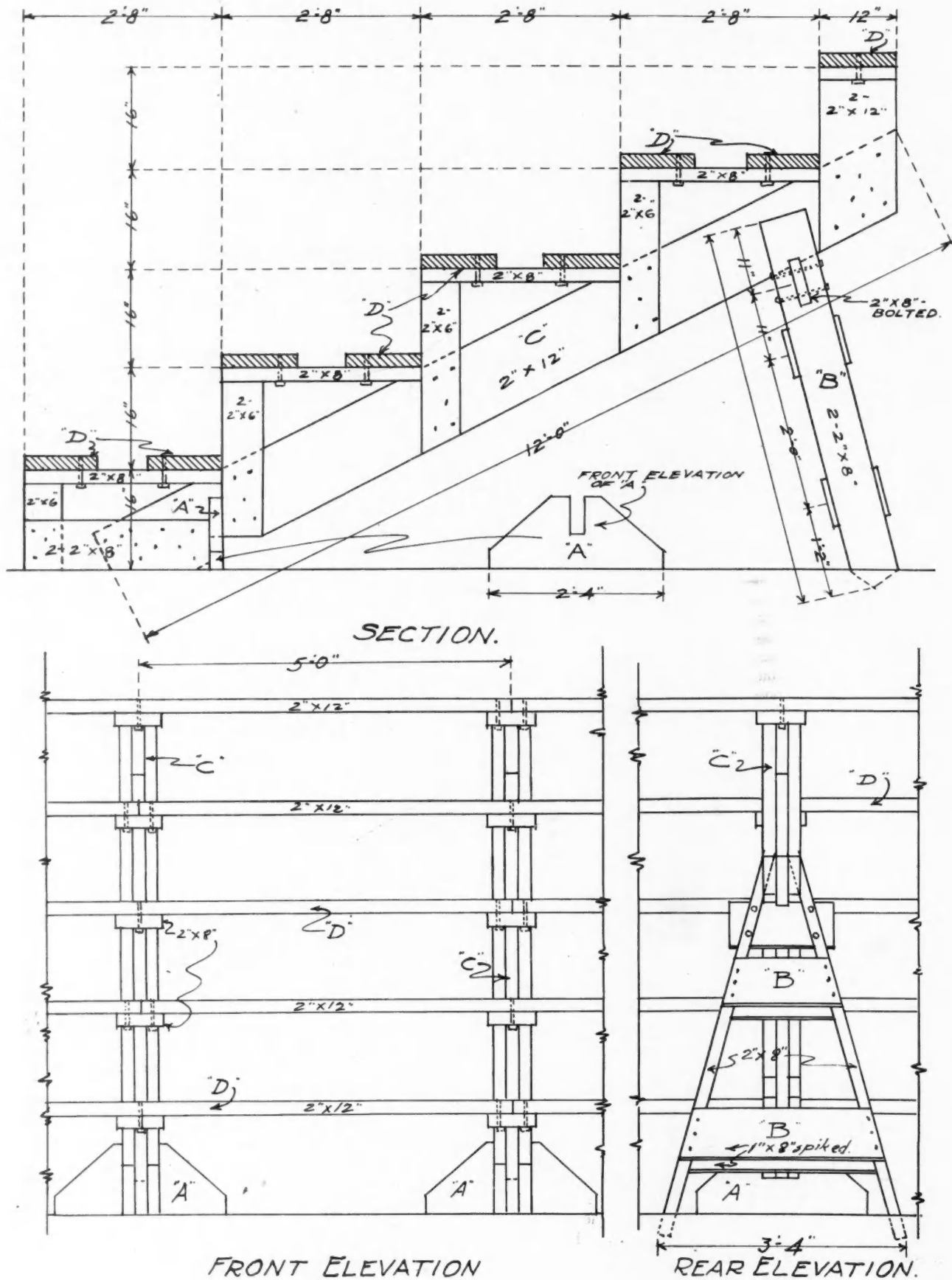
Portable Knock-down "Bleachers"

To the Editor:

Normal, Ill.

We, of the Illinois State Normal University, are just now tackling a problem on which we need a little expert advice.

A small sum of money has been raised with which to try to provide something in the way of seats for spectators at the baseball games which take place on our grounds in the spring and football games in the fall.



Anything of this kind, which is left out on the grounds permanently, is liable to suffer damage from various causes. Consequently, it is proposed to experiment with some form of portable, or collapsible, "bleachers," which may be made in small sections and "knocked down" for storage during the seasons when not in use.

As a subscriber and reader from the beginning of the AMERICAN CARPENTER AND BUILDER I have noticed a good many solutions of interesting problems of various kinds in its pages. I write to inquire whether, in your opinion, this problem is one of sufficient general interest to have a place in your correspondence department.

In view of the widespread interest in games and sports, I believe that many of your readers would find good use for a suggestion along this line. What I should like to see personally, is a set of working drawings or sketches of a small sectional platform for seats, or "bleachers," with perhaps not more than three or four "steps," with the highest seat not more than 6 or 7 feet from the ground, bolted so as to "knock down."

WILLIAM T. BAWDEN.

Answer: The bleachers shown herewith are portable and consist of the main carriage "C" and its supports "B" and "A," and the seat planks "D." The carriages are to be placed 5 feet apart and the seat planks are 10 feet long with alternating joints. The support "B" extends into the ground a sufficient distance to prevent it from slipping, and there should be a stake driven into the ground in front of each carriage to prevent it from slipping forward. An arrangement of this kind can be taken down after the season closes and stored away, occupying comparatively little space. The bleachers can be easily erected and bolted together and will be amply strong—even when loaded with frantic "rooters."

EDITOR.

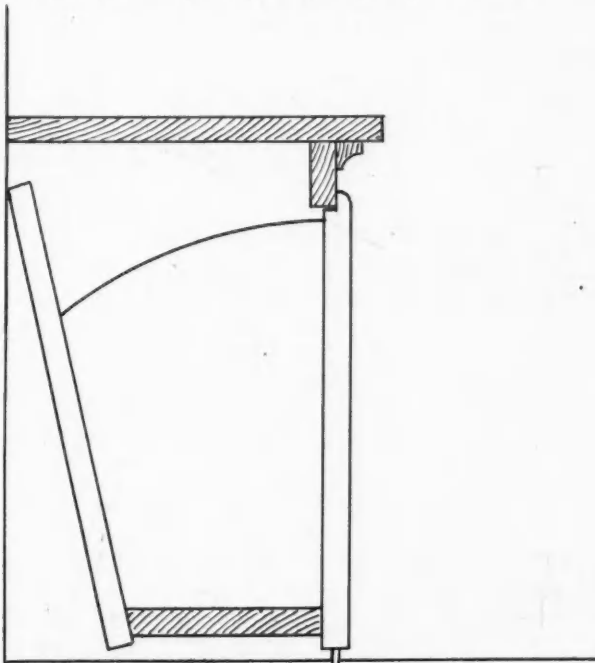
Another Flour Bin

To the Editor:

Pomona, Cal.

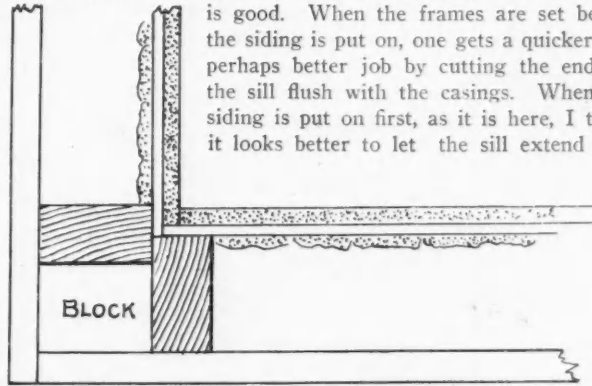
I noticed an article in the December number of the AMERICAN CARPENTER AND BUILDER, by Mr. Bachmayer, about the construction of a flour bin, and it is very good.

Another good way, and perhaps quicker, is to let the front



piece extend down to the floor and put in two iron pins as shown in sketch. Let the back of bin come up above the sides far enough so it will strike against the framework under the drain board, as per the accompanying sketch.

In regard to the question asked by Geo. Lehnert, regarding the way to trim window and door sills, will say either way is good. When the frames are set before the siding is put on, one gets a quicker and perhaps better job by cutting the ends of the sill flush with the casings. When the siding is put on first, as it is here, I think it looks better to let the sill extend past



the side of casing, the same as it shows in front.

Mr. Rieveley had a nice sketch of a corner post for a house. The enclosed sketch shows another good way.

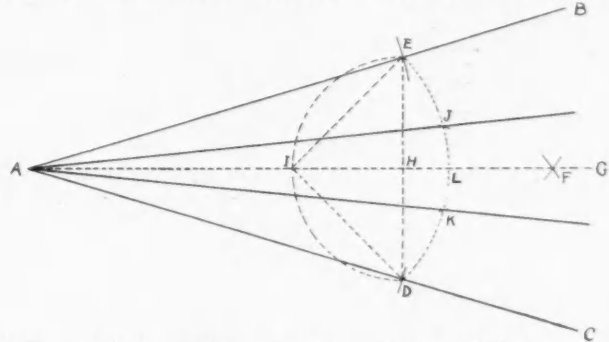
S. N. HARRIS.

To Trisect Any Angle

To the Editor:

Freeport, Ill.

Given any angle, as A-B-C. Bisect the angle: With A as center and any convenient radius, draw arcs intersecting A-B and A-C at E and D. Then with any radius greater than half the distance between E and D, and with E and D as centers, describe intersecting arcs, as at F. A-G drawn from



A through F bisects the angle. Draw the line E-D, intersecting A-G at H. With H as center and radius H-D, draw the half circle D-I-E. Then with I as center and the radius I-E, draw the quarter circle E-L-D. With the same radius, and with E and D as centers, describe the arcs intersecting the quarter circle at J and K. Lines drawn from A through J and K trisect the angle at A.

I am sending you this thinking that you might be able to find some place for it in your paper.

URIAS M. DUSTMAN.

For Renovating Old Files

To the Editor:

Marshalltown, Iowa.

First take the files and wash them clean in hot water to which a little concentrated lye has been added, using a brush in order to remove all dirt or grease from the creases, then take a cake of laundry soap or beef tallow and draw the files lightly over the same from heel (or handle) to point, being careful to get a small quantity of soap or tallow on the raised edges of the cuts in the files, but not in the grooves. Now take an earthen dish, a large platter for instance if you have long files or rasps, and place the files on the dish, supporting the ends of files by an old file or strips of wood. Then pour in muriatic acid until the files are entirely covered. Let stand for about an hour or an hour and a half according to how much the files are worn, the smoother they are the longer they want to stay in the acid. Then remove and wash in hot water.

J. G. WEATHERBY.

To Support Metal Awning

To the Editor:

Rowena, Texas.

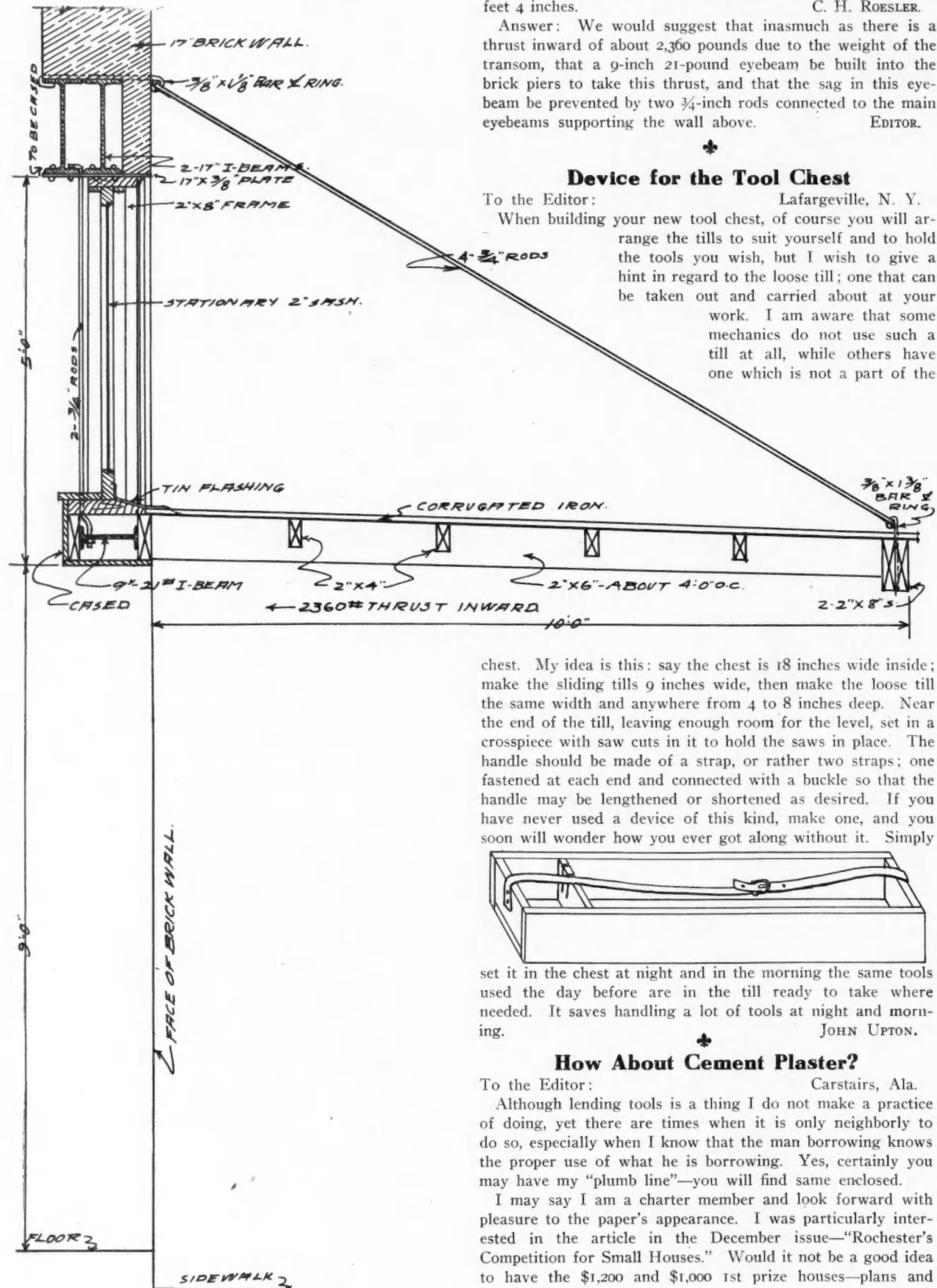
I desire information in regard to the construction of a tran-

som bar and transom in a store front. There is to be an awning 10 feet wide over the sidewalk, supported by four iron rods; the awning has a corrugated iron roof as shown in the drawing. The width of the opening of the store front is 25 feet 4 inches.

C. H. ROESLER.

Answer: We would suggest that inasmuch as there is a thrust inward of about 2,360 pounds due to the weight of the transom, that a 9-inch 21-pound eyebeam be built into the brick piers to take this thrust, and that the sag in this eyebeam be prevented by two 3/4-inch rods connected to the main eyebeams supporting the wall above.

EDITOR.



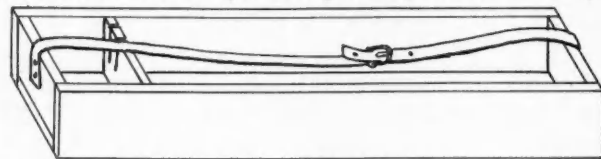
Device for the Tool Chest

To the Editor:

Lafargeville, N. Y.

When building your new tool chest, of course you will arrange the tills to suit yourself and to hold the tools you wish, but I wish to give a hint in regard to the loose till; one that can be taken out and carried about at your work. I am aware that some mechanics do not use such a till at all, while others have one which is not a part of the

chest. My idea is this: say the chest is 18 inches wide inside; make the sliding tills 9 inches wide, then make the loose till the same width and anywhere from 4 to 8 inches deep. Near the end of the till, leaving enough room for the level, set in a crosspiece with saw cuts in it to hold the saws in place. The handle should be made of a strap, or rather two straps; one fastened at each end and connected with a buckle so that the handle may be lengthened or shortened as desired. If you have never used a device of this kind, make one, and you soon will wonder how you ever got along without it. Simply



set it in the chest at night and in the morning the same tools used the day before are in the till ready to take where needed. It saves handling a lot of tools at night and morning.

JOHN UPTON.

How About Cement Plaster?

To the Editor:

Carstairs, Ala.

Although lending tools is a thing I do not make a practice of doing, yet there are times when it is only neighborly to do so, especially when I know that the man borrowing knows the proper use of what he is borrowing. Yes, certainly you may have my "plumb line"—you will find same enclosed.

I may say I am a charter member and look forward with pleasure to the paper's appearance. I was particularly interested in the article in the December issue—"Rochester's Competition for Small Houses." Would it not be a good idea to have the \$1,200 and \$1,000 1st prize houses—plans and

elevations? I have no doubt hundreds of readers would find occasion to use such plans; when called to erect a residence combining the practical and a little of the artistic, at a minimum cost.

I would like to hear from some of the family as to the respective merits of lime and sand, and cement plaster. Also in proportions in which they are mixed, and how much of each is required per square yard of surface, so that the cost may be compared.

D. W. CURRIN.

What Is the Trouble?

To the Editor: West Concord, Minn.

As I am a charter member of the AMERICAN CARPENTER AND BUILDER and read many good and useful articles in your paper, I would be very much pleased if you or some of the brothers will give some information on the following difficulty:

We have two stoves with separate pipes and chimneys, put

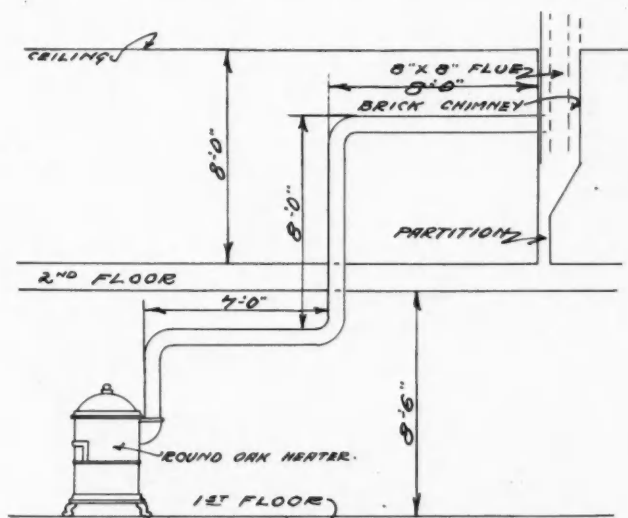


FIG. 1

up as shown in the diagram. Fig. 1 has always troubled about creosote running—sometimes as much as 2 quarts in one day—especially in cold weather. Fig. 2 never bothered till this fall, but now it does at times. This one has no brick chimney.

I hope you can give us the necessary advice through the columns of the AMERICAN CARPENTER AND BUILDER.

W. E. S.

Patching a Cement Floor

To the Editor: Greenwood, Neb.

About eight months ago I put in a cement floor in the basement of our public school building. This room is used for a play room and gymnasium, being subjected to considerable wear. The top surface is wearing off, leaving the surface very rough. Will you kindly tell me how to prevent any more wearing off?

E. C. SCHROEDER.

Answer: There is no way that we know of to prevent the floor which is laid from wearing off. A remedy for this defect would be to lay a floor of 1 to 2 cement one inch thick on top of this floor, taking care to obtain the best Portland cement and a very clean, sharp sand. If any patching is to be done, we would advise that the broken edges which already exist be chipped out until a good square shoulder is left all around the hole. This will prevent the flaking off at the edges of the patch. A 1 to 1 mixture would be advisable for patching.

EDITOR.

Waterproofing a Wet Basement

To the Editor: Livingstone, Mont.

I am building a new house 22 by 36, having a basement of

the same size. Is there any way known to the building trades to keep water out of same on a 14-inch pressure. Could you advise me sure what kind of cement mixture I will have to use and not make a mistake, or if it is impossible to keep water out. Some carpenters say I can't keep the water out.

JESSE C. LYONS.

Answer: For keeping water from entering the basement of a house when there is considerable outside pressure to be resisted there is no better method than that of covering the outside of your wall with a coating composed of layers of four-ply burlap covered with hot asphalt. This coating may then be covered with a plaster composed of 1 to 2 Portland cement mortar. This burlap and asphalt layer should be carried through underneath the foundation and extended over the entire basement surface; be careful to break joints everywhere and have a good overlap. Use plenty of asphalt. Over

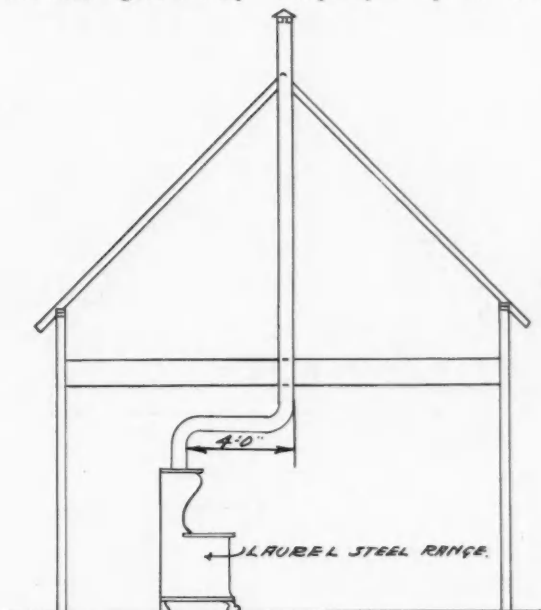


FIG. 2

the asphalt coating in the basement a floor of fairly rich mixture concrete from 4 to 6 inches thick should be laid. If it is desired, the top or surface layer of this concrete will be of a mixture of one part Portland cement to two parts sand. This in itself is often used as a waterproof protection.

EDITOR.

Some Good Questions

To the Editor: Rockland, Wis.

Having been a reader of your valuable paper, the AMERICAN CARPENTER AND BUILDER, and having received much valuable information through the columns of its correspondence, I also wish to ask a few questions in order to become one of the correspondents. Will the editor or some of the readers tell me which will be the most up-to-date and modern interior trim for modern residence house? I mean as to casing, base boards, blocks, doors, windows, mouldings and wainscoting. How should I go at it in order to cope the return on the cap moulding and fillet instead of mitering it, in the head casing of colonial style? And also the best way to gauge the side casing to fit over head casing in O. G. trim?

I have noticed in the October number of 1909 a sketch and explanation of how to cut the hood rafters for a barn, but do not understand how the distance from B to E is found and from whence it is found. Does the same principle apply to all pitches? How can a person find the cut for side and top of hay rack timber so it will be in line with hood rafter, the top of the timber not being beveled to be in line with common rafter?

Will be thankful for any information given.

JOHN J. ARENZ.



Advertising for Builders and Roofers

Builders and roofing contractors will be interested in the

advertising for asbestos "Century" shingles, which the Keasbey & Mattison Company are running in *Country Life in America*.

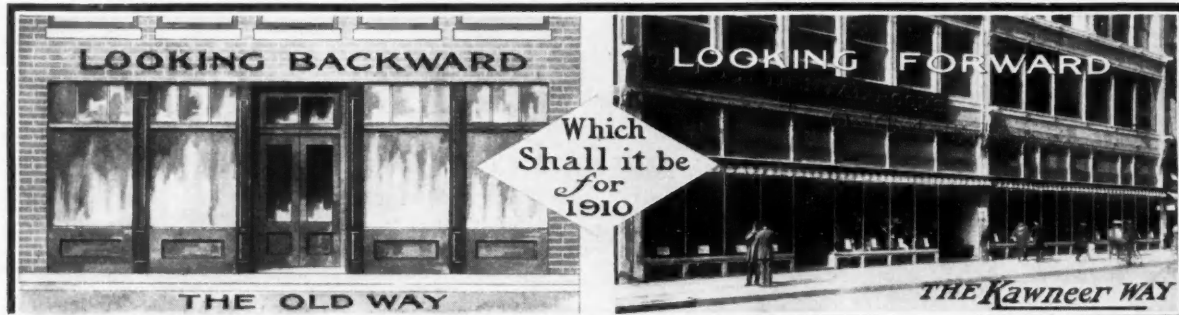


The campaign started with the December issue of this magazine, and will be continued monthly, the advertisers state.

Each advertisement shows one of the hundreds of handsome private and public buildings which are roofed with asbestos "Century" shingles, with strong text on the merits of this well-known roofing, and refers the interested reader to the nearest responsible roofer for estimates and quotations.

We reproduce on this page the illustration from the second of these announcements—showing the Communal Theater of Fiune, Austria-Hungary.

Builders and roofing contractors who are not in touch with the asbestos "Century" shingle proposition will do well to write to the Keasbey & Mattison Company, at Ambler, Pa., and get into position to take advantage of the added demand that is sure to be created by this advertising.



To the Architect who prepared plans for Business Buildings and store fronts, 1909 has left many unsolved store front problems—unless, as thousands of others have done, he specified the

Kawneer System

Will you continue to look backward for a solution or will you step into the line of progress and look to the Kawneer System?

1,491,400 Feet Installed in 1909

a record which will attest the merits of Kawneer. If the Government did not protect the principles embodied in all Kawneer products, manufacturers everywhere would put them into their materials.

Its distinction as the superior Store Front Construction—the system of quality and efficiency—is due entirely to the continuous Cushion Spring Crip, the Ventilation and Drainage device, the provisions for Expansion and Contraction of plate glass, the quality of materials and workmanship, and the high architectural standards attained in its development.

It was these distinctive features which made possible the phenomenal sale and commands the attention of the merchandising world today. It is a complete construction from I-beam to sidewalk or is adapted to the installation of plate and prism glass only.

Which shall it be for 1910? The cumbersome, unsightly, frost-producing construction, or The Kawneer System—with its perfect vent and drain, minimum obstruction, low rate of insurance and perfect architectural lines. Let us send you book of details No. 2 or have our representative call and explain its merits.

KAWNEER MFG. CO., Home Office, Niles, Mich.

Branch Offices:

Chicago
St. Louis
Pittsburg
Spokane
London, Ont.

Denver
New York
Portland
Atlanta

Milwaukee
Indianapolis
Lincoln, Nebr.
Salt Lake City

Kansas City
Philadelphia
Detroit
Sioux City, Ia.

Vancouver, B. C.
Cincinnati
Minneapolis
San Francisco

Syracuse, N. Y.
Houston
Seattle
Los Angeles
Washington, D. C.

See Sweet's Index Pages 650-651.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

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**

"Poor Richard's Sayings" and the Richards Manufacturing Company

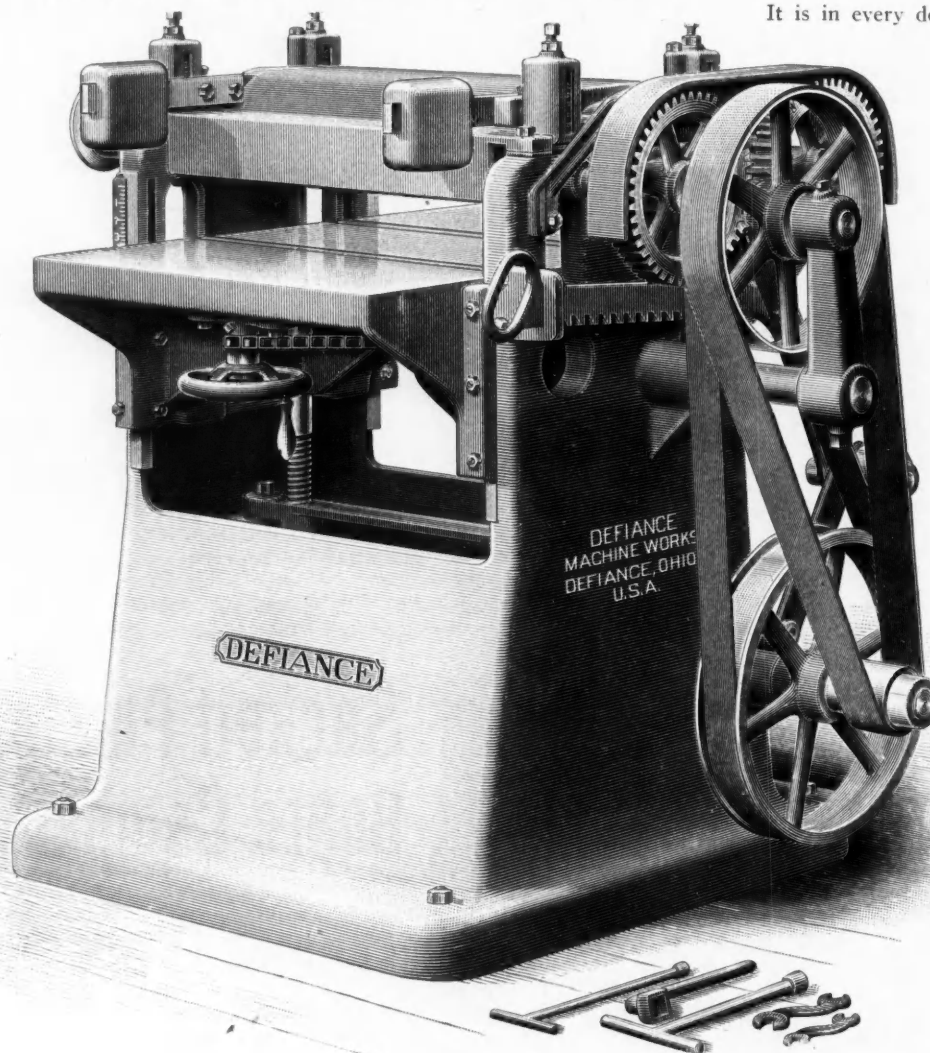
A clever adaptation of the wisdom of "Poor Richard" to advertising is found in the attractive series of pamphlets recently issued by the Richards Manufacturing Company, of Aurora, Ill. They contain ten of the most famous of the sayings of "Poor Richard." It will benefit and interest everybody to get this series if for no other purpose than to refresh the memory with these sayings. Just drop a postal to the company and it will be sent free of cost.

In keeping with the pleasant custom of other progressive concerns, the Richards Manufacturing Company gave its annual banquet to its sales force recently. This was a most enjoyable occasion and was followed by an informal program of toasts which brought out the wit and wisdom of those present.

The Richards Manufacturing Company are widely known as manufacturers of high-grade and reliable door hangers and hardware specialties. Their advertising literature is unique, attractive and valuable. It will be worth while for every carpenter and builder to get on their list to receive the booklets as issued. Write and ask them for these.

New 24-Inch Planer

This engraving represents the new Defiance 24-inch patent



four roll single surface planer, designed for accurately planing hard or soft wood up to 24 inches wide and narrower and from 1/10 inch to 6 1/2 inches thick. It is accurately construct-

ed in every detail and it will fully meet the requirements of the most exacting wood worker, and it is recommended to furniture and piano manufacturers, pattern makers and others requiring smooth and true work.

The frame is a single casting of sufficient strength to properly support the working parts and to overcome all tendency to spring or chatter.

The table, in one piece, is gibbed to the frame at the four corners and supported in the center at either side upon two heavy steel screws, which overcome the liability of springing or sagging when the machine is doing its heaviest work, and it is raised and lowered to an indicator for determining the exact thickness of material to be planed by a convenient hand wheel, which is out of the way.

The cylinder, of forged steel, is accurately balanced, with its journals ground perfectly true, and they run in long genuine babbitt metal self-lubricating bearings, and it is driven by a single 6-inch belt.

The feed is driven from the cutter head spindle. It can be instantly arrested while the machine is in motion by a single movement of a convenient hand lever. Four large feed rolls are employed. Those in the table are mounted in milled seats with means for quick adjustment, while the upper rolls are controlled by compression springs with means for adjustment of tension. All gears and parts are heavy and well supported.

It is in every detail the handiest and most complete small size planer offered, giving free access to the cylinder and cutters by simply raising the hood. The method of lubrication is most complete.

The counter is furnished as follows: Shaft, 44 inches by 1 11/16 inches; one pair No. 2 ball and socket adjustable drop hangers, fitted with improved belt shipping apparatus; one driving pulley, 24 inches by 6 inches; one pair tight and loose pulleys, 10 inches by 6 inches; speed 800 rotations per minute. The loose pulley is fitted with bronze bearings and is self-lubricating.

Horse power to drive, 5; floor space occupied, 36 inches by 54 inches.

For complete information and prices on this machine address the Defiance Machine Works, Defiance, Ohio.

A New Pipe

Many of our readers who are lovers of the pipe will be interested in the new invention shown here—a pipe claimed

"RICHMOND" *Efficiency*

THAT element which distinguishes the "RICHMOND" Heating System from all others is the efficiency with which all parts, from boiler to radiator, faultlessly perform the work for which they are intended. The specification of "RICHMOND" fixtures precludes any suggestion of an error in your judgment.

And, after installation, you will understand why the owners and users of "RICHMOND" goods join with us in proclaiming that "RICHMOND" means superiority.

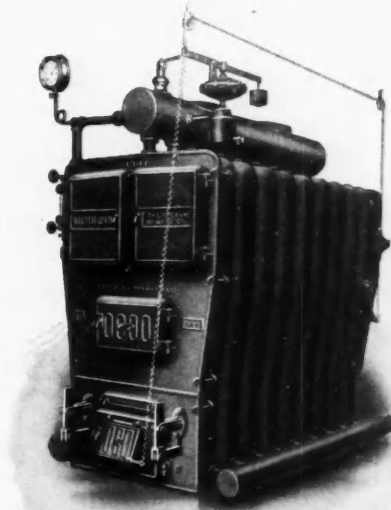


PLATE 42-9-S
"RICHMOND" Square Sectional Waterbase Steam
Boiler. (Also made for Hot Water Heat.)

"RICHMOND"

Steam and Hot Water Boilers Radiators

"RICHMOND" Boilers, in every detail, embody the requirements of the perfect house-heating boiler. The heating surface is so placed that both the flame and heated gases strike it at right angles, thereby utilizing the maximum amount of heat. In the interior surface all parts are so arranged that they are easily accessible for cleaning, thus securing the highest efficiency of the heating surface. Every inch of fire surface in "RICHMOND" Boilers is so backed by water that it readily absorbs the full heat and circulates it through the hollow double walls of the boiler and on through the piping to every part of the system. Because water surrounds every portion of the surfaces with which fire or heated gases come in contact, and because the construction is such that the greatest amount of surface is so placed as to be in contact with the fire or heated gases, the "RICHMOND" Boiler is the most economical on the market in fuel consumption, easiest to operate, and of the highest heating efficiency. It is also practically indestructible.

Send for Catalogue BR

THE M^cCRUM-HOWELL Co.

Two Factories at Uniontown, Pa.
One at - - - Norwich, Conn.
One at - - - Racine, Wis.

Park Ave. and 41st St., New York City

Address in the West Cameron Schroth Cameron Co. 189 Michigan St., Chicago, Ill.

DRAW GOOD PLANS AND DRAW GOOD MONEY

WITHOUT DOUBT many readers have in the past wished to be successful, first-class Draftsmen and Designers, and probably often looked for a long time at plans and drawings, trying very hard to figure out certain lines, or experienced an intense desire to be able to do the best work in most up-to-date manner; and many men in most any kind of business, especially in Architectural lines, have often felt greatly embarrassed simply because unable to read even a simple sketch or unable to make any kind of businesslike drawing.

No Carpenter is first-class and competent unless he is an A-1 Draftsman in addition. Without this knowledge he can never rise any higher and will remain only a Carpenter paid by the hour or day.

To become a successful Draftsman it is necessary, first of all, to receive

the most practical and personal training. Not a lot of school or book knowledge, but practical Drafting room work.

Mr. F. V. Dobe, Chief Draftsman of the Engineers Equipment Company (Inc.), Chicago, has for many years made a practice of giving personal and individual Drafting instruction in complete Architectural Drawing and Building design; and is prepared to accept a few more personal students, young or old.

His instruction is given by mail, but must not be compared with ordinary "for all alike" correspondence school lessons, as all the work is laid out personally by himself and prepared especially for your individual requirements and advancement. He treats each student according to the student's ability; and with his individual practical method, which consists of actual Architects' work.

Good Draftsmen in Demand

JUDGING by the manner in which many carpenters and contractors are getting in communication with Mr. F. V. Dobe, of the Engineers' Equipment Company, and signing up for his personal instructions in architectural draftsmanship, they are realizing the necessity and pleasure of making more money. The opportunities offered today for ambitious, wide awake and progressive men capable of making from \$25.00 to \$75.00 per week as architectural draftsmen are better than ever. The immense amount of building which is going on and



Mr. F. V. Dobe the increasing demand for more and larger structures, gives the man with actual drafting-room experience splendid opportunities for steady employment at high wages, besides the chance for advancement. There is no class of men who make better architectural draftsmen than the carpenter and contractor.

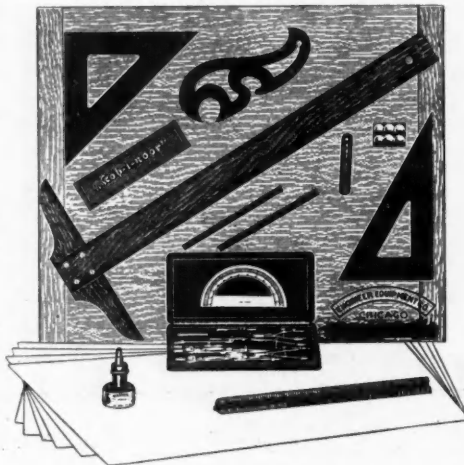
The experience gained by actual work on all kinds of buildings makes it much easier in studying and also in holding a responsible position afterwards. No employer cares for diplomas—neither does he care or will pay big wages to just a mere copier. What the employer wants today is originality and practical ability, and this requires practical training. The quickest and best way to be trained on

practical drafting-room work and to get the required practical experience is to receive personal and individual instruction from a high-grade practical man at the trade, with a reputation as the most experienced man in training men to become competent and successful draftsmen.

An ordinary draftsman, not even the best draftsman, can teach this trade unless he has had many years of experience as an instructor, and has ability to impart knowledge that is understood and will stick forever—a special gift that 99 out of 100 do not have.

Mr. F. V. Dobe, chief draftsman of the Engineers' Equipment Company (Inc.), Chicago, with twenty years' experience in training and handling men, has for a good many years given personal individual instruction by mail with the most deserving success, because his instruction work consists of actual drafting-room work that gives his personal student and apprentice the required practical experience.

Mr. Dobe has been an advertiser in this paper for a good many years and will send his "Successful Draftsmanship" prospectus, 6 by 9, also list of open draftsmen positions, and full information free. His advertisement appears on opposite page. Anyone interested should write to him.



This outfit, value \$13.85, furnished free by Mr. Dobe to his students

SUCCESSFUL DRAFTSMEN

Draw Good Plans Draw Good Money

If You are Tired Being
— a Hard Working —
Carpenter or Builder
then Make Yourself the
Highest Grade and Highest
Priced Man in Your Place

To do this you must be a good *Draftsman*, not one of those "would be" ones, *no*, but a first-class man, with actual, practical *drafting room experience*.

It will pay you well to learn this right from a practical man with twenty years' experience who will instruct *you* personally —individually on high-class *architectural* drawing, complete building designing and detailing in all branches;

Who will qualify you at home in a few months to double your earning capacity

Don't waste time and money trying to learn from books or printed lessons made for all alike, the same as patent medicine; you can only learn this right on *practical work* from a practical man.

Free This Month A high-grade Complete Drawing Outfit, including a \$13.85 Set of German Silver Tools.



If you want to be the "BEST MAN" write me to-day. Address—

Chief Draftsman

Div. 17 Eng's Equip't Co. (Inc.) Chicago



Chief Draftsman



Chief Draftsman

by the maker to be absolutely sanitary and free from the objections of ordinary pipes.

You will notice that the bowl is made with the inner walls vertical and the bottom flat—like a pan, so to speak. The shape of the bowl prevents the tobacco from becoming packed solidly. Consequently, there is a free circulation of air through all parts of the tobacco when smoking. That is what makes a fine cigar smoke so pleasantly.



Then again, the bottom of the bowl has a series of holes angling through solid Vienna meerschaum to a point at the apex of the bowl. This construction assists in the free circulation of the air through the tobacco. The result is a very pleasant, cool smoke, equal to that of a fine cigar.

The bowl of this new pipe is said never to get wet or soggy, as other pipes do. This is altogether reasonable owing to the air chambers in the briar part of the pipe between the stem and the meerschaum bowl.

Persons who desire one of these pipes can obtain same by addressing The Acme Pipe Company, Station M, Cincinnati, Ohio.

The Edwards Manufacturing Co.'s Second Annual Banquet

An event that will live long in the memory of those fortunate enough to be present was the Second Annual Banquet tendered the foreign and traveling representatives and heads of departments by Mr. E. W. Edwards, president, the Edwards Manufacturing Company, "the sheet metal folks," Cincinnati, Ohio, Thursday evening, December 30th, at the Business Men's Club rooms, Chamber of Commerce building.

Mr. Edwards leaves the latter part of January for a six-months' trip around the world, visiting the principal cities in which the company have local representatives.

Among those who participated in the festivities were:

E. W. Edwards,	A. J. Pearce,
H. W. Edwards,	Chas. Spornhauer,
C. R. Edwards,	Lawrence Dieckelman,
W. A. Edwards,	J. F. Agnew,
G. D. Myers,	H. E. Moomaw,
J. M. Reynolds,	W. H. Daycock, Jr.,
O. S. Larkby,	Jas. Kinsella, Sr.,
W. E. Larkby,	Frank Wilfert,
G. P. Doll,	Chas. Zeh,
H. W. Woodward,	Wm. J. Richardson,
N. D. Jones,	Jos. Wilkins,
T. Reed Chunn,	Jas. Robinson,
O. F. Kline,	T. McCabe,
Louis R. Hildreth,	Jas. E. Tracey,
A. E. Watson,	A. T. Spornhauer,
L. A. Hildreth,	B. A. Trimpe.

Those who participated in the festivities were the important officials and traveling representatives of the Edwards Manufacturing Company. The personal contact, the exchange of views and the sociability of such gatherings promote a better

One Machine Instead of 12

The Famous "Universal Woodworker" Is Built to Stand Hard Usage

It Weighs from 1,500 to 2,000 Pounds According to Equipment

The Following 12 Machines Are All Combined in the "Famous" Universal Woodworker

- | | | |
|---|----------------------------------|--------------------------------|
| 1—A 12-inch Jointer | 4—Band Saw | 9—Hollow Chisel Mortiser |
| 2—Saw Table with Saw Arbor that may be raised and lowered | 5—Complete Single Spindle Shaper | 10—Standard Single End Tenoner |
| 3—Two-side Power-Feed Molder and Edger | 6—Pony Planer | 11—Emery Grinder |
| | 7—Power-Feed Sander | 12—Felloe Rounder. |
| | 8—Boring Machine | |

This Machine is Unlike Any Other So-called Universal Woodworker on the Market

It is a VERY strong machine. Nothing light or frail about any part of it. We give a definite guarantee on every claim we make. The purchase of this machine means a big saving in time and money.

Two Special Features

First—The Saw Table has raising and lowering Arbor and carries a 14-inch blade which can be lowered entirely out of the way of the operator when the saw is not in use or wanted.

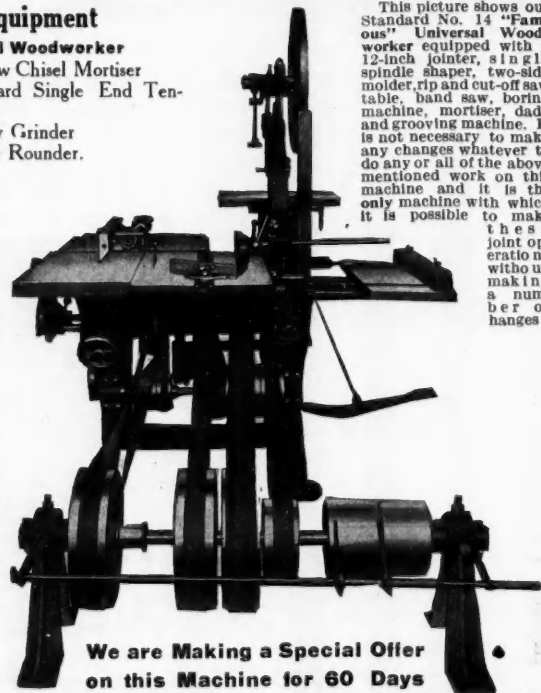
The saw table is arranged with a wooden throat which can be taken out when you wish to use wide dado or grooving heads. Cut-off gauge on the saw table is adjustable for cutting all the different mitres. The ripping gauge is also arranged for doing mitre ripping and can be swung entirely out of the way when you wish to use the saw table for cutting off. Please understand that it is not necessary to remove the saw table when using any of the other attachments on the machine.

Second—The Special Boring Spindle that we furnish on this woodworker enables the operator to do all kinds of boring, routing, and hollow chisel work without running the complete machine, as this spindle is driven separately from any other attachment.

Write Now—Today—for Special Offer

The Sidney Tool Co.

Sidney, O.



We are Making a Special Offer on this Machine for 60 Days

This picture shows our Standard No. 14 "Famous" Universal Woodworker equipped with a 12-inch jointer, single spindle shaper, two-side molder, rip and cut-off saw table, band saw, boring machine, mortiser, dado and grooving machine. It is not necessary to make any changes whatever to do any or all of the above mentioned work on this machine and it is the only machine with which it is possible to make these joint operations without making a number of changes.

BISHOPRIC WALL BOARD

Cheaper and Better Than Lath and Plaster

YOU DON'T HAVE TO WAIT for good building weather when you use Bishopric Wall Board. This substitute for lath and plaster is made of kiln-dried, dressed lath, **embedded** in hot Asphalt Mastic under pressure of 500 pounds to the square inch, surfaced with sized cardboard and cut at the factory into 4x4 ft. sheets, which are easily and quickly nailed to studding, ready for immediate application of wall paper, paint, burlap or other decoration.



Applied Dry, Winter or Summer

It is applied dry; is guaranteed not to swell, shrink, warp, crack, flake or blister; is clean, sanitary and odorless; is proof against moisture, cold, heat, and vermin; saves fuel in winter and keeps out summer heat; also deadens sound. Is suitable for dwellings, factories, new partitions in old buildings, finishing attics, porches, laundries, cellar ceilings, garages, etc.



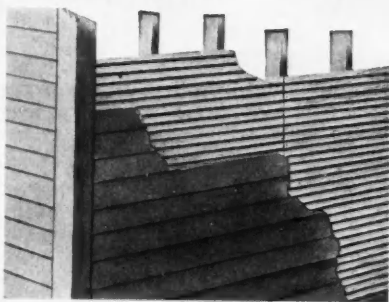
Importance of Lath The lath forms a perfect binder—a guarantee against warping or twisting out of shape. Furthermore, insures perfect adhesion when nailed to studding. Beware of cheap imitations. Bishopric Wall Board is protected by U. S. patents. Prosecution will follow infringement.

PRICE AND SHIPMENT: Crate of 16 sheets, covering 256 sq. ft. of surface, \$6.40 per crate, or \$2.50 per 100 sq. ft., f. o. b. New Orleans, La., Cincinnati, Ohio, or Alma, Mich. We ship from nearest point.

Saves labor. Does away with building paper. Cheaper than lumber.

BISHOPRIC SHEATHING

Proof against heat, cold, moisture and vermin. Patented.



Made of the same materials used in Bishopric Wall Board and same way, though finish is not necessarily so smooth, therefore costs less. It is nailed to studding on outside of the building, with lath and Asphalt Mastic exposed. Over this you nail weather-boarding. This gives solid sheathing with dead air space between Sheathing lath and siding. Ideal material for cement exterior or stucco work. Cement firmly adheres to lath and Asphalt Mastic, making a solid, smooth exterior. For factory or residence, this form of cement construction is the cheapest and best known.

Bishopric Sheathing is cheaper than lumber; is free from holes and rough spots; is nailed to studding in half the time required for lumber; does away with expense of buying and applying building paper; is proof against heat, cold, dampness, frost, wind and vermin. Being a non-conductor, it keeps the building cooler in summer and saves fuel in winter. It is used with excellent results as a lining for dairy barns, poultry houses, driving stables or other outdoor buildings.

PRICE AND SHIPMENT: Crate of 16 sheets, covering 256 sq. ft. of surface, \$5.12, or \$2 per square of 100 sq. ft., f. o. b. New Orleans, La., Cincinnati, Ohio, or Alma, Mich. We ship from nearest point.

Standard Quality Asphalt Mastic. Patented, Self-Protecting.

BISHOPRIC ROOFING

Requires No Paint or Other Coating. Handsome and Durable.

Standard Quality, Bishopric Asphalt Mastic Roofing will not dry out; therefore requires no paint. The asphalt composition is toughened and perpetuated by an exclusive process, which converts asphaltum into Asphalt Mastic. May be exposed direct to weather in any climate without danger of softening, drying out, cracking or crumbling. The only asphalt roofing which successfully stands the direct exposure test.

Made of pure woolen felt, coated on both sides with pure Asphalt Mastic and flaked mica, making a neat, clean, artistic, durable roof, which never needs paint. Absolutely proof against cold, heat, moisture, wind and weather; will not crack, curl or break; wholly unaffected by climatic conditions. Will reduce fire insurance. Easily laid.

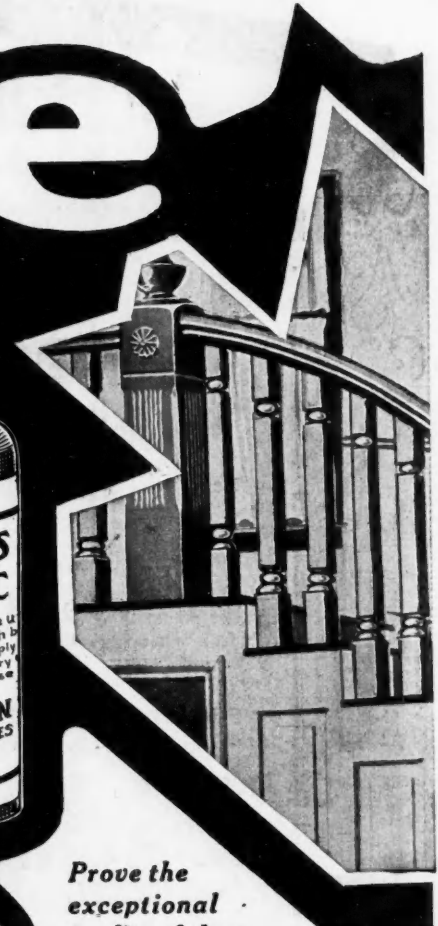
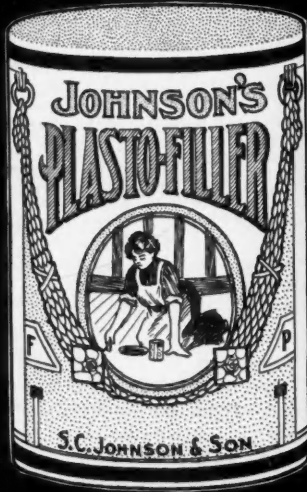
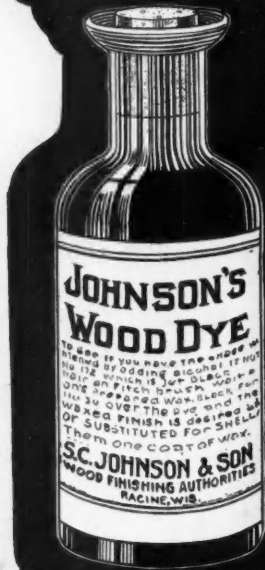
PRICES: Freight prepaid East of the West Line of Minnesota, Iowa, Missouri, Oklahoma and Texas:

- 3-ply \$2.50 per square of 108 sq. ft.
- 2-ply \$3.25 per square of 108 sq. ft.
- 1-ply \$1.75 per square of 108 sq. ft.

Write for descriptive booklet and samples of Bishopric Wall Board, Bishopric Sheathing and Bishopric Roofing—all sent free.

The Mastic Wall Board & Roofing Mfg. Co., 24 E. Third St., Cincinnati, O.

These



Free

Prove the exceptional quality of these Johnson Preparations by actual test --AT OUR EXPENSE.

More than likely, you've heard a great deal about Johnson Materials for finishing and refinishing wood. Now, we ask you to get better acquainted with these preparations—by trying the samples which we will send you free. Mail back the coupon—right now—and we will send you post-paid samples of all three of these Johnson preparations:

Johnson's Wood Dye

For the artistic coloring of all wood. It is a deep-seated stain and a proper finish must be applied over it. Johnson's Wood Dye is made in fourteen shades as follows:

- | | |
|----------------------|-----------------------------|
| No. 126 Light Oak | No. 128 Light Mahogany |
| No. 123 Dark Oak | No. 129 Dark Mahogany |
| No. 125 Mission Oak | No. 130 Weathered Oak |
| No. 140 Manila Oak | No. 131 Brown Weather'd Oak |
| No. 110 Bog Oak | No. 132 Green Weather'd Oak |
| No. 121 Moss Green | No. 172 Flemish Oak |
| No. 122 Forest Green | No. 178 Brown Flemish Oak |

Half Gallon, . . . \$1.50

Johnson's Under-Lac

Is better than shellac or varnish, and may be used wherever either of these preparations may be used. It dries in a half-hour. Gallons, . . . \$2.50

Johnson's Plasto-Filler

This preparation comes in powdered form. Mix with water and it is ready for use. Better and cheaper than any paste crack fillers on the market.

One and Two-pound packages, 20 cents per pound

S. C. JOHNSON & SONS

The Wood-Finishing Authorities
RACINE, WISCONSIN

Working Samples Of Johnson's Finishes Sent To You Free, Postpaid

Fill out the Coupon and mail to us today and we will send you working samples of Johnson's Plasto-Filler, Johnson's Under-Lac and Johnson's Wood-Dye in any shade you select. (See list of shades on opposite page.)

With the samples we will send you our illustrated guide book containing complete color card and full directions for finishing and refinishing wood. You need this book—and you need the samples. We'll send both immediately upon receipt of the Coupon.

Partial List of Jobbers of Johnson's Wood Finishes

- | | | |
|---|--|---|
| Kohler-McLister & Co., Denver, Col. | Carlson-Lusk Hdw. Co., Boise, Idaho. | Barber & Ross, Washington, D. C. |
| Carpenter-Morton Co., Boston, Mass. | Gamble & Ludwig, Minneapolis, Minn. | Noyes Bros. & Cutler, St. Paul, Minn. |
| The Knight & Wall Co., Tampa, Fla. | Pittsburg Plate Glass Co., Atlanta, Ga. | Bridges-Smith & Co., Louisville, Ky. |
| Chas. Moser Co., Cincinnati, Ohio. | Pittsburg Plate Glass Co., Pittsburg, Pa. | J. J. Hockenjos & Co., Newark, N. J. |
| Walker & Gibson, Albany, N.Y. | Becker-Moore Paint Co., St. Louis, Mo. | Louis Gallaher Co., Savannah, Ga. |
| H. M. Hooker Co., 128 W. Washington Street, Chicago, Ill. | | Schroeder Paint & Glass Co., Detroit, Mich. |
| Cleveland Window Glass & Door Co., Cleveland, Ohio. | | The Bond & Bours Co., Jacksonville, Fla. |
| Bennett Glass & Paint Co., Salt Lake City, Utah. | | Barnard, Porter & Viall, Rochester, N. Y. |
| Western Paint, Oil & Glass Co., Lincoln, Neb. | | Johnson-Woodbridge Co., Indianapolis, Ind. |
| Isley & Held, 2264 3rd Ave., New York, N.Y. | | |
| Pittsburg Plate Glass Co., New York, N.Y. | Marshall-Wells Hdw. Co., Duluth, Minn. | |
| Barnes & Nuss, Grand Forks, N. D. | Marshall-Wells Hdw. Co., Winnipeg, Can. | |
| Fred Hummert, San Antonio, Texas. | Irvin, Jewell & Vinson Co., Dayton, Ohio. | |
| C. W. Keenan, Brooklyn, N. Y. | The Chas. M. Hay Paint Co., Portland, Me. | |
| Campbell Glass & Paint Company, Kansas City, Missouri. | David Bernhardt Paint Company, New Orleans, Louisiana. | |
| | Westcott, Slade & Balcom, Providence, Rhode Island. | |
| | H. M. Hodges & Brothers, New Haven, Connecticut. | |
| | United Sash & Door Company, Wichita, Kansas. | |
| | Heystek & Canfield Co., Grand Rapids, Mich. | |
| | Fred'k Neeseman & Co., Baltimore, Md. | |
| | W. P. Fuller & Co., San Francisco, | |
| | Los Angeles, Sacramento, | |
| | Stockton, Oakland, San | |
| | Diego, Cal.; Portland, | |
| | Ore.; Spokane, | |
| | Tacoma, | |
| | Seattle, | |
| | Wash. | |

A. C. B-2.

S. C. JOHNSON & SONS,
Racine, Wis.

Please send samples of Johnson's
Plasto-Filler, Under-Lac and Wood-Dye
shade No. _____ Also booklet.

Name _____

Address _____

City and State _____

My dealer's name is _____

Why We Make This Offer

We have learned this: The quickest way to convince the Wood Finisher of the superior qualities of the Johnson preparations is to furnish him with samples so he can see for himself that we do not exaggerate the excellence of our products. And so we ask you to send for these samples and make your own tests. You'll never go back to putty or plaster of paris for filling cracks after you have tried Plasto-Filler. After a test of its quality, you will use Under-Lac in place of varnish or shellac.

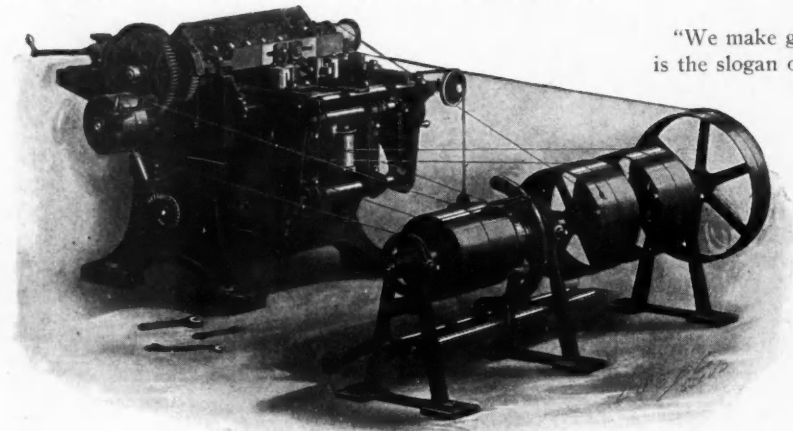
And just as surely, no ordinary stains will satisfy you once you see for yourself how perfectly Johnson's Wood Dye brings out the natural beauty of the wood:

understanding and a greater interest in the advancement of business affairs on the part of all.

The sheet metal products of the Edwards Manufacturing Company rank among the highest and have a large sale at home and abroad.

The Crescent Planer and Matcher

As many of our readers operate planing mills, or at least have carpenter's shops that are provided with power, the



accompanying illustration of the Crescent planer and matcher will be of interest. A machine of this kind will match flooring and siding and do some plain edging, beveling and moulding.

The machine is very substantial in construction, and is yet reasonable enough in price to be within the reach of the average shop owner.

In considering the purchase of machinery, the first cost should not be the only consideration, as many times the ma-

chine that costs a little more to install in the first place is far cheaper at the end of two or three years, because a substantial machine will require less repairs and turn out more satisfactory work than a poorly constructed tool. All of our readers will not have use for a planer and matcher, but those who are at all interested in a machine of this kind, will do well to ask the Crescent Machine Company at 224 Main street, Leetonia, Ohio, to quote price.

Messenger and Parks

"We make good goods, prompt shipments, and right prices," is the slogan of Messenger and Parks, manufacturers of sheet metal goods for buildings, of Aurora, Ill.

Their new complete catalogue, D No. 7, has just been received. It is one of the best arranged and most useful of any we have seen for the general sheet metal goods line.

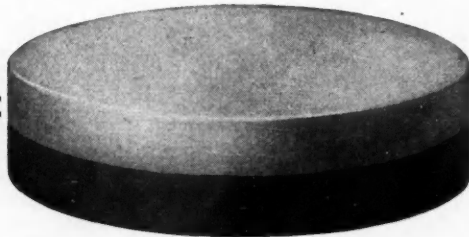
A few of the branches we find completely covered are:

Gutters,	Bay Windows,
Conductor Pipes,	Pediments,
Cut Offs,	Crestings, etc.,
Elbows,	Ventilators,
Hangers,	Ridge Rolls,
Hooks, etc.,	Terminals,
Cornices,	Steel Ceilings,
Skylights,	Hip Shingles,
Finials,	Tin Shingles, etc.

The Messenger and Parks Company state that their goods may be obtained through the local dealers in almost every locality. Where they cannot be obtained locally this company will ship direct to contractors and builders.

Improved Concrete Machinery

The permanency of the concrete industry and the wonderful



Have you seen the new

CARBORUNDUM SHARPENING STONES?

Made especially for carpenters and workers in wood.

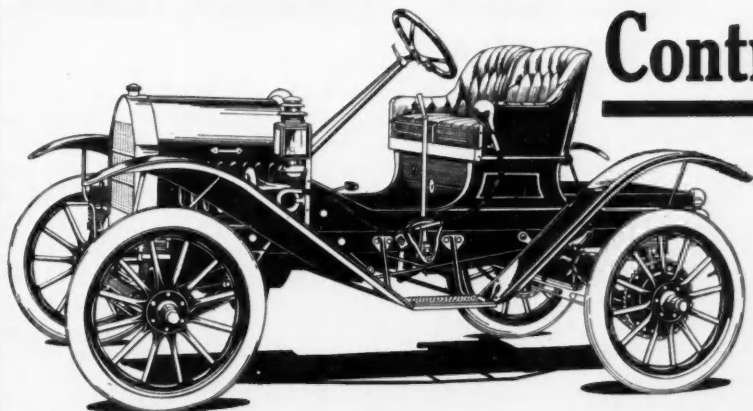
Note the shape, it is **round**—You use the whole surface, 12 square inches and sharpen the tool evenly and quickly—

It is a combination stone, coarse on one side, fine on the other—
And it's made of carbborundum, the greatest sharpening agent in the world—

*Ask your Hardware Dealer
or send \$1.00 to*

THE CARBORUNDUM COMPANY
NIAGARA FALLS, N. Y.

The Right Car for the Architect Contractor and Builder



1910 Brush \$485.00

How Often Have You Said—

"When they get a reliable Automobile down to the price of a good horse and buggy, I'll buy one."

Here it is—and not a big, complicated, multi-cylinder car cut down to sell at a low price; not a designer's dream, but a real "Runabout," the only car built in this country that can properly be called by that name.

The Brush is the one car that is different and still a proven success.

No automobile of any size or any price adapts itself to so many practical uses for the architect, contractor and builder.

It can be operated more economically than any other automobile. There is nothing to get out of order. No big repair bills are possible.

You can use the Brush many times every day for work that ordinarily would require a horse and buggy or a team, with one-half the time usually spent upon visiting the buildings under your supervision, and, further, it will provide you and your entire family a pleasure vehicle in which you can take many trips and go many places you otherwise could not.

The Brush, with its frame and axles of oil-treated oak, hickory and maple will stand up under tests more severe than actual use could subject them to.

Its spiral spring suspension is found on no other car and the Brush rides easier than any car, big or little, at any price. Its single cylinder, 10-horsepower motor, with its new balanced gear, is quiet and free from all vibration. Speed up to 30 miles an hour is easy, faster if you specify special gearing.

Its brakes are strong enough to literally "stand it on its head." The flat deck in the rear is suitable for carrying heavy loads, and this space can also be used for a double rumble seat, making it a practical four-passenger car.

No car at any price can go so far on one gallon of gasoline. It has shown in tests as high as 41 and a fraction miles per gallon, and its oil consumption is correspondingly small.

Every part of the Brush is easily ac-

cessible—no trouble to keep it in perfect order.

We have hundreds of letters from users in all parts of the country telling us what good service they are getting from Brush cars. They tell us no hill is too steep, no road too muddy or sandy to ever worry it.

Mr. C. A. Puariea, Portland, Oregon, writes: "Measured by what it can do and does do in the way of negotiating rough roads and hills with a big load, the Brush is the highest power car I ever saw."

Mr. E. C. Peterson, Warsaw, Neb., says: "It runs smoother and rides easier than any car I have ever been in. It is remarkable how little gasoline it takes. I have climbed every hill I have come to."

A Brush covered 2036 miles in the last Glidden Tour and finished in good shape at Kansas City. In the "Little Glidden," from Minneapolis to Fargo, N. D., and return, 567 miles, it made a perfect road and mechanical score and won the Gregg Trophy from three 4-cylinder cars.

As a car for business and pleasure, as a car for the architect, contractor and builder, it has no equal. Its price, \$485.00, makes it an investment that every architect, contractor and builder should investigate at once.

Write to-day, or, better still, fill out the coupon and let us tell you all about it.

Brush Runabout Company
162 Baltimore Avenue
Detroit, Michigan

The Right Car Because:

Simple
Light
Strong
Handy
Reliable
Economical
Thoroughly
Proven—

There is no limit to its usefulness. Then consider the price, \$485.00. It is an investment—not a luxury.

Please Mail This Coupon To-day

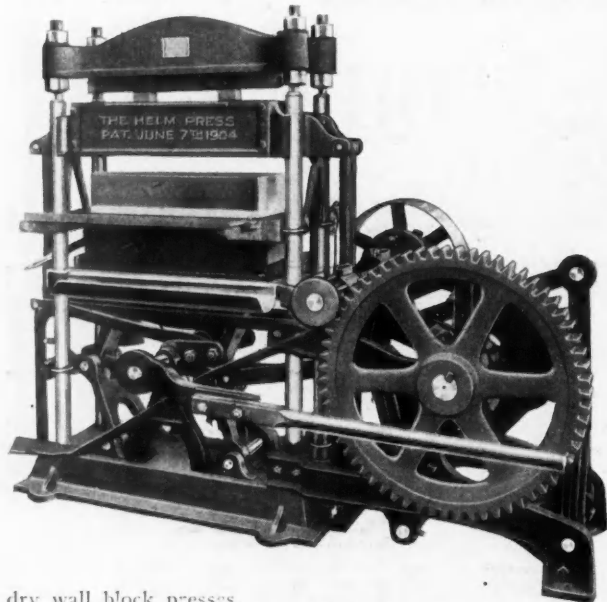
A. C. & B.—2

Brush Runabout Company,
Detroit, Mich.

Please send your Brush catalog to

forward strides in the sale and use of concrete products is strikingly demonstrated by the improvements in concrete machinery which are being made by the up-to-date manufacturers. Every precaution is being taken to turn time and labor into the greatest possible returns.

Standing in the front ranks of progressive manufacturers is to be found the Queen City Brick Machine Company, with offices at 372 Bank building, Traverse City, Mich. This company is one of the pioneer manufacturers of concrete machinery, being builders of the well-known Helm brick and



dry wall block presses.

This season this company brings out a line of power ma-

chines for producing pressed brick and blocks. One of their power machines is illustrated herewith. This machine exerts enormous pressure, produces 10 brick or one block at a single operation and operates easily three times a minute with a capacity of at least 15,000 pressed brick daily or 1,500 pressed dry wall two-piece blocks. This press works automatically, requiring but little hand labor in the plant. As this is a low-priced power machine it will meet with ready sale. Furthermore, it works medium wet concrete, which requires the least amount of cement to secure greatest strength.

The company is now sending free to all who are interested a book on concrete products and machines which illustrates and describes their improved line of machinery for 1910. Anyone writing to above address will be mailed free one of these books which illustrate and describe a complete line of hand and power machinery for brick and blocks and give the experience of many concrete workers which will be valuable to prospective operators.

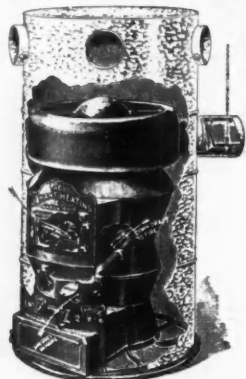
Profits in Ornamental Concrete

Miracle ornamental molds for the manufacture of ornamental concrete products have been developed to the highest possible point of efficiency, and have been tried by years of actual use.

The Miracle Pressed Stone Company of Minneapolis, Minn., have recently issued a special circular, giving some very interesting and explicit information concerning the manufacture of ornamental concrete products. This circular will be sent free to our readers.

The manufacture of ornamental concrete products furnishes one of the big profit ends of the concrete business. You can make from 200 to 500 per cent profit on ornamental cement products, give your customer better value and have him better satisfied than he would be from using any other material.

WE SAVE YOU



THE DEALER'S PROFIT

Send for Our New Furnace Book

No matter what you *think* about the furnace question, *you* ought to have a copy of our new catalog of JAHANT DOWN DRAFT FURNACES. You ought to know how we make them, and how

"WE SELL THEM DIRECT"

saving you all of the dealer's profit and giving you a built-to-order heating plant at a small advance over factory cost. The

"JAHANT DOWN DRAFT FURNACE"

is the most efficient furnace ever built. Gets more heat out of the fuel and is easier to regulate because it has the patented "down draft" feature. Burns wood, hard or soft coal, and consumes every particle, leaving no cinders or clinkers. Saves at least $\frac{1}{3}$ to $\frac{1}{2}$ on coal bills. We design complete outfit for your house, ship it prepaid to your freight station and let you pay for it

\$10 DOWN AND \$10 A MONTH

With each outfit we supply special plans, full directions and all necessary tools (free) so that any man of moderate intelligence can easily do the installing. Each outfit is also accompanied by a **360-day guarantee bond**, by the terms of which we agree to take the furnace and **refund your money** if a year's trial does not convince you that it is the best furnace you ever used.

Write for Catalog today and learn all the facts about this unique furnace proposition.

THE JAHANT HEATING COMPANY, 10 Hamilton Bldg., Akron, Ohio

MASTER BUILDERS EXCHANGE

WALLACE LOVE
President

307-12 SCARRITT BUILDING.
Kansas City, Mo.

R. S. ASBURY
Secretary

J. T. PATTERSON
Vice-President

C. R. HUNT
Treasurer



No. 9 Coltrin on Foundation Work, Kansas City, Mo.

Messrs. A. H. Dunn & Co., 3623 Woodland Ave.,
Kansas City, Mo.

Kansas City, Mo., December 1, 1909.

Gentlemen:—I used your Coltrin Mixer on the new stock house, 18th and Main Sts., on our concrete foundation. The work is perfect, and I can recommend it as being a first-class Mixer. The machine worked perfectly in every way. I am well pleased with the work.

Very respectfully,
WALLACE LOVE.

Coltrin Concrete and Mortar Mixers

Manufactured Exclusively by

THE KNICKERBOCKER CO.

Jackson, Michigan

See Coltrins at Cement Show—Coliseum—Sections 38 - 39

When you stop to reflect that wooden porch columns are soon rotten at the base and have to be replaced, and figure the price that your customers must pay for them, you will readily understand why there is such an enormous and profitable field for ornamental concrete products.



The following copy of a letter received by the Miracle Pressed Stone Company from one of their Iowa customers gives a little idea of what can be done in this line.

West Point, Iowa,
Jan. 6, 1910.

Dear Sirs: In regard to the lawn vase mold, which I purchased of you last spring, will say that I sold over 100 lawn vases and am well pleased with the mold in every respect.

Yours respectfully,
(Signed) J. D. ROBBINS.

In taking stock of your equipment and with the needs of the new year in view, it is certainly worth while to consider and investigate the manufacture of ornamental concrete products. You can rest assured that the Miracle Pressed Stone Company can give you valuable information on the subject. Write for their circular.

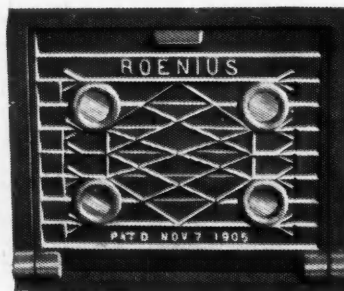
Metal Shingle Advocate

This is the 6th year of the publication of the Cortright Metal Shingle Advocate; its total circulation is now 35,000 copies a month. We are informed that the "Advocate" will be sent free to anyone interested in building. There is no obligation attached to the sending in of names.

The publication is issued in the interests of roofing in general and Cortright Metal roofing in particular. All forms of roofing are discussed in the various issues during the year.

Roenius Chutes

An inexpensive yet almost necessary article in the construction of a house is a wood and coal chute. Their use insures the householder from damaged window frames, glass, casing or sash, and their cost is so little that every householder can afford to own one.



The Roenius chutes may be installed as easily in old walls as in new walls of any kind; brick, block, concrete, stone and wood. It is a certainty that coal or wood thrown through a window from a wagon or a basket will

damage the woodwork and glass. The Roenius chute is provided with a hopper into which coal is dumped with no damage resulting. These chutes are ornamental, at the same time insuring the user from outside tampering or entrance, and the fact that they are waterproof adds materially to their advantage.

These chutes are made from heavy, sheet steel with covers at each end, making the enclosure a dead air space—the best

A Few Points on Estimating

Upon estimating the cost correctly depends your success. If you guess, nine times in ten you are too high or too low. If you sit down and take off every item separately it takes too much time. It means a great risk of omissions on account of interruptions or overlooking something because you have so many items and figures to handle. The need of a system in taking off quantities is one cause of omissions also. Do you neglect your business many times because you have a job to figure? Do you worry and lie awake nights? Most builders bid too low for fear of losing the job. If they knew just what the job was worth they would not want it for any less. If you want to adopt a system that is easy, simple, accurate, reliable and practical, the **NEW SIXTH EDITION** of *The Lightning Estimator* will teach you.

You Need the Lightning Estimator

This method shows you the actual time and material involved in each part of your work, but so cleverly combined and systematized that a large job may be estimated in a very short time and omissions are almost impossible. Shows you how to dissect and analyze unfamiliar work in order to get at the cost. By showing time and material required as well as prices you may adjust this method to any scale of prices in any part of the country. Written by a successful builder from actual experience, not theory. Valuable hints for the concrete block maker and setter. The carpenter builder who sublets everything but the carpenter work can learn how to estimate the walls, brickwork, concrete work, chimneys, plastering, etc., so that he can handle this work by the day himself and save the subcontractors' profits.

Now is the Time to Become a Master Builder

If you are a journeyman here is your opportunity to become a master builder and if an old timer, a chance to get new ideas and become more proficient; if you know it all, pass it along.

This edition is bound in cloth and is amply illustrated, a feature that has been overlooked in most books on this subject. Can you afford to hesitate? Will you do yourself justice and send one dollar today and get on the road to success?

BRADT PUBLISHING COMPANY

1260 Michigan Avenue

JACKSON, MICH.

MASTIC ROOFING



Prepare Now For a Heavy Spring Business

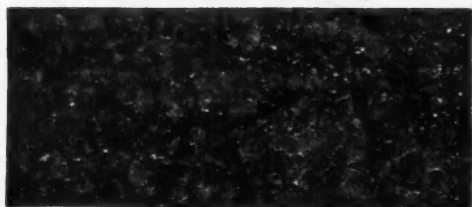
Hundreds of contractors, carpenters and builders have met with success selling Mastic Roofing during the spring and summer. Most of them were our selling agents. To these, and to every man interested on the subject of good roofing, we say:

The success of Mastic Roofing will be doubled and trebled during the coming year. Orders are pouring in and our manufacturing facilities have been extended to meet the increased demand.

The contractor is the man who knows good roofing and who is in a natural position to impart his knowledge, consequently it is through him that roofing should be sold. Therefore:

We will appoint contractors and builders as our selling agents. We have appreciated their co-operation and now offer our further appreciation in more concrete form. Every reader of this paper should at least send for details about our proposition.

We offer special inducement to contractors and builders putting on the first Mastic roof in every locality where it has not yet been introduced.



THE ABOVE CUT IS AN EXACT REPRODUCTION OF A PIECE OF MASTIC ROOFING 2½x1½ INCHES AND SHOWS THE SLIGHTLY SURFACE FINISH.

Send for Free Sample

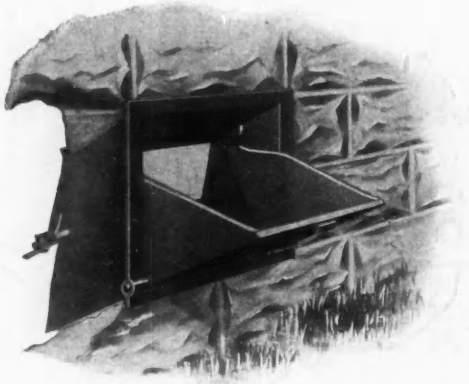
We will send a free sample of Mastic Roofing when you send for the booklet. Write today.

National Roofing Materials Co.
Edwardsville, Illinois



insulation against heat and cold. The chutes are equally useful for houses, churches, schools, factories, stores and banks.

One of the specialties manufactured by the Grand Rapids Foundry Company, makers of the Roenius chutes, are those



bearing the brand "Bull's Eye." This name is derived from the fact that there are four heavy bull's eye disks two and one-half inches in diameter, which serve the purpose of amply lighting the coal bin. These disks are counter-sunk back from the inner face of the chute's hopper, consequently are protected from all wear and tear.

There are no better chutes made than the Roenius, and it would pay every reader of this paper to get the literature descriptive of these chutes and to use them wherever occasion demands. A card or letter to the Grand Rapids Foundry Company, of Grand Rapids, Wis., will bring detailed information.

Fireproof Windows and Doors

An exceedingly valuable and interesting little book has been received from the Willis Manufacturing Company, Galesburg, Ill. It describes their line of fireproof windows, doors and shutters, illustrated with large size detail drawings showing just how each is applied.

Sheet metal window frames and sash glazed with wire glass are rapidly taking the place of the old style wooden window with iron shutters; because they are sightly, admit light at all times, aid in the detection of fire, are perfectly fireproof and save the labor and expense necessary in opening and closing shutters, a matter that is likely to be neglected, while a person is not likely to go away and leave a sash open.

The Willis Company seem to have the simplest, easiest operating and best constructed window on the market. They are accepted and endorsed by fire underwriters, which in itself is sufficient recommendation for their use.

The all around satisfaction which these windows give is due to a large extent to the fact that the greatest care and skill is used in their manufacture. This company have just completed the installation of the most recent improvements in the way of machinery and equipment. They use nothing but the best materials. The galvanized steel is open hearth, soft, tight coated, 24 gauge. Copper frames, 18 ounces, copper sash 16 ounces, amalgamated metal, 24 gauge, and aluminum tight coated steel, 24 gauge. These people are also general contractors for all classes of architectural sheet metal work, including tile and slate roofing. We are informed that all plans sent them for estimates will be returned promptly, charges prepaid.

It will pay every reader of this to ask the Willis Manufacturing Company for this new fireproof window book, as well as their general catalogue No. 5, of architectural sheet metal work.

Figure On a New Front

Petz
Patent
Store Front
Construction

It will make the whole store look new. But be sure to figure on the Petz System of Construction. It combines utmost strength and permanency, artistic appearance, and ease of installation. Petz Bars also take up less space and afford more light than others.

The Petz System is recommended by insurance experts and by the best architects and builders. If you would like full information in regard to it, write us today for a copy of "Modern Store Front Construction."

DETROIT SHOW CASE CO.
SOLE MAKERS
491 West Fort St. DETROIT, MICH.

MADE IN DETROIT

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 foot lengths. Joints fitted ready to erect. No soldering required. Send at once for circular and prices.

HITCHINGS @ COMPANY, Elizabeth, N. J.



**QUALITY
Millwork at Prices
Like These**

YOU can be your own lumber dealer—and pocket the lumber dealer's profits—by buying your millwork "from manufacturer direct." This immense organization stands ready to help you make more money on every contract you fulfill.

We're not a "bargain house." We don't cut the quality in order to quote you bed-rock prices. Neither do we misrepresent grades—or try to palm off inferior workmanship.

We Stand Behind Every Item with a Money-Back Guarantee That Protects You Absolutely

And we can well afford to. Because our millwork is quality millwork—through and through. Whether your bills call for stock material or special designs, we will follow the specifications to the letter—furnish you with millwork that is strictly first-class in every sense of the word—at prices made possible only by cutting out the middleman and manufacturing in wholesale quantities. In fact, when you buy of us, you buy at wholesale—the actual cost of the raw material plus one, small manufacturing profit.

IMPORTANT—WRITE TODAY FOR CATALOG No. 20 A

From all indications, there will be a sharp advance in prices on practically all Millwork items within the next few months. Our new Catalog for 1910 will be issued about March 1st. Until that time the exceptionally low prices listed in our present Catalog No. 20 A will hold good. You'll never have a better chance to save big money! Send for your copy (Catalog No. 20 A) today.

Get a Line on Our Great Values by Getting Our Estimate on Your Next Bill

It's going to pay you—and pay you mighty well—to get in touch with the Chicago Millwork Supply Co. Send in your bills for estimate. Get our prices—today—whether you need only a few sash and doors or a complete list of material for a big contract. At any rate, get our catalog. It's packed from cover to cover with Millwork and Building Specialties at money-saving prices—and it's free. Write today. A postal will do.

**FROM
MANUFACTURER
DIRECT**

Chicago Millwork Supply Co. 20th and Morgan Sts., CHICAGO, ILL.



To a man
who knows
a good saw

The Simonds Saw

WARRANTED
The Simonds Saw
MADE IN
FITCHBURG MASS. CHICAGO, ILL.
U.S.A.
BRANCH HOUSES
NEW YORK, NEW ORLEANS, PORTLAND, SEATTLE,
SAN FRANCISCO, SINGAPORE, LONDON, ENGLAND.
LOOK FOR THIS TRADE MARK ETCHED ON
EVERY SAW

means much. Our Boss Carpenter gives some points on our saw.

"Every carpenter wants a good cutting saw, for a dull saw means extra labor and most of us get tired enough."

You can't keep your saw sharp unless it's tempered right, this is where the Simonds people are strong. They have a special patented process.

Another point, because the **SIMONDS SAW IS MADE OF SIMONDS STEEL** you are sure of getting the finest crucible steel, made especially for this saw in their own mills.

Now here's another point, you're never sure of a saw that isn't trade marked. The trade mark means the makers are back of it.

It's a fact.

THE SIMONDS SAWS ARE BEST And They ARE Best

In a nutshell:—Buy a Simonds Saw, because it's made right, tempered right and cuts right.

You'll know it by the trade mark.

Save extra work by using a Simonds Saw, and my advise is buy it now.

If your dealer don't keep them write to headquarters. Tell them what kind of a saw you want and ask for a free copy of "Simonds Carpenter Guide," a valuable booklet.

SIMONDS MFG. CO.
FITCHBURG, - MASS.

Chicago
San Francisco

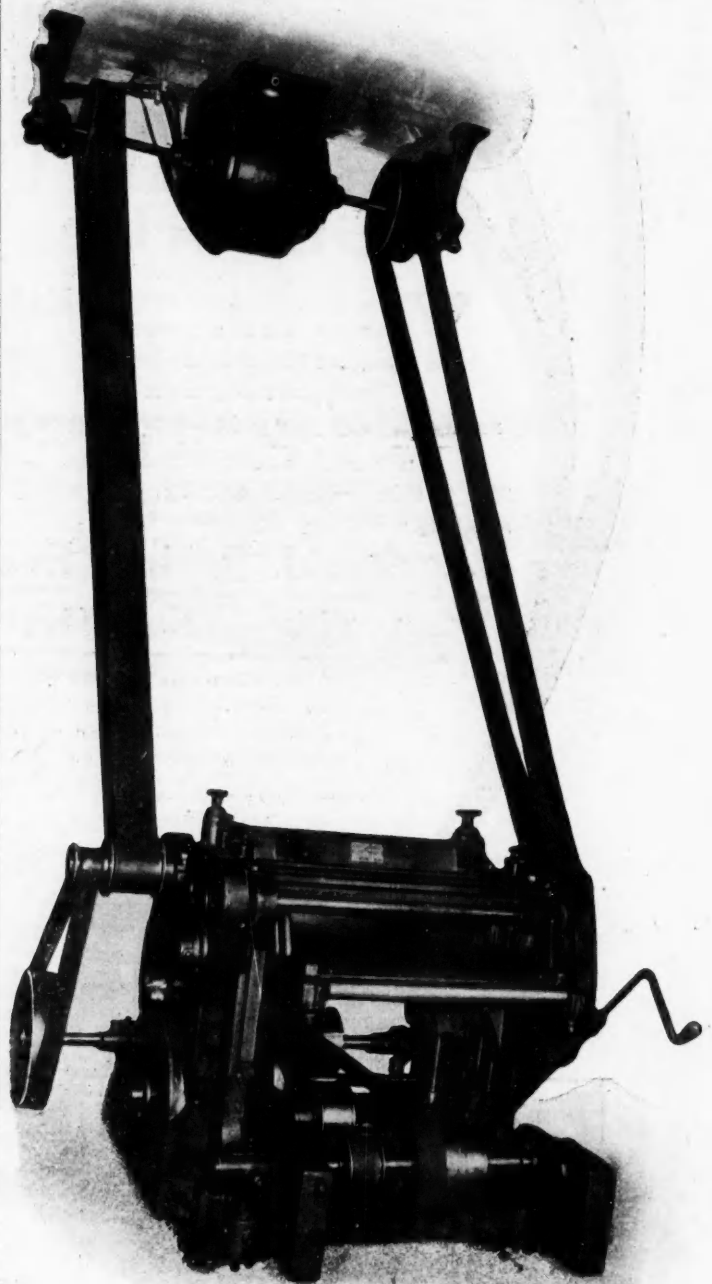
New York
Portland

New Orleans
Seattle

Electricity the Coming Power

The United States government has installed a great many wood working machines with direct connected motor drive and manufacturers throughout the country are also greatly interested in machines equipped with this motive power. The machine illustrated herewith is one of several manufactured by the John T. Towsley Manufacturing Company, Cincinnati, Ohio, arranged for motor drive. In this instance the armature shaft extends the entire length (without couplings) and revolves in four adjustable self-oiling bearings.


This company has an up-to-date generating plant and many of the tools, both wood and iron working, are equipped with direct motor drive, some of them variable speed motors. The Towsley Company make a standard line of high-grade wood working tools and give a very strong guarantee of satisfaction which they claim they can do safely, as the mate-



SEND FOR OUR CATALOG, "HOME HEATING"

HOT-WATER HEATED \$198

by **A**NDREWS SYSTEM EACH



14 ANDREWS HEATERS IN ONE BLOCK AVERAGE PRICE \$198.00

IT IS WELL WORTH READING

PROFIT FOR THE CONTRACTOR

PUT A HEATING plant in that house and make a little more profit on the job. You can do it. You know how much better satisfied most people are when they get a house "ready to move in." They will pay more additional for the house than the cost of the heating plant. Other contractors are putting in the Andrews Hot Water Systems, which any carpenter or handy man can erect and screw together. We furnish everything complete. Andrews Steel Boiler, radiators, pipes (cut, reamed and threaded), all fittings, even including gold (or silver), bronze, fire tools and flue cleaner.

Send us plans (or sketch) and we will make you an estimate and also send you our 64-page book, "Home Heating," which tells everything.

You can guarantee the Andrews System, because we furnish a 360 Days' Free Trial Guaranty Bond—full satisfaction or money back.

Let us make an Estimate for you—we take all the risk.

ANDREWS HEATING COMPANY, 1106 HEATING BUILDING. Minneapolis, Minn.

MANUFACTURERS CONTRACTORS CONSULTING ENGINEERS

UNITED STATES

ALASKA

NEW FOUNDLAND

CANADA



SHRUBS make your home more homelike, add to its value. The best 12 form a permanent garden, flowering from April to October. These are—Golden Bell, Persian Lilac, pink Weigela, sweet Syringa, feathery Deutzia, delicate Bush Honeysuckle, scarlet-flowering Japan Quince, Bridal Wreath, Hydrangea, Althea (the beautiful Rose of Sharon), Japanese Rose, and Japanese Barberry.

To win friends we will ship you all 12—large, strong rooted bushes, one of each kind, sure to thrive and flower profusely this spring and summer—for the unusual price of **\$3.50**. You will enjoy reading profusely illustrated free booklet, "The Best Shrubs," full of helpful hints; mention Am. Carpenter. **Write today.**

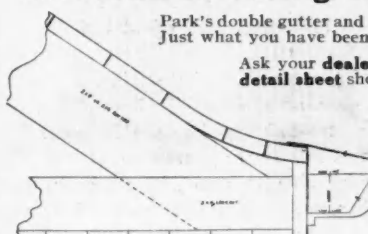
OTTAWA GARDENS : : : Ottawa, Illinois

A Detail Drawing Of The Only Practical Double Gutter Ever Made

Park's double gutter and cornice mould combined. Just what you have been looking for.

Ask your dealer or write to us for the detail sheet showing our eight styles of this gutter and a complete line of sheet metal roof trimmings. Every architect should have this detail sheet to specify from.

We manufacture a complete line of sheet metal work for buildings (watch this space).



MESSENGER & PARKS MFG. CO.
The Prompt Shippers. Aurora, ILLINOIS




Take No Chances

The A. B. C. Protractor Square does the Figuring for you, as well as giving you the Bevels.

For 10 days you can have a free trial of the A. B. C. Protractor square which will prove to you that this square does the Figuring for you.

We are making this offer for 30 days

Send \$3.00 with the order, and if not satisfied after thoroughly studying the directions and applying the square, return the tool to us and we will refund the money.

We guarantee the A. B. C. Protractor Square to do what we claim for it.

Crookston Tool Company

CROOKSTON : : : MINN.

Lake City Kans., Dec. 6, 1909.
Crookston, Tool Co.

Gents:—

Find enclosed draft for two more A. B. C. Protractor squares. The square is all right. It is the best I ever saw. It works like a charm.

Yours respectfully,
F. B. Nurse.






Some Heads and What They Earn

Statistics show that of 3,542 men in various positions, 2,803 earn only about \$15 a week; 586 earn between that and \$5,000 a year; 117 between \$5,000 and \$10,000; 36 from \$10,000 to \$15,000 a year. Further statistics, compiled by President Dabney of the University of Tennessee, show that a man's earning capacity increases in exact proportion with his education; that is, **the better qualified the man the better his salary.**

This proves that if you wish to secure a higher position and higher salary the most practical course for you to pursue is to secure a theoretical training. The foundation principle of the I. C. S. is to provide ambitious men with such training as will qualify them for promotion. For 18 years this institution has been helping thousands upon thousands of men and women.

You can get this training without leaving home, giving up your present work, or buying books. It makes no difference how young or how old you are, how little time you have to spend on such work, we can make the I. C. S. meet all these conditions and bring the most powerful force for promotion in the world to your personal betterment.

Mark and mail the coupon NOW.

International Correspondence Schools

Box 910, Scranton, Pa.

Please explain, without further obligation on my part, how I can qualify for a larger salary and advancement to the position before which I have marked X.

Architect
Arch'l Draftsman
Contr. & Builder
Building Inspector
Struct'l Engineer
Struct'l Draftsman
Plum. & Heat. Con.
Supt. of Plumbing
Form. Steam Fitter
Plumbing Inspect'r
Heat. & Vent. Eng.

Estimating Clerk
Bridge Engineer
Civil Engineer
Surveyor
Mechanical Eng.
Mechan'l Drafts'n
Stationary Eng.
Electrical Engineer
Electrician
Elec.-Light. Supt.
Elec.-Rail'y Supt.

Foreman Mach'st
Sh.-Met. Pat. Drfts.
Mining Engineer
Textile Expert
Bookkeeper
Stenographer
Ad Writer
Window Trimmer
Illustrator
Civ. Service Exams.
Chemist

Name _____

Street and No. _____

City _____ State _____

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

rials and workmanship are the very best and all machines are thoroughly tested by expert workmen before shipment. They also say their tools are built to keep everybody smiling and if they do this they have certainly accomplished a great deal in the right direction.

New Rambler Catalog

The catalogue of the new Rambler, just issued by Thomas B. Jeffery & Co., contains among other striking illustrations a beautiful color frontispiece of the new Rambler Fifty-Five, the leader of the Rambler line for 1910.

The new Rambler is built in what is now considered to be the largest automobile factory in the world. Every part of this car is made in this plant, which has been in operation every single working day for nearly ten years.

Mechanics' Tools—Hargrave Quality

It is impossible to write a description that will do justice to the produce of the Cincinnati Tool Company, Cincinnati, Ohio, as pictured and described in their new 1910 catalogue.

Incidentally, it is an exceptional job of catalogue making; but it's the *tools* that appeal to the eye of a mechanic.

We want to commend them to the readers of the AMERICAN CARPENTER AND BUILDER.

The index to this new catalogue shows the scope of the Cincinnati Tool Company's line. The following parts are pictured, described, priced, etc.:

- Augers, No. 1, hollow,
- Augers, No. 2, hollow,
- Augers, No. 3, hollow,
- Awls, Brad,
- Baths, Blotter,
- Bits, Screw and Plug,
- Clamps, Adjustable Screw,
- Clamps, Cabinet,
- Clamps, Carvers,
- Clamps, Cloth,
- Clamps, Column,
- Clamps, Repair Parts for Regular Patterns,
- Clamps, Joiner,
- Clamps, Machinist,
- Clamps, New Adjustable,
- Clamps, Perfection,
- Clamps, Quilt,
- Clamps, Splicing,
- Clamps, Standard,
- Cleaner, File,
- Climbers, Lineman's,
- Countersinks, Adjustable,
- Cutter, Plug,
- Cutter, Washer,
- Drills, Bell Hanger and Electrician's,
- Drills, Metal Bit Stock,
- Drills, Wood Bit Stock,
- Drills, Ratchet,
- Drills, Blacksmith, Coe's,
- Drills, Blacksmith, Prentice
- Drills, B. & P. and S. & D.
- Drills, Wood Machine Chuck,
- Drills, Dowel, Brace,
- Drills, Dowel, Cooper,
- Drills, Jobbers',
- Drills, Taper and Straight Shank,
- Drills, Speed of,
- Drills, Wire Gauge,
- Drivers, Brace Screw,
- Drivers, Telephone,
- Drivers, Malleable Handle Screw,
- Drivers, Wood Handle Screw,
- Gauge, Bit,
- Plier, Combination,
- Plier, Lineman's,
- Pointer, Dowel,
- Pointer, Spoke,
- Scraper, Box,
- Shaves, Cooper,
- Shaves, Spoke,
- Stop, Bench,
- Vises, Saw,
- Wire Cutter, Compound Lever,
- Wrench, Bit,
- Wrench, Brace,

Auto Repair Parts

During the New York show there was shown an exhibition of unusual significance to all purchasers of and dealers in automobiles.

At the headquarters of the Rambler Automobile Company of New York there was shown a stock of duplicates of every part of every Rambler car manufactured in the Rambler factory since the factory was started—ten years ago.

The importance of being able to purchase an extra part with ease and dispatch has never been fully realized by new purchasers of automobiles but always considered of great importance by people who have owned cars.

The New York exhibit made by the Rambler representatives illustrates what has been accomplished by Thomas B. Jeffery



Asbestos "Century" Shingle Roof and Sheathing—Residence of W. E. Crawford, Evanston, Cincinnati, Ohio: Fasse & Reed, Cincinnati, Architects; Bryen, Vane & Anderson, Cincinnati, Contractors.

They cannot rot, rust, chip, flake or split. They literally outlive the building—without painting—without repairs. Their first cost is no higher than he would expect to pay for a first-class roof—and he is freed for good and all from upkeep bills.

Asbestos "Century" Shingles are made in numerous shapes and several sizes—uniform in shape, thickness and grade—they lay to good advantage without waste. Three colors—Newport Gray (silver gray), Slate (blue black) and Indian Red.

Ask your Roofer for new quotations. Write for Booklet "Everlasting 1910."

The KEASBEY & MATTISON COMPANY, Factors, Ambler, Pennsylvania

ASBESTOS "CENTURY" SHINGLES

"The Roof that Outlives the Building"

As the guardian of your client's interests—what roofing will you recommend to him?

Asbestos "Century" Shingles give him full value for every cent he invests. They are made of asbestos and hydraulic cement—*indestructible by time, weather and fire.*

The Roof of Quality

is made of



32 POUNDS COATING ROOFING TIN

"The Terne which turns the elements"

Good substantial service is the first requisite of a roof. This together with reasonable cost, exemption from roofing worries, and absolute protection from fire, lightning, wind and water, is always found under the roof covered with MF. The good Old Style, hand-dipping, palm oil process is strictly adhered to, and MF quality alone is responsible for its constantly increasing demand among careful builders.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES:

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh Portland San Francisco St. Louis



There's Money for You in Steel Ceiling Work

And you can easily handle it. Our construction is planned to simplify erection and reduce number of pieces to handle, thus saving time, labor and expense. Any good mechanic with the aid of our working drawings can easily do the work and secure a neat, snug-fitting, workmanlike job. We help you by preparing free suggestion drawings and estimates. Send sketch and dimensions of room or rooms to be covered and we will submit suggestions and quote exact prices on the material delivered at your depot.

Berger's "CLASSIK"

is the most complete line of artistic Steel Ceilings in existence AND OUR CATALOG PROVES IT. Write for it TODAY. Ask for No. D-55.

THE BERGER MFG. CO., Canton, O.
 New York Philadelphia Boston Chicago
 Atlanta Minneapolis San Francisco St. Louis



AN EDWARDS METAL SPANISH TILE ROOF
 COSTS NO MORE THAN A GOOD TIN ROOF

Artistic and Ornamental in appearance and is positively guaranteed to be Fire, Lightning, Rain, Storm and Wind proof.

Its extreme lightness (about one-eighth that of slate), durability and moderate cost commend it to those wishing something out of the ordinary in roofing.

Manufactured from best quality Worcester Grade Terne Plate, furnished painted or galvanized (galvanized after being formed) size 10 x 14 inches.

Descriptive Booklet sent free on request.

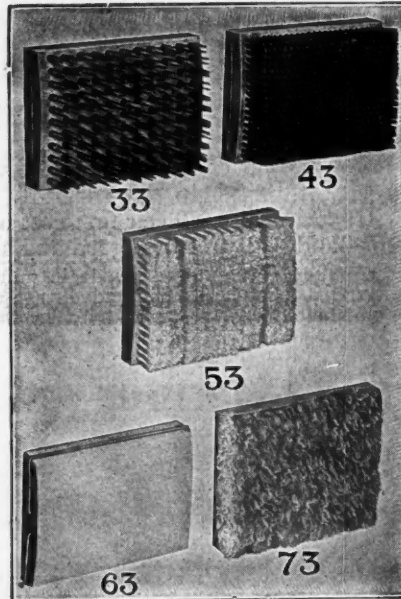
The Edwards Manufacturing Co.
 "THE SHEET METAL FOLKS"
 401-417 Eggleston Ave., CINCINNATI, OHIO

& Company in this respect within the last ten years.

The growth of this factory has been entirely in the direction of making every single part of every Rambler car in the best possible way. Today every important part of the car is made in the Rambler factory and every Rambler dealer is in a position to carry all necessary extra parts.

Therefore, the owner, although he may never have occasion to call upon the dealer for such parts, knows that should necessity arise he can procure the same at a lower cost than he would have to pay for parts of another car that is merely assembled from various parts-making factories.

The Black Hawk



A combination floor scraper, rubber, scrubber and polisher is being marketed by the Putnam Manufacturing Company, of Davenport, Ia., and is known as the Black Hawk. Its operation is extremely simple. Doing a first class grade of work at all times the Black Hawk is one of the most desirable outfits ever sold.

It is delivered to you with a complete equipment, consisting of two knives, flat wire brush for tile and

hosaic floor rubbing, round wire brush for removing paint or varnish. Tampico scrub brush for general scrubbing, lamb fleece



rubber for polishing waxed floors. These brushes are attached instantaneously.

A card will bring further information.

An Unusual Decorative Service

In these days of progress many manufacturers are beginning to consider their position in the business field from the stand-



Pioneer Roofing has stood the test of time. Beginning in a small way, the Company manufactured ready roofings and sold them locally. The business extended, until today Pioneer "Rubber Sanded" and Pioneer "Rubber Flaxine" Roofings cover the coast—from Mexico City to Alaska, and are rapidly gaining headway east of the Rocky Mountains.

Write for Booklet "A"—samples of roofing—and name of your nearest agent.

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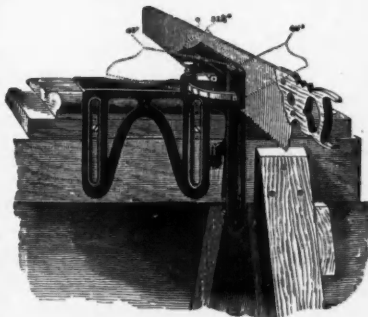
The Pioneer Roll Paper Company are refiners of Asphalt, and manufacturers of Asphalt Paint—which they supply direct from their factory in Los Angeles.

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Pioneer Roll Paper Co.

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Cuts any angle—
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The *only* Mitre
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Made so that it is attachable to inside or outside work
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Service

Good *Service* is a broad term as applied to wood finishes.

It begins with ease of application—it ends with beauty and the lasting qualities of the wood finish.

If you want to recommend wood finishes that give the best possible *Service* in all respects, specify the use of

Bridgeport Standard Wood Finishes

Bridgeport Standard Wood Finishes are practical finishes—simple to use, easy to spread, great in covering capacity.

They develop the natural beauty of the wood and *never* cloud, obscure or raise the grain.

And they give an elastic, tough finish that looks good at the start and stays good with the years.

We have hundreds of letters from Architects, Property Owners, and Furniture, Piano and Car Building concerns who use Bridgeport Standard Wood Finishes which verify and emphasize this statement.

We would like to place tangible proof of the good *Service* of Bridgeport Standard Wood Finishes in your hands.

Write for Sample Panels

We will be very glad to mail you on request a neat compact case of sample panels, showing numerous wood finishes in new and staple effects. You will find them useful and practical.

Address Dept. L3

THE BRIDGEPORT CO.
WOOD FINISHING
NEW MILFORD, CONN.
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Granite No Other
TRADE MARK 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

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HESS MEDICINE SANITARY LOCKER

The only modern **Sanitary Steel** Medicine Cabinet or Locker.

Handsome beveled mirror door. Snow white, everlasting enamel, inside and out.



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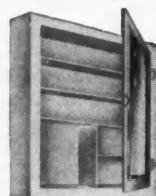
Costs less than wood and is better. Should be in every bathroom.

Is dust, germ and vermin proof and easily cleaned with warm water.

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DRAWS TRADE TO YOUR SHOP



Gives a 300 Candle Power Shadowless Light the instant you move the lever. Turns up or down like gas, burns dim when not in use, or can be turned up instantly when more light is needed. It floods a 30-foot space with a brilliancy like daylight. Far cheaper than gas, kerosene or electricity, and so simple that anyone can use it. You can depend on it for years for any purpose demanding a big, strong light. Catalogue A. C. B. tells why. Send for it now.

BRILLIANT GAS LAMP CO.
Dept. 20, 42 State Street Chicago, Ill.



point of "Service." "How can we best serve our customers that we may merit a continuation of their patronage?" is the question that is being asked. It is answered by the addition of new ways and means of adapting their product; demonstrating just how well it fits in with the most probable surroundings if it's a mantel, or just how its lines conform to the general scheme if it's an electric fixture. The most unique service of this kind which has come to the attention of late is the decorative service now being offered by the Sherwin-Williams Company. This concern has prepared itself, not only to describe its many decorative finishes in detail, but to actually show them in the form of beautiful elevation sketches. A staff of over fifteen expert decorators is employed in this department and their work is made of a special nature in connection with each operation.

Their clients are invited to fill out a very complete information blank and to furnish blue prints or rough pencil ground plan of the building. This action does not, however, place them under obligation to use Sherwin-Williams materials. Upon receipt of this information these decorators draft up a complete plan of decoration, interior and exterior, in accordance with the conditions given therein. Several color suggestions are furnished for the exterior and very artistic and practical elevation sketches are drawn up, one for each room in the house. These suggestions include not only a demonstration of the various decorative effects on woodwork, walls and floors but also include explicit information relative to the curtains, rugs, portieres and furniture, if such assistance is desired. The work of this department is rendered absolutely free of cost and is a decided step along the line of "Service."

Many builders and contractors have found this service of very great assistance in disposing of their properties. Artistic decorations have influenced the sale of many buildings. Then again, a thorough understanding between owner and contractor as regards interior and exterior surface treatment is very advantageous to all parties concerned. Architects are using the service with much satisfaction, while the painters and decorators have found the suggestions of the most practical nature. The fact that every kind of paint and varnish or other decorative finish required for any kind of building can be obtained from the Sherwin-Williams Company makes the suggestions very complete and gives them added value.

Anyone interested may obtain complete information regarding this service by addressing the Sherwin-Williams Company, decorative department, 601 Canal road, Cleveland, Ohio.

Rambler Truck Rescues Horses

The progress of the motor fire engine as a substitute for the horse-drawn apparatus has been more marked in California than in any other section of the United States.

Just the other day the Rambler automobile hose truck used by the San Diego, California, department was pressed into service to relieve a team of horses after the team had become stalled in a mire.

The horse-drawn apparatus was on a railroad track with each pair of wheels against a rail down to the hubs in mud. The Rambler truck pulled it out without any damage or effort. The truck has been in service six months and the service that it has given, coupled with the cost of upkeep, has more than repaid for its substitution in place of a horse-drawn apparatus.

The Rambler has answered eighty-two alarms and covered about two thousand miles.

Weakness of "Stunned" and "Green" Stone

Stone as a building material has been the victim of much ignorance. It is only a few years since the chief thing asked of a quarryman was to knock the biggest piece of stone out of the ground at the least cost. Immense blocks were broken loose by tremendous



LIGHT FOR HOMES, STORES, FACTORIES AND STREETS
 The best light under the sun is produced by the STANDARD AND SIMPLICITY LIGHTING SYSTEMS. Better than electricity or city gas, cheaper than kerosene or candles, with none of their objections. No smoke—no soot—no odor—no work filling lamps or trimming wicks. A light that does not befoul the air. Suitable for the cottage or for the mansion, for the city or country home. Anyone can operate them and be entirely independent of gas and electric companies. Produces a Hydro-Carbon Light—white, brilliant and penetrating. Does not change or affect colors at night nor cause eye strain. Endorsed by insurance underwriters, recommended by users.

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The Best Roofing Made—

for extreme durability—final economy and general satisfaction—the one roofing value by which all artificial roofing materials are judged—

The only roofing that you, as a builder, can safely recommend, is

Sea Green and Purple Roofing Slate

- The Only Roofing that**
- Won't burn
 - Won't wear out
 - Won't rust
 - Won't crack
 - Won't require paint or repairs.

The only kind you CAN SAFELY recommend to YOUR people.

For, unlike artificial roofing, Slate will never wear out—rust, warp, crack, tear or decay. Being of solid rock—Sea Green or Purple Slate cannot burn—requires no paint or repairs. For all practical roofing purposes, it is absolutely imperishable.

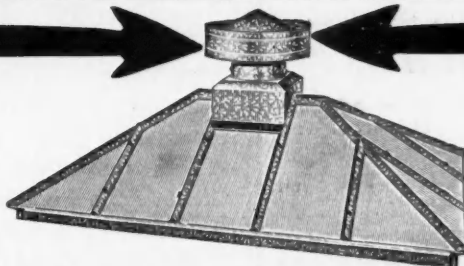
There will be a big demand in your neighborhood for slate roofing this season. Prepare now to take advantage of such new business.

Write today for free booklet "Roofs" and prices of your kind of Slate—delivered.

American Sea Green Slate Company

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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.

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Turnbull Universal Window

THE LADIES ALL APPROVE IT



This window can be washed outside and in, the cleaner standing on the floor.

It is dust-proof, also air-tight and water-proof.

There is no danger to life or limb in cleaning this window, as the cleaner stands on the floor inside the building.

This is the window people have been looking for, for years.

It can be made both in sheet steel and wood.

It is cheap and durable.

This window slides up and down the same as any ordinary window.

Estimates submitted for any building
Write for circular and descriptive literature.

TURNBULL CO., 771, 263 La Salle St., CHICAGO

charges of explosives and then these masses of rock were split into sizes convenient for handling. If the stone showed no visible cracks or starts and held together under the cutting and dressing, it was thought to be in prime condition.

Quarryman and builder were intensely surprised if stone handled in this way disintegrated in a few years after having been set into a building. Until a more serious study of economic geology was made it was not recognized that heavy blasting or even severe blows from sledges had a tendency to weaken the cementing material that holds together the rock grains or crystals in any stone. Now no quarryman would think of placing on the market a stone that has been stunned. It was formerly the practice to blast out stone, even in marble quarries. The effect upon the delicate material can be imagined. This is why the old marble quarries of Europe present spall banks, the debris often presenting necessary development work.

Slowly but surely the wasteful powder can is being displaced by the wire saw, which cuts the stone from its native bed without injuring its texture in the slightest, and the channeling machine, which cuts the stone into rectangular blocks with the minimum of waste without stunning the stone. Another great improvement has come in a knowledge of the necessity for a proper seasoning of stone. While the presence, to a greater or less degree, of interstitial water or sap in all stone has been recognized for a century, the part that it plays in the weathering of stone was unknown until comparatively recently.

The quarryman and stoneworker found that a stone fresh from its bed and full of quarry water was easy to work, and that it grew harder when the sap had died out. Hence stone was frequently cut and set in a building before it had seasoned, and thus fell a victim to frost. Now the architect and the builder know the danger in certain varieties of green stone and provide against it in their specifications. No one expecting a satisfactory job would think of using unseasoned timber and similar safeguards are called for in the use of stone.



Timber Decay Costs Millions

Millions of feet of timber and finished lumber rot every year in railroad ties, bridges, trestles, piles, farm buildings, fences, poles, and mine props. The lumber consuming public of the United States pays perhaps thirty or forty million dollars a year to make good the losses from wood decay.

These great drains are a source of more and more concern each year. Chemists and engineers who have to do with the uses of wood are working unceasingly on the problem. The United States Forest Service has men who devote their whole time to it. The importance of the problem can not be overestimated. Millions of dollars are annually saved by preservative treatment of timbers, but much yet remains to be



This is the Plant That Saves You \$100 to \$300 on a Car of LUMBER

A photographic reproduction of the Gordon-Van Tine's great lumber yards at St. Louis—the largest independent lumber concern in the country—where you can have all your lumber wants supplied at half the retailer's prices—fully 50% saving on every piece.

We Ship Direct From These Yards to You!

Every order we fill goes to the actual users—we sell no dealers whatever. Every car we ship means a saving to the buyer of \$100 to \$300—because that is what the dealer usually makes on a car. But you can be your own dealer—buy at wholesale like the dealer and pocket the profits yourself.

Note These Lumber Bargains!

- 2x4- 8 ft. No. 1 Grade 11c each.
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- 2x4- 8 " No. 2 " 8c each.
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(26)

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On every estimate we specify exactly the grades you will get. We ship you what we specify and if any shipment is not up to specifications in every way, we agree to refund the money without question or argument. Our immense lumber yards connect direct with 26 lines of railroads, affording us splendid facilities for quick shipments.

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Send this Coupon for Free Lumber List

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It pays to sell roofing that your customers can be sure of. That makes selling easy, and easy selling means bigger sales and added profits.

Genasco Ready Roofing

(Mineral or Smooth Surface)

has the strongest backing of any roofing made.

It is made of Trinidad Lake asphalt. That gives it immediate standing. Everybody knows Trinidad Lake asphalt is Nature's everlasting waterproofer, and the greatest weather-resister known.

This makes the quality of Genasco a strong selling-point.

And back of this is the reputation of the makers—the largest makers of ready-roofing in the world—with an experience of over thirty years in the use of asphalt. This reputation is a guarantee for both you and your customers that Genasco is bound to "make good." We give a written guarantee, too, if anybody thinks he needs it. Beside this, we back up Genasco with steady vigorous advertising to the consumer; and that stirs up business for you right along. Are you taking advantage of all this backing; pleasing your customers and increasing your sales?

Write for samples and full information.

THE BARBER ASPHALT PAVING COMPANY



Largest producers of asphalt, and largest manufacturers of ready-roofing in the world.

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PUMPS, DOOR-HANGERS, STORE LADDERS

the Pump
hat Pumps

SPRAY
PUMPS

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Hay Tools
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Write for circulars
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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.
P. E. MYERS & BRO.
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A Booklet telling how to get water Fresh from the well for suburban homes. How to avoid storage of water. The most economically operated independent water system, etc.

Sent Free on Request

UNITED PUMP & POWER CO.

495 Old Colony Bldg.

CHICAGO

learned. Wood decay is caused by fungus, a vegetable growth sometimes so small that it can be seen only with the microscope. Its roots or branches, like minute hairs, force their way into the wood tissues and absorb or eat away the solid parts. The collapse which results is called decay. Timber is artificially preserved by forcing into its cells and pores certain substances which prevent the growth of fungi. As long as this substance is present in sufficient quantity, the germs of decay—the threads and spores of fungus—can not enter, and the wood is preserved. This often means doubling and sometimes trebling the life of the timber.

The United States government considers the investigations of the preservative treatment of timber of such importance that the business of one office of the United States Forest Service, that of Wood Preservation, with new headquarters at Madison, Wis., is given over entirely to the work of experiments in co-operation with railroad companies and other corporations and individuals in prolonging the life of railroad ties, mine props, bridge timbers, fence posts and transmission poles.

The lengthening of the life of timber means the saving of thousands of dollars annually through doing away with the heavy expense of labor and cost of material for renewals.



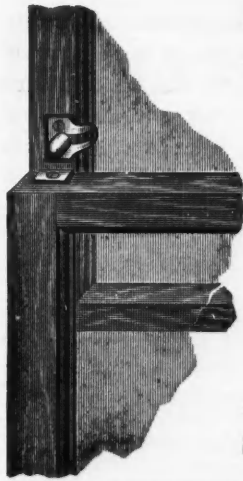
How to Letter on Glass

For lettering on glass with paint use camel hair pencils for black and all light-bodied paints, and red sable for the heavier bodied paints, such as white lead, vermilion, green, etc. Have small tin vessels for the turpentine and paint; also a T-square, ruler or straight-edge, and some bits of glass for palettes; a sharp, half-inch chisel is useful, too. Use japan colors; the paint should be made to dry hard, so that it will not work up under the backing-up paint or varnish.

The lettering is done on the back of the glass. Draw the letters carefully on paper, wet the other side of the paper with kerosene oil, to make it transparent, then lay it under the glass so that the letters will read correctly through the glass. Place the hand rest over the glass and draw the letters carefully, being guided by the paper pattern beneath.

All letters of an oval or rounding form should be drawn true to the outlines; if you do not get the angular letters quite true they can be trued up with the chisel after the paint has become dry. To do this lay the straight-edge on the letters and cut away all superfluous paint from the letters. Breathe occasionally on the glass as you cut, or dip the chisel in water now and then, either plan making the cutting more clean.

Then clean up the glass with a wet, not damp, chamois, after which the sign is ready for shading, if it is to be shaded. Or, it may be painted solid suitable for a background, or the letters alone may be coated with paint or varnish for protection. Varnish makes the best protective coating; use a clear copal, and run it a trifle beyond the letters to protect the edges.



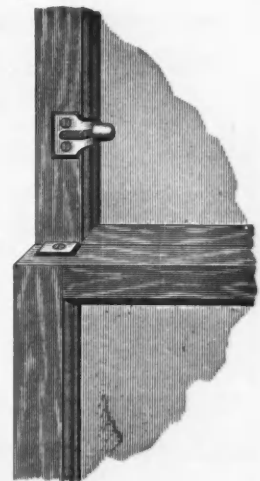
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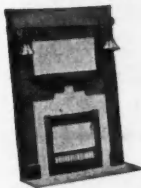
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If you are an Architect—If you are a Contractor—If you are a Home Builder and you specify or purchase anything in **The Lorenzen Line**, you do so with our strict guarantee as to satisfaction or money refunded.

Imported and Domestic Wall and Floor Tiles

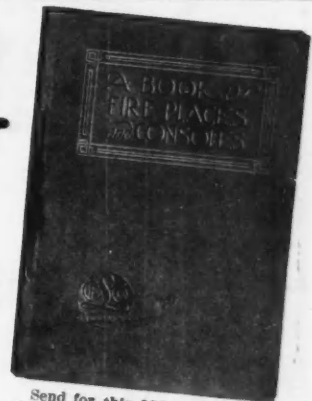
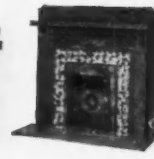
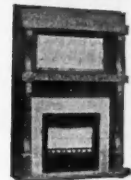
We are National Headquarters for Imported and Domestic Wall and Floor Tiles, Ceramic Mosaics and Art Mosaics for Floors and Mural Decorations and make a specialty of Encaustic Floor Tiles in all Patterns and Colors. We make quick shipments. Estimates and designs furnished.

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Send for this 100 page catalog, size 14 1/2 x 11 1/2 in. Shows many full page illustrations. Each copy cost us \$2.50. Is a complete mantel and fire-place exposition on paper.



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GRILLES



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STEEL BEAMS & LINTELS



CALDWELL & DRAKE IRON WORKS
COLUMBUS, INDIANA.

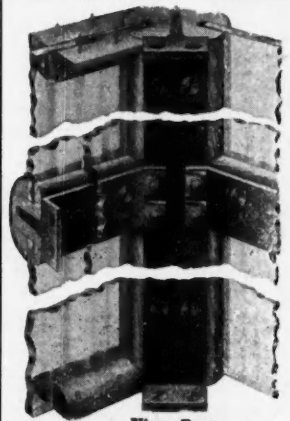
CAST-IRON COLUMNS · SIDEWALK LIGHTS

COULSON Patent Store Front Construction



Of course you have heard of it, but let us tell you more about it. We will be glad to send you our complete illustrated catalogue, upon receipt of request. Brief description given on pages 643-645 in Sweet's Index for 1909. When writing for catalogue, ask for D-800.

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Front View View Rear

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Every contractor knows the advantage—in the securing of contracts—of getting **guaranteed** material at a **low** price. We will not only supply you with Sash, Doors, Interior Trim, Porchwork, etc., at extremely low factory-to-buyer prices, but **we will assume all risk** of the goods being satisfactory in every way.

We Ship on Credit Here is the plan: Let us send you one of our 208-page catalogs, showing our full line of guaranteed millwork and building material.

Pick out what you want and send us the order, but **don't send any money.** When the shipment reaches you, examine it carefully and see that it is exactly what you ordered. Satisfy yourself that in both material and workmanship the goods received are equal to the more costly supplies you can buy at home or from houses that demand cash in advance. If you are entirely satisfied send us your check covering our bill any time within thirty days; if **not** satisfied, notify us and the shipment will be taken off your hands.

We depend absolutely upon the quality of our goods to make our credit plan a success. We have never been obliged to take back a shipment.

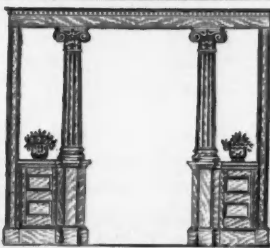
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Mantels from \$17.25 to \$45.50
Grates from 4.25 to 38.50

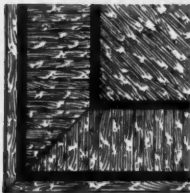


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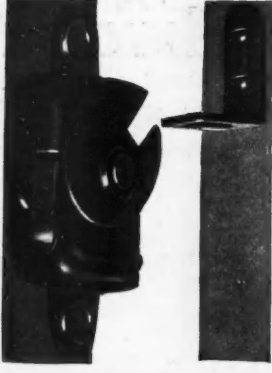
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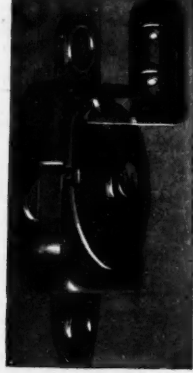
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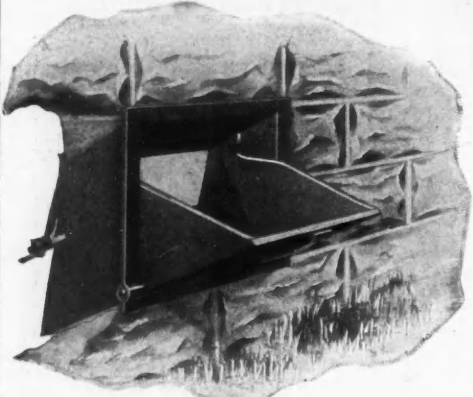
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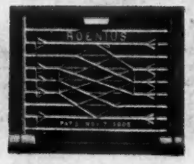
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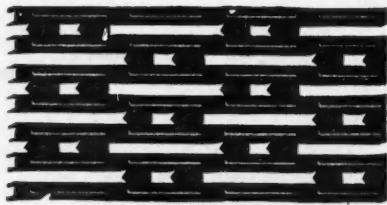
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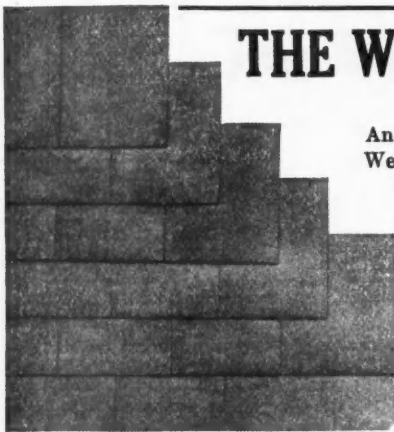
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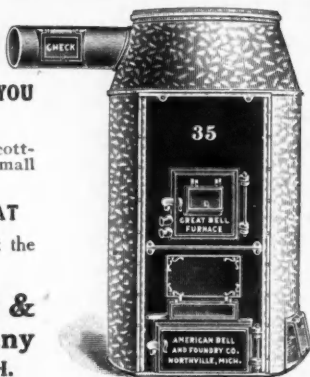
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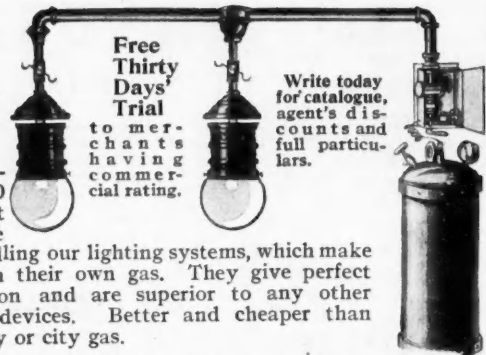


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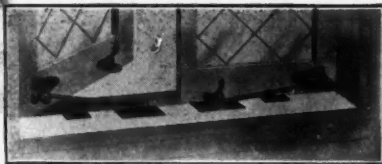
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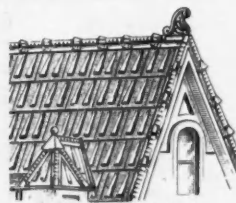
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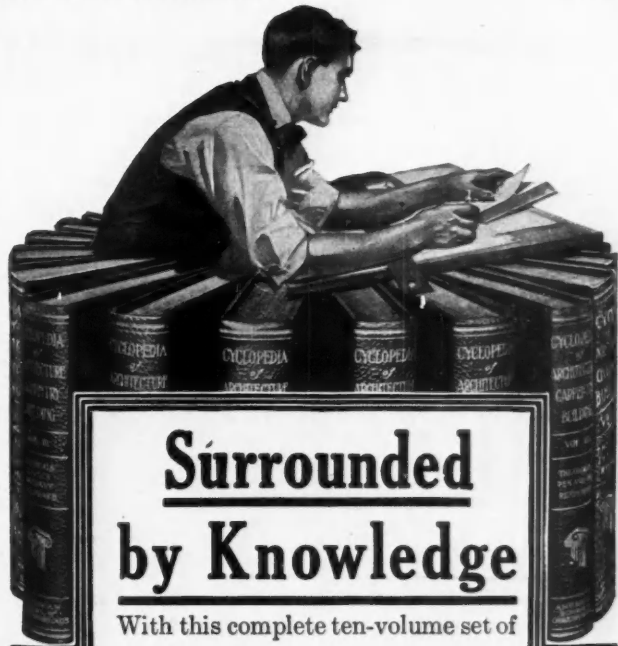


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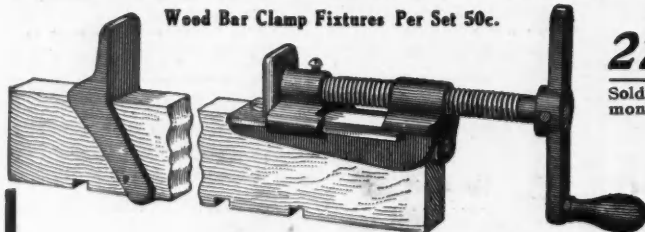
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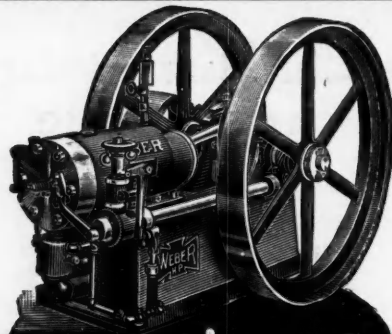
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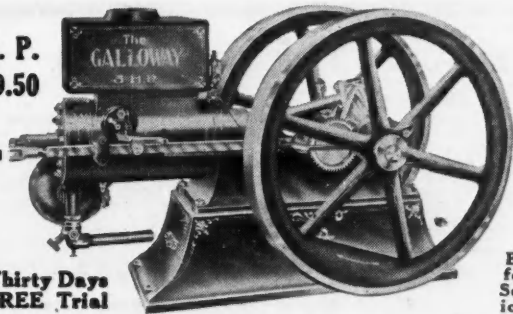
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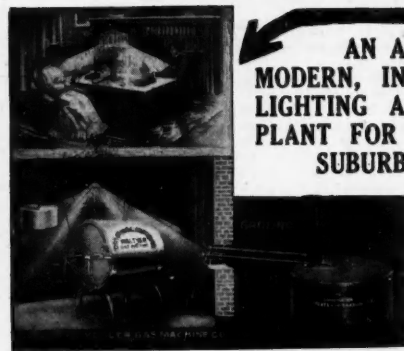
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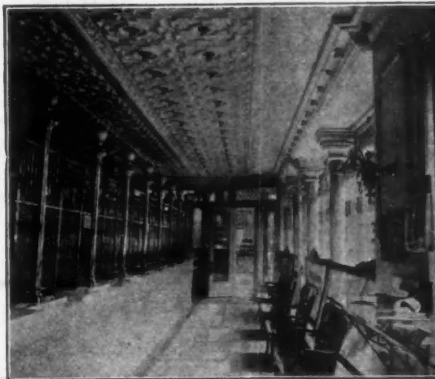
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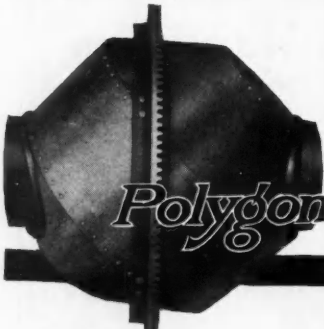
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The Drum that does the Business

Protect your reputation by the excellency and the permanency of your work.

The Polygon Concrete Mixer

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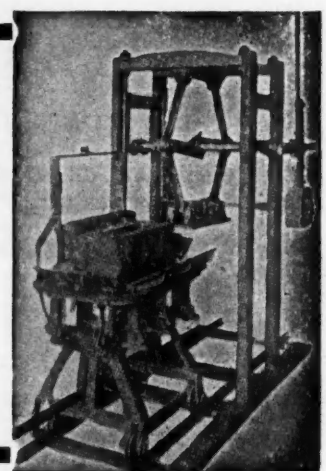
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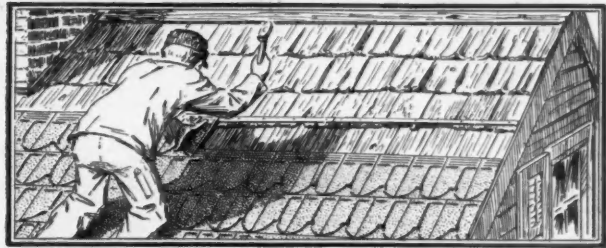
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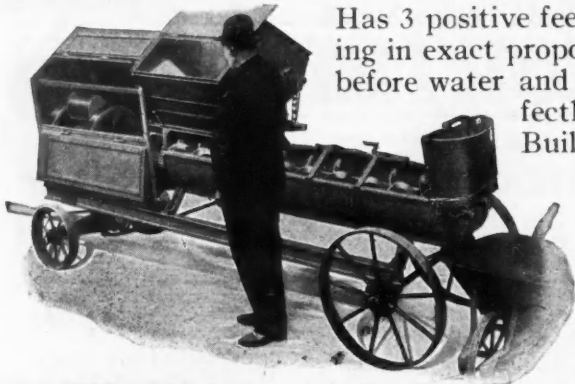
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New Mixer Book (just out) fully describes the mechanism.

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Dept. K

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Mr. Block-Maker

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Face down is Right.
Three blocks at a time is Right.
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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.

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Six Million Barrels

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A { CONTRACTOR OR BUILDER?

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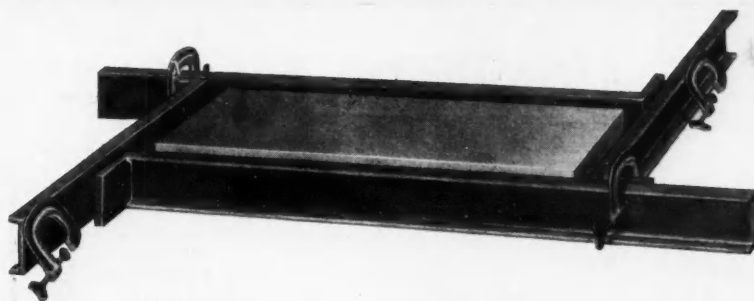
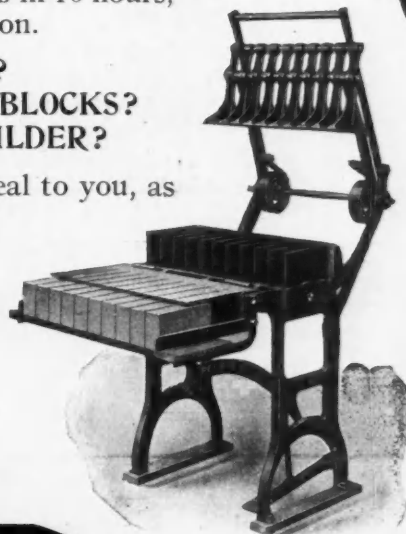
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Write us so we can tell you more about it

Peerless Brick Machine Co.

19 North Sixth Street

Minneapolis, Minn.



Adjustable Step Cap and Sill Molds

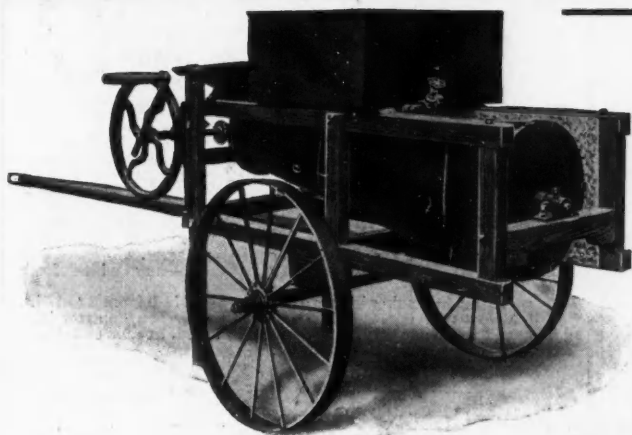
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You can make any size and any widths. You can make quickly and with little cost with this Adjustable mold.

Send for a Catalog. Different designs for this mold and also other molds are illustrated. Don't forget to send for the catalog, for you will be interested to know all about these handy serviceable molds.

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(Can be run by power if desired)

A Time, Labor and Money Saver

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Sidney Elevator Mfg. Co., Sidney, Ohio

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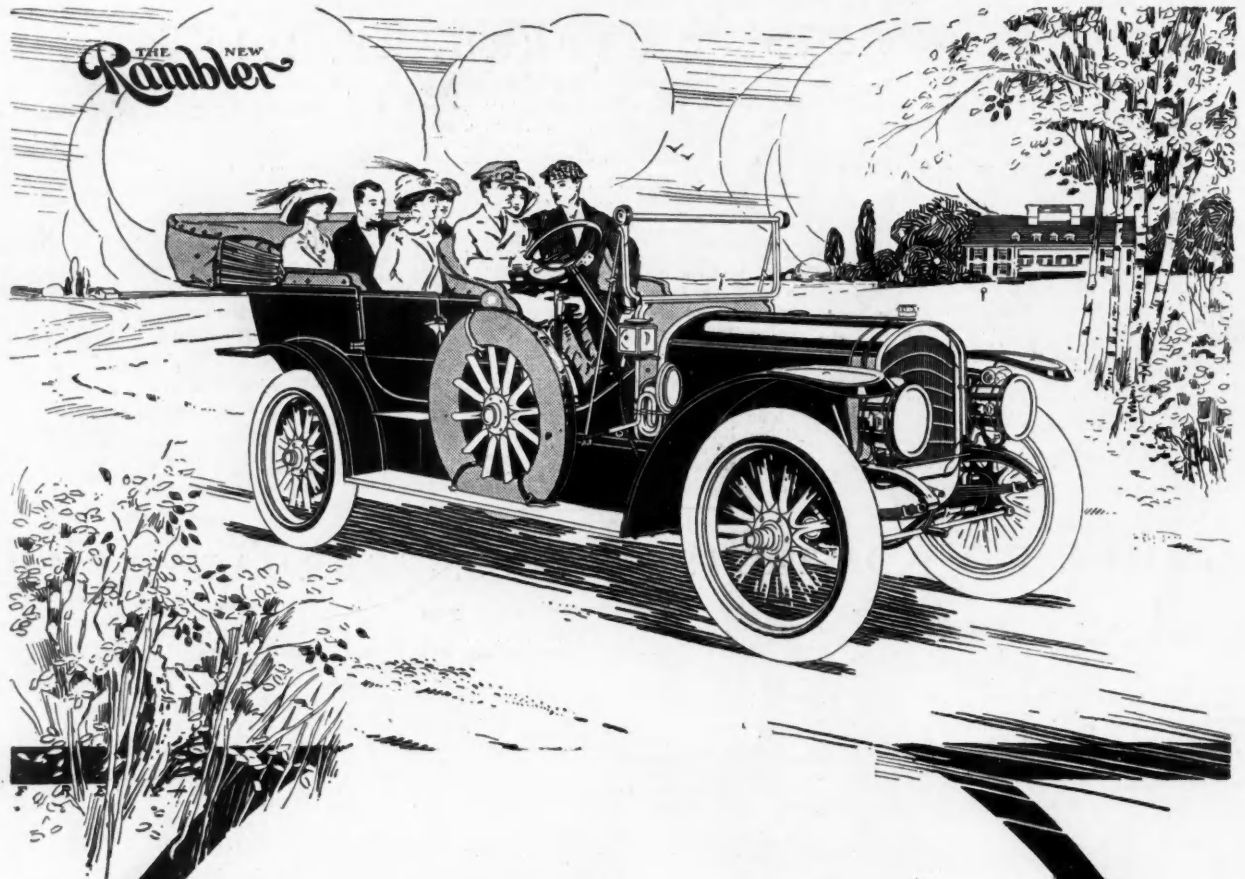
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Crookston Tool Co.....	681	Miracle Pressed Stone Co.....	706	Tower & Lyon Co.....	594
Cumberland Hotel.....	586	Montross Metal Shingle Co.....	699	Triple A Machine Co.....	585
		Morrill, Chas.....	606	Trussed Concrete Steel Co.....	702
Defiance Machine Works, The.....	600	Mullins Co., The W. H.....	703	Turnbull Co.....	688
Detroit Decorative Supply Co.....	705	Mulvey Co., Chas.....	597		
Detroit Show Case Co.....	678	Myers & Bro., F. E.....	690	Union Roofing & Mfg. Co.....	694
Didriksen, H. P.....	589	National Manufacturing Co.....	Cover	United Pump & Power Co.....	690
Diehl Novelty Co.....	587	National Roofing Materials Co.....	677	Universal Floor Scraper Co.....	589
Diffin, C. A. & F. G.....	592	National Sheet Metal Roofing Co.....	702	Universal Portland Cement Co.....	706
Diaston & Sons Co., Henry.....	597	National Stamping & Electric Works.....	698		
Dixon Crucible Co., Jos.....	597	Nicholls Mfg. Co.....	593	Voltz Mfg. Co.....	594
Dow Wire & Iron Works.....	703	North Bros. Mfg. Co.....	605		
Dunn & Co., W. E.....	707	Northwestern Compo Board Co.....	603	Walther-Vogler Gas Machine Co.....	702
		Northwestern Grille Works.....	598	Waterloo Cement Machinery Corp.....	704
East Bangor Consolidated Slate Co.....	703	Ohio Tool Co.....	595	Watrous Mfg. Co., E. L.....	694
Eastern Granite Roofing Co.....	686	Otis Elevator Co.....	692	Weber Manufacturing Co.....	587
Edgerton Mfg. Co., C. A.....	688	Ottawa Gardens.....	681	Western Brick Machine Co.....	704
Edwards Mfg. Co., The.....	684			Willis Mfg. Co.....	687
Elite Mfg. Co.....	588			Wilkinson & Co., A. J.....	589
Eller Mfg. Co., The.....	699			Winthrop Asphalt Shingle Co.....	698
Engineers Equipment Co.....	666-667			Woods, A. W.....	594
Foster & Sons Co., Wm.....	705			Zimmermann & Co., Harry.....	699
Fox Mfg. Co.....	588				

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 February 20 in order to insure insertion in March number.



THE new Rambler, because of its quiet ease of motion, reserve power, and dignity of comfort, affords to the busy man pleasing relaxation and healthful recreation with family or friends at the end of the day. For satisfactory operation in crowded city traffic, on boulevard, or country road the new Rambler, because of the offset crank-shaft, is capable of three or sixty miles an hour, on high speed, climbing any hill with gratifying ease. The Spare Wheel obviates tire trouble. With straight-line drive, big wheels and tires, and new expanding clutch, the new Rambler is superior to all in efficiency and better than any in quality, silence, and comfort.

Rambler automobiles, \$1800 to \$2500

Thomas B. Jeffery & Company

Main Office and Factory: Kenosha, Wis.

Branches: Chicago, Milwaukee, Boston, Cleveland and San Francisco



Files That Fit Fine Teeth

Might as well try to make joints in moulding with a rip saw as to properly sharpen a fine tooth saw with "any old file." The proper file to use should be one that fits the teeth—that goes right to the bottom of every tooth at the proper angle—one that has a uniform cutting surface—that cuts quick and true with no slipping or skipping. You can get just this kind of file from almost any dealer if you call for

E. C. S. KEEN KUTTER

Carpenters' Special Slim Taper Files;

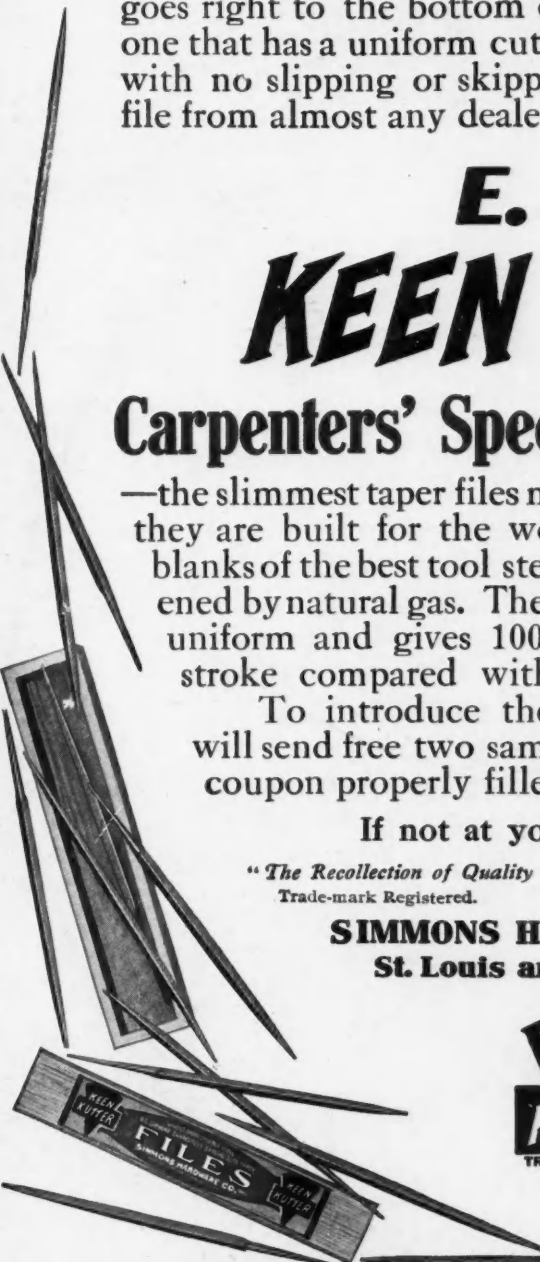
—the slimmest taper files made. Like other Keen Kutter Tools they are built for the work. The teeth are accurately cut on blanks of the best tool steel and then finely tempered and toughened by natural gas. The resulting cutting surface is absolutely uniform and gives 100 per cent cutting efficiency at every stroke compared with the 65 per cent of ordinary files.

To introduce these files to lovers of good tools we will send free two sample files on receipt of the attached coupon properly filled out.

If not at your dealer's, write us.

"The Recollection of Quality Remains Long After the Price is Forgotten."
Trade-mark Registered. —E. C. SIMMONS.

SIMMONS HARDWARE CO., (Inc.)
St. Louis and New York, U.S. A.



(Coupon)

**SIMMONS
HDW. CO.,**
(Div. A. C.)
St. Louis, Mo.

Dear Sirs:

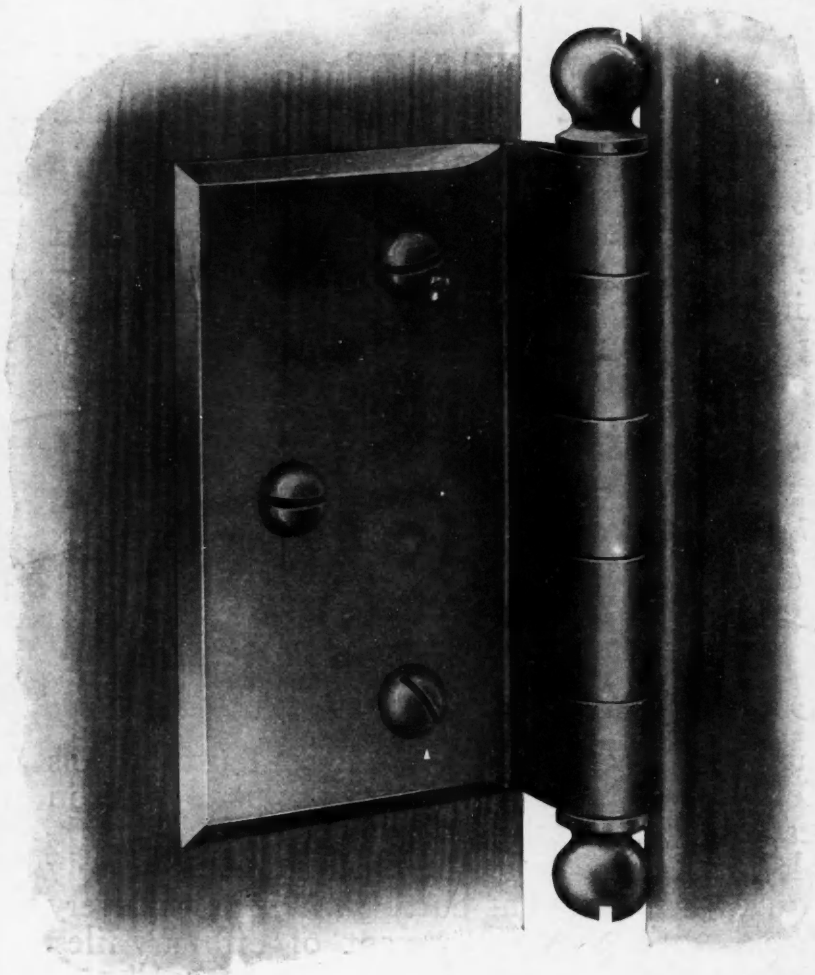
Please send me
FREE, Charges Prepaid, two
E. C. Simmons Special Slim
Taper Files, as per your offer,
with the understanding that I am
under no obligation to buy.

NAME _____

ADDRESS _____

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

WE INITIATE — NEVER IMITATE A REVOLUTION



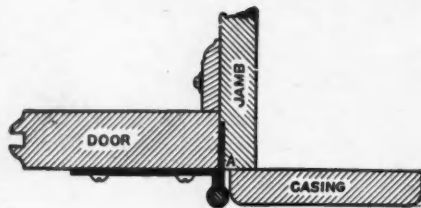
In building methods. "NATIONAL" Ornamental or Half Surface Butts have made it possible for the contractor and carpenter to cut in half the labor of hanging doors. There is but one side to mortise, the ornamental leaf being screwed to the surface of the door.

The lower tip is threaded and screws into the butt. It is also slotted for a screw driver, making it easy to remove the tip and affords ready access to the pin.

Style No. 450B

here illustrated is a very popular design and can be furnished in all sizes from 1½" to 4" inclusive. These Butts are highly polished, have beveled edges and are double plated. They match the escutcheon plates with beveled edges.

No. 450B



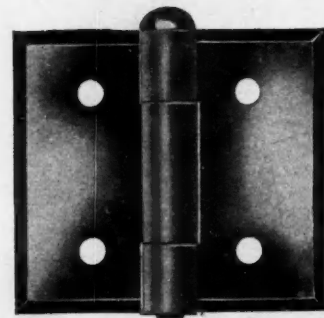
Ask for Booklet, "Ornamental Ideas," and give us your dealer's name.

Directions—Attach butt part "A" to jamb first, then set and wedge door into position and attach Ornamental Leaf to surface of the door. Simple, isn't it?



Trade-Mark

Be sure to look for the flag — it's stamped on all "National" Butts. — It stands for quality.



Surface Hinge

National Manufacturing Co., STERLING, ILLINOIS