

AMERICAN CARPENTER AND BUILDER



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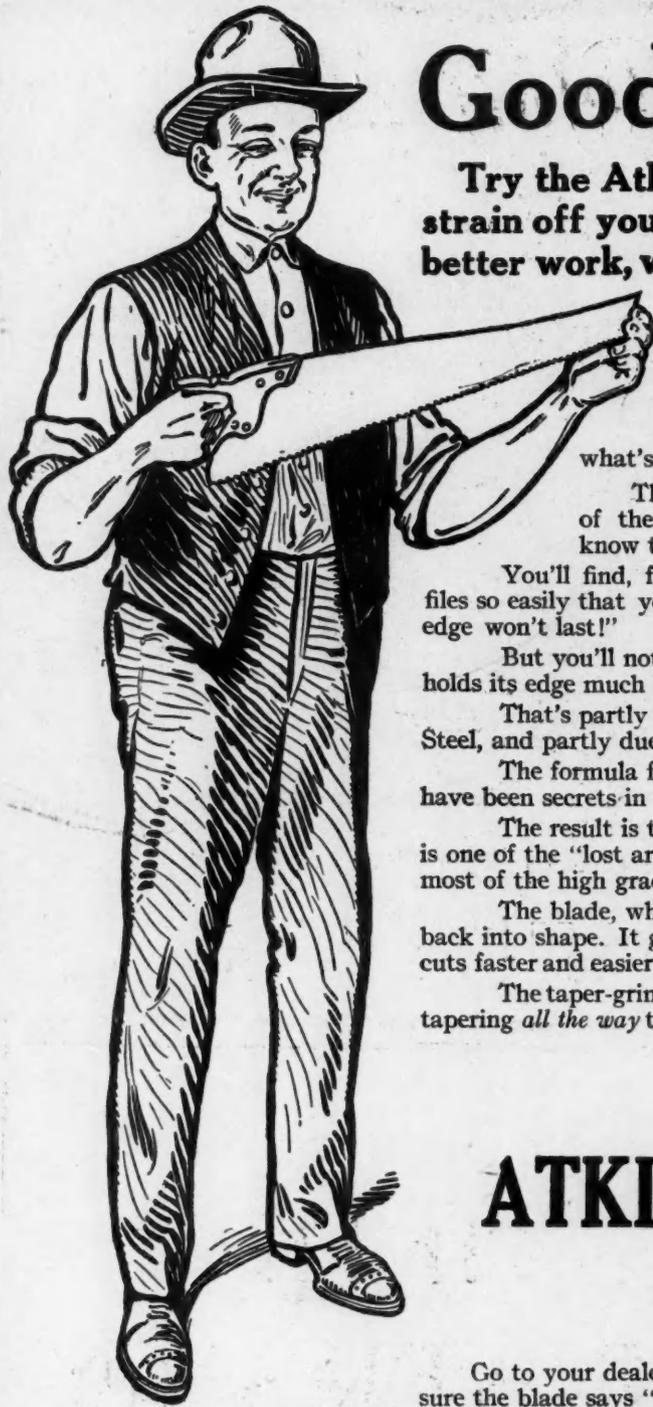
THE WORLD'S GREATEST BUILDING PAPER

A detailed illustration of a large, two-story house with a prominent front porch. The house has multiple windows and a gabled roof. A path leads from the foreground towards the entrance. In the foreground, there are some bushes and a small tree. The illustration is framed within a decorative border.

FIFTH
ANNIVERSARY
NUMBER



T. H.
A25



Good Tempers

Try the Atkins temper—it will take the strain off your own! Means more work and better work, with less muscle and less filing

Temper in a saw is a big thing, but a hard thing to talk about. Like the temper in a man, it takes an actual test to show what's what.

The Atkins temper is one of the biggest features of the Atkins saw. Yet the only way you may know this is by *trying* it.

You'll find, for instance that an Atkins Silver-Steel Saw files so easily that you might say, "Well, that's too easy! The edge won't last!"

But you'll notice that the edge *does last*—that the Atkins holds its edge much longer than the ordinary saw.

That's partly due to the peculiar qualities of Atkins Silver Steel, and partly due to the Atkins gas-temper.

The formula for this steel and the process for this temper have been secrets in the Atkins factory for over 50 years.

The result is the kind of tool steel that most people think is one of the "lost arts." Actually better steel than you'll find in most of the high grade razors.

The blade, whenever bent by a crooked thrust, springs right back into shape. It guides easily, saws straight, stays sharp, and cuts faster and easier than any other kind of saw you ever touched.

The taper-grinding of the blade (thickest at the tooth edge and tapering *all the way* to the thin back) prevents binding or buckling.

Try an

ATKINS SILVER STEEL SAW

At Our Risk

Go to your dealer and select an Atkins Silver Steel Saw. Be sure the blade says "Silver Steel"—that's our best saw. Take that saw and try it! If it isn't in every way the best saw you ever put through a board, take it back to the dealer and get your money back. That's the Atkins guarantee! Is it strong enough?

If your dealer doesn't handle Atkins Saws, or hasn't the particular saw you wish, ask him to order it for you from the wholesale house. He should be glad to do this—it's no trouble!—and he will do it if you will make the request.

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, our Carpenter's Time Book, and another mighty handy booklet, "Saw Sense." Address our Carpenters Department.

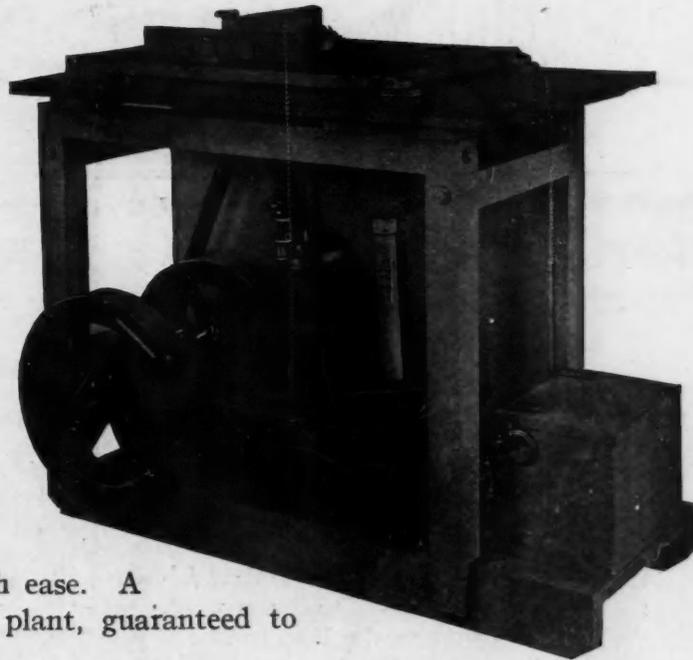
E. C. Atkins & Co., Inc., Indianapolis, Ind.

Largest Exclusive Saw Manufacturers in the World

1/1/11

ON THE JOB

WHEN you put in your estimate on a job, this Portable Rig would be the cause of your getting the contract, and why? **This Rig will do all of your mill-work.** It is a complete and economical operating mill and requires no line shafts or large amount of floor space. It is always ready to do sawing and one crank of the engine fly-wheel makes it run, the three horse power water hopper cooled engine pulling the ten inch saw with ease. A complete and perfect power plant, guaranteed to make you no trouble.



Cannot freeze or overheat. This Rig put on your job or in your shop will pay for itself in a very short time, and we are in position to **fill your order promptly**, in fact, the same day we receive your order.

Every part of the outfit, engine and all, is made in our factory. The Rig is the biggest time and money saver on the market today and we absolutely guarantee it to be perfect in workmanship and material. The Rig weighs 520 pounds and with the outfit is included: One eight inch rip and cross cut saw, one ten inch cross cut saw for bridging, one half inch dado head, one two inch jointer and attachments, one emery wheel, one extra spark plug, one wrench and oil can, one belt tightener attached to engine.



**A Turn of the Crank
Saves Four Men's Pay
Send for Folder and Price**

Inter-State Equipment & Engineering Co.

1775 OLD COLONY BLDG.

CHICAGO, ILL.

WATER FIRE AND LIGHT-NING PROOF

"TITELOCK" METAL SHINGLES
ARE THE EASIEST AND QUICKEST SHINGLES TO LAY



"TITELOCKS"
Painted Tin Shingles are Superior to Wood Galvanized Shingles are Superior to Slate Copper Shingles are Superior to Tile
Leading Architects always Specify them because they make the Best Roof Covering
Send for Samples and Booklet

VENTILATING "TORPEDO" SKYLIGHTS

EMBOSSED "MILCOR" CORNICES

"Invisible Joint" STEEL CEILINGS
SEND FOR CATALOG

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

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

The Fox Will Save You Time Money and Trouble

SENT ON TRIAL

Built on scientific principles, simple in construction, light running, easy to operate.

Will Last a Life Time

Remember the Fox leads; others follow, and the best is what you want. We guarantee the Fox and back that guarantee by the largest floor scraper factory in the world.

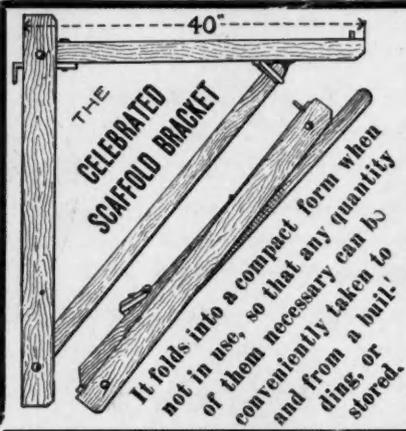


Fox Floor Scraper No. 1

A Perfect Machine for Perfect Work.

Write for catalog on floor and hand scrapers, it will pay you.

Fox Mfg. Co.
Brooklyn, Wis.



THE CELEBRATED SCAFFOLD BRACKET

It folds into a compact form when not in use, so that any quantity of them necessary can be conveniently taken to and from a building, or stored.

(Pat. Nov. 16-09)

Price \$12.00 per doz.
Carpenter Contractors, stop and consider the cost of your scaffolding and the waste of material. Also the time and labor saved by using the Celebrated Scaffold Bracket

ALBERT W. GUTHAT & SONS,
1536 W. Adams Street Chicago, Illinois

Beware of Infringements
You want the Adjustable Floor Scraper
(Patented Oct. 5, 1909)



The handle can be adjusted to suit the convenience of the operator.
The blade can be adjusted to any vertical or lateral angle to the floor.
The wheels are made of iron and have rubber tires. Are mounted on a split axle so that each runs independently of the other.
The Price will astonish you. Write for my free trial offer and further description.

H. P. Didriksen, 1008 High St., So. Bend, Ind.



THE HAVEN FLOOR PLANER

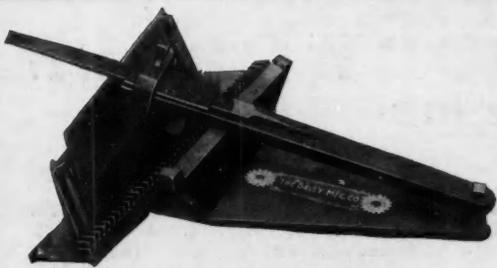
HERALDS THE NEW ERA IN FLOOR SCRAPING

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.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



Daisy Filing Device

The Daisy Floor Scraper

Is like no other scraper manufactured. Its main advantage lies in the fact that it will

finish any floor, leaving it as smooth as **Plate glass.**

It Can't Leave a Wavy Surface

Think what this really means to you.

Filing Device

The use of this filing device means accurate filing.— Means a big saving in blades, as well as in files.

Handle is Adjustable for Man of Any Height

Blades

are made from the best steel and **Are Not Slotted**

thus allowing owner to use the blade in its entirety. This means a big saving.

Note the Clamp & "V" Shape Cut

The "Daisy" scrapes with a **"Shearing Cut"** whether using one blade—used in initial work—or using the "V" cut—when finishing.

Edge Turning Device

Like other points of this machine, the Edge Turning Device is absolutely new. A few seconds and you have an edge that is perfectly turned—a lasting edge. This entire equipment is included with machine.

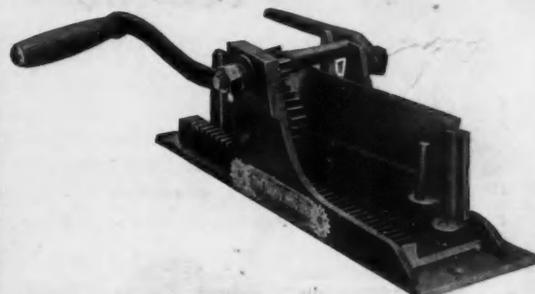
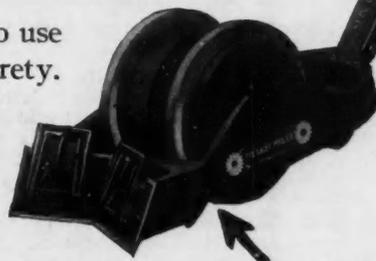
WRITE FOR CATALOG TODAY

Daisy Manufacturing Co.
SOUTH BEND, IND.

The weight of **The "Daisy" Floor Scraper** is in the roller, which is built in two distinct parts, each being mounted on **heavy rubber tires**, each part operating on its own perfect bearing, separately from the other.

Clamping Device

The "Daisy" clamping device is "perfection." It grips the blade firmly and is so constructed that blade can be removed or replaced instantly. This device is so simple and accurate that no trouble can arise from its use, inasmuch as it cannot get out of order. There are no wrenches needed. Not a nut or bolt on it.



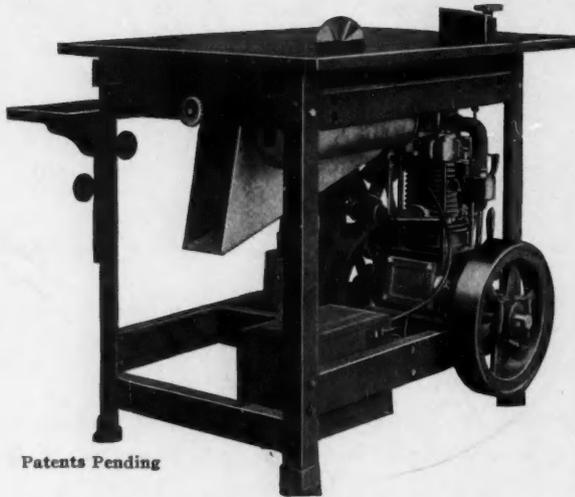
Daisy Edge Turning Device

April
ALBERT W. GUTHAT & SONS, Chicago, Illinois
1536 W. Adams Street
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THE GRIMM WOODWORKER

IN SHOP OR ON JOB

NINE MACHINES IN ONE—SELF-CONTAINED POWER



Patents Pending

Ready to Cross Cut

RIP SAW CROSS CUT DADO HEAD JOINTER
EMERY WHEELS SANDER BORING MACHINE JIG
SAW MOULDER and SHAPER Weight complete 350 lbs.

Just the right combination of attachment to fulfill your requirements, and a "built in" 4 horse power gasoline motor you can rely upon.

We furnish all or your choice of the nine attachments and will sell you the machine equipped with gasoline or electric motor or without any power.

Although the Grimm Woodworker has been on the market but a short while there are now over one hundred and fifty satisfied purchasers who are daily saving more time, labor and material by means of this machine than they ever believed could be saved by any means. Perhaps you would like to be shown. We're ready—Write.

A WEEK'S TRIAL BEFORE YOU PAY US A DOLLAR. WRITE FOR BOOKLET AND PRICE.

Littlefield & Clark, 46 ERIE STREET, Buffalo, N. Y.



Made in three sizes:
8x18 8x15 and 8x12 in. Roller.

Perfect Results Are Easily Obtained By Using Schlueter Rapid Floor Surfacers

This machine is built on the only correct principle. It is guaranteed to be **The Best** machine with which to produce an even, smooth surface on any kind of large or small wood floor, old or new, hard or soft, and in all buildings: Residences, Stores, Factories, Bowling Alleys, Roller Skating Rinks, Reception and Dance Halls, Etc.

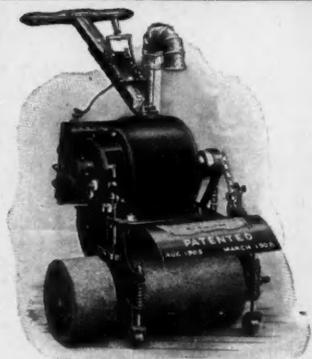
The **Schlueter** will remove all joints or warped edges, and oil, wax, lime stains, or the "muck" from skate wheels, in a most satisfactory manner.

(Earning capacity, \$20.00 to \$35.00 per day)

Send for prices and **Free Trial Proposition.**

M. L. SCHLUETER, Chicago, Ill.

103 N. Canal Street



Edge Roller easily adjusted
to either side.

3 New Features

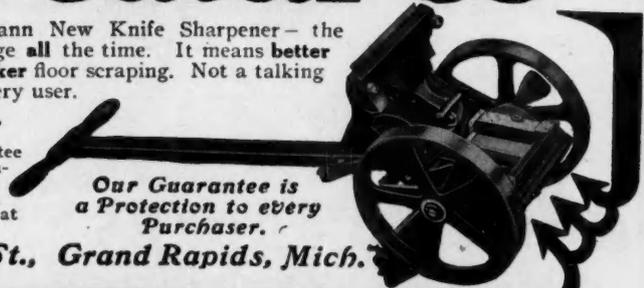
These three features form the Ackermann New Knife Sharpener—the invention that ensures a perfect cutting edge all the time. It means **better** floor scraping than hitherto—it means **quicker** floor scraping. Not a talking point but a device that saves dollars for every user.

Ackermann Floor Scraper

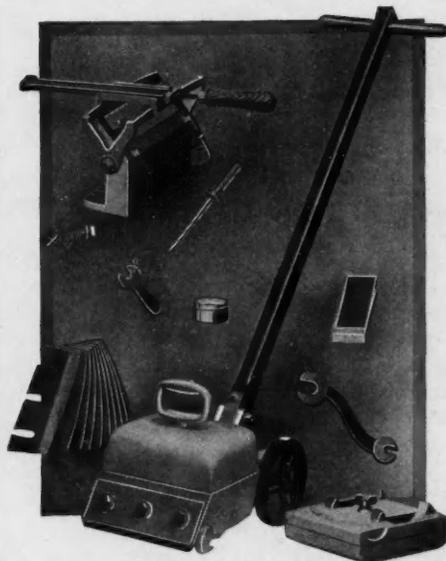
The Ackermann is the **best** floor scraper. We guarantee it to do more, better and easier work than any other machine on the market. If it doesn't you get one free. Send for details of our offer under which any contractor may test the Ackermann Rapid Floor Scraper and Ackermann's New Knife Sharpener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

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

Our Guarantee is
a Protection to every
Purchaser.



Results By Actual Test



A Short time ago I sent the ACME FLOOR SCRAPING OUTFIT on a WEEK'S FREE TRIAL to the undersigned. Read what he says.

Bolivar, Mo., Feb. 25, 1910.

MR. JOS. MIOTKE,
Milwaukee, Wis.

Dear Sir:—

Your Acme Floor Scraping Outfit is very satisfactory. Enclosed find bank draft for same. Your fault in recommending the machine is, you don't recommend it high enough. We tested the floor scraper as follows:—

Our best cabinet man did by hand a piece of dried white oak flooring using a smoothing plane, hand scraper and sand paper. The balance of the room was done with the Acme Scraper (no sander used). The work was then compared very carefully with the result that we run the Acme over the hand work in order to get it as good as the balance of the room. We wish to thank you for your very courteous treatment.

Yours very truly,
J. M. RITTER.

Let me tell you more about the Acme Machines and why I send them out on an absolutely free trial basis. Write to me now.

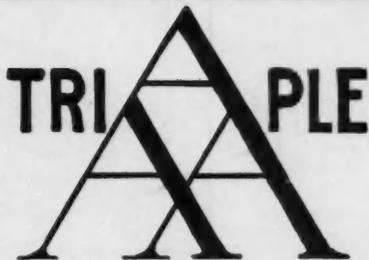
JOSEPH MIOTKE

247 Lake Street : : : Milwaukee, Wis.

Let the Spring do the Work

The Easiest
Running Machine
on Earth.

The Only Floor Smoother
Recommended by
Architects.



Saves 90% of Your Floor Scraping Time Over Hand Scraping. Easily adjusted to all kinds and conditions of floors. Guaranteed to give satisfaction.

SENT ON FREE TRIAL ANYWHERE

SPRING DRIVEN

Shullsburg, Wis., Jan. 31, 1910
Triple "A" Machine Co.
Chicago

Gentlemen: I have had one of your machines since last October and like it, as it is perfect in its work. In your advertisement in the December number of the American Carpenter & Builder, I see that you have made some improvements. Please let me know if I can use them on my machine. Please send prices of the various attachments. Yours very truly,
CHARLES J. O'NEILL,



GEORGE B. WETZEL
Contractor and Builder
Dayton, Ohio, Feb., 5, 1910
Triple "A" Machine Co.
Chicago, Ill.

Gentlemen: The Triple "A" Floor Smoother came to me in good condition. I have given it a good trial. I think it is the best floor scraper that is on the market today. There are a number of the different makes of floor scrapers in use in Dayton, Ohio, and I have tried every one of them and found them to be a failure and a disappointment, and one man could ruin a job of flooring in less time than it would take six men to put it in shape again. I have been looking for a machine that would dress floor for the past five years and I think I have found it in the Triple "A". It has the adjustments in every way that the knives are bound to cut. It also has the weight to keep it from jumping or making waves in the floor. Thanking you for your timely invention, I remain, Yours very truly,
GEORGE B. WETZEL

FLOOR SMOOTHER

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

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 April

Hurley Machine Company

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

Read what the State Superintendent of Construction of Minnesota says about the ABC Protractor Square:

Walker, Minn.,
Mch. 9th, 1910.
Crookston Tool Co.,
Crookston, Minn.

Gentlemen: Replying to your letter of March 7th, as to how I like your ABC Protractor Square will say that I find it a PERFECT tool as well as very handy to have on the drafting table, and consider it the very best and most useful tool any mechanic can have in his tool chest.

With it any one can grasp and understand the art of roof and stair framing regardless as to the education of the owner of the tool.

The tool does its own figuring. It is accurate, simple, compact and the selection of the name ABC was well taken.

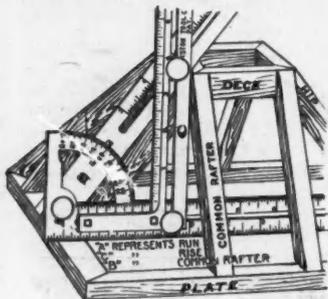
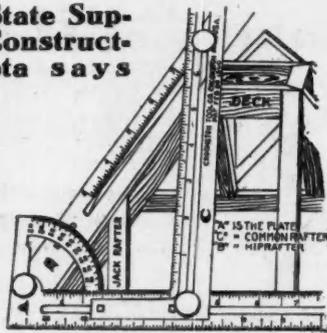
Predicting you large sales of the tool as soon as its usefulness becomes known to the progressive mechanic,

I remain,
Yours truly,
H. H. Vernon.

Do not try to work without the ABC Protractor Square.

Price \$3.00

Crookston Tool Co.
Crookston, Minn.



RAYL'S CATALOGUE

For Woodworkers



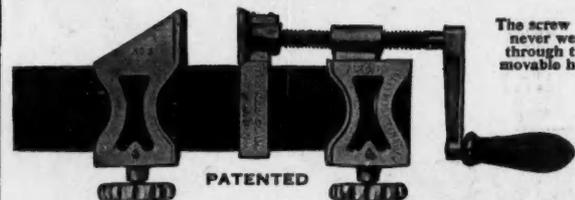
300 pages of Tools, the latest and best tools and many other things that shopmen use and that mechanics want. We will mail you one free of charge for the asking, but we won't object to your sending us the postage (.08) if you like. Representing also Russell & Erwin Mfg Co.'s Builders' Hardware.

T. B. RAYL CO.

Established 1875

DETROIT, MICH.

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

The Carpenter's Ever-Ready Door Clamp



**Durable, Efficient,
Inexpensive.
Saves Time & Labor**

The Carpenter's Ever-Ready Door Clamp will hold a door firmly on edge while the hinges, lock and other attachments are being fitted.

The clamp is durable and cheap. Its construction is such that the weight of the door serves to throw the clamping jaws toward each other to hold the door firmly. Every downward pressure upon the door, instead of moving it from the clamp, causes the clamping jaws to grip the door more tightly.

A simple thumb-screw provides for adjusting the clamping jaws to take different widths of doors, while the clamping faces are padded to prevent injury to the work. The clamp may or may not be fastened to the floor.

PRICE \$3.00

WILLSHIRE CLAMP CO., Willshire, O.
References, Farmers & Merchants State Bank, Willshire, O.

NOW, SEE HERE Mr. Contractor-

I know my scraper is the best

and when I say you can give it a free trial, I mean every word of it—that you can order one shipped to your place of business, put it in competition with any other make and if you yourself do not consider its work the very best you have ever seen, ship it back and all you will be out is the postage you paid on your letter—**I PAY THE FREIGHT.**

The WEBER DOUBLE ACTING Floor Scraper

can be easily and quickly set at any angle for perfect work on all kinds 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, which absolutely prevent chattering and the leaving of waves in the floor. No other scraper has these features. And don't forget



I pay the freight

We also furnish knives for all makes of floor scrapers at the lowest possible prices.

Write for free descriptive booklet and price list—but don't buy a scraper until you have seen a Weber in action.

**John F. Weber,
President,
WEBER MFG. CO.,
670 71st Avenue
West Allis, Wis.**

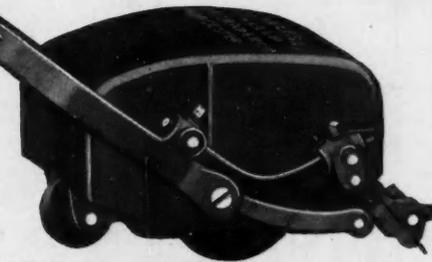
CARPENTERS and BUILDERS!

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

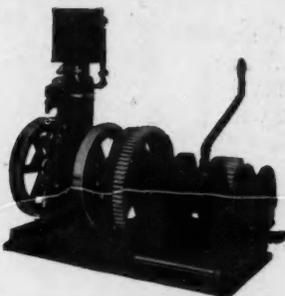


"Held to its work by muscles of steel."

Universal Floor Scraper Co.

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

EVERY CONTRACTOR AND BUILDER,



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

BATES & EDMONDS MOTOR CO. LANSING, MICHIGAN

The 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.



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





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 6 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.

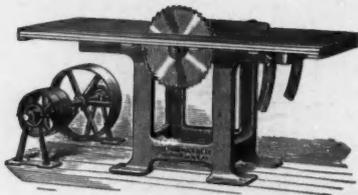
It has surfaced and polished millions of square feet of the finest floors in America and Europe.

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 Co., Toledo, Ohio.



IRON FRAME RIP SAW

Carries 16" saw. Furnished with or without countershaft.

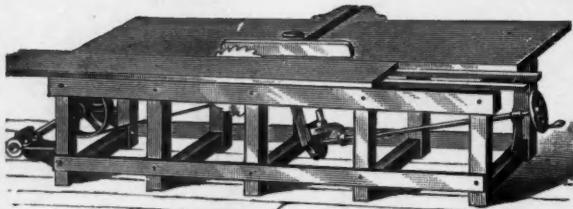
Good Rip Saws

Every Carpenter and Builder needs a good rip saw. Here are two that meet most demands. We make all sizes and styles of good rip and cross-cut saws. Write us.

The Cordesman-Rechtin Company

Cincinnati, Ohio

We are able to supply most anything you want in the wood-working machinery line. Tell us what you need. Get our catalogue and prices.



WOOD FRAME RIP SAW

Made in 8, 10, 12, 14, 16, 18 and 20-foot lengths; slide board to travel on hardwood strips or track and rolls.

CARPENTERS

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

Barnes' Hand and Foot Power Machinery

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

SEND FOR OUR NEW CATALOGUE

W. F. & John Barnes Co.

74 RUBY ST., ROCKFORD, ILL.



CALIPERS and DIVIDERS For CARPENTERS

We make several different styles, all good. Get our free Catalogue, No. 186, of the largest line of Fine Tools for all kinds of mechanics.

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



The Shelby Double-Acting Ball-Bearing Spring Hinges

are built to give satisfaction to the contractor and builder. The working parts of these hinges are made of steel, and finished parts are steel, real bronze or brass, as desired. The weight of the door is sustained upon ball bearings set in hardened cups which have no perceptible wear after years of service.

The Chief floor hinge is very easily applied and can be adjusted after the door is hung by removing a side plate and turning the tension nut.

The Spring Butts have a carpenter's gauge on each flange which greatly assists the carpenter in hanging a door.

Write and we will tell you more about them. We also make locks, screen door hinges and a fine line of builders' hardware.

THE SHELBY SPRING HINGE CO., Shelby, Ohio



The "Chief" Floor Hinge

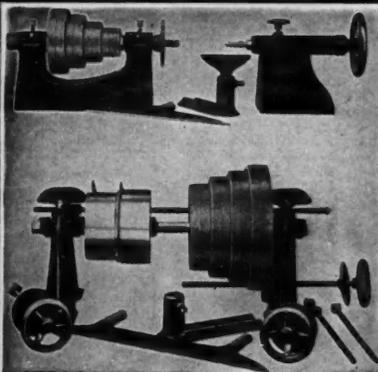


Spring Butts

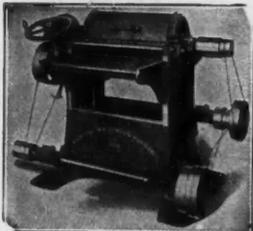
Do Your Own Millwork!!

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.

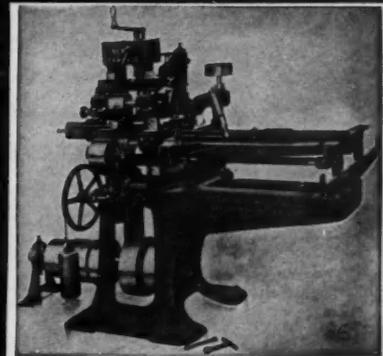
Prices are Favorable

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.

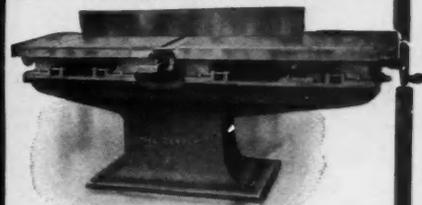
Send for Lists and Circulars

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

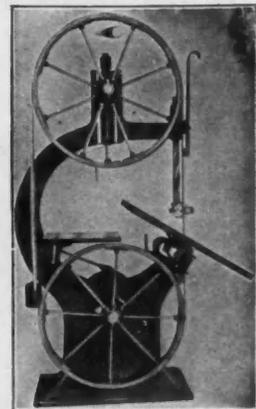
Chicago Machinery Exchange
159-161 North Canal St., CHICAGO



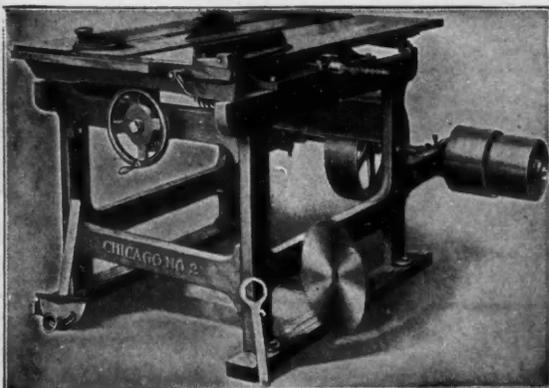
New Hermance No. 3 Tenoner



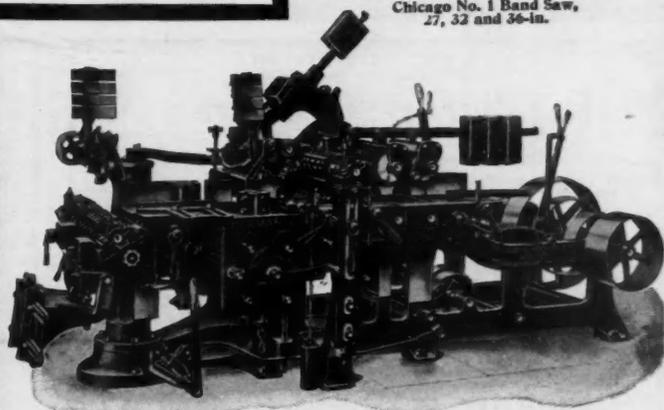
Chicago Hand Jointer, 8, 12 and 16-in.



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

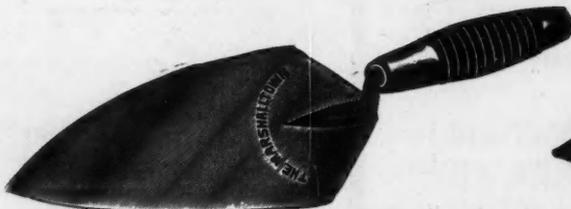
SARGENT'S IMPROVED STEEL SQUARE

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.

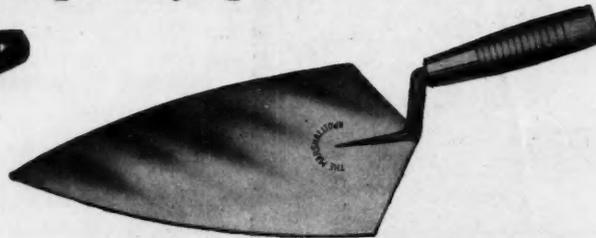
Sargent & Company
1149 Leonard Street **New York**

The Best Ever

You Will Never Regret Buying One

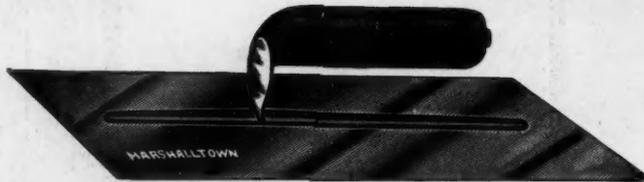


Wide Heel Brick Trowel
 Made of Best Quality Crucible Trowel Steel.
 Leather Handle.



The shape recommends it. The quality you all know. It's the Marshalltown.

Send for
 Catalogue



Send an
 Order

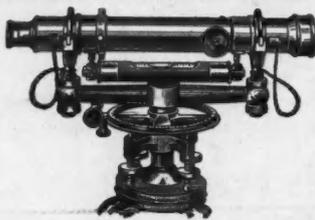
Genuine Marshalltown Trowel

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

Marshalltown Trowel Co. - - **Marshalltown, Iowa**

MAKE THE TEST

Sterling Surveying Instruments



We will ship on ten days' approval any "STERLING" Transit or Level. Examine the construction. Test the Accuracy. If you are not convinced that you are getting the best instrument obtainable at corresponding price return it.

A FAIR OFFER. DON'T YOU THINK?
 Send for 225-page Catalogue of Surveying, Engineering, Meteorological and Drafting Instruments and Supplies.

ISZARD-WARREN CO., Inc.
 136 N. 12th Street PHILADELPHIA, U. S. A.
 America's Leading Surveying, Scientific Instrument Works

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.



Stanley Tools

We have recently added to the many SCRAPERS that we manufacture

Two New Designs

No. 81—For fine Cabinet Work. This tool is nickel plated, adjustable, and has a detachable rosewood face. Blade is $2\frac{1}{2}$ inches in width. This is a splendid tool for very fine work.

List price \$1.50 each

No. 82—Specially designed for scraping hardwood floors. It is adjustable, and the blade can be tilted to practically any angle for working in corners and inaccessible places. Width of blade, three inches.

List price \$1.05 each

Look for the name *STANLEY* on every tool. It is a guarantee of the highest class of workmanship and material.

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STANDARD
THE WORLD
OVER

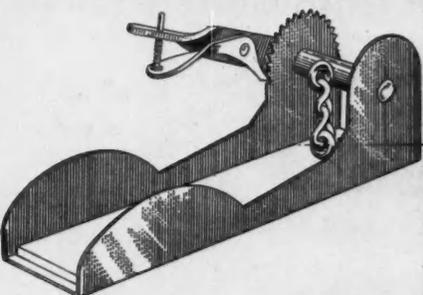
Stanley Rule & Level Co.

NEW BRITAIN, CONN. U.S.A.

EVERY
TOOL
GUARANTEED

COPYRIGHTED, 1909, BY THE STANLEY RULE & LEVEL CO.

The Ideal Door Holder



Number 75 a great labor saving device for carpenters and contractors for holding doors while mortising for locks.

Send for catalogue.

Manufactured by the **DIEHL NOVELTY CO.** Sheboygan, Wis.



ZIMMERMAN'S "All Steel" SHUTTER FASTENER

and Casement Window Adjuster

"No Rights—No Lefts"

All parts best Pressed Steel and Interchangeable. The only Bowing and Locking Device which fills all the requirements. Adjusts securely at any angle and may be fastened from the outside.

Any length bar or style of finish. Countersunk sill plates for Casements. No obstruction or interference with screens. For any sort of Bay Windows, Outside Blinds Casement Shutters Iron and Fire Shutters.

Harry Zimmerman & Co., Patentees, 25 Wood St., Fremont, O.
Selling Agents, G. F. S. ZIMMERMAN & CO.
See Sweet's Index 25 Arch Street, Frederick, Md.

Do You Use Your



Strong right arm in mortising window frames for the sash pulleys? Just consider boring four $\frac{1}{8}$ -inch holes $\frac{3}{8}$ -inch centers and set the pulley in—i. e. the **Grands Rapids No. 12**. No cutting—no fitting—no counterboring—no breaking—no swearing—no nails—no screws.

These **Grand Rapids** pulleys save more time than they cost in money. If we are telling the truth you cannot afford to use ordinary pulleys if you get them for nothing. We can prove it too.

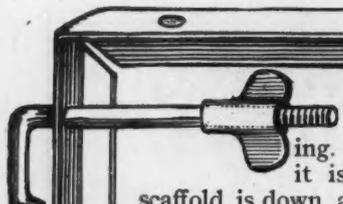
WRITE FOR FREE SAMPLES.

Say what pulleys you are using and how many you buy

Grand Rapids Hardware Co.

Manfr.

36 Pearl Street
GRAND RAPIDS, MICH.



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.

Absolutely Safe—It requires only one man to put them up and take them down. Reversible—can be used with the short arm supporting the platform. Cheaper than wooden brackets in first cost alone. Made in 4 ft. and 5 ft. sizes.

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

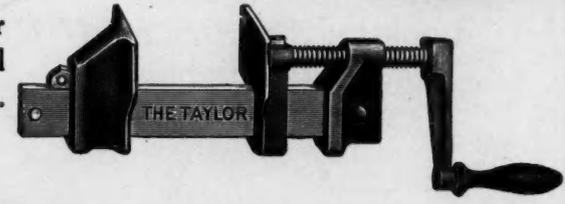
LAST A LIFETIME

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

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



No. 15 THE TAYLOR



THE TAYLOR

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.

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 April, 1910, we will receive this advt. as \$1.00 if the balance of the list price of a plane and 10 addresses of plane users, no matter where they live, is sent us from where the Self-Setting Planes are not sold.

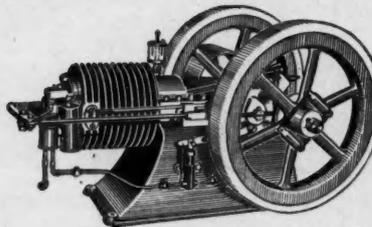
THE BEST IS THE CHEAPEST.
None Cheaper but the Best.
All Want the Best.
Sent on 30 Days' Trial as per Circular if Dealers do not keep it.



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. April 1, 1910.

GAGE TOOL CO., Vineland, N. J.

Your Word Is Good With Us



You don't have to sign any specially worded order blanks or contract when you order the Gade. Just ask us to send you one on 30 days' trial and the engine will go out. There are no strings tied to the Gade free trial. Buy your engine from a company that can ship an engine without first requiring a deposit. The Gade is shipped on its own merits; we let it talk for itself. Freight paid both ways if not satisfactory. Ask us why we use less gasoline than other makes. Remember, the first cost of an engine is not the only point to consider.

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

Hargrave's New Adjustable "SPECIAL" Clamp.



Hargrave's Perfection "SPECIAL" Clamp.



Hargrave's Joiners' "SPECIAL" Clamp.



Clamps? Sure.



STEEL BAR CLAMPS

ORIGINAL and BEST

Steel Bar, Screw and Dog

All Sizes

Write for Circular and Prices, Dept. H.

THE CINCINNATI TOOL CO., Norwood, Cincinnati, Ohio



'You'll use a Disston Saw, too, some day'

There is something about a perfect implement which lends authority to the hand behind it.

Disston Saws, Files and Tools possess the same masterful qualities that characterize the great establishment in which they are created.

The feel of them conveys an idea of the substantial; suggests precision, accuracy, efficiency, endurance.

Disston Saws made half a century ago are in use today—family heirlooms passed from one generation to another.

Improvement of that high quality of material, temper, design and workmanship put into the Disston Saws of 1840, has kept pace with steadily increasing requirements of saws and with the great growth of the Disston plant.

Disston's is the only saw, file and tool establishment in the world that makes the steel for its full line.

Implements of Disston Brand outwork and outwear all other tools.

Do your work with the best tools made.

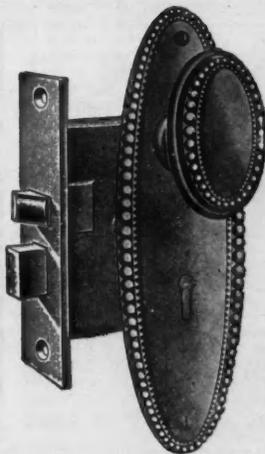
If you are unable to obtain the DISSTON Brand, write us and we will see that you are properly supplied.

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

Henry Disston & Sons,

(INCORPORATED)

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.

ROLLING PARTITIONS



Use our Rolling Partitions to subdivide rooms.

Ventilated Wardrobes

Space-saving and sanitary for modern schools.

WINDOW BLINDS

of all kinds; also

ADJUSTABLE SHADES

HENRY B. DODGE CO., 108 LaSalle Street, Chicago, Illinois

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.

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

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.

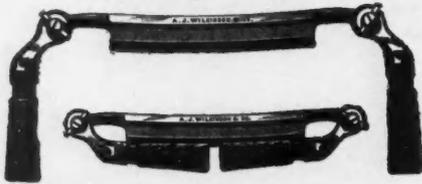
The double thread with the specially formed twist secures its double quick work without increase of power. Only by actual test can the great advantages of the lightning bit be fully realized. Secure from your dealer or sent by mail. Price postpaid.

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.

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.

"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**

JOIN THE CRUSADE AGAINST THE HOUSE FLY

Full Length Screens Keep Out All the Flies—Always

The best way to attach full screens is to hang them from the top with

Gossett Hinges

Screens can be taken off or swung out in a jiffy to wash windows. No ladder or tools needed even on upper stories. Storm sash can be hung with the same fittings.

Samples Free to Carpenters for trial

F. D. KEES MFG. CO.
Box 522 Beatrice, Nebr.



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 Jointer 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.

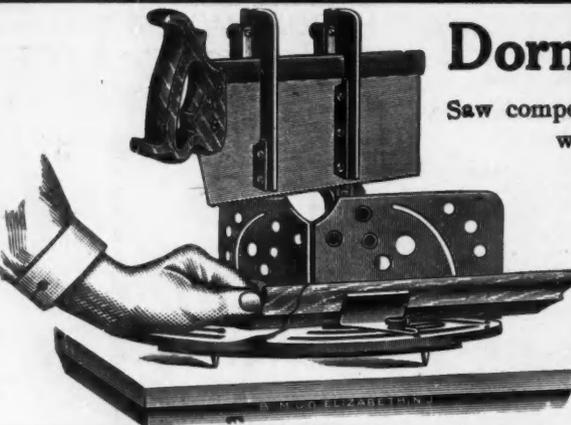
Parks Ball Bearing Machine Co.
Fergus and C. H. & D. Ry.
CINCINNATI, O.

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

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

Dorn's Revolving Mitre Box

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



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IT TELLS THE STORY



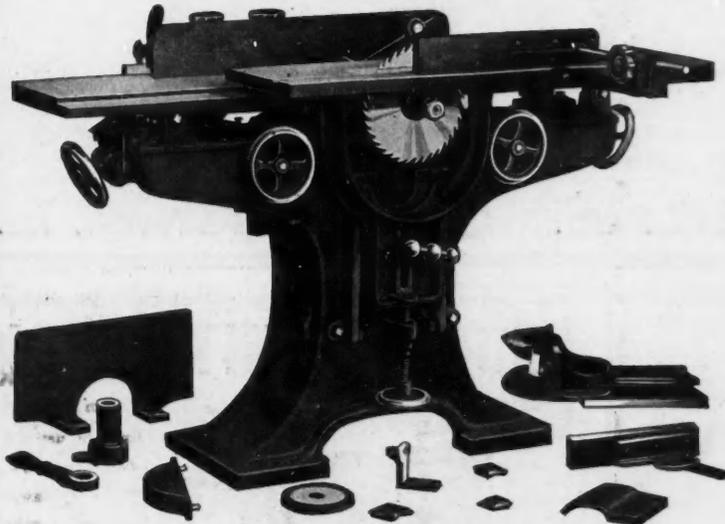
Compound Mitre

MANUFACTURED BY

Braunsdorf-Mueller Company

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

You Can Do More Work WITH A CRESCENT VARIETY WOOD WORKER



Crescent Variety Wood-Worker

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

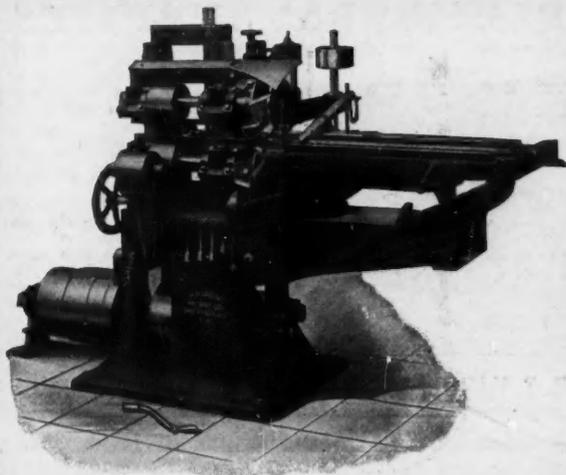
Every carpenter and builder should invest in one of these machines. No inconveniences, no worry, no bills from local mills to pay. By doing your own millwork you can place yourself in a position to estimate below your competitor. You will therefore have **more work** and a **larger profit**.

The Crescent Variety Wood Worker

fills a long felt want in those shops that have a varied but limited use for woodworking machinery. It combines a jointer, borer, shaper, pole rounder and tool grinder. The "Crescent" is built to stand hard usage, all the parts are made of the best material obtainable for the purpose. The machine is strong, durable and will stand the most severe tests.

This machine is especially valuable to carpenters and contractors, as it can be taken out on a job, or can be used in the shop with equal satisfaction. Can be driven with electric motor or gasoline engine.

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



SMITH'S Original Single End
Tenoning Machines were patented in 1852, since which time many **Improvements** have been made, the annexed engraving representing the latest and best type.

The **Design** is unique with a rack for holding all the wrenches.

The **Carriage** is fitted with **Roller Bearings** so as to move easily and true across the ways. Made with double heads, copes and saws.

Address

H. B. Smith Machine Co., Smithville, N. J., U.S.A.
BRANCHES: New York, Chicago, Atlanta, Memphis.

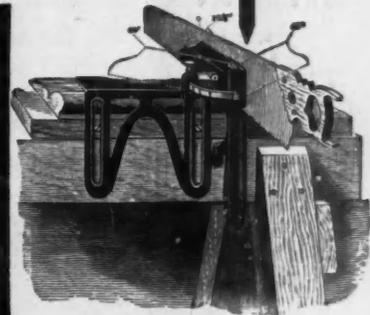
"SEAVEY" MITRE BOX

Cuts
Any
Angle

Meets Every Requirement

Special Offer

On return of this "Ad" and \$2.00 one of these Mitre Boxes will be shipped to any reader of "Carpenter & Builder." Offer good for 30 days from date of issue.



Portable — Can
be carried in
the Tool Kit

Weights
2

SMITH & HEMENWAY CO.
108 Duane St. New York City

Pounds



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 sleets 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.

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.

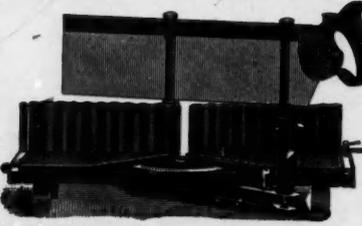
MADE IN TWO SIZES AND ALL FURNISHED BY

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

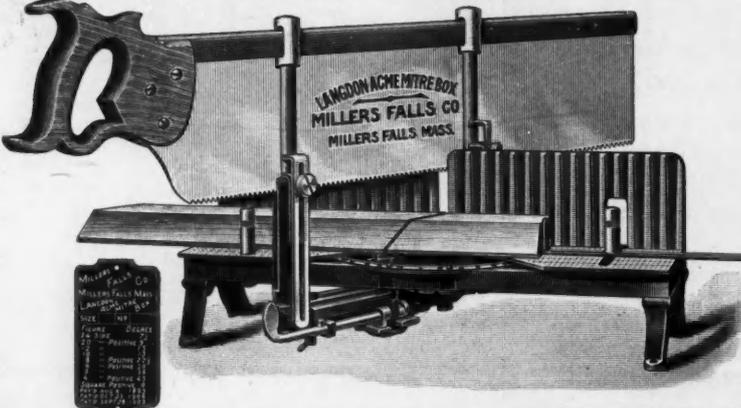
SAVE 20 to 40 Per Cent

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



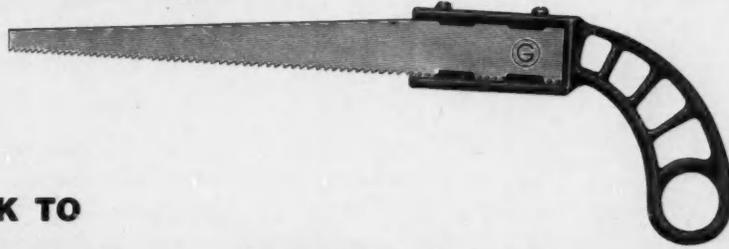
LANGDON ACME MITRE BOX
MILLERS FALLS CO.
MILLERS FALLS MASS.

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.

FOR HANDY TOOLS



LOOK TO

GODELL-PRATT COMPANY

Our catalog which is free to anyone interested shows 276 pages of handy, labor-saving tools. These are not tools which like hammers and chisels are to be found in every hardware store, but are special tools, which are appreciated by expert workmen. Send for this catalog while you think of it. If there is only one tool in it which interests you, it will pay for the time and trouble.

GODELL-PRATT COMPANY

Toolsmiths

GREENFIELD, MASS., U. S. A.



SAMSON SPOT SASH CORD

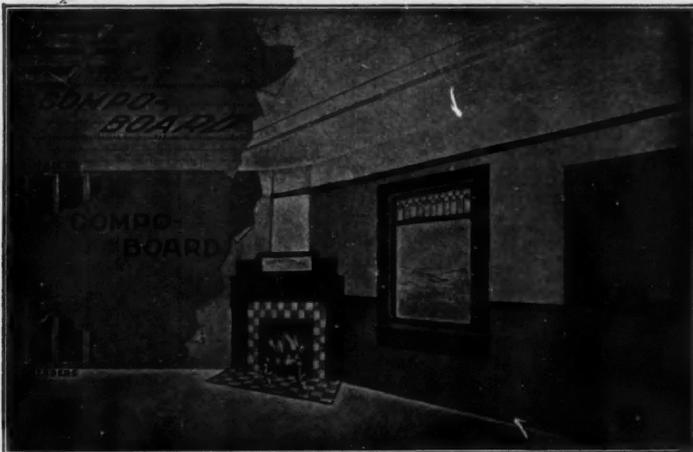


TRADE MARK

Be sure that the cord you buy has SAMSON AND THE LION on the label, and that the braid is marked with the COLORED SPOT. You may be sure you'll get the best.

WE'RE GLAD TO SEND SAMPLES AND FULL INFORMATION.

SAMSON CORDAGE WORKS, BOSTON, MASS.



COMPO-BOARD

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

For Sample, Price and
full Description, Write

Northwestern Compo-Board Co.
4800 Lyndale MINNEAPOLIS, MINN.



"A Bit Of Utility"

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

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

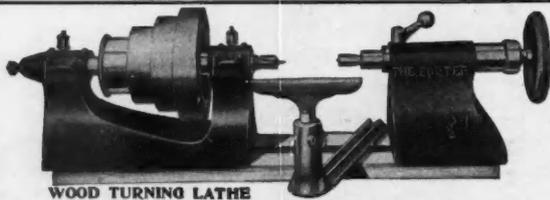
Unequaled for Delicate Work

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

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

The Progressive Mfg. Co.

Torrington, Conn.



"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

FOREST CITY BIT AND TOOL CO.

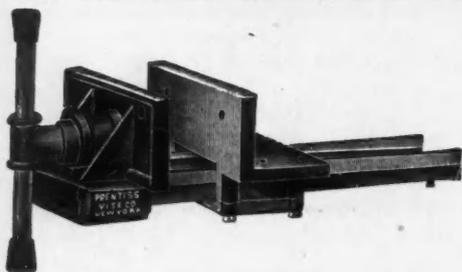
Manufacturing Hollow Mortising and Wood Boring Bits and Tools



Our Hollow Chisels made to fit all Mortising Machines
For complete description write for Catalog H.

FOREST CITY BIT AND TOOL CO., Factory and Office, Rockford, Ill.

BLAKE QUICK ACTING VISE



For Cabinet Makers and Wood Workers. Simplest—Strongest—Cheapest—Best
Send for Catalogue of all kinds of Vises
PRENTISS VISE COMPANY, MAKERS
106-110 La Fayette St., New York, U. S. A.

THE NEW SASGEN CIRCLE SWING DERRICK

No Stiff
Legs

No Guy
Lines



Light in weight, speedy in operation, all malleable castings; weight 250 lbs., capacity 1000 to 1500 lbs.

Fully equipped. Ready for F. O. B. Chicago

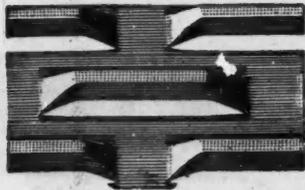
\$35.00

Sold on trial to all reliable contractors. Catalogue FREE.

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SASGEN BROS.,
2744 Lincoln Avenue
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New York Office: 103 Park Ave., N. Y.

SYKES METAL LATH

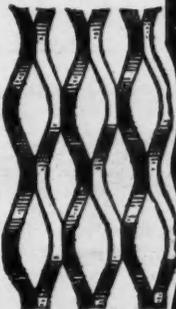


The lath that is positively different to anything else made; different because it combines more good features.

Cup lath is the only Expanded Metal Lath that can be plastered on either side—cannot be applied wrong because both sides are alike.

We make two kinds—Sykes Expanded Cup Lath, and Sykes Trough Lath. Both are supreme for their own purpose.

The top illustration shows Trough Lath, bottom cut depicts Cup Lath.



NO PICKLED LATH

Sykes Lath is absolutely guaranteed not to have been pickled in an acid bath. This means that the weight and thickness is not reduced and is less susceptible to rust.

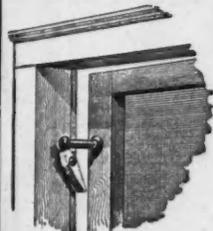
Requires no furring out from studs because it is self furring.

It has been approved by U. S. Government and by leading architects, carpenters and builders throughout the country. In fact, when we say it is the best ever made we are simply stating a proven fact.

Samples and prices mailed upon request.

Sykes Metal Lath & Roofing Co.

NILES, OHIO



Silent Screen Door

Avoid the nerve-racking slam of the screen door. Stop its banging and jarring—by using

“Dime”

Screen Door Check

At your hardware or house furnishing store, or mailed for 12 cts. in stamps by

Caldwell Mfg. Co., 15 Frank St., Rochester, N. Y.

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All Progressive and Up-to-date Mechanics as well as Manufacturers, having use of a Level, are getting one.

An instrument with which at one glance you can get the true slant on any line or grade either in degrees, inches or percentage, or all at the same time, and will at once give the exact distance needed to plumb up to a true level.

A Civil Engineer that you may have with you at all times. The most practical, durable and convenient instrument of the day. The longitudinal recess which is shown in cut is well worth the low price of the instrument.

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

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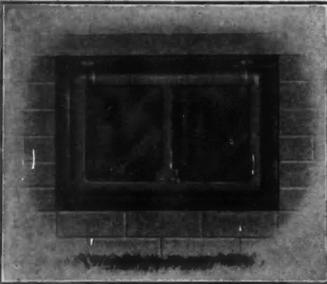
Lever A—For change of speed with forefinger, without releasing hold on crank or removing bit from hole.

This tool must be seen to be fully appreciated. Let your dealer show it to you.

Send for BOOK of LABOR-SAVERS—it's FREE

NORTH BROS. MFG. CO.,

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“MODEL” WINDOW CHUTE
 Complete with Rubber Glass

Rubber Glass is a non-breakable, translucent substitute for glass, giving perfect satisfaction. Every “Model” Chute is shipped complete with the rubber glass.

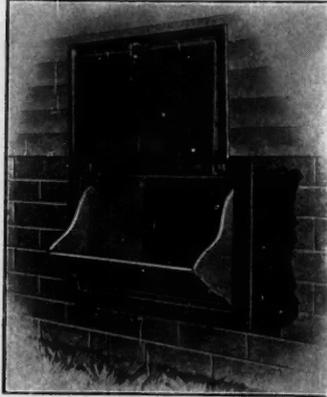
Absolute Protection to Building and Lawn

The door locking open protects the building. The hopper, with ample extension, protects the lawn.

Our Chutes are built to withstand the abuse of the strongest and most careless coal shoveler. A Heavy Gravity Lock secures the door from the inside. Size of wall opening, 27 inches long, 16 inches high, and 13 inches deep.

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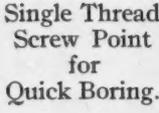
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On the Round of the Bit



Standard
Double Thread
Screw Point.

AND



Single Thread
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for
Quick Boring.

The name stands for genuine crucible steel, long bit-making experience, the most rigid inspection—in short, “Russell Jennings” is synonymous with “standard.”

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Russell Jennings Mfg. Co.

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Nailer**



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HERE'S an improved hand nailing tool that can be used for driving small nails and is especially adapted for driving shingle nails. No trouble to handle, because it weighs only about two pounds. Can be used with gloves or mittens on and in any season. Is operated as easily on a pitched roof as on the level surface. No slipping nails, no bruised fingers, no loss of time and temper. Start saving money by making the Pearson Nailer part of your equipment. Your dealer has them; if not send to us. Complete information for a postal.

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Corner Adams and Park Streets

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L. W. TULLER, Prop.

PHOENIX

INSIDE SLIDING **BLINDS**

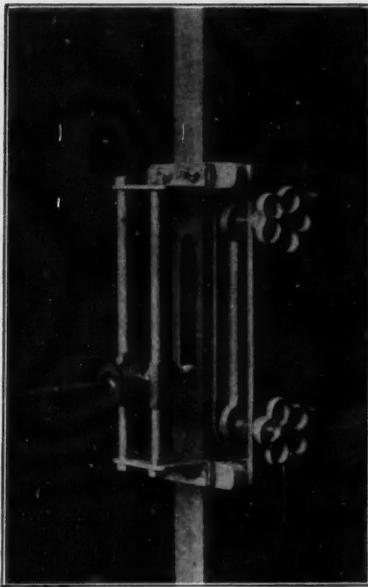
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The Phoenix Sliding Blind Co.
Enclosed find my check for blinds. I am pleased with them and sorry I did not have them put throughout the whole house.
C. W. BURT.

Comfort!
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Convenience!

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

PHOENIX SLIDING BLIND CO.
BRIDGE & CANAL STS. PHOENIX, N. Y.



Nicholls Lock Mortiser

No Metal Bit Guides

Just What You Need. The Best, Lightest and Cheapest

Weighs *only* 3½ pounds—Takes up little room in chest—Will not *scratch or mar* the finest door (felt surface on clamps)—Cannot get out of order—Will *last a lifetime*—Quickly adjusted—Easily understood—Apprentices can use it—Absolutely *no expense for future repairs*—Three Fibre Bushings FREE with each machine, ½, ¾ and 1 inch. With these bushings as bit guides it is *impossible to injure or dull bits*. Beware of metal guides. Extra size bushings to order at 25c each, any size.

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Price \$4.50 Prepaid

Guaranteed to be satisfactory and all that we claim or your money refunded.

Send for Catalogue and mention this paper.

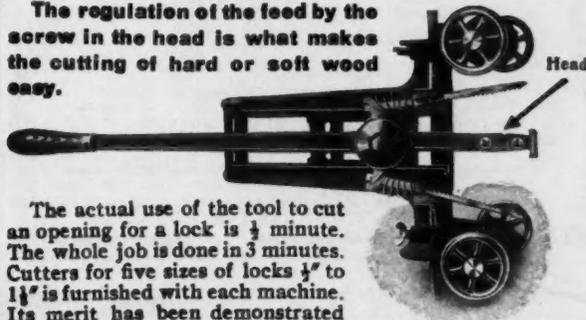
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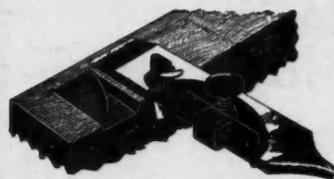
Miller's Lock Mortiser

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 ½ minute. The whole job is done in 3 minutes. Cutters for five sizes of locks ½" to 1½" is furnished with each machine. Its merit has been demonstrated thousands of times. Sent on Trial.



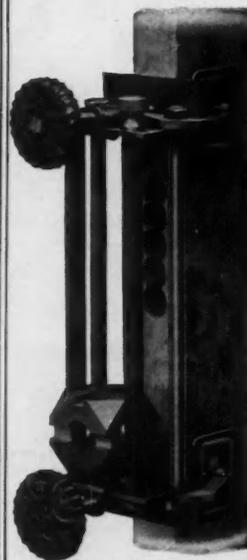
Butt Mortiser

Cuts the seats for butt hinges in doors, jamba 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.

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"TRUE" MORTISE GUIDE

For Mortising Locks in Doors

In Fact
For mortising anything from ½ to 2½ inches thick

It has one guide block which will take in ½, ¾ and 1½ inch auger.

The guide block can be changed instantly to any of the different size holes.

Guide blocks for other size holes can be furnished.

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The Auger Always Comes Central on Piece
It Weighs Less Than Four Pounds

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Price \$3.25

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SELECTED
COCOBOLO
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Price Postpaid **15 cents** each

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SHELBURNE FALLS, MASS.

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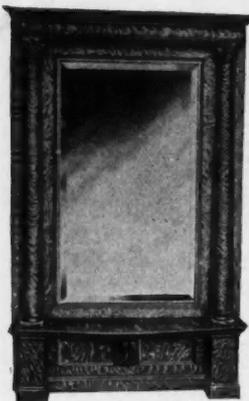
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In quality and price our work is not surpassed.

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

Send for 48-Page Catalogue No. 18

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

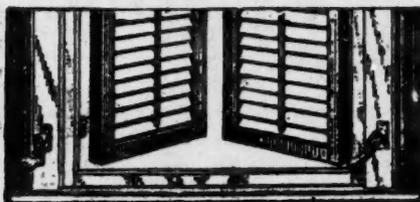


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CHRISTENSEN BROS., Props. 1820-24 Milwaukee Ave., Chicago

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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

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

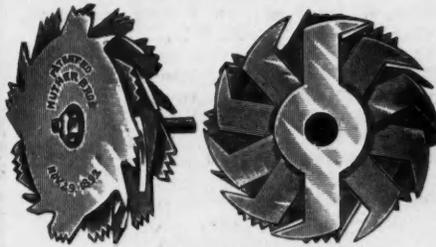
"SILVER LAKE"

and see that he gives it to you. It is impossible to



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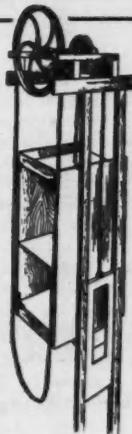
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For cutting any width groove from 1/4" to 2" or over. Will cut a perfect groove, either with or across the grain, and leave edges smooth. Will ship to any responsible firm on ten days' approval; if not satisfactory you are at liberty to return at our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

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Try our Scraper Blades and you will use no others.

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knocked down and shipped with the only complete directions for erecting ever issued

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For Foot Power

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

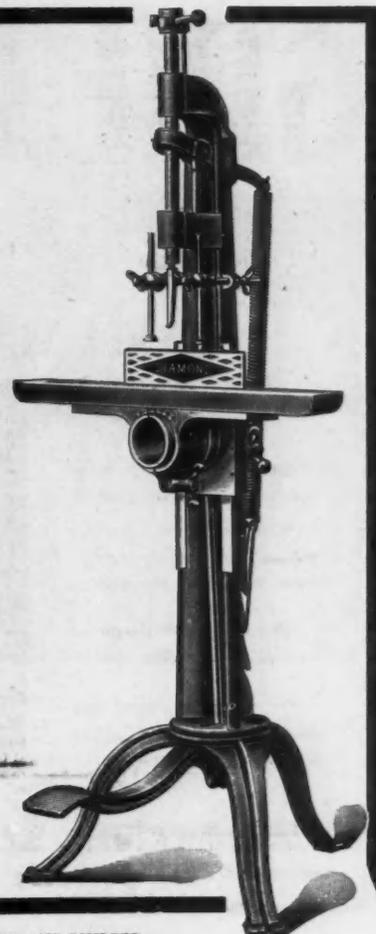
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Seneca Falls, N. Y., U. S. A.



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

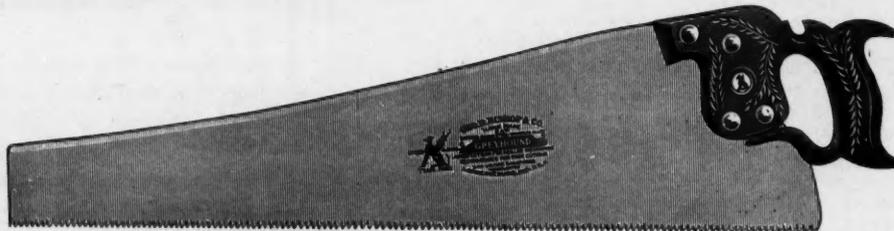
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Fine Hand Made Hand Saws

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.

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In workmanship this saw possesses all the skilled mechanical features known to the art of saw making. The hang of the blade has been carefully studied and adjusted, to suit the fancy of the most critical.

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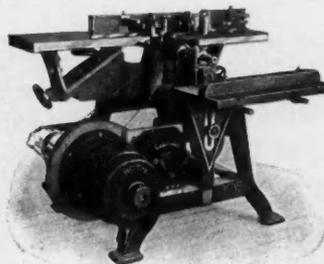
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1422 West Adams Street, Chicago, Ill.

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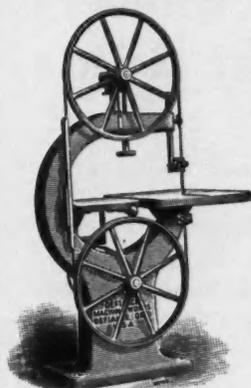
“DEFIANCE” WOOD-WORKING MACHINERY

For Manufacturing

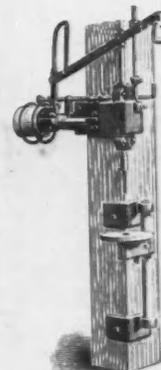
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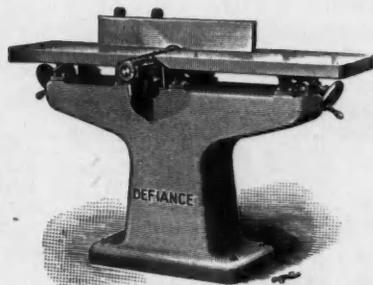
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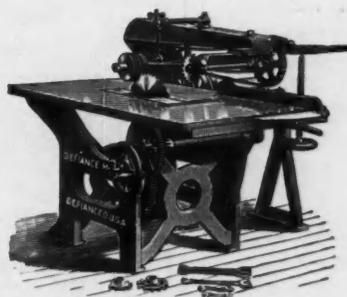
28" Band Saw



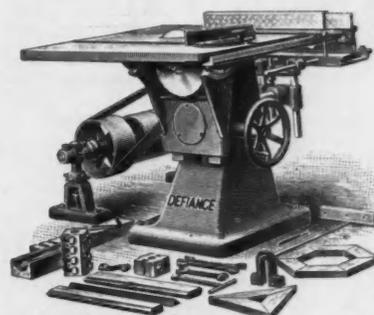
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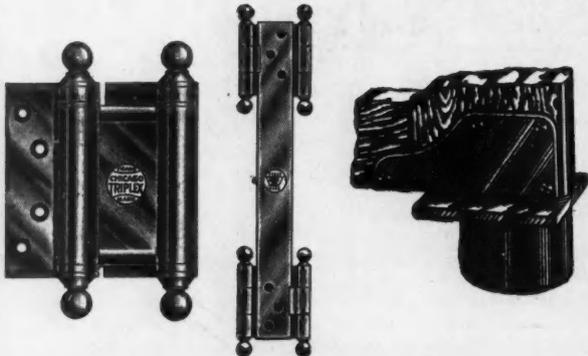
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combining all the valuable features which experience has demonstrated to be desirable.



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THE LEADING SHEET METAL PLANT OF THE WEST
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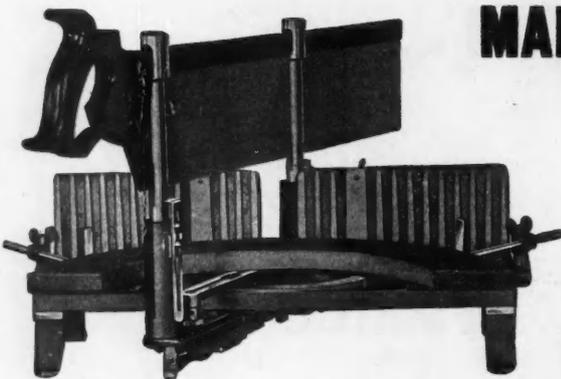
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American Carpenter and Builder

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VOL. IX APRIL, 1910 No. 1

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We want to take this opportunity to thank them—and you all—for this continued loyalty and support. During this year and coming years we want to continue to have, and to merit, your confidence, together with your suggestions and help, so that every number of the AMERICAN CARPENTER AND BUILDER may be just a little bit better than the preceding one in interest and practical use.

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DON'T invest in cheap plumbing and lavatory fittings. If you do you'll soon discover it to be the most "expensive" economy you ever tried.

Don't plan a wonderful variety of color schemes in decorating when the consistent use of simple color combination gives far more pleasing and decorative results.

Don't forget that rooms designed after simple, straight lines lend themselves more easily to decoration, prove more sanitary and are less tiresome to live in than badly arranged rooms.

**Who Was Responsible?**

ASOMEWHAT curious accident was the cause of the death of a laborer in London recently. It appeared that a new building was to be erected on a site partially covered by an existing house that had been built many years before. The architect, in designing the new building, found that an existing gable wall coincided with a required wall in the new building. It was planned, therefore, that the wrecking should not be complete, but that the wall in question should, as far as necessary, be left standing and utilized in the new work. The work proceeded along these

lines, and at the time of the accident the building had been demolished, except the wall which was some 8 or 9 feet high. On one side of the wall the ground remained clear and on the other some tons of ballast were stored. During the shifting of this, a considerable portion ran down the slope of the heap and rested 2 or 3 feet deep against the lower part of the wall. The lateral pressure proved too much for the wall's stability, and it fell over, killing a man in so doing.

In commenting upon this a London building paper says: An examination made of the material of which the wall was composed showed that the mortar was much decayed and the bricks, a common stock, were not properly bedded. On one side the pointing had been removed, and on the other a plaster surface prevented a close examination of its condition. These circumstances afforded an opportunity for the rotten state of the wall to escape notice. It is questionable, however, if such should have been the case. Before any portion of an old building is incorporated in a new, it would appear to be a necessary condition that its strength should equal that of the structure to be erected. During the wrecking of the other parts of the building it should have been possible to ascertain to a great extent the general condition of the work and unless the part pulled down was much more sound than that left, an unlikely event, knowledge should have been gained to warrant a total destruction of the old building. Further, it is not impossible for a practical man to easily find where unsound work exists. There was no evidence that this had been done. The jury brought in a verdict of "accidental death" and added no rider. Beyond this we have no intention of going, but the question will necessarily arise who is responsible?

An architect wishes, no doubt, to carry out his work as reasonably as possible, but his knowledge must be such that his plans and specifications involve the use of nothing defective.

A builder's point of view, if he contracts at competitive prices, is somewhat different. If he sees that a mistake, or potential causes for mistakes are given to him in the conditions under which he tenders, it may be to his advantage to keep silent until the contract is signed. An error afterwards discovered is often an opportunity to increase profits; such cases have been known. But the concealment of a mistake until dangers arise can have no justification, and a builder would show up badly if such a fact could be definitely proved.

A foreman, again, should undoubtedly, draw attention to such an occurrence immediately it becomes known to him, and any neglect to do so would throw upon him a responsibility from which he would have a difficulty to free himself. These three should be sufficient to enable errors to be discovered, but it is probable that the division of authority enables detection of a fault to escape, each relying upon the other. It is a pity that this should be so, but it is difficult to devise a means of altering and improving the system.



THE man who never made a mistake—never made anything.

Pat's Preference

Irishman (after waiting at the theatre entrance for a long time on a cold night)—"Sure it's meself wad sooner walk fifty miles than shtand five!"—*Punch*.

Cause Sufficient

"Why do people read the advertising section in the magazines?"

"Say, I guess you never tried to read the other section!"—*Cleveland Plain Dealer*.

Fashion Note

"It says here that men are goin' ter wear clothes to match th' hair, this winter."

"That's gon er make it kinder cold fur th' bald-headed fellers, ain't it?"—*Life*.

A Sweet Moment

Cy Warman's young son had been naughty and had been sent to bed supperless.

Presently when Mrs. Warman wasn't looking, Cy slipped upstairs and whispered through the door of the boy's room: "Son, could you eat some honey in the comb?"

"Dad," the boy said, "I could eat it in the brush."

Perfectly Safe

Michael Dugan, a journeyman plumber, was sent by his employer to the Hightower mansion to repair a gas-leak in the drawing room. When the butler admitted him he said to Dugan:

"You are requested to be careful of the floors. They have just been polished."

"They's no danger iv me slippin' on thim," replied Dugan. "I hov spikes in me shoes."—*Lippincott's*.

Satisfied His Curiosity

It was in a railroad car. A one-legged passenger entered and seated himself. Another passenger eyed the newcomer for some minutes, and then, leaning forward, remarked:

"Only one leg, I see." "Yes." "Soldier?" "No." "Sawmill?" "No." "Dynamite?" "No." "Railroad?" "No." "Steeplechase?" "No." "Orange peel?" "No."

The questioner lit a clay pipe, and twisted uneasily in his seat. Then he said:

"Fine day?"

"Yes."

"My good man, don't think me rude, but how did you lose that leg?"

"I dreamt one night that I was a dog, and bit it off."

Our American Manual Training

HOW OUR MODERN SYSTEM OF MANUAL TRAINING HAS BEEN DEVELOPED AND WHAT IT IS DOING IN THE LINE OF USEFUL TRAINING

By Charles F. Errett

(Director Brantford Manual Training School)

A GENERATION ago the most potent factor in the establishment of manual training as a subject of school study was the remarkable school conducted in the Swedish village of Naas, by Herr Otto Salomon. Thither English, German, and some few American teachers made vacation pilgrimages, worked ardently and patiently with the old-fashioned tools provided, listened eagerly in their moments of leisure to the great teacher's words of pedagogic wisdom, and, at the close of their brief terms of instruction, carried away with them enthusiasm, dogma, and satchels of "models."

Of this Sloyd system, as it was called, a very skillful

models for the meaningless bootjacks, sugar scoops, wooden spoons, and things of that sort in the Swedish course. By still further modifying Sloyd methods of teaching, and by a more liberal interpretation of the educational gospel his fellow-countryman had hit upon, he developed a sort of educational handwork, so easily available for school purposes, and so shrewdly propagated, that it was readily accepted and established by school authorities throughout the country.

Prior to this, American manual training had been of the trade school order, taught by tradesmen, who were unable, as a rule, to properly organize their courses of work and adapt them to school requirements.

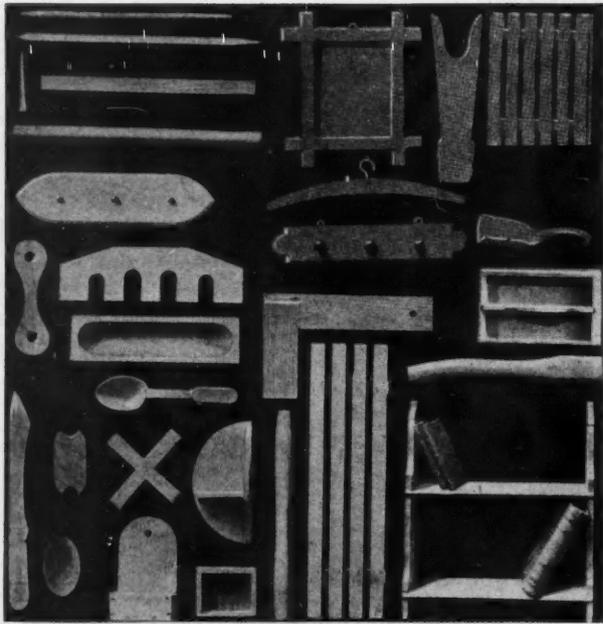


Some Typical "Projects" Executed by Grammar School Lads—Compare these with the Sloyd "Models"

and sensible modification was taught in this country by another great teacher, Gustaf Larsson, who established himself in Boston, and there undertook the task of preparing American instructors of manual training. Concerning himself as much with the pupil's interest as with the exercises produced, he substituted other and more reasonable

Fortunately, the modified Sloyd failed to displace these men. It had instead, the effect of establishing their work by revealing to them the possibility and necessity of so modifying the exercises they had taught and their method of presenting them as to meet the new demands of the educationists. Their response was remarkably apt and prompt.

Our best manual training still concerns itself chiefly with bench woodworking, and is only a more complete and efficient adaptation of this native American teach-



Sloyd, as Taught in this Country Ten Years Ago by Imported English Teachers—"Models" made by Hand by 16 year old Boys.

ing. It has gathered its lessons from the crafts, but applied to them the safest principles of art, and prepared them for presentation, by established rules of pedagogy.

The tradesmen teacher has contributed the content of his craft, the lessons of his shop experience, scientific and practical methods of working, and, chiefly, the habit of solving difficulties by intelligently analyzing them. The art teacher has made available the principles of constructive and decorative art as taught

in England by Ruskin and Morris, a world-wide "Arts and Crafts" movement favoring the task. Of this heritage the pedagogic possibilities have been developed by the educationist, who has seen to it that our teachers should have in addition to expert technical knowledge the capacity for imparting instruction and uplift to their classes.

By the same methods as are used in the ordinary classrooms or in the science laboratories, boys are taught the principles and practices of various trades, taught how to work with patient determination, how to apply thought as well as knowledge to their work, and to solve difficulties by spontaneous inquiry and original method. Incidentally, but constantly, the teacher inculcates discernment of what is good and beautiful in work and its product. All these lessons are taught the more easily through a direct contact of teacher and pupil, a pleasant partnership of interest requiring from each his highest efficiency.

The forward teacher no longer disclaims any attempt to produce craftsmen, nor makes it an excuse for mediocre school products that his aim is merely to develop the educational worth of his subject. He recognizes that the utilitarian value of his teaching is its first claim to recognition, and knows his subject to be none the less valuable, even academically, because practically presented. Nowadays, too, he speaks more frequently of "individual projects," than of "models," a significant change of phrase. But, while he allows freer choice of exercises and encourages more ambitious attainment, he does not slacken his demand for thorough workmanship, though this he recognizes must come through wise practice and careful direction. Experience has taught him, too, that a high degree of interest is a fair substitute for dexterity, since it insures care, and patience, and sustained effort.



Manual Training Room Scenes—Interest in the Work Develops Perseverance, Practical Judgement and Skill.

The habits of initiative and application concern him vitally, and these he constantly develops and conserves.

To the practical man the illustrations accompanying this article describe more aptly than words the worth of our newer manual training. Each of the pieces shown has been made entirely by one boy, and in some such fashion as a builder would plan and erect a house. To illustrate: The lad who made the Morris chair needed one for his home, and asked to be allowed to make it. Having the needed skill and capacity he received permission and encouragement. He was supplied with photographs and furniture catalogues and

patient toil, with an occasional failure and discouragement, but finally success and a reward. It was, and is, and will be for a few generations, a beautiful chair, a piece worthy and strong, and good to look upon. Can you doubt that the boy was a stronger boy, having made it? Was he not all the while developing qualities that will stand him in stead, whatever his future occupation may be?

Keeping in mind the rigid courses of models of a decade ago, incapable of results like this, it is easy to see how, from very elementary beginnings, we have evolved an altogether admirable manual training, one that enkindles zeal, encourages initiative, inculcates



Manual Training "Projects" Worthy a Place in the Finest Home

told to dip into the advertising pages of the magazines. Here he gathered ideas. A few others came from a very comfortable illustration in one of the magazines showing a college chap lolling in a great chair with pipes and books and blazing hearth.

So he made a working drawing embodying the ideas he had culled and one or two of his own. Where the proportions were not pleasing or the construction faulty it was altered at a hint from the teacher, who was throughout, not a master, but a partner, and often shrewdly silent. The boy ordered the oak at the mill from the bill he had made out himself, and no quality was too good for him. When it came, the legs had to be built up, pieces finished to size, mortises and tenons cut, parts scraped and sanded, sides assembled, a device originated to do away with the old-fashioned brass rod, the chair erected, gone over carefully with sand, and finally finished with stain, shellac and wax.

There were hours and hours of determined and

taste, and all the while teaches correct and modern craftsmanship.

Of this evolutionary process the latest phase is the widening of the manual training curriculum to include direct preparation for vocations, a preparation differing from that of the trade schools inasmuch as it is correlated with a general cultural training. A lad at a point in his school career decides what occupation he will enter, and, if it is to be industrial, looks to his manual training teacher for definite, practical help.

The teacher is glad to project his influence in equipping a future citizen for efficient service. So he teaches lessons in forging, pattern-making, metal-turning, mechanical drawing, printing and similar subjects; lessons of so practical a sort as to prepare directly for mechanical trades. Efforts are made to ally the school and the shop. The instructor becomes a familiar figure in the factories of his town, whither he is occasionally accompanied by "his boys."

This vocational teaching, so intimately associated with older studies, and growing out of the general and preparatory manual training, is, surely, the greatest advance we have yet made towards the solution of our industrial education problem.

Granting that our inspiration came from abroad, we have interpreted the oracle in our own terms. By the

application of a selective process, not often applied to subjects of school study, we have successfully exploited a subject unused and undeveloped for ages, have, indeed, so largely influenced its development, that in its modern form, it may reasonably be regarded as the product of a characteristic American adaptation and development.

How Carpenters Are Made

SOME OF THE PROVISIONS AND RULES OF THE CHICAGO CARPENTERS AND BUILDERS ASSOCIATION CONCERNING CARPENTER APPRENTICESHIP

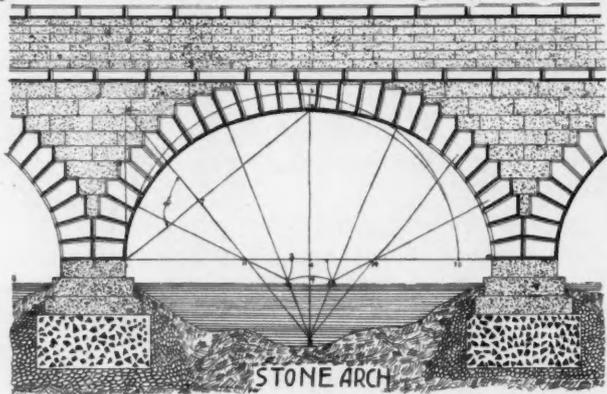
By Oscar Newman

THE carpenter is proud of his trade.

Once a carpenter, always a carpenter. The trade, as no other, claims its members from boyhood to old age. It takes them in the middle of the teens; it keeps them as long as they are able-bodied and capable of doing a day's work. The carpenter is the patriarch of the trades. His work is as old as the art of building. It came into existence when man left his cave-like shelter of mud and stones and housed himself in a structure made of wood. It never will cease to exist so long as lumber is used in building.

It gives employment to a greater number than any other trade in the world. Six hundred thousand men follow it as a means of livelihood in the United States. Eighteen thousand of them are to be found in Chicago, and each of these, before he is accepted as a journeyman, has passed through the most rigid apprenticeship to be found in any of the trades.

No other trade has so elaborate an apprentice system as the carpenters. It is their way of molding a man to the trade before he becomes a member of it. By the time the worker is a full-fledged journeyman



Drawn by a Second Year Apprentice Boy, Chicago Building Trades Apprentice School

he has become so thoroughly imbued with the principles of his trade and its organization that he feels about it much as the patriotic citizen feels toward his native land. He respects his craft, and is loyal to it to a remarkable degree. The following items from the apprentice rules of the Carpenters' and Builders' Association in Chicago suggest in some degree the thorough manner in which the carpenter is broken to the trade:

Rules for Chicago Apprentices

"Apprentices shall serve four years.

"The applicant for apprenticeship shall not be more than 17 years of age at the time of making application, except under certain conditions. Applicants more than 17 years of age must bring satisfactory proof of having worked at the trade.

"The contractor taking an apprentice shall engage to keep him at work in the trade for nine consecutive months in each year, and see that during the remaining three months of the year the apprentice attends school during January, February, and March, and a certificate of attendance from the principal of the school must be furnished before the apprentice is allowed to work during the coming year.

"A contractor taking an apprentice shall keep him steadily at work or school; failing to do so, he shall pay him the same as if he had worked for him.

"In case an apprentice at the end of his term of four years, for want of proper instruction in his trade, is not a proficient workman, and if, after a thorough investigation, the joint arbitration board finds that the contractor to whom he was apprenticed did not give him proper instruction and opportunity to learn the trade, the apprentice may be required to serve another year with whom he and the board may determine, and at a rate of wages less than the minimum in his trade; the difference between said rate and the minimum scale shall be paid him through the board by the contractor to whom he was apprenticed.

Two Trials Only Allowed

"A contractor entitled to an apprentice may take one on trial for two weeks, and if after said trial conditions are satisfactory to both parties, they shall be required to sign indentures agreeable to the joint board of arbitration. If not satisfactory the contractor is not bound to indenture the apprentice. No boy will be allowed a trial with more than two contractors, or a contractor with more than two boys, consecutively.

"The rate of wages of an apprentice at the time of his indenture shall in no case be less than \$312 for the first year, \$364 for the second year, \$442 for the third year, and \$572 for the fourth year, to be paid in weekly installments.

"All apprentices shall report to the joint arbitration

board at its meetings in January and April of each year.

"The contractor shall not have more than two apprentices at any one time.

"Contractors shall be allowed apprentices on the following basis: Yearly average of four journeymen employed, one apprentice; yearly average of ten journeymen, two apprentices.

"All apprentices shall be under the jurisdiction of the arbitration board, which has the authority to control them and protect their interests."

Trade Sets High Standard

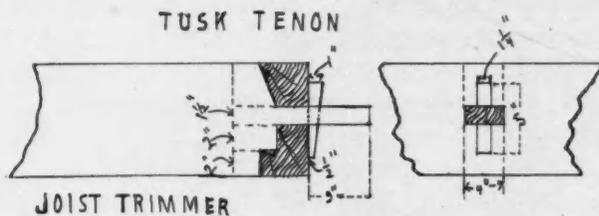
This, in brief, is the regulation to which the young man entering this trade in Chicago is subjected. No other line has taken such elaborate precaution to control and direct the destiny of its new members. The result is apparent in the older workers. The standard of education and manhood is as high, if not higher, than in any other trade.

"We have kept the trade clean," is the carpenter's justifiable pride. "We will endeavor to continue to do so. As the boy is, so will the man be. Take good, clean boys and break them into the trade early and you will have good, clean men when they are grown up. That's why we watch our apprentice system as we do."

Taking them before they are 17 years old is taking them young enough. This means that when his four years have been served he will come into the trade as a journeyman at 21 or under. He will have known no other kind of employment. The trade will be everything to him. As he has been trained, so will he grow. He will respect his work and himself as a workman. And unless he is the noteworthy exception, he will stick at the work during the active years of his life and wind up as a workman, foreman, or contractor in this line.

Son Follows in Father's Footsteps

Perhaps in no other trade, save possibly that of the bricklayers and stonemasons, does the "habit" send the son into the father's vocation with such frequency.



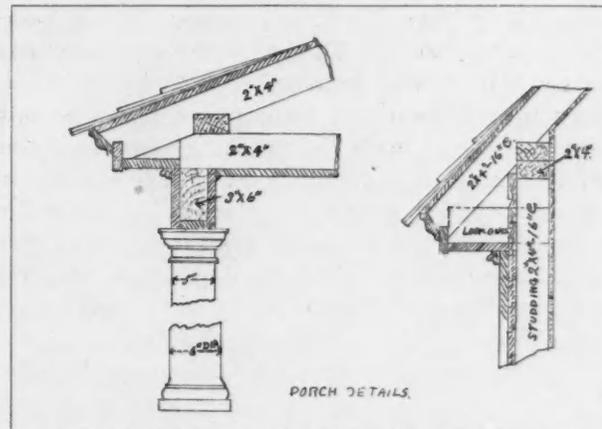
Practical Work of an Apprentice School Lad

Possibly it is a custom dating back to the old days when the carpenter taught his son the trade without restriction or direction from an organization. Perhaps it arises from a desire to keep the standard of the trade as high as may be, and from an appreciation of its desirability as an occupation.

But whatever the reason, the father often brings up his son to follow in his footsteps, and occasionally

a carpenter is found who can count back for three, four, or five generations of ancestors, all of whom followed the same trade for a livelihood.

In this way, though modern conditions have altered most trades, the carpenters have retained the principal characteristics that marked them decades ago, before machinery and mill-work changed the nature of their employment. They are of the same sober, hardworking type that worked at the trade a century ago, and in an age where the average workman shifts from one kind of work to another half a dozen times in a life-



Framing Details Drawn in the Chicago Building Trades Apprentice School

time the carpenter who sticks at his craft from apprenticeship to the end of his days of activity stands out as a noteworthy exception. His papers of indenture often constitute the first step in a life's employment and of few trades may this be said with truth.

At the end of his four years the apprentice becomes a journeyman, if he has learned his trade. Every opportunity to learn and to improve himself during these early, formative years, must be given him. The contractor to whom he is bound must have satisfied the joint board of arbitration that he is a good, responsible man, fit both as regards workmanship and morals to have charge and control of the training of a young boy. He must be qualified to develop the man as well as the workman; and the schooling of the apprentice during the non-working years is devolved upon him. Failure to qualify in all or any of these respects renders him unfit to have an apprentice.

Thus, the boy at 21, or less, should have learned the trade and have grown into a fairly well educated young man. If he has, and satisfies the board of his qualifications, he is accepted into the organization as a member in good standing and his wages take a bound from \$11 a week to \$4.50 a day.

On the fifth of last July the Chicago scale was advanced to 60 cents an hour, which for an 8-hour day makes \$4.80, and for the week of 52 hours, \$31.20. Double pay is given for overtime. To earn this amount he must be a proficient workman, satisfactory both to his employer and to his fellow workme...

Great aptitude for the work, here as elsewhere, will win certain recognition, and the best of the craft find the way open to promotion to the responsible positions of foremen and superintendents.

Good Chance to "Get On"

All foremen must be members of the organization, and they come from the ranks of the men who began as apprentices. Their wages are a matter between them and their employers, being as much higher than the regular wage scale as their ability may demand.

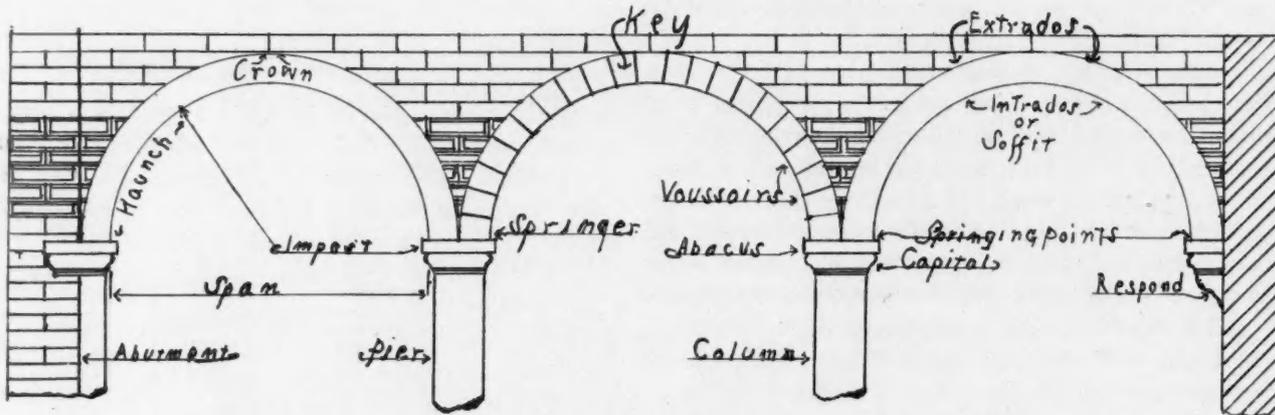
From workman to employer practically is only one step in this trade, and the step is taken with a frequency that proves that the carpenter has a good chance to "get on." With care and economy the first-class workman can readily find opportunity in his position to blossom out as a contractor, and once this change has been made the way to fortune lies open before him. Practically all of the smaller contractors and many of the greater ones began life as regular workmen, sufficient proof of the opportunities that exist. The majority, of course, do not rise after this manner. But this is true of every sort of occupation under the sun.

The day has passed when the carpenter was a mas-

craftsmanship; the new order smiles indulgently and—makes more money than the old ever dreamed of.

The regulations under which the Chicago carpenter works as a journeyman are even more strict than those that governed his period of apprenticeship. He must not be guilty of excessive rushing of the work on penalty of being fined and ruled off the job for a year; must not repair, fit, or grind his own tools while employed; must not bring his tools to a job before securing work; and he may not bring at all any sledge hammer, spike maul, or patent miter box to any job on which he is at work. When two or more journeymen are working together a steward must be elected from their number, who, in event of accident to a workman, will take care of the injured, accompanying him to his home or the hospital if the case so demands, and the steward at any time is authorized to see the pay envelope and money received by every worker to make sure that he is being paid the required scale.

He must not work after the regular pay day, which is Tuesday, unless he has received in full his pay for the week previous, and to work Saturday afternoon the steward on the job must secure permission from the executive council.



Lesson in Arch Terminology—Work of Apprentice in Chicago Building Trades Apprentice School

ter craftsman who could and did make with his own hands and tools the material that he used in building. Forty years ago this is what he did. Beams, pillars, and other heavy pieces were fashioned with the ax and adz. Window frames and doors were cut, fitted together, and put in place by the carpenter in the building where they were to be used. Even the carving of ornamental pieces, molding, etc., was done by hand by the most skilled of the workmen.

Modern conditions, involving a demand for greater speed in building, and the universal introduction of machinery, have changed all this. The more intricate parts of the carpenter's work are done by machinery in the mill. The doors and frames come to the building ready to be put in place, and the carpenter has come to require less skill in his craft. The old guard, which turned out by hand every stick of woodwork in a building, deprecates the modern carpenter's claim to

Although he may find his work anywhere in the world where men build houses, the carpenter as a general rule is not a roamer. He settles down early. By the time his apprenticeship is finished he is ready to think of making a home. He saves his money, marries, and becomes a sober, permanent member of the community.

On an average he is pretty well satisfied with his occupation. He doesn't often seek to change. He becomes earlier than the average workman a steady-going citizen. When the total of his existence is summed up he may not be found to be a plutocrat, but on an average his life probably is as successful and certainly as useful as any. And this is not a bad thing to be said about any class of workmen.—*Chicago Tribune*.

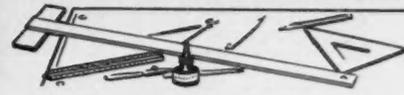
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It is by taking pride in the business that one is inspired to building up a business to be proud of.

DETAILS of CONSTRUCTION AND FINISH



CHARLES P. RAWSON



The Details in this Department Are Designed Purposely for the Best Class of Work. This is Because it is Much Easier—Knowing the Best—to Cheapen and Simplify a Detail, Than it is to Improve on a Cheap Arrangement. Both Kinds of Work Are Called for; But the Carpenter Should Always Recommend the Better Way

THE illustration on the adjoining page shows the complete design of a front door with side lights and transom, in a large and somewhat elaborate brick house in the colonial style. The general scheme can be used, however, in less pretentious work. The cut shows a half outside and half inside elevation, plan, and section on the center line, all drawn to the scale of $\frac{3}{8}$ -inch equals one foot; details of each essential part of the construction at $\frac{1}{8}$ -inch equals one inch; and one-half full size detail of door and inside trim. The side lights and transom are stationary, although the latter could be hinged at the bottom and provided with two chains at the top and made to open without the use of a transom lift. The door is shown without glass as sufficient light is obtained without it, although many would prefer that it be glazed to match the side lights. In work of this kind the screen door should be provided for as an essential part of the construction instead of being added, as is usually done, after the building is otherwise completed, and without thought as to whether it matches the other work or not. Copper wire cloth with small mesh should be used on this door. We suggest that the inside of the main door be veneered with mahogany and finished without polish, and that the balance of the woodwork, both inside and outside, be painted white.

Details of Library or Den

Much of the success of any scheme of interior decoration depends upon the right treatment of the wall spaces. We like the presence in a room of much woodwork—sensibly used in the way of wainscoting, beams, seats, built-in cases, etc., which are a part of the house and which serve to link it closer to the needs of daily life. Bare wall spaces or those covered with pictures or draperies are hard to live with, but when these spaces are properly treated it is surprising how little furniture, pictures and ornaments are required to produce a comfortable and homelike room.

We show this month the plan, elevations and details, drawn to scale, of a library or den. Note how the seats, bookcases and windows bring the whole room into direct relation with the fireplace in the center of

the side with its unglazed tile and bright metal hood, and also how the line at the top of the doors and windows is carried around the room, the spaces above and below being plain, sand-finished plaster. The rough surface of the plaster should have the color put on lightly enough to be a trifle uneven instead of a dead solid hue, thus giving a chance for the sparkle and play of light which at once adds life and interest. The frieze above the head casing may carry a design in stencil if desired.

In recommending the generous use of woodwork we would have it clearly understood that we mean the use of wood so finished that its qualities of grain, texture and color are preserved and deepened, and its surface made pleasantly smooth without sacrificing the woody quality—a quality that is lost entirely if the wood is filled, stained to a solid color, varnished and polished so that the light is reflected from a hard unsympathetic surface.

In a room that is structurally interesting and in which the woodwork and color scheme are good there is a satisfying quality that is not dependent upon furnishings. Only such furniture as is absolutely necessary should be permitted in such a room and it should harmonize thoroughly with it in design and color, and when once placed should be left alone. Nothing so much disturbs the much desired home atmosphere as to make frequent changes in the disposition of furniture. If the room is right in the first place it cannot be satisfactorily arranged in any other way. The majority of houses are in themselves so uninteresting that it is little wonder that the people who live in them always have a sense of restlessness and discontent, and that they are always doing something different in the hope that eventually they may find a thing that satisfies them.

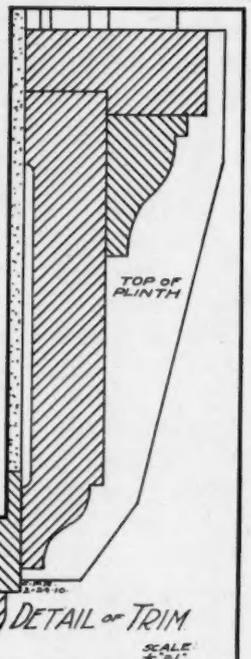
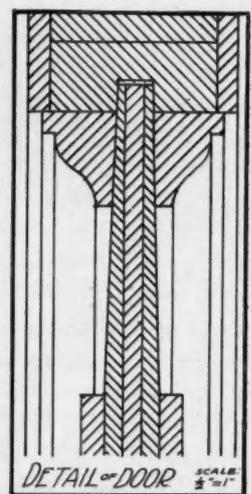
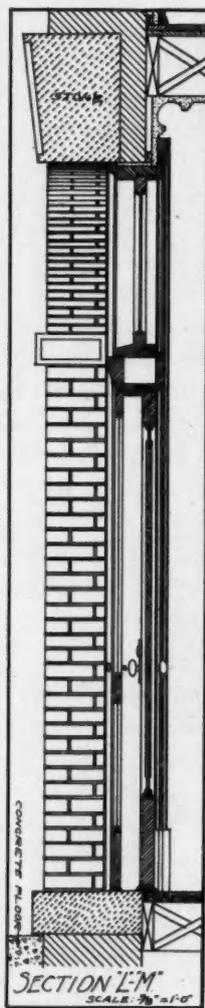
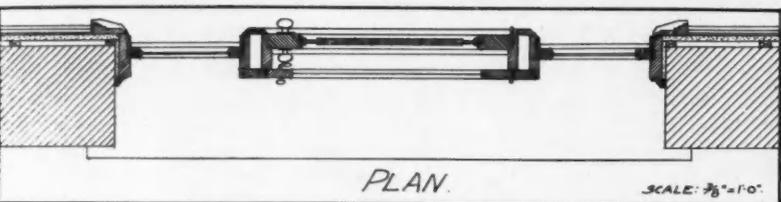
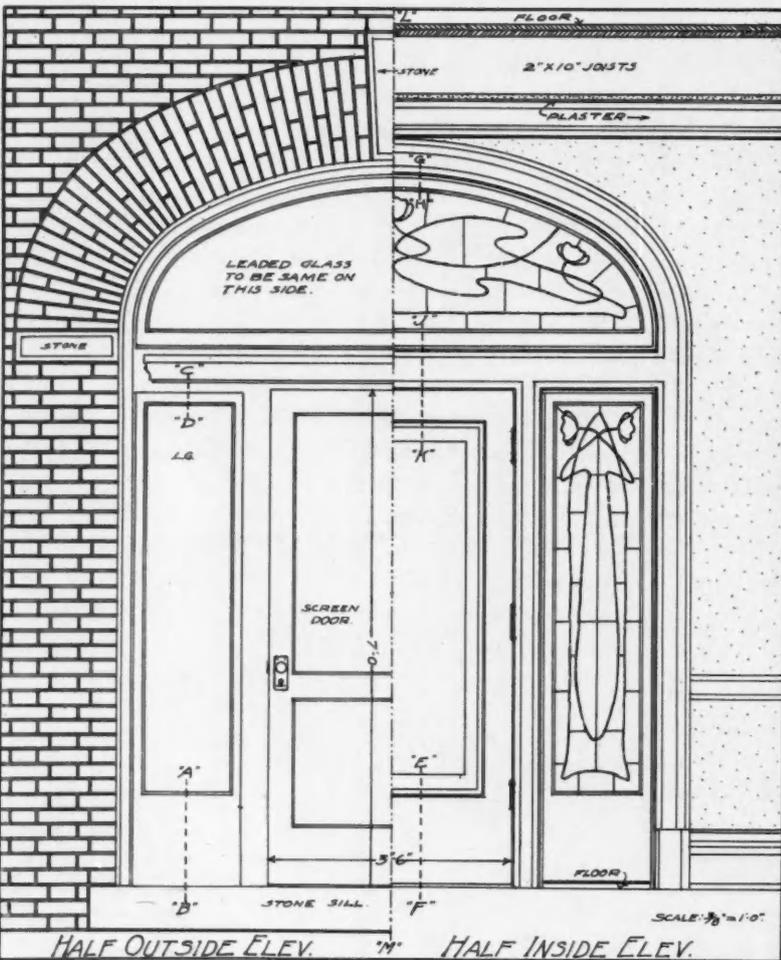
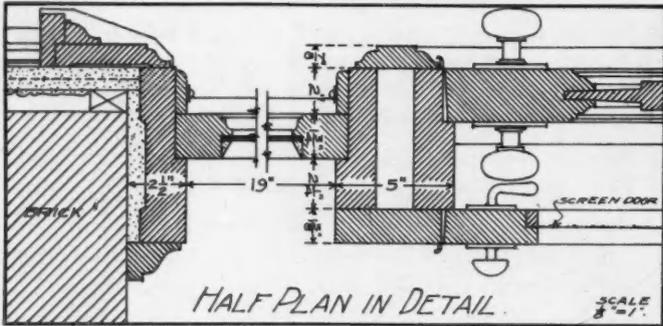
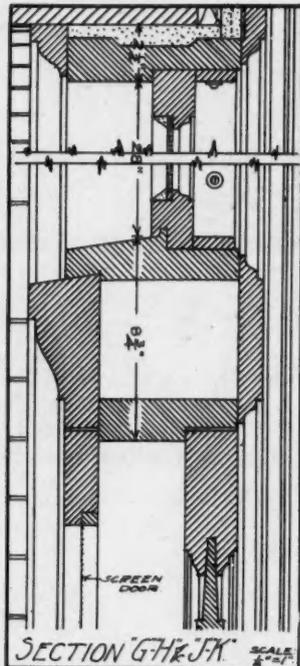
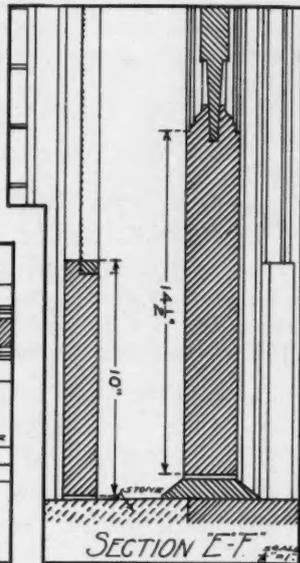
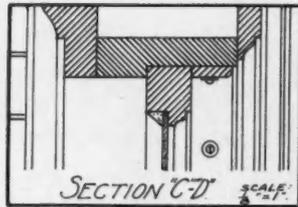
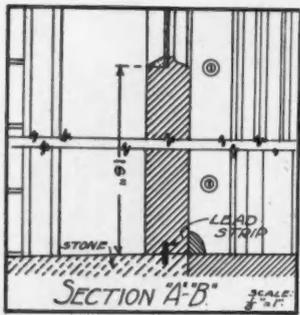


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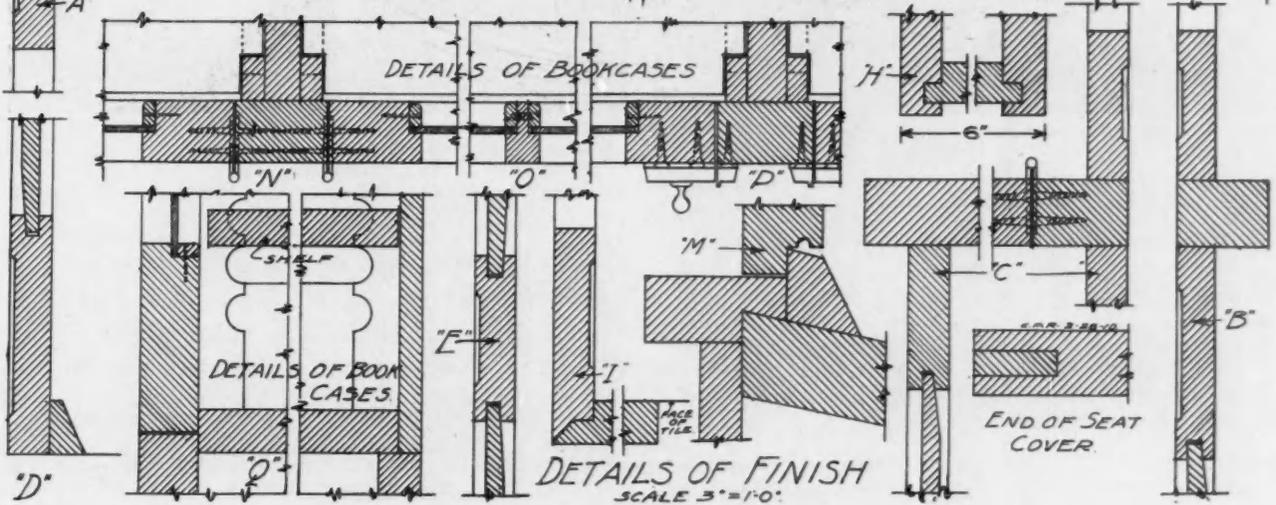
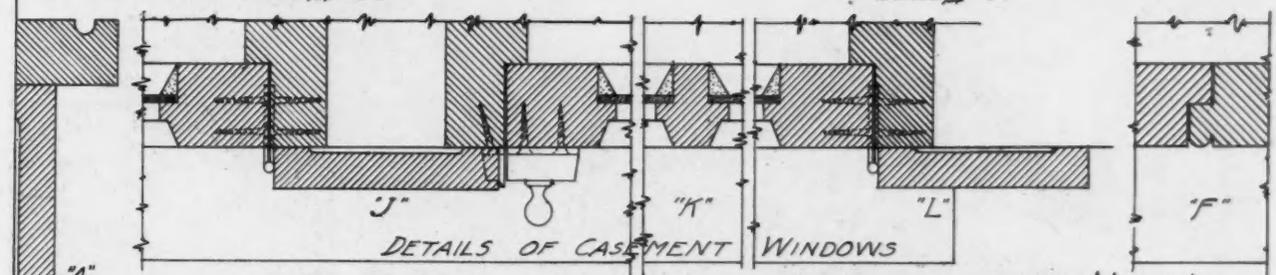
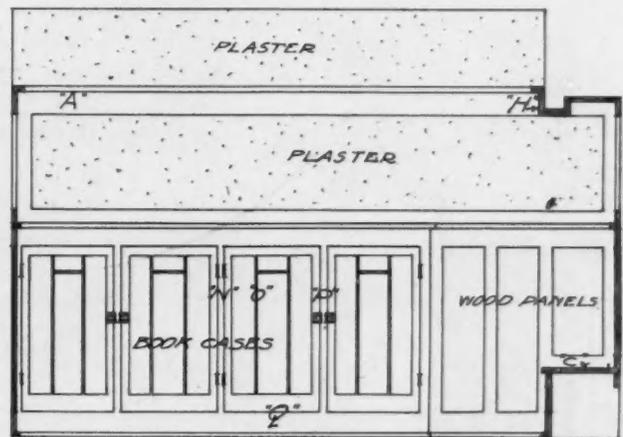
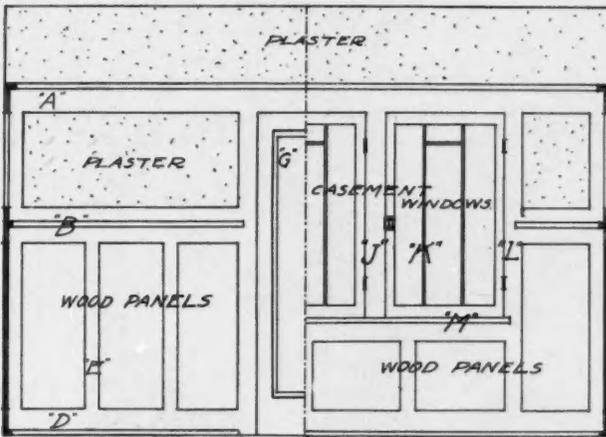
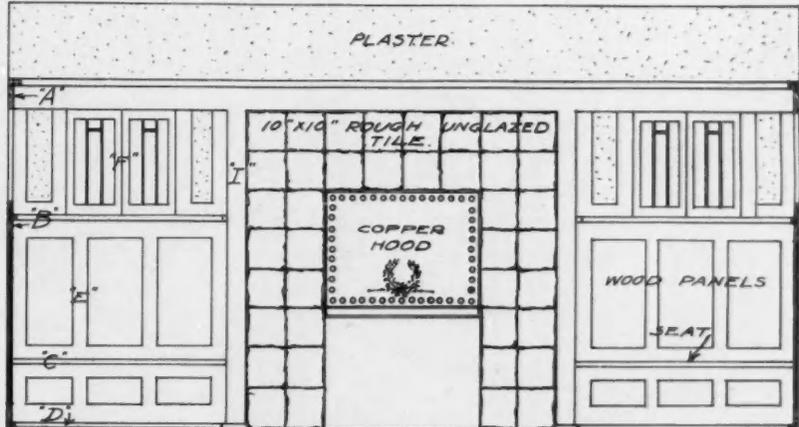
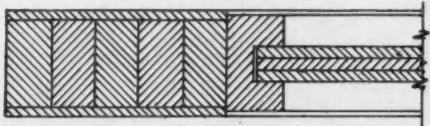
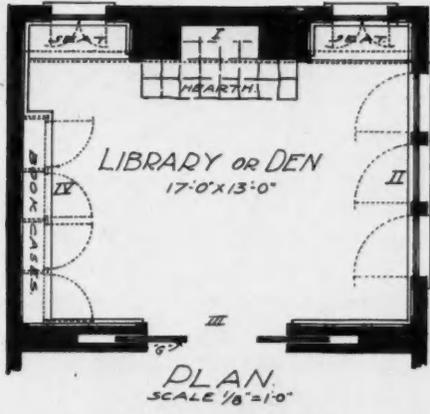
As the train neared the city, the colored porter approached the jovial-faced gentleman, saying, with a smile, "Shall Ah brush yo' off, sah?"

"No," he replied, "I prefer to get off in the usual manner."—*Princeton Tiger*.

FRONT DOOR WITH SIDE-LIGHTS AND TRANSOM AND DETAILS OF CONSTRUCTION.



DESIGN FOR LIBRARY OR DEN WITH DETAILS OF ALL INTERIOR (WOOD) FINISH.



Sun Parlors and Living-Porches

ARRANGEMENT AND FURNISHINGS OF THESE MODERN OUT-DOOR ROOMS WHICH INCREASE THE VALUE OF A DWELLING AND ADD TO THE JOY OF LIVING

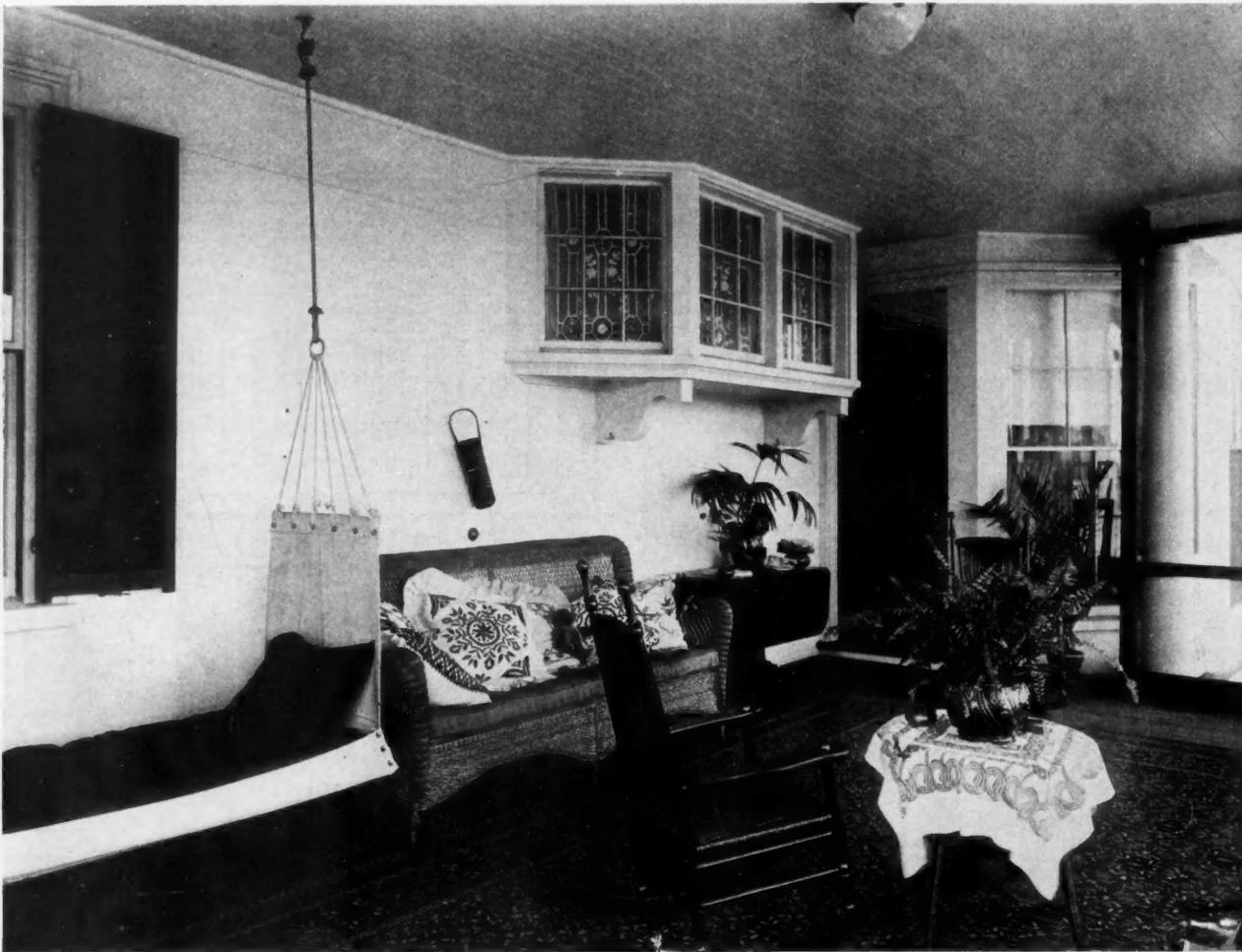
By M. H. Northend and L. E. Purdy

THE outdoor living-room, or porch parlor, is coming more and more to be recognized as a necessary adjunct in modern house building, and today its location is as carefully thought out as the arrangement of any of the interior apartments.

Fifty years ago its erection was looked upon as a useless luxury, and the uses to which it could be put were undreamed of, but all that has passed, and the homes of the present, whether situated in the city or suburbs, in the mountains or at the seashore, or

and its adoption has now become almost universal.

And one cannot wonder at this, for surely there is no room in the house which lends itself so readily to artistic decoration as does the porch parlor with its outline of vines and pretty shrubs, and its free circulation of health-giving air, the benefits of which humanity at last is beginning to realize. It is a cosy retreat, where informality and unconventionality have full sway, and it is a place where one may lounge and read, or entertain, as fancy dictates.



Roomy, Well Sheltered Porch, Fitted Out as an Outdoor Living Room

whether constructed on an elaborate or simple scale, are considered incomplete without the addition of an open air living-room.

For years women who love to cling to old-time housekeeping traditions frowned upon the "fads and frills" of their more up-to-date neighbors who took tea and entertained their friends on porches transformed into summer bowers, but at length their eyes were opened to the delights and benefits of the fashion, and gradually they, too, took up the so-called "fad,"

The first consideration in the erection of a porch parlor is its location; on this often depends its success or failure. It should be planned to be sufficiently broad; for a narrow porch is worse than none at all. Also it should be erected at a point where it will not interfere with the lighting of the interior apartments. Within the angle formed between the main house and a wing is a good spot to build it; and along the rear of the house, if the service portion is in a separate wing, is another excellent location.



For Protection Against Flies and Mosquitos This Arrangement is Good

Often it is found across the front of the house, and this position is desirable provided the house is far enough removed from the main highway to be partially screened from the view of passers-by. The principal advantage of the porch parlor is the semi-privacy it affords, and therefore if it is erected at a point where its every nook and cranny are exposed to the gaze of pedestrians, it loses its chief charm and becomes the useless luxury it was once considered to be.

It should be roofed over to prevent the warm rays of the sun from beating too fiercely upon it, and it may be railed in or not as the owner desires. Sometimes the roof is supported by large pillars, the spaces between being left vacant, or they may be filled in with potted plants and boxes filled with flowers. Again a rail of stone or wood extends around it, against which trellises are built, the whole rendered bright and artistic by means of pretty vines trained to clamber over the trellis framework.

If the porch parlor is sufficiently large, enclose a portion of it for a sun-room. This is a place that is always enjoyed, even in inclement weather, and in addition can be successfully converted into a conservatory during the winter season.

The floor coverings of the porch parlor are numerous and varied, the favorites being grass mats and rag rugs, although art squares, small woolen rugs and arts



With Grille Roof—Always Artistic and Sometimes Desirable



Large Comfortable Living Porch of a Sea-Shore Cottage

and crafts mats are also extensively employed. The grass mats have the advantage of being cool and easily kept clean, but at present are not quite so much sought

after as the rag rugs, which come in a variety of soft, dainty colorings and are charming additions to any apartment. They are made in much the same manner as the old-time rag carpets, the difference being not so much in the method of making as in the contrasting of the colors used, the rugs of today being perfectly harmonious in tone, and not presenting a confusing mass of tints as did the old rag-bag remnants. The art square has the advantage of being able to cover considerable space, and the arts and crafts rugs are always attractive, but to my mind the small woolen rugs are better omitted from the list of porch floor coverings.

Wicker is undoubtedly the most popular porch furniture, and deservedly so, for it combines in construction the desirable qualities of coolness and light weight. It is equally attractive in its natural light coloring or when stained a soft green. Chairs of this material can be purchased in almost any shape, one of the most comfortable being an adaptation of the old English wing chair, with high back and wing-shaped extensions to the sides, a writing rest being arranged on the right arm, and a magazine pocket on the left.

Another comfortable type resembles a couch more than a chair, and is fitted with a very low seat, an adjustable back and a footrest arranged beneath the chair, which may be drawn out when desired. On either side is contrived a newspaper or book rack, and in the right arm is a round hole sufficiently large to hold a glass of lemonade, or some other cooling drink.

Large swings, of canvas or wicker, are charming additions to the porch furnishings, and have taken the



The Rustic Porch of a Log House

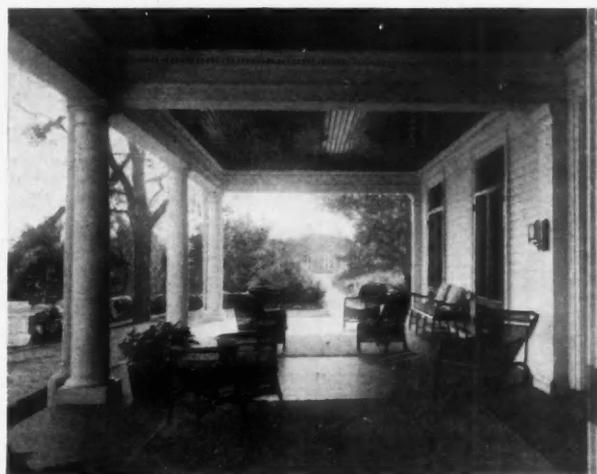
place to some extent of rocking chairs. Then, too, there is the hammock, which is always suggestive of comfort, and can be used in conjunction with the swing without causing a discordant note.

The selection of a table for the outdoor living-room is an important point, but one quite easily settled at the present time, with the wealth of designs that are today on the market. A favorite type of table is of medium size, constructed of unstained wicker. It has two rectangular shelves with a smaller square shelf on two of the sides between the larger ones. It proves an ideal receptacle for books and magazines and also furnishes space for the display of cut flowers.

The porch rail lends itself admirably to the effective display of boxes filled with blossoming plants. Some of these rails resemble a bit of an old-time garden, lined with boxes of mignonette, heliotrope and other old-fashioned favorites. The geranium, too, is a favorite plant much used in filling these boxes, and is always pretty.

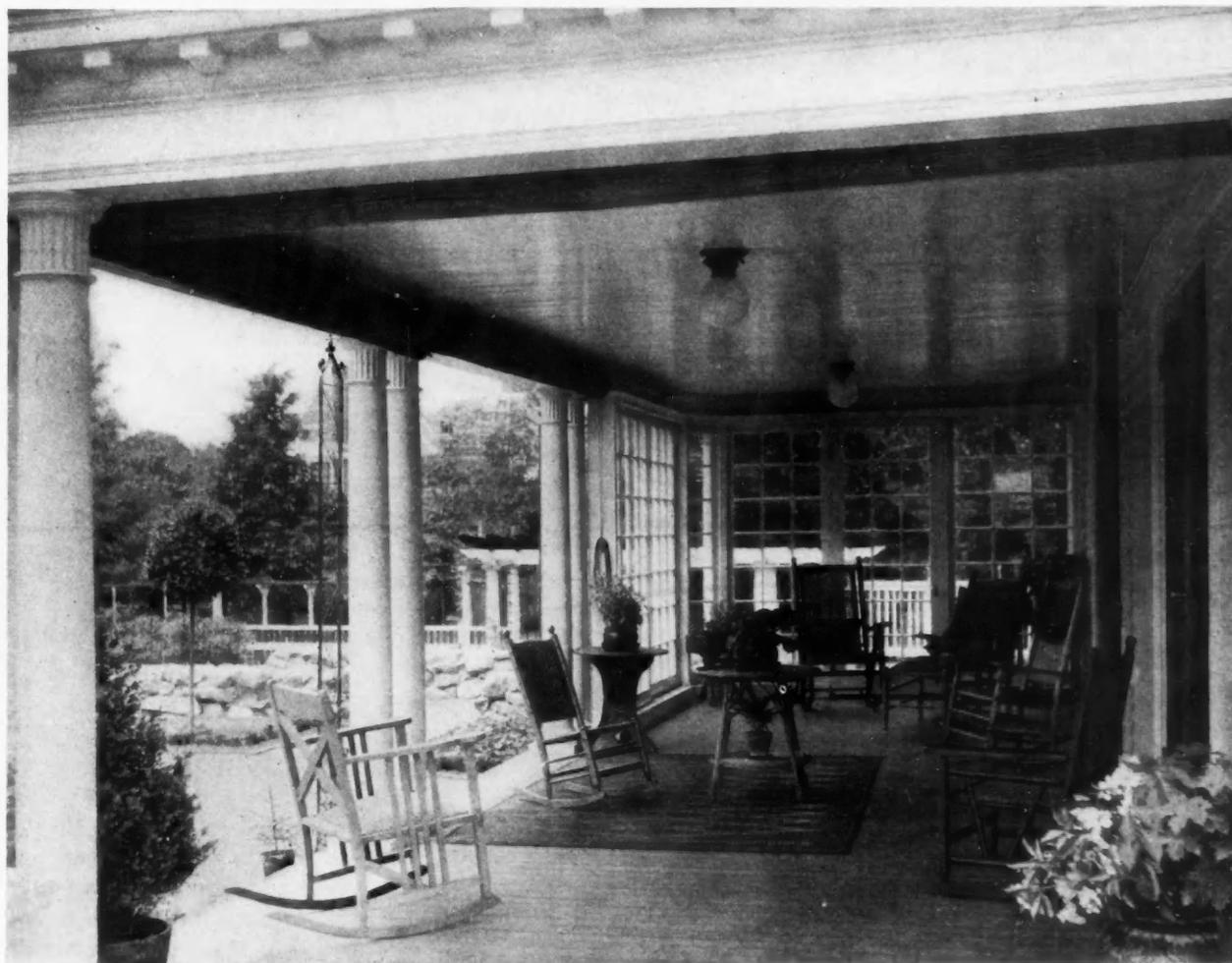
Nasturtiums are particularly well suited for hanging baskets, which are most attractive when covered with natural colored rattan. All of these baskets are made with a drainage, so that flowers thrive well in them. Among the larger flowering plants, which are suited

to decorate the porch steps, is the hydrangea, which is a free bloomer, and is most attractive when planted in a soft blue Japanese crock. These plants are also

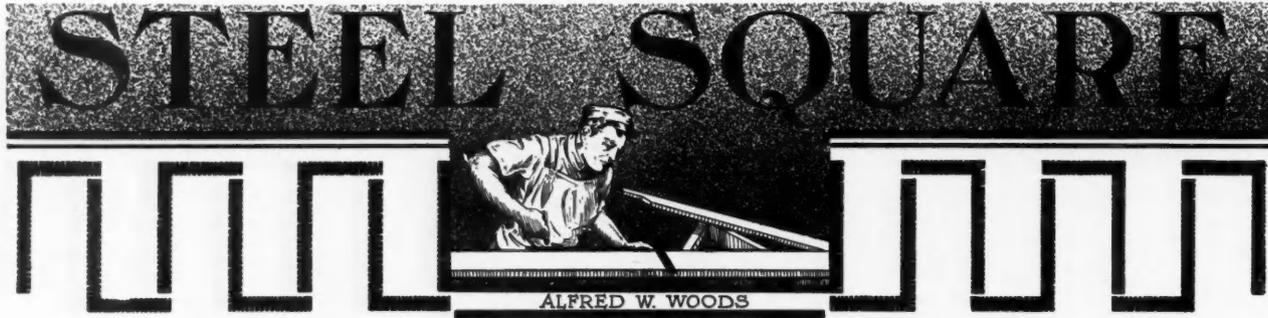


Spacious and Dignified

pretty to place about the interior of the porch parlor. Vines are useful as screens, and at the same time possess decorative qualities. There are any number of varieties, all finely suited to ornament the outline rail and roof supports of the outdoor living-room.



Living Porch With one End Arranged With Glass for Sun Parlor



Problems of Roof Framing Solved

FOURTH ARTICLE—THE USE OF THE STEEL SQUARE IN RELATION TO CIRCULAR MEASURE AS APPLIED TO MITERS, SIDE CUTS OF JACK RAFTERS, ETC.

WE COME now to that part of our subject that tries the ingenuity of most carpenters; that of knowing how to intelligently apply the steel square to obtain the various cuts that enter into the roof.

The square, or right-angle, cornered building is universally used for all classes of buildings; and, while it is considered the easiest of all angles to frame, it is very misleading and has done more to throw the carpenter off his guard than anything else. This is simply because its fundamental rule is based on the 45-degree angle. Consequently, as the square corner is the same as the 90-degree angle, the reading is the same from either way. That is the reason that even amounts taken on the blade and tongue of the steel square, give the miter for the square corner, either side of the square giving the angle, because it is at the half way or centralizing point between either plate. This is shown in Fig. 6. The miter for any angle may be obtained inside the quadrant of 90 degrees, and may be had by taking either of the two angles that

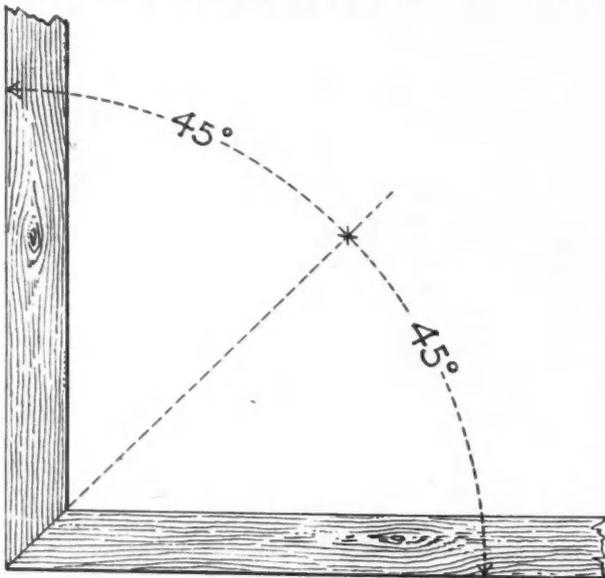


FIG. 6.

complete the quadrant; as for instance, either 30 or 60 degrees, gives the miter for the equilateral triangle, as shown in Fig. 7. The figures for the 60-degree

angle, 12 and 20 $\frac{19}{24}$ give it, or 12 and 6 $\frac{11}{12}$, the figures for the 30-degree, give the same thing. The blade gives it in the former and the tongue in the latter.

What is true of this, is true of any miter, but we will not enter into this phase of the subject further at this time to explain the "whyfores," because it is a subject not readily grasped, and we would be accused

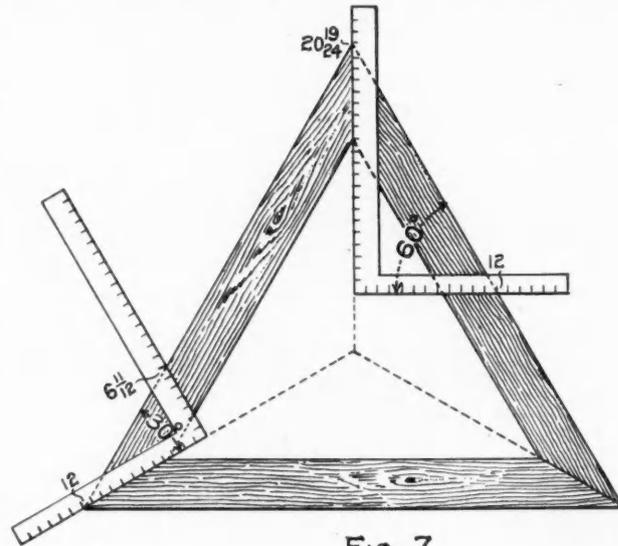


FIG. 7.

of getting up in an aeroplane clear above the heads of our friends, when we could just as well stay nearer the earth; but these are facts just the same.

In the miter for the square corner, the angles that form the quadrant are the same, namely 45 degrees, and that is the reason why either side of the square gives the miter. They centralize; in other words, one angle does the business. Say, did you ever notice that one angle or set of figures taken on the steel square will give all the cuts for a one-half pitch for a square-cornered hopper, for either miter or butt joint? Take your square and try it. Take 12 on the tongue and 17 on the blade and the cut will be found on the tongue for all of the angles. This is simply because the $\frac{1}{2}$ -pitch is half way between horizontal and perpendicular and the miter is half way from either edge of the hopper. For any other pitch, the miters required partake of the angles formed each side of the pitch, but in the $\frac{1}{2}$ -pitch the angles are all the same; hence one set

of figures taken on the steel square gives all of the cuts.

But we hear some one say, "What has all of this stuff he is giving us to do with the side cuts of rafters and roof framing in general?"

Just this: The same relation between the angles that govern the miter for the angle on which the hip rests partakes of the same parts or angles that we have above mentioned. Now then, taking the side cut for the square-cornered building, it is generally understood that the run of the common rafter and its length taken to scale on the steel square will give the top, or more generally called, the side cut of the jack rafter, which is correct as far as the square corner is concerned, but it does not apply to anything else, because the run of the hip rests at an angle of 45 degrees from that of either the common rafter or the plates. Hence, the angles forming it are centralized just the same as for the hopper. Therefore, while the run in this case answers for one of the parts to take on the steel square, it is not because it is the run, but because it is equal to the part that should be taken for the general rule that answers for any angle of the corner on which the hip may rest.

What is the part then to take? It is this; take the distance from the corner to the foot of the first common rafter and the length of the common rafter; the cut will be found on the side of the square that represents the length.

In Fig. 8, A-B represents the distance that the common rafter rests from the corner. (Note, it also equals B-C, the run of the common rafter). Now, if there

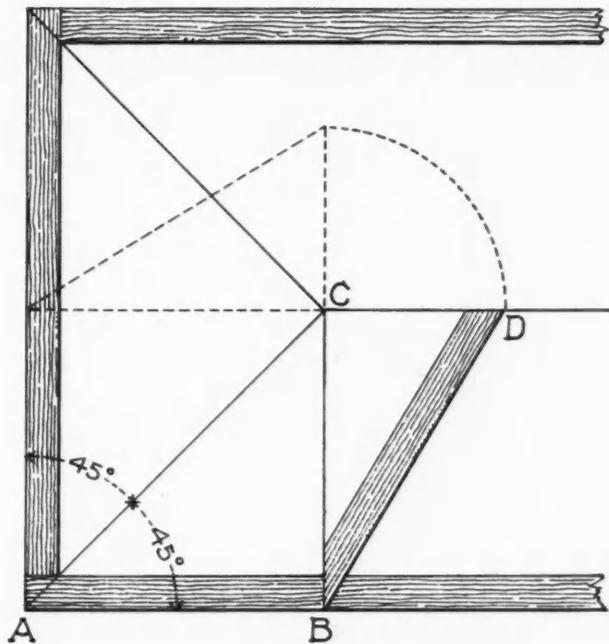


FIG. 8.

was no pitch at all to the common rafter, it would be lying down or level with the plate. Then A-B and B-C would give the cut to fit against the hip. Either side of the square would give the cut which of course

would be at 45 degrees. Now then, when a pitch is given the roof, instead of taking the run, the length of the rafter for that run must be substituted. After the cut is made, should the peak end of the rafter be cut off and on a line parallel with the seat cut, it would be found that the angle in reference to the last cut mentioned would still be at 45 degrees, or just the same as when there was no pitch given the roof,

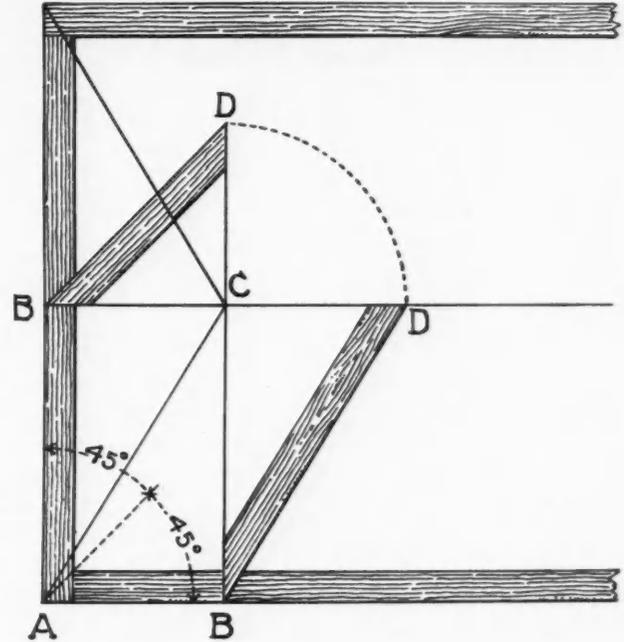


FIG. 9.

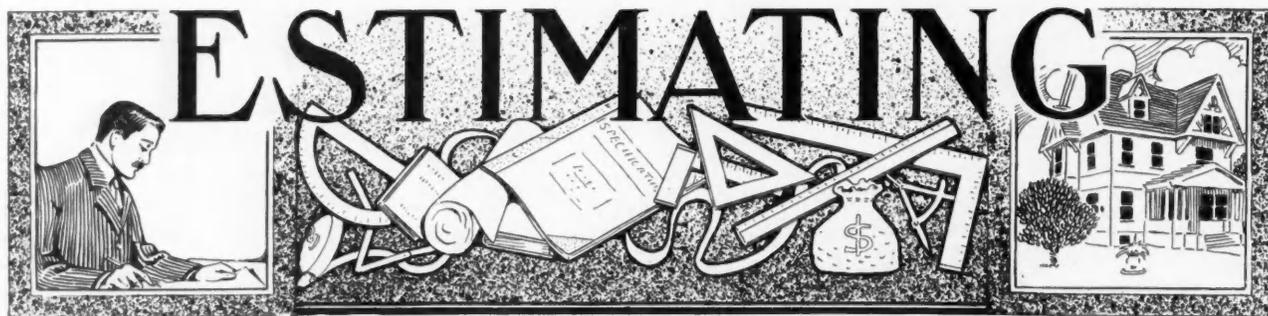
though it required a different angle on the square to obtain it on the back of the rafter.

This is a rule that applies to any cornered building or pitch. One side of the roof may be steeper than the other, as shown in Fig. 9, but it makes no difference, except that they must of course be treated separately. In this illustration like letters are used on both sides, and the operation is the same as that given for the preceding figure.

Wooden Blocks for Flooring

Concrete and planking for flooring both have their objectionable feature, and architects have been long looking for the ideal flooring where the surface is subjected to hard usage. Wooden block has been experimented with for some time at a large wood-working establishment in Georgia, with the result that it will no doubt soon enter into more general use.

The blocks selected for the test were of long leaf yellow pine and were laid in a passage way extending from the planing mill to the drying kiln. This is regarded as the best place for a severe test of the qualities of the material, as there is a great deal of heavy hauling between the two points. Heavy loads of lumber are constantly being drawn between these buildings by mules, and the vehicles made use of are fitted with small wheels, usually found to be hard on a plank floor.



Cost of Framing and How to Figure It

THE NECESSITY OF KNOWING WHAT A FAIR DAY'S WORK IS AND OF KEEPING WORKMEN UP TO IT—AVERAGE LABOR COSTS FOR VARIOUS KINDS OF FRAMING

By I. P. Hicks

A GOOD method of arriving at the cost of material and labor in making estimates for the construction of buildings is a matter of great interest to the carpenter. Some method of arriving at the cost quickly is what is desired, yet it must be accurate enough so that it can be relied upon. There are so many different conditions affecting the work that it is and always will be necessary for a carpenter to be a man of good judgment to be a successful contractor. A bunch of real slow workmen will soon cause a contractor to lose money on a job even though he has the job at a fair price. No contractor can afford to pay 40 and 45 cents an hour for 25 cents worth of work! But there is a whole lot of this going on all the time; no doubt about it.

A contractor should know what is an average fair day's work at all kinds of work about the building. When he gets a man that can't or won't do a fair day's work, he should let him out. A contractor has to figure on a fair and reasonable day's work; there is no other way to figure and he has to depend upon the men he hires to make good on the work he has figured on.

For example, he may figure that a man can case up and finish a certain number of doors in a day, or a certain number of windows, or put down a certain number of feet of base. In either case, if the man does not make good, the contractor loses out, unless he has a margin large enough to cover the loss; in which case he would be minus any profit on the work.

The contractor should not figure on impossibilities or on more than might be reasonably expected of any good and competent man; but he should know beyond a doubt what a good workman can, under ordinary conditions, do in a day of eight hours. Then he can say to the man who does not come up to the average standard: "I figured on a man being able to case so many windows per day, or lay so many feet of flooring per day, and if you can't come up to this average, I will be obliged to let you go."

In estimating, some parts of a building are more readily estimated by the square, some parts by the lineal foot and some parts by the piece. Under these

three divisions the entire job can be quickly and accurately estimated both as regards material and labor.

First, we will deal with the framing lumber and work by the square, showing the amount of feet, board measure, and the amount to charge for labor.

The table shows the number of feet board measure in a square of framing, with studding and joists set 16 and 12 inches on centers.

Size of material	Bd. Ft. per sq. 16 in. O. C.	Labor Cost per sq.	Bd. Ft. per sq. 12 in. O. C.	Labor Cost per sq.
2 x 4 Outside Walls	80	.64	96	.78
2 x 6 " "	116	.93	140	1.12
2 x 4 Partitions	80	.72	96	.86
2 x 6 " "	116	1.05	140	1.26
2 x 8 Floor Joist	110	.88	140	1.12
2 x 10 " "	140	1.12	180	1.44
2 x 12 " "	160	1.28	212	1.70
3 x 12 " "	250	2.00	320	2.56
2 x 14 " "	190	1.52	245	1.96
2 x 4 Ceiling Joist	60	.50	75	.60
2 x 6 " "	85	.68	110	.80
2 x 8 " "	110	.88	140	1.12
			Ft. 24 in. O. C.	
2 x 4 Roof Plain	60	.54	40	.40
2 x 6 " "	85	.77	60	.55
2 x 4 " (hip & valley)	75	.75	50	.50
2 x 6 " " "	106	1.06	70	.70

In the above table there is no allowance made for sills and girders in the framing for floors; our reason for this is that sometimes sills and girders are required and sometimes not. If it is necessary to figure for them they can be readily figured by the lineal foot. A 6 by 6 has 3 feet board measure per lineal foot; a 6 by 8, 4 feet; an 8 by 8, 5 1/3 feet and the number of lineal feet can be very readily found from any plan. Then the lineal feet of the timber multiplied by the board measure per foot will give the feet board measure in the timber. This multiplied by \$8 per thousand feet will give the cost of framing the same.

In the matter of partitions and outside walls, allowance has been made for plates, for it is always necessary to have these. Some allowance has also been

made for waste in cutting. The prices are based on \$8, \$9, and \$10 per 1,000 feet board measure for the labor of framing at 40 cents per hour.

Outside walls and ceilings are based on \$8 per 1,000 feet; partitions, \$9 per 1,000 because of the fact that there are always more or less things in the way that have to be moved. Plain roof framing is figured at \$9 per 1,000 feet; complicated roofs, hips and valleys are figured at \$10 per 1,000. In figuring by this method, if one has the lumber bill made out so that he knows the amount of lumber to be framed, he can strike an average price per 1,000 feet and figure the cost very easily and quickly, just as accurately as a plasterer can figure plastering by the yard, or a brick-

layer brick by the thousand laid in the wall.

Again, if the contractor does not care to make out a bill of material he can take off the number of squares in a very few minutes and ascertain the cost of labor by the square. He can also find the feet board measure by the square, and by this find the cost of material without the necessity of making out a bill. This will be found handy in making estimates.

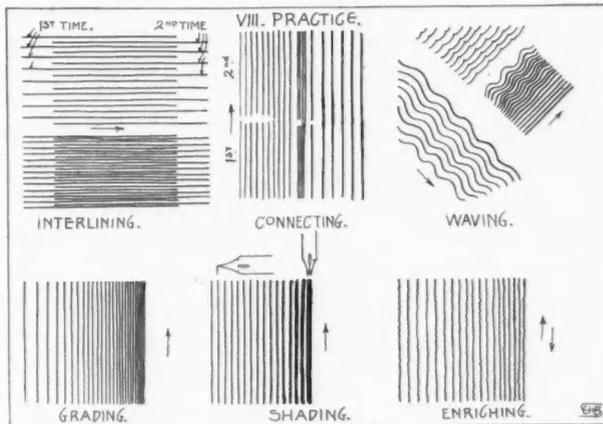
If carefully followed this method will give the cost approximately correct. Then if the estimator gets the job he can make out the bill at his leisure, for the bill has to be made out for the lengths of lumber called for by the plan; but this is not necessary, to determine the cost of the framing.

Pen Sketching Simplified

THE SECOND OF A SERIES OF THREE LESSONS TEACHING THE ART OF SKETCHING IN SUCH A WAY THAT EVERYONE CAN PROFIT BY IT

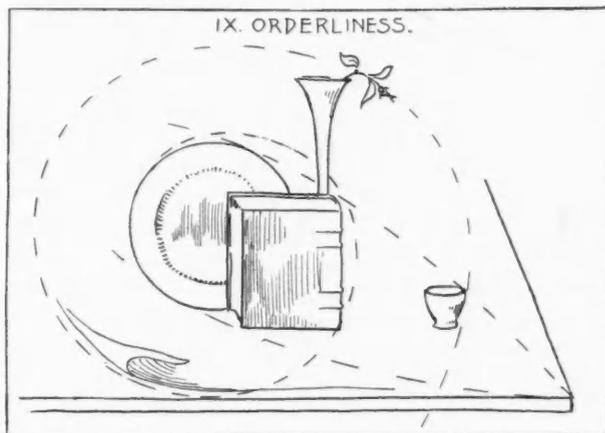
By Conrad H. B. Schaefer

A POCKET sketch book in which to quickly jot down whatever comes under observation will be found a great help for reference in connection with sketching and drawing work.



EXERCISE 8.

VIII. Begin the second practice set, Fig. VIII, by sweeping the fingers back and forth until the right direction is assured. Then draw a set of lines at equal distances. After this draw another set between the



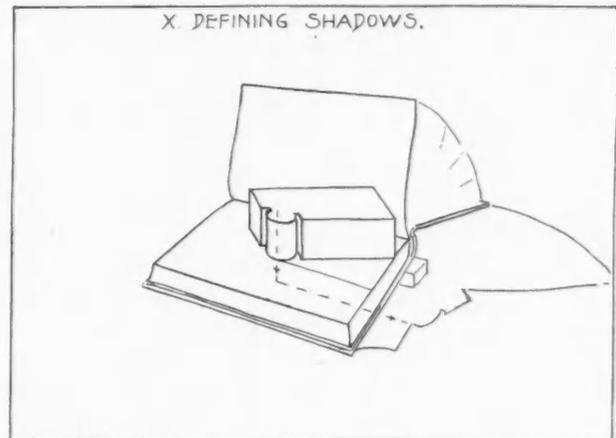
ENSEMBLE.

first lines. Notice the feeling in the fingers and obtain even movements and equal changes. One will then *feel* whether a line will be right or not before it is made. The eye cannot correct a mistake until after it is started awry. Try connecting the ends of lines imperceptibly by the same feeling.

One should then take up wavy lines, drawing lines gradually closer and closer together, also making them gradually heavier by spreading the point of the pen, as shown.

If plain lines are drawn a little jagged they do not appear so stiff, but enrich broad surfaces.

IX. In setting up a still life group to draw from,



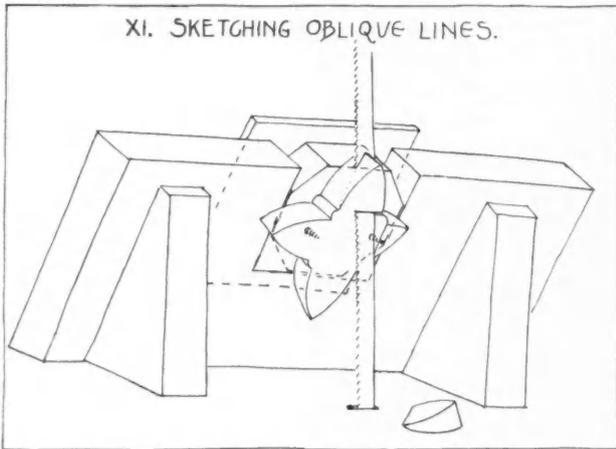
SHADE.

the different objects should be arranged along the lines of some graceful curves. Unity is thus secured and the picture as a whole will be satisfying. One object is usually chosen for the most prominence. This is illustrated in Fig. IX.

X. After a good outline is secured the shadows have to be defined, as in Fig. X. If the edge of the shadow is not plain, a clear outline has to be determined. The shading should be first divided into three degrees: high light, medium and dark. After draw-

ing them the edges can be softened.

Nothing is black. The cast shadow is darker than the shady side of an object. Where a shadow falls it reveals the shape and surface of the part. Shadows lengthen according to the pitch of the surface upon which they fall.



ROSETTE SAWING ATTACHMENT

XI. When there are slanting lines in an outline drawing, as in Fig. XI, care should be taken to make the most prominent ones first, as a guide to the rest. They should be judged in relation to the sight line, which is always straight up and down from the per-



spective point of observation. They may also be compared with the horizon level. Curved parts should first be located by properly distanced points and the axis.

XII. A great difficulty with beginners is their tendency to delineate all the details which they can see in the object represented. Sometimes the mistake is made of beginning work by drawing one small part after another, until it is discovered there is not room for everything, and the picture is crowded out of shape. It makes sketching easier to overcome this tendency as soon as possible.

Show only the essential parts at first and then such accessories as circumstances make desirable.

In looking repeatedly at an object one discovers

more details than a person will ordinarily notice. If that is shown with which people are familiar, they approve, even if it is not well drawn. But they do not think of it again because they know it well already. If the draftsman brings out features that are not familiar, no matter how well drawn, it will be considered poor work. But because it is truthful it will be recalled and appreciated.

Two artists can make an entirely different picture of the same subjects and each may be right. Controversies are therefore trifling.

It is best to choose to show such shadows and lines as will serve the most purposes and to omit details which may be inferred by suggestion. Good judgment in this respect adds to the value of a sketch and increases the ease with which it may be made.

Fig. XII shows how good an effect may be secured by these judicious abbreviations.

XIII. Practice in sketching not only teaches one to see a great deal more than otherwise, but trains the memory for solid facts. This memory may be further increased by drawing from recollection. Many people go about seeing ugly things when they might be finding the better aspect. The latter becomes a factor in multiplying the more desirable tendencies of business and labor.

The sketch, Fig. XIII, looking up an alley in the coal regions, shows none of the dirt and litter. They are transient. The sunlight and picturesque qualities are brought out in a sketchy style of rendering that is agreeable.

A few truthful lines made in a convenient way develop a good sketch. Inaccuracy results in a scribble.

XIV. In pencil drawing the shading can be laid on broad and flat, of varying degrees, but in pen and



CARVING.

ink work lines are always necessary. In order to produce a beautiful appearance these lines should be made as unobtrusive as possible. Paradoxically this is accomplished by giving them greater importance. They

carving illustration in Fig. XIV.

This capital has but three degrees of shade: the light, the shadow and shady side. The nature of the material is shown by the little fractures. The rendering, while sketchy, is accurate in showing the forms; and, by a careful general direction of the lines, fussiness is avoided. On the whole it looks easy, which is desirable.

XV. The arched gallery, represents most of the features of the foregoing lessons. There is a richness of line in the deep shadow. The rest is light and summery. The masonry is characterized with strong, clear lines. The fleeting shadows of the foliage are shown by light and airy shading, the details in the high lights being merely suggested.

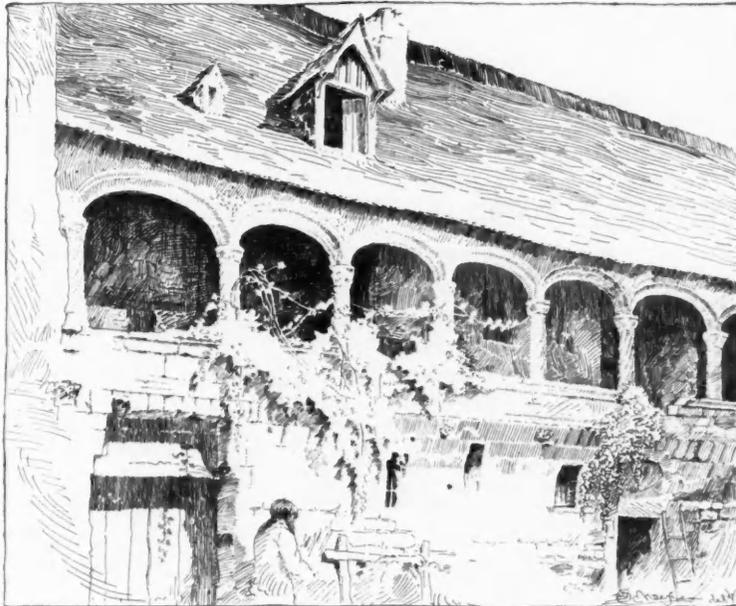
One will always linger over a good sketch because of that which may be discovered between the lines.



How to Restore Hones

Hones made of natural or artificial stone soon lose their original cutting properties on account of metallic particles filling up the pores. This can be remedied and the stone made to work as good as ever by carefully applying hydrochloric acid, which will convert the metal particles into chlorides. The chlorides are easily washed off with water.

XV. FROM A PHOTOGRAPH.



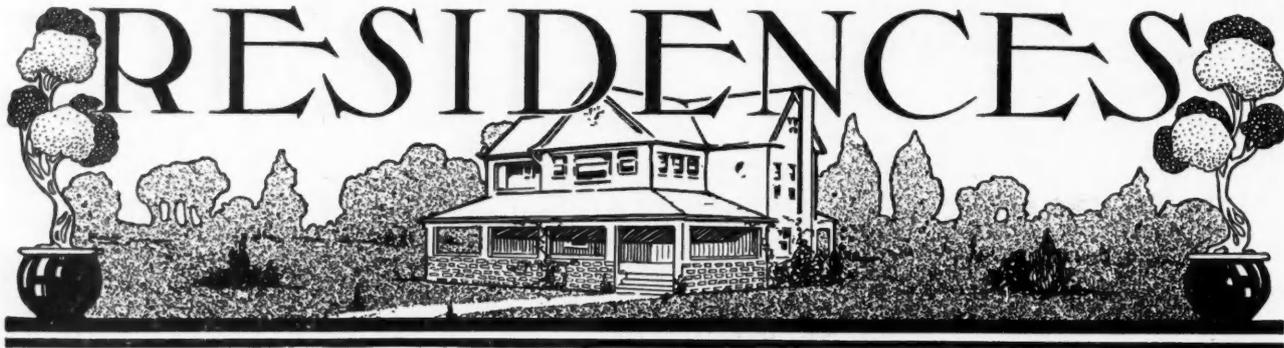
A-BALGONY.

should follow the direction of the shadows, and may indicate the character of the surfaces, the direction of the grain, etc. They may also be used in such a way as to soften the edge of the profiles, as shown in this

stone made to work as good as ever by carefully applying hydrochloric acid, which will convert the metal particles into chlorides. The chlorides are easily washed off with water.

A TABLE OF HARMONIZING COLORS FOR HOUSE EXTERIORS.

TYPE OF HOUSE	BODY	TRIMMING	ROOF	BLINDS
"Colonial" or Formal.....	White Yellow Gray	White	Natural shingles or slates	Moss green Bronze green Green
Picturesque—irregular	Red	Red with white sash	Natural shingles	Very dark green
	Brown	White (cream)	Moss green	Green
Mansard roof.....	Yellowish-gray	Yellowish-gray	Usually slated	Green
Small cottages	Red	If very few, may be white	Natural shingles. Never use red if roof is blue slate	Dark green
	White as above			
Upper and lower story different.....	Red below, gray above	Self-colored, white sash	Natural shingles	Dark green
	Red below, brown shingles above	Self-colored, white sash	Natural shingles	Dark green
Cement and stucco.....	White Yellow Gray	Brown stain Brown stain White	Red Red Red	Green Green Pale blue-green



Plans for Brick Veneer and Stucco House

COMPLETE SET OF ARCHITECT'S DRAWINGS FOR A SUBSTANTIAL, WELL-DESIGNED RESIDENCE OF LIBERAL DIMENSIONS—ADVANTAGES MENTIONED.

THE accompanying illustration shows a very attractive medium-size residence of thoroughly modern design. The construction is brick veneer for the first story and cement plaster on wood lath for the second. This house was recently designed for Mr. Geo. A. Lewis and is being erected in one of the Chicago suburbs.

The complete set of architect's drawings for this house are reproduced on the following pages. These

mended for the better class of houses. At a somewhat added expense the substantial, enduring qualities of masonry are thus secured in addition to the freedom from dampness and the other well-known good qualities of frame construction.

✦ Bell Ringing Transformer

Of course you have experienced the time when you have failed to receive an important telegram just be-



Artistic Brick Veneer and Stucco House Designed for Mr. Geo. A. Lewis, Chicago

plans embody many desirable features of arrangement and design and should be of real practical help to all those interested in house building.

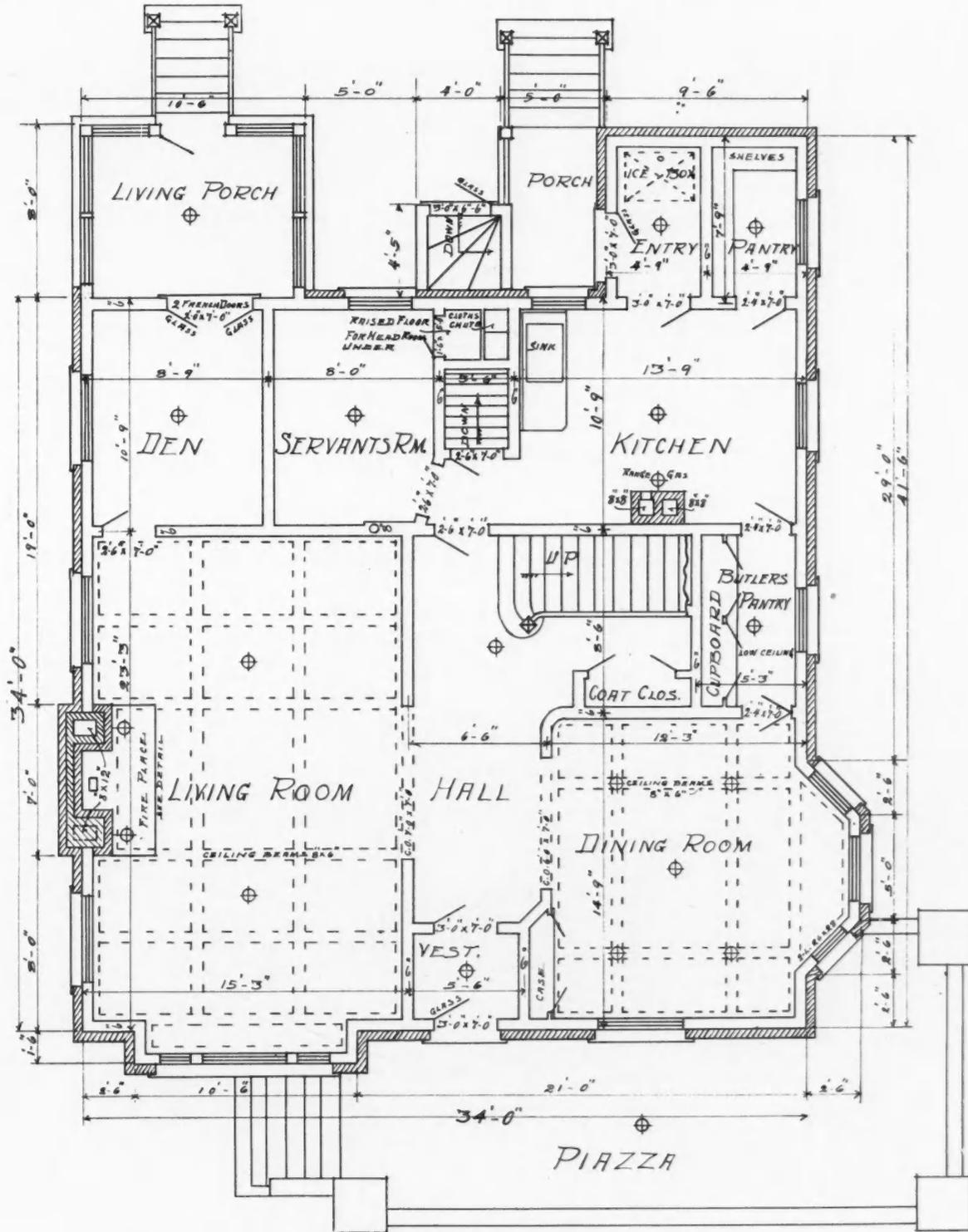
The use of standard frame construction, united with an exterior wall surface of vitrified brick and cement plaster, as in this design, is to be strongly recom-

cause your door-bell was out of order and the messenger boy went away in disgust after almost breaking his knuckles in his efforts to call you. And you will be glad to know that a bell-ringing transformer has been brought out to displace the old-time batteries that have such a chronic habit of "running down." The new

transformer for this purpose is a device that will permit the use of the regular lighting current in ringing your doorbell.

The advent of the bell-ringing transformer marks

original cost of this bell-ringing device compares favorably with that of the house battery system, and as it requires neither repairs nor renewal it is a much cheaper device in the end.



FIRST FLOOR PLAN—HOUSE, PAGE 50

another wonderful stride in the application of electricity to modern life. It relieves another care and does so at a very small expense; it will displace five or six ordinary house batteries, and will last a lifetime. The operating cost is almost nothing. The

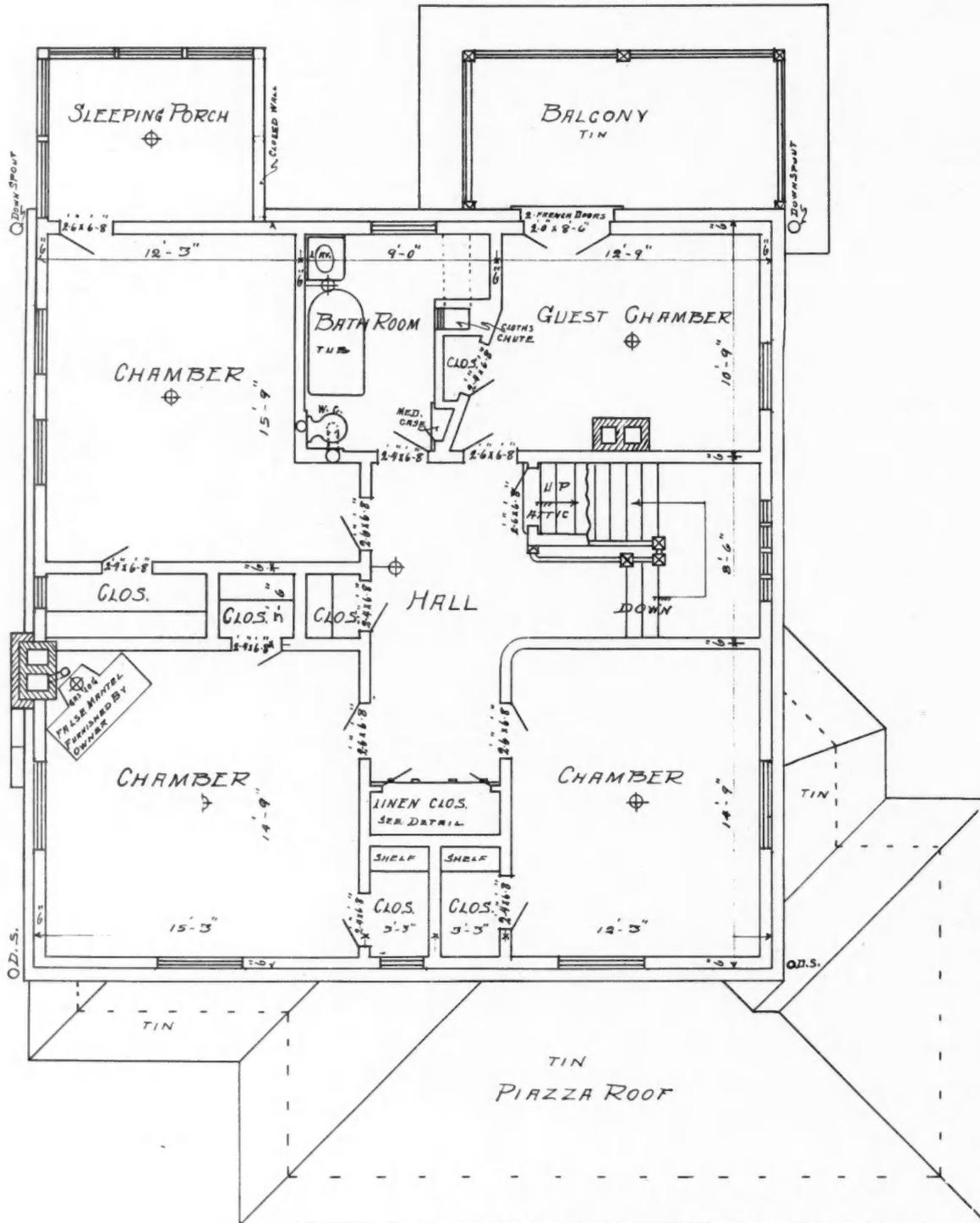
A Narrow Escape

"How many times have you been married?"
 "Three, but——"
 "Madam," he interrupted. "I'm taking census, not proposing."—*Detroit Free Press.*

[How to Finish Floors

The *Painters' Magazine* gives the following practical suggestions in reply to a reader who wants to know the approved methods of finishing floors.

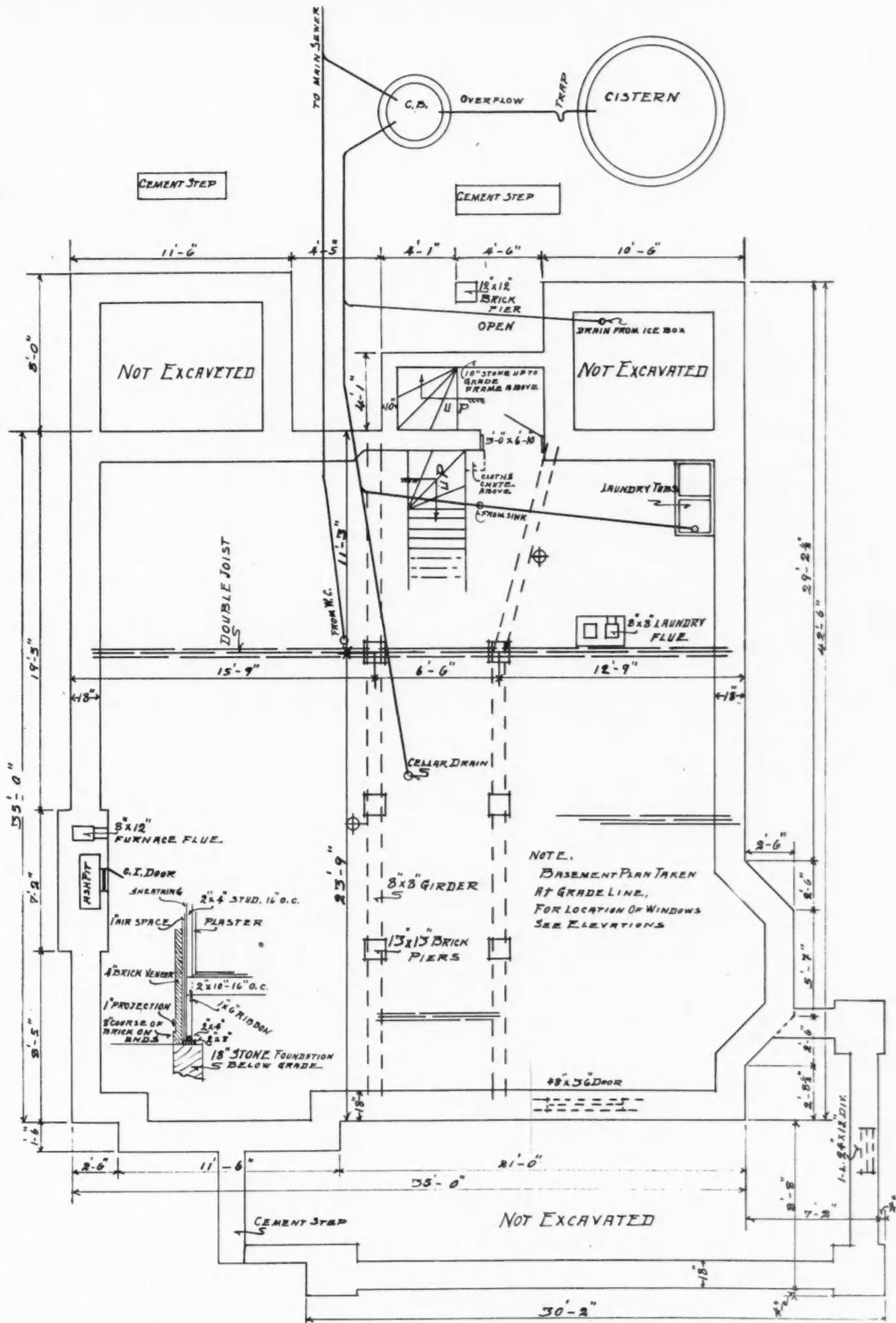
meantime melt in a ladle 1/2 pound of paraffine wax, adding same to the hot oil, while continually stirring. Stir occasionally, while the mixture is cooling, to keep the wax from going back into lumps. The oil is ap-



SECOND FLOOR PLAN—HOUSE, PAGE 50

For ordinary floors, such as in kitchens or laundries, warehouses, etc., the floor oil treatment is most practiced. This consists in applying to the new floor a non-drying mineral oil, which is prepared for the purpose by heating in a hot water bath one gallon of light paraffine oil to near the boiling point and in the

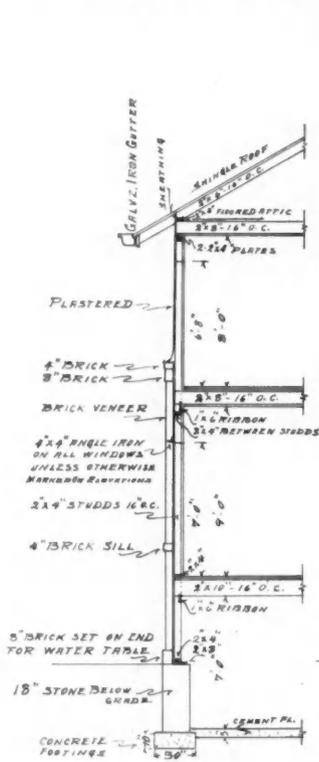
plied to the floors with a brush, allowed to soak into the wood and when well set the floor is wiped with a woolen rag wrapped around a floor brush to remove the excess of oil, so as not to soil dresses. The operation should be repeated until the wood is so saturated all over that no flat spots are visible, but a finished



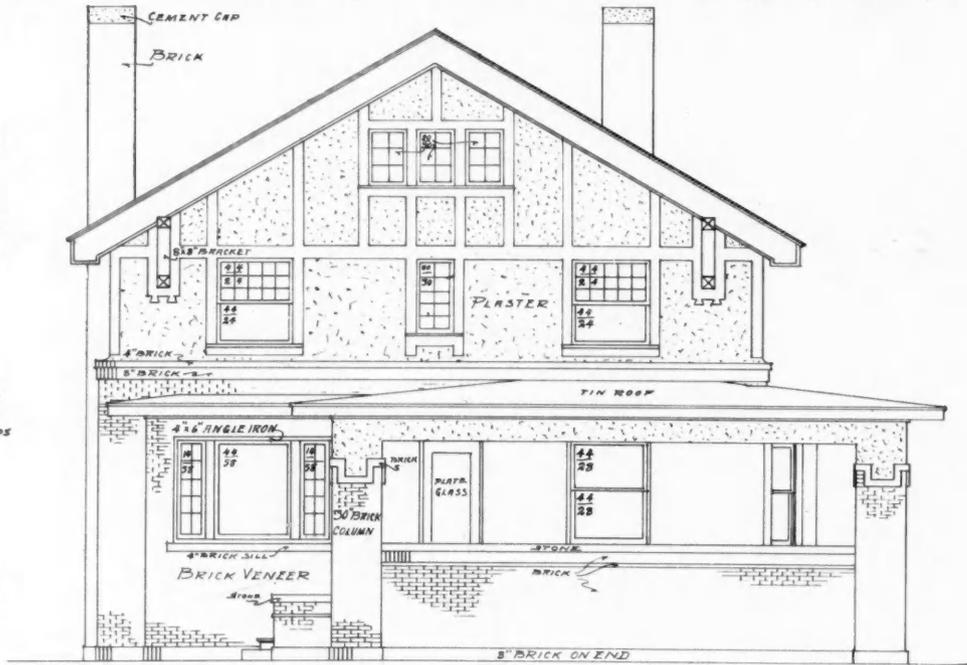
FOUNDATION AND BASEMENT PLAN—HOUSE, PAGE 50

surface apparent all over the floor. This finish applies only to soft and hard pine as well as spruce. It is what has been called "dustless" floor finishing, and

flow it on, but brush it out and apply a second coat, after all greasiness from the first oiling has disappeared. Three coats should be applied, if time per-



SECTION



FRONT ELEVATION

when the wood is once well saturated it does not need oiling again for from four to six months and is far cheaper than waxing.

Oak and hard maple floors also are often simply oiled, but for these woods the floor oil described above

mits. This makes a very durable finish, which, when wiped over with a moistened cloth from time to time, will appear bright and clean. Yellow or hard pine floors may, without any previous treatment, be waxed, and the best method is to use one of the reputable



REAR ELEVATION—HOUSE, PAGE 50

is not the proper material. Take 1/2 gallon of kettle-boiled linseed oil, 1 quart of benzine and 1 quart kerosene oil, mix these and brush over the floor. Do not

floor waxes now on the market, applying same to the wood as directed and then polishing by the use of the weighted floor brush. When the first coat, which

acts as the filler, is hard, a second coat should be applied, and also polished in a similar manner.

Oak, and all other open grained woods, require

to match the color of the wood as closely as possible, then smooth sandpapered and varnished with one coat

of high-grade shellac varnish, again sandpapered and



RIGHT SIDE ELEVATION

hardwood filler before waxing. When the wood has been filled the surplus filler removed with excelsior or tow, and the filler has dried hard, the floor should be sandpapered and the waxing done as above. The occupants of the house can wax polish such floors from time to time. If it is desired to stain a hardwood

finished with at least two coats of very best floor varnish. For extra fine rooms the last coat of varnish is rubbed or mossed, then polished with rottenstone and sweet oil. In touching up old varnished floors it is best to touch up the bare spots with quick-drying flat color to match the remainder of floor in color,



LEFT SIDE ELEVATION—HOUSE, PAGE 50

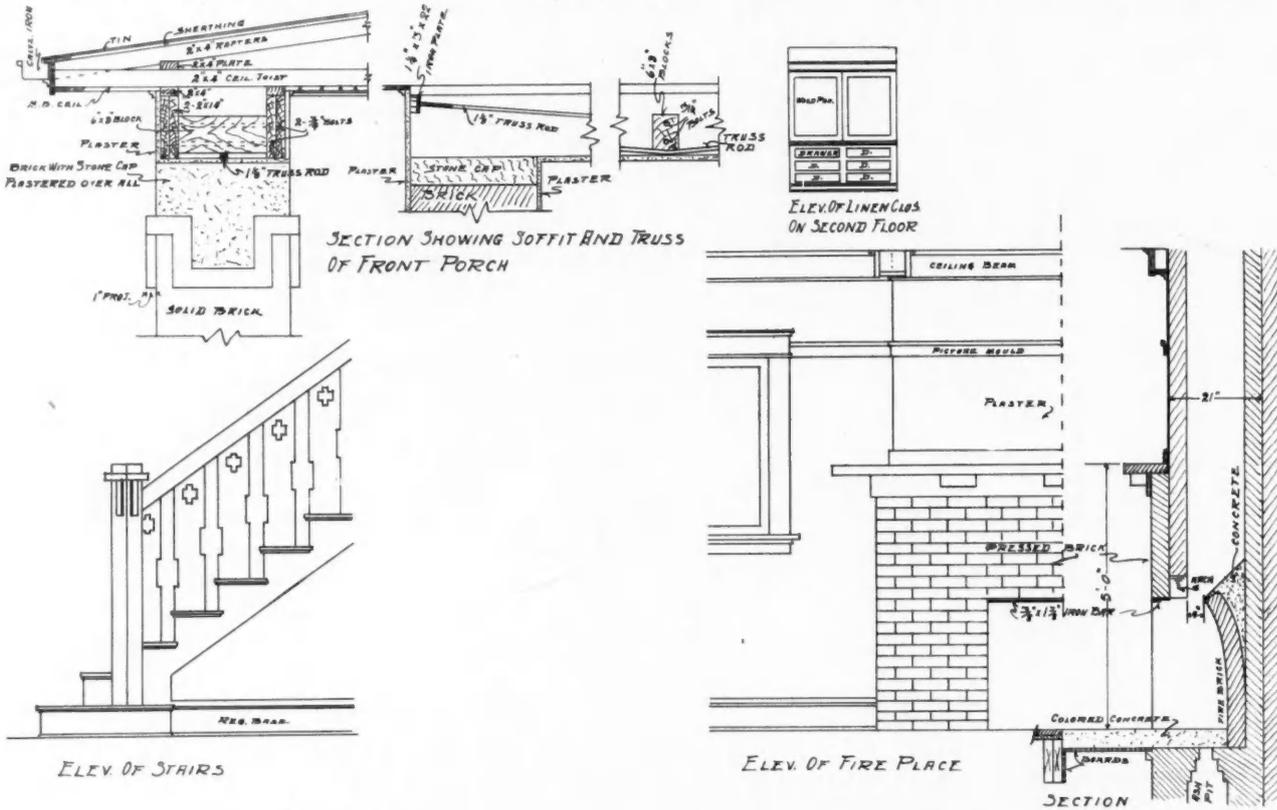
floor, the staining is done before filling and the paste filler colored to match the stain. In very fine residences the hardwood floors are filled with paste filler

then give a coat of floor varnish to which color has been added to match the old color of the floor. The color in this case should be ground in japan or varnish

and only enough added to stain the floor varnish. This method produces very good results.

For parquetry floors the best treatment is to apply,

Floors that are badly worn, no matter what the nature of the wood may be, are best painted with good, hard-drying, yet elastic floor paint, which may be all



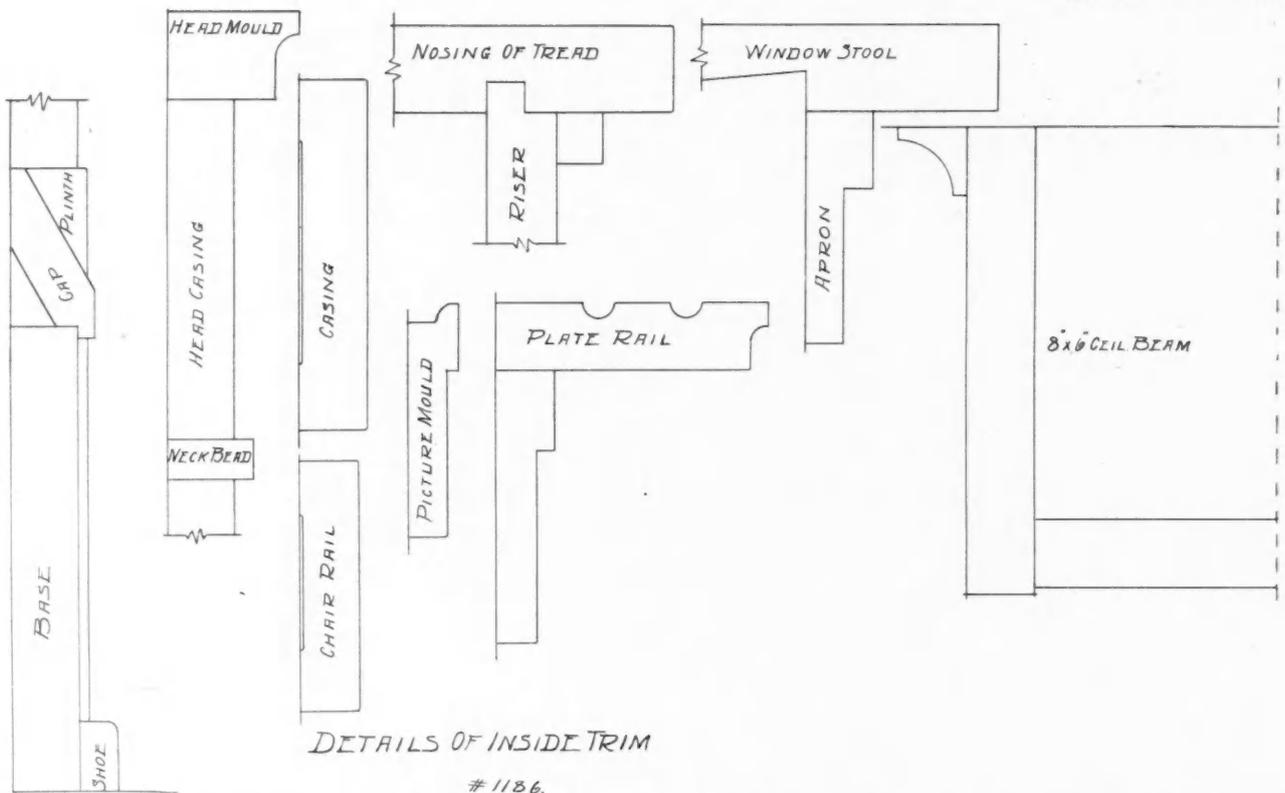
DETAILS OF INSIDE TRIM

#1186.

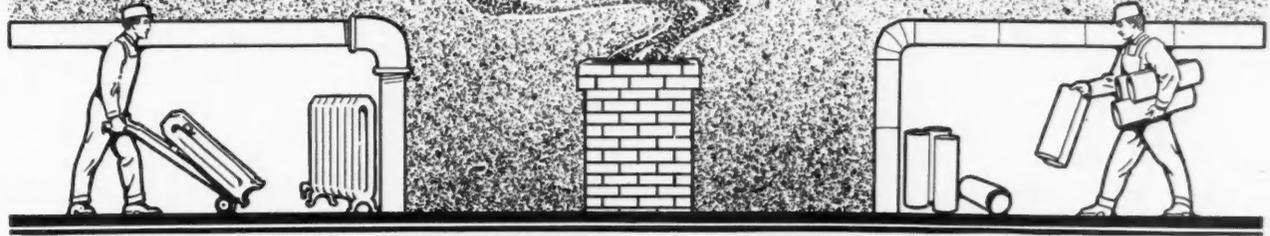
DETAILS OF CONSTRUCTION & FINISH—HOUSE. PAGE 50

in succession, three coats of white shellac varnish, allowing each coat to dry hard, but they can also be waxed without any other treatment.

oil and pigment paint and drier, or made from oil and pigment with drier, and thinned for application with good, hard-drying floor varnish.



HEATING AND VENTILATING



Warming Homes with Hot Water

GENERAL PRINCIPLES OF HOT WATER HEATING TOGETHER WITH THE ADVANTAGES AND ECONOMY OF SUCH A SYSTEM

By J. Watt King

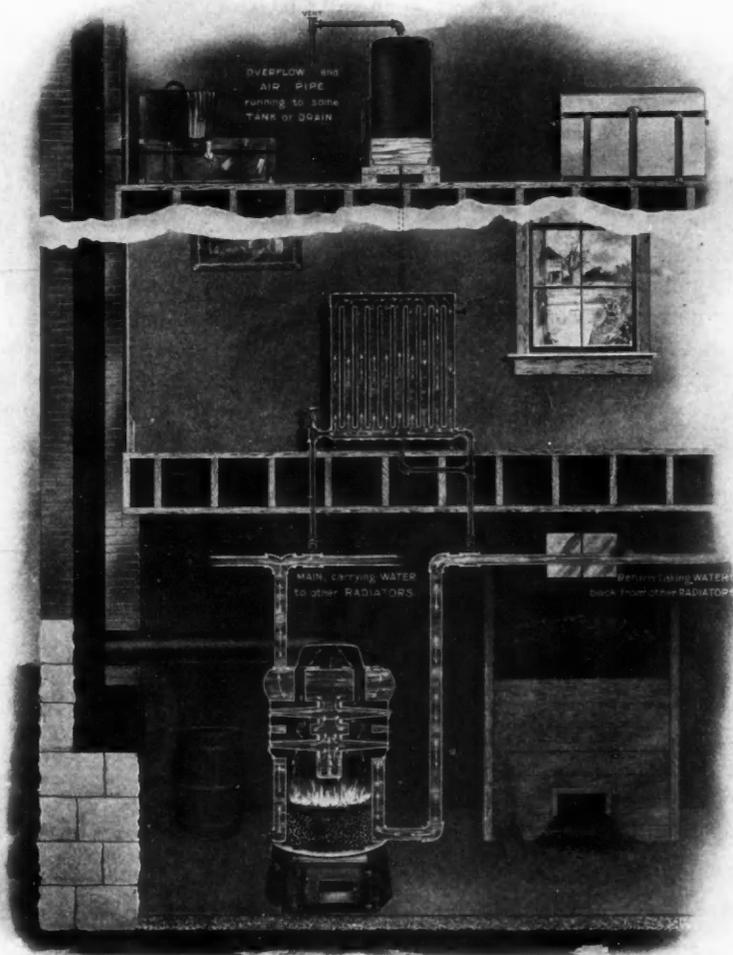
THE origin of hot water heating is veiled in obscurity. Among the interesting household apparatus exhumed at Pompeii a large water heating brazier made of bronze was found, and is now exhibited in the Field Columbian Museum. It is equipped with lids and draw-off cocks and was evidently operated with charcoal. This water heater was undoubtedly placed in the "triclinium" (dining-room) of some palatial Pompeian home, in which it was used to assist in warming the dinner party.

In more modern times the first successful trial of which we have any record was made by Sir Walter Triewald, a Swede, who lived at Newcastle-upon-Tyne in England and who in 1716 described a method of warming green-houses by hot water. Later in the same century, about 1777, the method was employed in France on a large scale by F. M. Bonnemain, in a building used for the hatching and culture of chickens for the Paris market. It

was introduced into England generally, in the early part of the last century, by the Marquis de Chabannes, who was long regarded as the inventor of the first practical system. While it was probably used in Canada during the first half of the last century, the idea did not make its appearance in the United States until about 1850, and did not come into anything like recognized use until 1875-80.

The evolution of the method in America has brought out many highly perfected mechanical devices which have extended the utility of the water method to all sorts of buildings including the rural homes of the modern progressive American farmer. Competition and better and more direct methods of manufacture, have so decreased the cost of the apparatus to the house owner, that at the present moment complete water heating outfits are within the range of purchase by all classes.

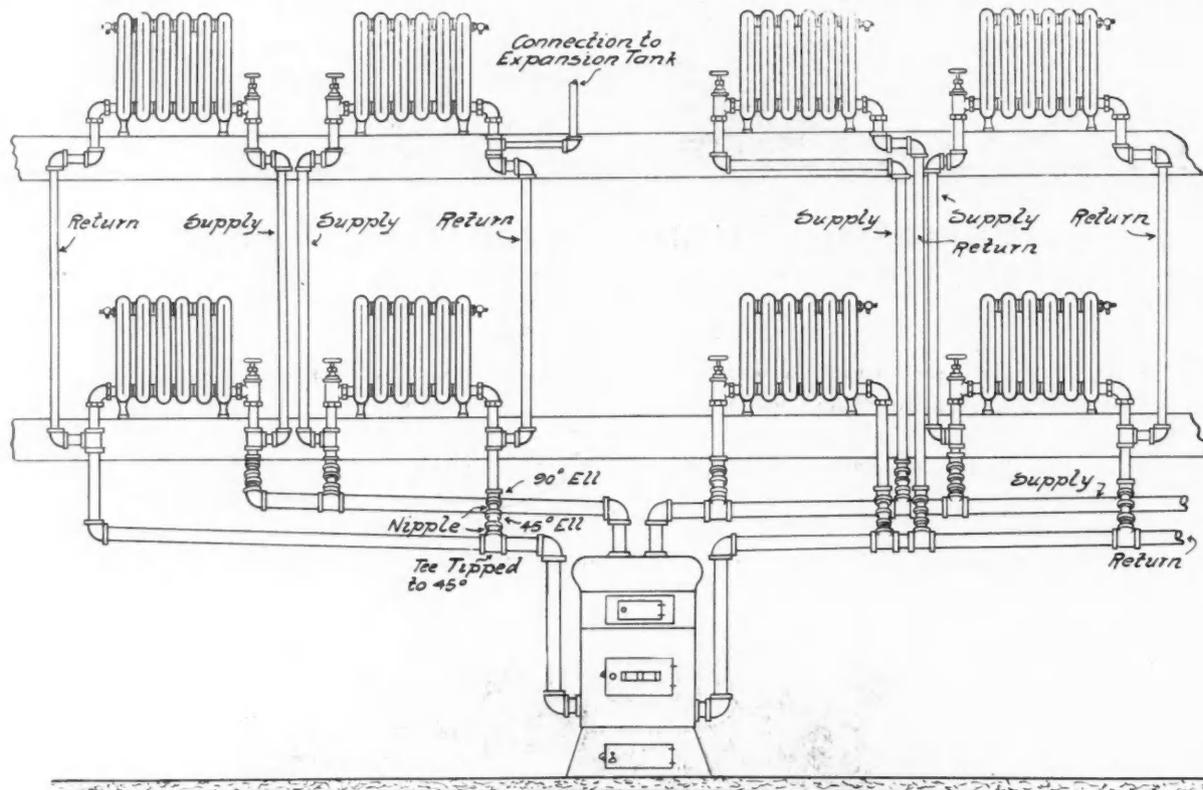
For the assistance of those who do not know about the mechanical features of the method



Arrangement of Hot Water Heating System in Residence

it may be well to briefly outline a description of the appliances used. First the boiler, so called,—for the water really never “boils”—is usually located in the cellar and is made up of hollow cast iron, water-tight, connected sections through which the water circulates

especially from the feminine view-point. Old-fashioned modes of heating throw out smoke, dust, dirt and gas which permeate the rooms, causing irritation, discomfort, and a large amount of re-dusting. The care of stoves causes much work in lugging coal and



Elevation of Two-Pipe System of Hot Water Heating

The water passes through the chambers or water spaces of the heater around and over the ignited coals, flames, heated gases and smoke. One or more principal water mains with as many pipes as may be necessary to supply the radiators are conducted from the top of the boiler, and similar pipes return the water to its base.

These radiators are in most cases placed directly in the room to be warmed, and in this form they are termed “direct radiators.”

The outfit operates by a continuous circulation over and over through the hollow spaces of the boiler, the pipes and the hollow radiators—the water gathering heat at the boiler and throwing out the warmth at the radiators.

Ventilation and Cleanliness

The delightful condition of the air warmed by water radiators is due to the fact that no portion of a room thus warmed is overheated—the warming being accomplished by the contact of the air with the exterior surfaces of the radiators which are heated by the water flowing through them. Properly planned and erected, a water warming apparatus is capable of maintaining an atmosphere throughout a home as refreshing as the air of a morning in June.

The feature of cleanliness is of great importance,

ashes up and down stairs and litters up the house with dust and dirt. Imperfect methods of heating, imperceptibly at times, cause an amount of damage to hangings, curtains, furnishings, carpets, and wall decorations of a home which foots up to a surprising aggregate.

In the use of the water method well erected (and also the steam method) there is no dust, dirt or gas thrown into the living-rooms of the home from the heater. Compared with many ordinary methods a very large amount of household labor and damage is avoided by this method.

Economy

The water method of warming a house, considered in connection with the very thorough result which it produces, is the most economical. While scientific relative tests with other commonly used methods made by experts (university authorities, consulting engineers and by manufacturers) have fixed this fact and its possibilities, still its demonstration to some extent depends upon the intelligence applied to operating the heater. The method possesses possibilities easily developed and expert mechanical intelligence is not required to maintain the apparatus. The ordinary water heating outfit is as simple to run as a parlor stove. To bring out the best results it is only necessary to apply a few simple,

common sense rules. With reasonable care the water method of warming will produce more heat (placing it where it is most needed) and from less fuel than any other system employed. In this respect, however, the steam method is nearly as efficient and economical. The radiators employed for distribution of heat are so located that an ample degree of warmth is delivered positively to each room. In the rooms exposed to severe or frequent winds, which are the great opposing force to the beneficial effects of warming apparatus, the delivery of heat from the water circulating through the radiator is not unfavorably affected by winds or by inner currents. Therefore, the supply of heat for each room is constant, inasmuch as it is scientifically calculated for each room with due respect to its size, its use and exposure to the weather. In the use of those methods which lack the positiveness of the water and the steam methods, outer and inner currents often draw from and interfere with the heating of the rooms on the windward side of a building. The water method, which employs the use of radiators placed near the outside walls, distributes warmth independently of air currents or exposure, insuring a uniform condition of comfort to all rooms.

The necessary apparatus is very simple and easily managed. As the temperature of the water which circulates through the heater and the radiator is about the same, proper attention to the dampers of the heater will maintain a degree of warmth just sufficient for the

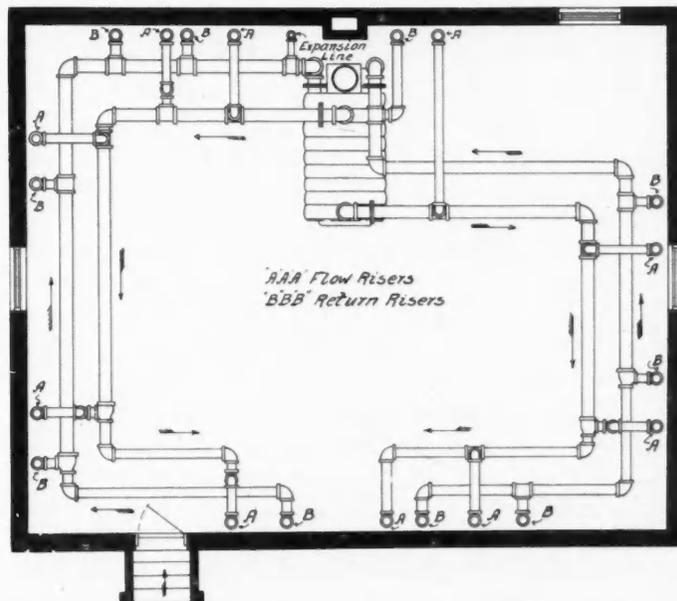
water, there is not even a remote possibility of damage from this source, while the connecting pipes or mains are heated to a point many hundred degrees less than the degree of temperature at which wood or other materials would fuse or ignite. Explosions cannot occur, for in the most approved methods there is no confinement of the water or pressure excepting the mere hydrostatic pressure (the weight of the water standing in the pipes). The same can be said of modern steam methods, for the compounded reserve strength of the metal used and the provisions for self-acting relief at a very low pressure cut out all insecurity or hazard.

Many people seem to think that the house must be connected with city or town water pipes running through the street in order to have a water heating outfit. This is not so. The outfit can be filled with water by a hand forcing pump (costing a few dollars) connected to the supply pipes in cellar, if the house has a water storage tank in the attic or cellar cistern. If not so supplied, the outfit can be filled by the pailful through a funnel on the expansion tank, and when so filled it is not necessary to refill for several years. In case the house is vacated in the winter the water can all be drawn off and this will prevent freezing up.

Modern Radiators

Recent years have witnessed a very noteworthy evolution in the design and construction of the radiators utilized for the distribution of warmth. Old-fashioned radiators (a few of which are still in use and creating very poor ideals of the true aspect of modern productions) were none too welcome to persons of particular taste. Many of such were made almost solely with a view to the radiation of heat. Ornamentation, if at all regarded, was crude and inelegant. They were often made of wrought iron pipes combined with cast iron heads, tops and bases—or of very poorly moulded cast iron throughout. They were very inartistic in design and very difficult to keep in tidy appearance. Often these radiators were capped with tops or surrounded by iron or brass screens which mitigated the unpleasant visual effect at an expense of their efficiency, by retarding a free circulation of air around and through them and making them difficult to clean.

There are highly finished patterns of radiators in the market today which please the most particular—free from dust lodging surfaces and in form so graceful in outline and so artistic in design that they harmonize with and decorate any apartment in which they may be placed. Some of the best of these modern productions are finished as smooth as bronze and are highly perfected works in iron. Radiators five times as handsome and attractive as those made fifteen years ago can be purchased in the market today at two-thirds of the price.



Basement Plan of Piping in Two-Pipe System of Hot-Water Heating

weather prevailing—a low fire for mild weather graded up to a full fire in extreme weather. In this respect the water method is superior to all other methods.

Safety

The water warming method is the acme of safety—its normal condition is one of great assurance in this respect. The fire in the heater being surrounded by



Satisfactory Results in Painting

PRACTICAL SUGGESTIONS AND RULES FOR SUCCESS IN MODERN PAINTING—WHY PAINTING JOBS SOMETIMES GO WRONG

By L. R. Greene

MUCH has been said and written in recent years about the conditions under which paints would or would not produce satisfactory results. But notwithstanding this, there continues to be manifest a great deal of ignorance, and often reckless disregard of the rules which should govern the application of paint to any surface.

We wish to call particular attention to a few fundamental principles that must be observed; and to some specific directions for the treatment of some kinds of surfaces, if satisfactory results are to ensue in the use of any paint, be it white lead and oil, or a prepared paint of reliable manufacture.

Good Painting Becoming More Difficult

It is a well-known fact that conditions surrounding painting are yearly becoming more difficult to meet, for several reasons. First, the character of lumber now being used for many so-called first-class structures is in reality the forest culls left standing on the stump or unmilled when the prime timber was taken off only a few years ago. A great deal of such timber is sappy, full of wind shakes, knots, etc., and is frequently soft and punky, through long waterlogging or partial decay.

Again, on account of the scarcity and high price of properly painted lumber, many varieties of woods are being utilized for exterior siding which only a few years ago were regarded as wholly unfit for such use, among which we might mention the Yellow and other hard pines, spruce, cypress, cedar, basswood (linn), gum, redwood and other similar woods which are either full of rosin and pitch or are very soft and spongy by nature.

In addition there is a scarcity of properly seasoned lumber. Much that is employed is either so full of sap or moisture that it is bound to make any paint peel as soon as the moisture is acted on by the sun. Again, other lumber has been so excessively kiln-dried that it is as absorbent as a sponge, and unless any paint applied on the same has been well thinned with pure linseed oil with the addition in some cases of pure spirits turpentine to assist in penetration, and thoroughly brushed out, in thin, even coats (not flowed on

with a wide brush in thick, heavy coats, as is so frequently done) the soft, extra dry surface soon soaks up the liquids entirely and leaves the film of pigment with an insufficient amount of oil to enable it to bind to the surface; and here again peeling is very likely to ensue.

Very frequently no thought is given to the proper thinning of paint to be used on yellow pine or similar woods "fat" with rosin, and paints are "regularly" applied to such surfaces with the result that the action of the sun on the outside of the paint film soon draws the pitch out the lumber and the full oil coat of paint, lacking penetration, can do nothing else than let go and peel off—a result which might have been avoided by the intelligent use of pure spirits of turpentine in connection with pure raw linseed oil for thinning the first and second coats.

Overworked Paint

Another serious menace to good results in painting comes from the unintelligent application of any paint whereby on old work one coat is required to do the work that should properly be done by two, or in the case of new work two coats are wanted to do the work of three.

To accomplish this the paint is flowed on with a wide wall brush in heavy coats instead of being properly thinned and then well brushed out in thin, even coats with a smaller oval brush, thus allowing the paint to not only fill the absorbent surface, but also to retain a sufficient amount of oil in the pigment film to bind thoroughly and withstand the destructive action of the elements.

We desire, therefore, to emphasize what is a well accepted truth among all good workmen, viz: Thin your paint properly and then brush it out thoroughly.

Better by far to have paint thinned with pure linseed oil and spirits turpentine and brushed out too thin to cover well, than to flow on thick coats of heavy paint which temporarily look better but very soon are likely to induce cracking, peeling, etc., and forever after prevent the surface from being properly repainted unless all of the heavy undercoating is burned off or otherwise removed.

Some Practical Pointers

Let it be remembered, then—

That to insure good results on new or very old, spongy surfaces, there must be sufficient pure raw linseed oil used in the first and second coats of any paint to properly fill the wood and arrest the absorption of the oil and binder from the paint film, and still leave enough oil to bind the pigment thoroughly, and that where any new surfaces are hard and resinous, a liberal percentage of pure spirits turpentine must be added in first and second coats to insure adequate penetration and assist the drying to a proper "face" or surface for recoating.

That on old work that has been previously painted and presents a hard, impervious surface, equal parts of pure spirits turpentine and pure raw linseed oil must be used in reducing the first coat to a thin consistency to secure proper penetration and homogenous drying of the new coat of paint.

That "elbow grease" must be used to spread any paint out into thin coats and brush it well into the pores of the wood, and unless so spread, satisfactory results cannot be insured.

That a much more satisfactory and durable job of work can be done with a 5-0 or 6-0 round or oval brush than with a long, wide wall brush.

That under no circumstances should a new house be painted before wet basements or the plaster have dried out. It should be borne in mind that every yard of green plaster contains nearly a gallon of water, and unless thorough ventilation is given and the moisture is allowed to evaporate and escape in that way, it must necessarily escape through the siding (which may have been thoroughly dry when put on) and the result must inevitably be blistering or peeling.

That painting during or following soon after a dew or heavy frost or fog, or in any heavy, damp atmosphere, is likely to produce unsatisfactory results, as dry siding absorbs moisture very rapidly.

That to the greatest extent possible, painting in the direct heat of the summer sun should be avoided. Paint on the shady sides of a building as much as can be done.

Painting around fresh mortar beds should be avoided on account of the tendency of the oil in any paint to absorb the moisture and fumes from the lime, destroying the life of the oil and causing the paint to flat out and perish.

Remember not to apply one coat of paint and let that stand a year or so before a subsequent one is applied. It will have weathered sufficiently in that time to absorb some of the elasticity of the succeeding coat, so that the final result cannot be satisfactory.

Again, don't apply a coat of paint and let it stand until it is bone hard before continuing the work—one coat should follow another within reasonable time until the work is finished. If the under surface is allowed to get too hard, it will not have the proper "tooth"

to allow the succeeding coat to get a "grip" or hold on it.

Leaky roofs and gutters and broken down-spouts are responsible for many a case of blistering or peeling which might, without investigation, be attributed to the paint.

Remember also that it is always best to employ a practical and well-experienced painter who is capable of exercising right judgment with reference to the proper painting of any particular surface, and who is interested in turning out a properly finished piece of work even at a somewhat higher cost, rather than to entrust the job, at a lower price, to a workman who cannot be thoroughly depended upon.

Yellow ochre and mineral reds, such as venetian, rossie and other oxides as well as Princes mineral, etc., are totally unfit for use as primers on any work which will be subsequently coated with lead and zinc colors, for the reason that when mixed dry they do not combine readily with linseed oil, and many of the particles, unless ground, are never thoroughly saturated—the result being that after being applied to the surface, the absorption of the oil by such particles and the surface to be painted, leaves the film of ochre or oxide, without any binder, brittle and lifeless. The result is perishing and peeling.

Again, on account of the character of the pigments named, they are difficult to spread to uniform consistency over any large amount of surface, and for that reason, as well as to meet the demand for a "good, heavy priming coat," are frequently applied in a very heavy strata which, if allowed to become perfectly hard, presents such an impervious surface as to prevent the proper adhesion of later coats of paint.



Deterioration of Buildings

In a discussion held recently between two eminent building engineers as to the relative duration of the modern skyscraper a number of opinions were given by architects and others interested in the question and the general consensus of opinion was that properly constructed and supported by good foundations the modern office building should be an income producer for at least a century. D. H. Burnham of Chicago, who has planned and erected a number of the modern skyscrapers states that the life of the building entirely depends on how the building is built and how it is taken care of after it is in use.

"This question of deterioration is a very hard one to answer in a satisfactory manner," says Mr. Burnham. "Economic deterioration may depend on the development of the territory surrounding the building, or it may depend on the character and class of tenants who occupy a building at the beginning. There could be mentioned a hundred different causes for the economic deterioration of property.

"As to the lasting of a building properly constructed on good foundations and properly taken care of, it should last at least 100 years."

MACHINE WOODWORKING



Knives Their Use and Abuse

A PAPER READ BEFORE THE VENEER AND PANEL MANUFACTURERS' ASSOCIATION—A WELL-KNOWN MAKER OF MACHINE KNIVES TELLS OF TROUBLES AND REMEDIES

By W. E. Bonesteel

KNIVES: their use—On this I do not need to say anything, as you all know for what purpose you want to use each one of them. If they will not cut as you have a right to expect, someone is to blame—either the knifemaker or the user—as knives can be made to meet almost any requirement, and if skillfully used will invariably give profitable results.

Steel and Temper

Two things are very necessary to make knives satisfactory. First, good steel must be used. It must be of a proper temper or carbon, and should be specially made for the use intended. Bar steel that is suitable to make a veneer knife would make as fine a razor as can be made. Second, and the most important element, is the proper temper.

Speed of Cutting

It is very essential that the knifemaker should know for what work the knife is intended. Too much is taken for granted by the user of the knife. For instance, a knife tempered just right to cut gum veneers will not cut quartered oak so that you could make a reputation for good stock. A knife that would work successfully on a machine running from sixteen to thirty revolutions per minute would not do as good work or stand to the work if run at fifty to seventy revolutions. I never saw but one machine running seventy revolutions per minute—that was on butter-disk stock, and they are not running that fast today.

Grinding-room Abuses

Now for the abuse. For over twenty-one years I have been the "trouble man" of the Worden Tool Company. In that time I have had some very funny and some very trying experiences. I am going to tell you some things that you may not like to hear and may not believe, but they are plain truths. Over 90 per cent of the trouble with machine knives comes from their abuse, and most of the abuse is confined to the grinding-room. There are so many ways that they are abused that I hardly know where to begin.

The better the knife, the easier it is spoiled in grind-

ing. In cases where the temper is drawn in grinding, the evidence is nearly always hidden until the next time the emery wheel passes over the knife. That is as far as you can discover with the eye, but if you will try the knife with a file you will notice how soft it is. If you will take a hammer and strike the edge lightly, the edge will turn over completely, while a little farther along on the edge it will file hard and break out at the touch of the hammer.

Wasteful Economy

Many veneer mills have the very latest and best veneer cutters that can be bought and everything first class, all but the grinder—that is only to sharpen knives. They buy something that has an emery wheel that goes around, and the knife passes back and forth past the wheel or vice versa. Sometimes there is a water attachment. In fact, any old thing that will grind is good enough.

However, this would not be so bad if they would give you a good emery wheel with the grinder, but that is very apt to be as cheap as the machine. If the emery wheel is too hard it will either draw the temper or cause a number of fine cracks to appear in the face of the knife. Either the knife edge will turn over if the temper is drawn or break out if the cracks appear. It is not always the case that the knife breaks out the first time it is used after grinding. Sometimes it is weeks or months before the trouble begins.

Glazing and Dressers

Some grinding machines are fitted with a cast-iron box or tank to hold water, with a small pump to force water up to the emery wheel. This idea is all right so long as oil and grease do not get into the tank, but just as soon as oil gets into the tank and is pumped to the emery wheel, the wheel begins to glaze, heat and burn. After oil has once reached the emery wheel it is next to impossible to keep the face from glazing, and this is one of the ways to ruin a knife. Frequent use of the emery wheel dresser is the only remedy.

There are as many grades and qualities of emery wheels as you find grades and qualities of veneers. Emery wheels should be free-cutting, and free-cutting

means that they wear out much faster than the wheels that are hard and will glaze and heat. You can run your emery wheel too fast—so fast, in fact, that it will not cut. It makes quite a difference if you are grinding brass, cast iron, or hardened steel, as to the speed you should run the emery wheel.

Slow Speeds Win Out

One veneer man I know ran his wheel about 650 revolutions, while his neighbor ran his 800 revolutions. The man running 650 ground his knife perfectly in three and one-half hours, while his neighbor ground seven and one-half hours and then stopped because he had cracked his knife and ruined it. Both knives were the same size, and same make of grinders.

Another veneer manufacturer who had one of the best grinding machines made placed it right in front of the windows where he had plenty of light which came just where it was wanted. He also had a man who understood grinding and never had any trouble. Suddenly there was a change. He could not get knives fast enough to keep him running, and as usual in such cases the knife got the blame.

We investigated and found that the grinding machine had been removed into a dark engine room, where the grinder had a torch, such as foundrymen use, to get around the machine, and a common laborer at about \$1.75 a day had been picked up to watch the grinding machine. The result was that it cost about \$400 to replace the knives ruined, to say nothing of the time lost and veneers that were probably ruined.

We also found that they had bought an emery wheel that was everlasting, one so hard that it would never wear out. The knives were cracked so that pieces from four inches to ten inches long by three-quarters of an inch deep broke from them, and in some places the knives showed spots that were blued three-fourths of an inch to one inch deep. This is perhaps the worst case that ever came to our knowledge, but there are similar cases where trouble comes for want of proper care in grinding.

On the other hand, I know of a number of large users of veneer knives who have little, if any, trouble with knives being burned or cracked. It is not entirely due to the fact that they buy our knives, but it is largely because they have just as good and capable a man doing their grinding as they have running their cutter.

I have here a number of samples of poor grinding, which, without exception, the veneer manufacturer has claimed to be temper cracks, while as a matter of fact in every case they are grinding cracks. Will you please look at some of them and the next time you have a knife break out examine it first, then look at your emery wheel and question the man at the grinder. If he was in a hurry, or the water ceased to flow while grinding (if only for a minute), don't blame the knife man, but just order a new knife and try not to crack it.

COURT DECISIONS AFFECTING BUILDERS



PERSONAL INJURY—VERDICT NOT EXCESSIVE.—Plaintiff fell from a staging and suffered permanent injury to his ankle, necessitating his confinement in the hospital for two weeks and inability to follow his usual or any other avocation for sixteen weeks. He also suffered severe pain, loss of time, and money paid for care and attendance. *Held*, that a verdict awarding plaintiff \$1,000 was not excessive.

Driscoll vs. Humes, Cruise & Smiley Company, 69 A. (R. I.) 766.

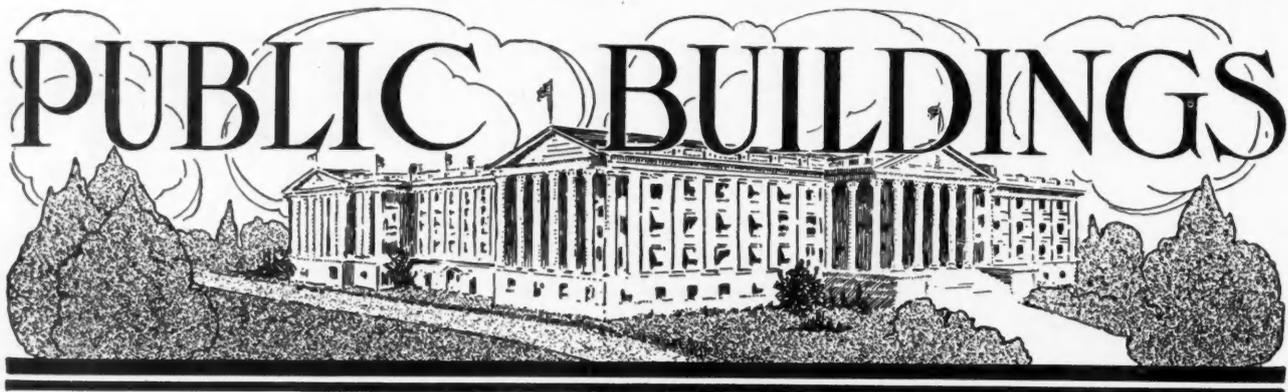
DUTY OF EMPLOYER TO EMPLOYEE, AS TO HIDDEN DANGER.—It is the duty of an employer who has knowledge of a hidden defect and danger affecting the safety of an employee to communicate such knowledge to him, and, after such communication, the employee can refuse to proceed until the defect is cured or the danger removed, or he can proceed with the work, assuming the risk.

Connolly vs. Hall & Grant Construction Company, 84 N. E. (N. Y.) 807.

TRIFLING DEFECTS MAY BE DISREGARDED.—In an action to recover the amount alleged to be due on a building contract, the complaint alleging performance of the contract, omissions of defects of a trifling nature will be disregarded, and deductions may be made from the contract price for minor omissions or defects, made inadvertently and in good faith, even though they are substantial, instead of judgment being given for defendant; but the omissions or defects may be such as to show themselves an intentional omission, so as to show as a matter of law that the contract was not substantially performed.

Rochkind vs. Jacobson, 110 N. Y. S. 583.

RIGHTS UNDER ALTERNATIVE BIDS.—A city, in erecting a city hall on foundation walls constructed by a contractor, whom it had refused to allow to proceed in the erection of the hall when it became apparent that his purpose was not to erect such a hall as had been designated by the city, did not thereby voluntarily accept the benefit of the work done by the contractor, so as to become liable for the reasonable value thereof. The acceptance of an alternative bid for the erection of a city hall, either of cement, stone or brick, without designation at the time which shall be used, does not result in a contract on which the bidder may sue, until designation by the city of the material to be used; and, after designation of cement stone, the bidder has no contract for the erection of a brick hall, under which he can recover either the compensation agreed on or damages for a breach.—*Ketterman vs. City of Ida Grove*, Iowa Supreme Court, 120 Northwestern Reporter 641.



Designs for Two Well-Planned Structures

PERSPECTIVES AND FLOOR PLANS FOR AN ATTRACTIVE TWO-ROOM SCHOOL BUILDING AND FOR A LARGE BRICK CHURCH

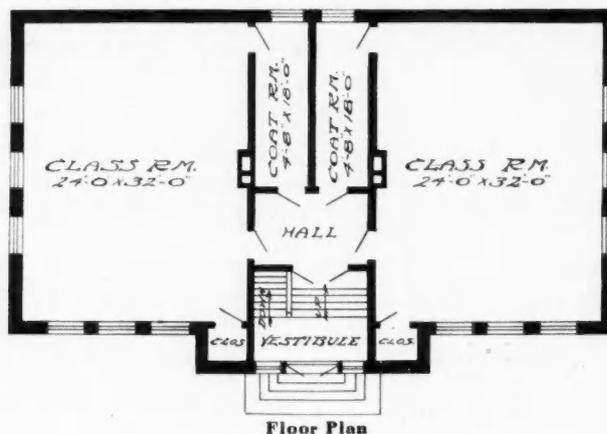
THE day of the "little red school house" has just about passed, for most parts of the country. The one-room wooden buildings which have been such a familiar sight along the country roads are fast giving way for more substantial school buildings, modern in design and large enough to decently accommodate the works of pupils and teachers. This is as it should be, for certainly no investment is so well made as that placed in facilities for the proper education and training of our boys and girls.

In this development our city schools have set the pace, but the country districts—the *foundation* of our public school system—are not far behind.

The accompanying design by G. W. Ashby, architect, is a very fine example of what the modern country school is like. Two classrooms, 24 by 32 feet in size, are provided, each with coatroom of ample dimensions. This arrangement is very desirable, as it allows the

school to be graded and the more advanced pupils to be separated from the little ones.

The exterior is very neat and attractive, though simple in design. It has a look of quiet dignity and



Two-Room Brick School House of Simple Yet Attractive Design. G. W. Ashby, Chicago, Architect

is substantial in construction and materials used.

Presbyterian Church

The church shown in connection with this was re-

English firm. It consists of an upper and lower lock, connected by a chain with a fusible link. This link will melt in a current of hot air, and the parting of the chain



Presbyterian Church of Minden, Nebr., Woods and Corder, Lincoln, Nebr., Architects

cently erected at Minden, Neb., after plans drawn by Woods & Corder, of Lincoln, Neb.

The auditorium is 42 feet square with a Sunday school room 30 by 42 feet off to one side, separated from it by rolling partitions. There are a number of class-rooms adjoining divided off with heavy curtains. Back of the main rooms is located the pastor's room and organ loft. Three spacious entrances gives access to the main floor.

The basement contains a large lecture-room, dining-room, clubroom and kitchen, together with the necessary toilet, fuel and furnace rooms to make a modern up-to-date building.

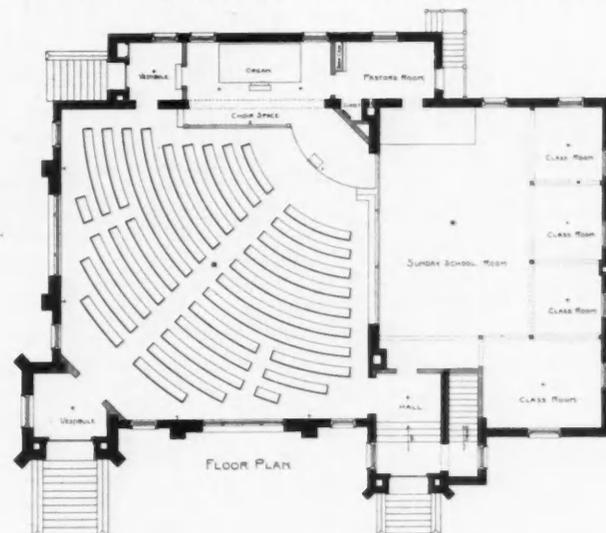
The woodwork of the main floor is in oak, while the exterior is of pressed brick and Indiana limestone trimmings.



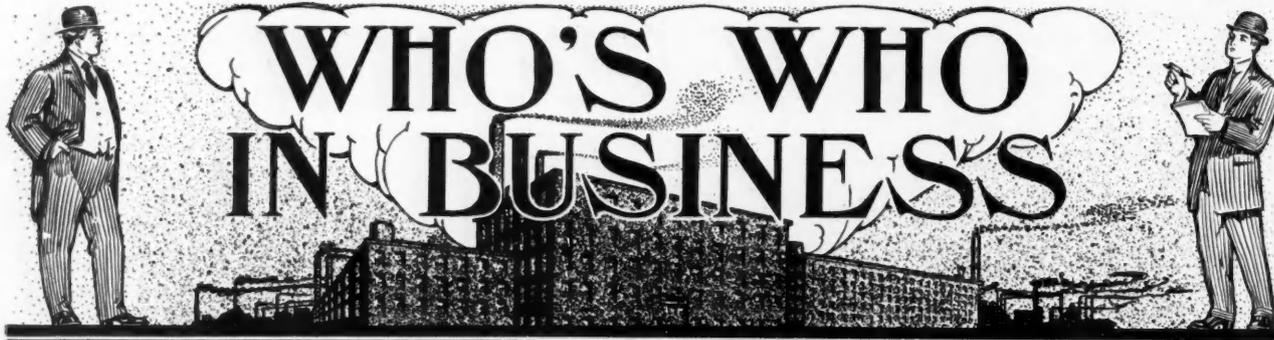
Heat-Operated Window Lock

A window catch that will allow a window to be opened to any extent, yet will be so acted upon by excessive heat that it will cause the window to close and become locked, has been placed on the market by an

thus brought about allows the heavy ball lever of the top lock to drop, causing the window to close. The window, falling closed, is automatically locked so that



its fireproof glass keeps the flames from passing through and spreading, whether the fire is outside the building or in.



It is my desire to introduce to the readers of the American Carpenter and Builder, through this Department month by month, the men at the head of our great manufacturing concerns. In my wide acquaintance with the men of the building trades in all parts of the country I have found a keen interest on the part of the workmen to know the personality back of the well-known makes of tools, machinery and equipment, building supplies, materials, etc.

Accordingly, I am glad to be able to present to you this month the originator of "Silver Steel" and the present officers of E. C. Atkins & Company, Incorporated. WM. A. RADFORD, Editor-in-Chief.

FROM time immemorial it has been noticeable that certain families have handed down, from generation to generation, fixed traits of character, which have predominated in each descendant. "Like father like son" is an old axiom well exemplified in the Atkins family.

The progenitors of Elias C. Atkins, the founder of the "Silver Steel" saw, have been saw makers for over three hundred years.

In England, more than three centuries ago, these sturdy craftsmen were shaping steel, and tooth-ing, and hammering, and tempering. It seems to have "run in the blood" as it were.

The first Atkins saw factory in the United States was established at Bristol, Conn., by the grandfather of the founder of E. C. Atkins & Co., Inc.; and it was in this factory that Mr. Atkins learned his trade. Mr. Elias C. Atkins was an early student of metallurgy. The noises of the forge and the hammer on the anvil seem to have had an instinctive attraction. And so we find him at early manhood, more than seventy-five years ago, engaged like his ancestors, in the occupation of saw making.

With the foresight which was one of Mr. Atkins' strongest characteristics, he looked to the forests of the far west for the establishment of his plant. He selected Indiana as the center of a densely timbered territory, and in 1857, established the present house of E. C. Atkins & Co., Inc. From a modest beginning has grown the largest exclusive manufactory in the world engaged in the making of saws and saw tools.

It was Mr. Atkins' idea from the first inception of his business to make better saws than had ever been made before. He saw opportunities for improvement, and so he reasoned: "Enough people will appreciate an extra fine product, when they once become familiar

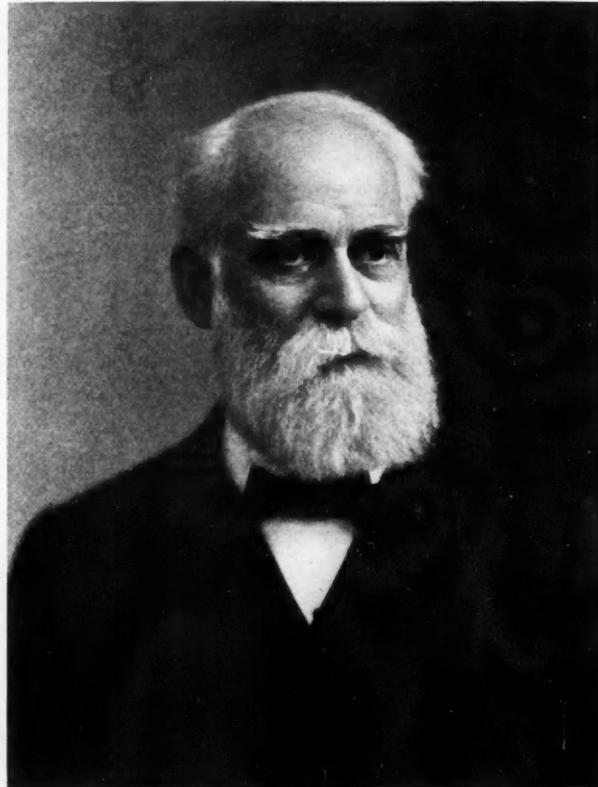
with its advantages, to furnish me an ample market. My object shall be not so much to make money but to produce the finest saws. Then the money will come later." And the results from the start proved the wisdom of his theory. "The people shall have confidence in me and my name shall stand for highest quality and efficiency. Whatever I make shall be honestly made, and it shall bear the name of him who made it, so that the people may have assurance of dependability."

The story of the inception of "Silver Steel" is an interesting one. When the new Diamond Point tooth, as used in the "Perfection," "Peerless" and "Rex Cross-cut" saws, was invented, Mr. Atkins realized at once that this

style of tooth, being required to do much more cutting than had been necessary with the old-style tooth, must be made of finer steel than had ever been used before. No manufacturer of saw plates in the United States had, at that time, the facilities for making as high-grade steel as Mr. Atkins determined to use in his saws.

And so he went to England.

Went to see the Jessops, who were and still are regarded as the very foremost manufacturers of crucible steel in the world. Being an expert metallurgist, he



ELIAS C. ATKINS
The Original "Silver Steel" Saw Maker

prepared his formula and handed it to Mr. Jessop with the request that a few plates be made according to the specifications.

Mr. Jessop was astonished and exclaimed, "Do you mean to say that you expect to use such steel as this in *saws!*!"

"I propose to use the finest steel that can be made," was Mr. Atkins' reply.

Experimental quarters were erected on the grounds at the Jessop plant and it was here that "Silver Steel" saws were born. The first batch of plates was made and turned into saws by Mr. Atkins' own hands, and carefully tested by him.

"Not right yet," was the verdict, and so Mr. Jessop was again directed to change the formula.

"Put in more carbon and add more of this and that," said Mr. Atkins.

"Why, man," said Mr. Jessop, "that's razor steel. It's too good for saws."

"It's not too good for Atkins saws," was the reply. "You make the kind of steel I tell you to. I know what I am doing."

The Jessops shook their heads and tapped their foreheads and thought—"Poor man—too bad."

And so the new batch was made and then another and another, until at last the proper quality was secured. It was a steel that had the quality of receiving a hard, tough temper, stiff and firm, but not brittle; that would receive a very keen, sharp cutting edge and hold it for a remarkably long time with but little filing.

"That's 'Silver Steel,'" said Mr. Atkins. "You may enter my order for five thousand plates." Contrary to their own judgment and with reluctance the order was filled and the plates were shipped. The wisdom shown is best demonstrated by the immediate and constantly growing demand for "Silver Steel" saws.

The present head of the institution, Mr. Henry C. Atkins, like his ancestors, is instinctively a saw maker. Naturally inclining to this vocation, he was specially educated at Yale and other scientific schools in metallurgy and in other technical branches. This has been augmented by over twenty years' practical experience, including actual saw making at the anvil, in the tempering-room and the various departments, followed by the superintendence of the plant and presidency of the company. Mr. Atkins is in charge of the manufacturing department, and, being thoroughly conversant with



HENRY C. ATKINS
President E. C. Atkins & Co., Inc.

the entire proposition, he oversees the turning out of the product.

Mr. Nelson A. Gladding, vice-president and secretary, has charge of the sales. Mr. Gladding is probably better known among the buyers of all kinds of saws throughout the United States than any one man in the business today. It is largely through his efficient management that the reputation of the company has become so largely and favorably known. Mr. Gladding has established branches for distribution and sales at a number of the largest centers in the United States, including Atlanta, Chicago, Memphis, Minne-



NELSON A. GLADDING
Vice-President and Secretary



MERRITT A. POTTER
Treasurer



FRED C. GARDNER
Assistant Treasurer

apolis, New Orleans, New York City, Portland, San Francisco and Seattle.

Mr. Merritt A. Potter has been associated with the company since its early inception. He is a man who has charge of the purse strings, being the treasurer of the company. It is no little task to successfully finance as large an institution as this, and peculiar qualifications are required to control this end of the business. The high credit standing which this company enjoys shows Mr. Potter to be admirably fitted for his department.

Mr. Fred C. Gardner, assistant treasurer, is in charge of the accounting department, and is, therefore, at the head of the entire main office force. When you realize the enormous detail necessary in order to keep accurate records of the purchases, sales and expenses of conducting, not only the main factory, but the branch houses and salesmen as well, you will appreciate Mr. Gardner's ability as an organizer and executive.

The above four gentlemen constitute the executive committee who conduct the general affairs of the company, all matters of unusual importance being considered by them prior to their execution.

The following interesting facts in regard to the company will undoubtedly be of interest to our readers. E. C. Atkins & Co. were the first makers of hand saws in the United States, and are today the largest exclusive makers of saws and machine knives in the world. The plant covers over four city blocks and contains a million and a half square feet of floor space. Several thousand experienced men are employed at the factory.

In the Atkins Pioneer Association there are 110 men who have been with the company continuously for over 20 years, some of them for even 40 years.

The Atkins Company maintain their own plant for the manufacture of gas for tempering purposes, the output of which is larger than that used in a great many cities of fair size. The laboratory analyzes every product entering into the making of saws and rejects such as are not exactly up to specifications. Exclusive processes of tempering remove dependence upon the human eye, thus insuring absolute uniformity.

One of the strongest features in connection with E. C. Atkins & Co. is that they do their business absolutely on a basis of quality which is of such an exceedingly high standard that their entire output is sold under the strongest possible guarantee. In this the present administration is proving true to the ideals of Elias C. Atkins, the original "Silver Steel" saw maker.

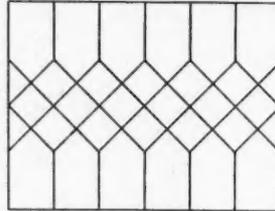


Ornamental Shingling

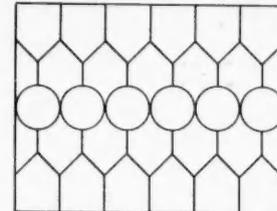
Cut or ornamental shingles are used quite extensively nowadays in the way of panel work and gable finish. For small or medium cost country or village houses their judicious use, tastily arranged and brought

out by the painter's art, is appropriate, but many times the work is overdone, both in quantity and quality. Too many times it is put on in some hexagonal checker-board fashion—a common fault in house trimming.

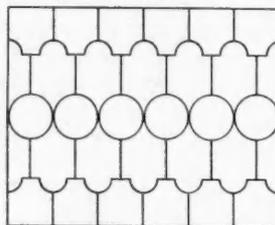
Too much sameness must be guarded against. The subject requires diligent study. Many times the same amount of material and expense put in a commonplace design, by a little thought could have been arranged



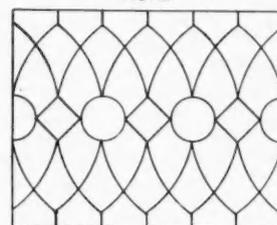
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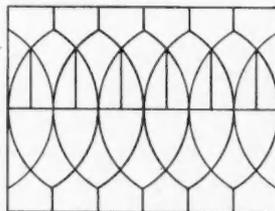
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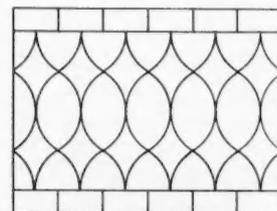
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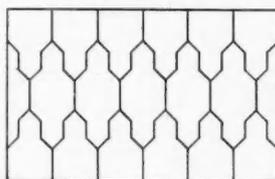
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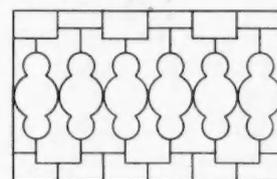
No. 5.



No. 6.



No. 7.



No. 8.

in a tasty design that would have added attractiveness to the whole surroundings.

The accompanying illustrations present several designs, with the number of the different shingles required to execute the work.

By a little study, other designs might be worked out, equally attractive. It is best to lay out the proposed design before attempting to execute the same in wood.

The number of different patterns contained in the designs, counting the straight end butts, are as follows:

No. 1, two; No. 2, four; No. 3, five; No. 4, eight; No. 5, six; No. 6, three; No. 7, three; No. 8, three.



A Soft Answer

Mrs. Starvem—"How do you like the chicken soup, Mr. Newbord?"

Mr. Newbord—"Oh—er—is this chicken soup?"

Mrs. Starvem—"Certainly. How do you like it?"

Mr. Newbord—"Well—er—it's certainly very tender."—*Catholic Standard and Times.*



Library Table and Large Easy Chair

COMPLETE DETAILED INSTRUCTIONS TOGETHER WITH WORKING DRAWINGS AND ITEMIZED STOCK BILLS SHOWING HOW TO MAKE TWO FINE PIECES OF FURNITURE

THE library table shown in the accompanying picture is arranged to be used as a writing and study table. While the drawing shows drawers from one side only, it is possible, if the table is to be placed in the middle of the room, to have drawers on both sides of the table. This may be done by making four separate drawers for each side of the table or by making the drawers as shown extend clear through to the other side and facing them there as on the front. A partition would be placed midway between the two faces. With this latter arrangement, when the drawer on one side was pulled out the corresponding one on the other side would follow it half way through.



Quarter-sawed oak-white is the least expensive of the better cabinet woods.

STOCK BILL FOR LIBRARY TABLE

Top, 1 piece, $\frac{3}{4}$ by 34 by 56 inches, S-2-S.
 Posts, 4 pieces, $2\frac{1}{4}$ by $2\frac{1}{4}$ by 30 inches, S-4-S.
 Shelves, 2 pieces, $\frac{3}{4}$ by 13 by $28\frac{1}{2}$ inches, S-2-S.
 Ends, 4 pieces, $\frac{3}{4}$ by 10 by 28 inches, S-2-S.
 Backs, 2 pieces, $\frac{3}{4}$ by 10 by 12 inches, S-2-S.
 Facings, 2 pieces, $\frac{3}{4}$ by $4\frac{1}{4}$ by 24 inches, S-2-S.

FRAME UNDER TOP

2 pieces, $\frac{3}{4}$ by $2\frac{1}{4}$ by 56 inches, S-2-S.
 4 pieces, $\frac{3}{4}$ by $3\frac{1}{4}$ by 34 inches, S-2-S.

FRAMES FOR DRAWER SUPPORTS

8 pieces, $\frac{3}{4}$ by $2\frac{1}{2}$ by 28 inches, S-2-S.
 8 pieces, $\frac{3}{4}$ by 3 by 15 inches, S-2-S.
 8 pieces, $\frac{3}{4}$ by $1\frac{1}{4}$ by 19 inches, S-2-S.

DRAWERS

Fronts, 4 pieces, $\frac{3}{4}$ by $4\frac{1}{4}$ by $10\frac{1}{2}$ inches, S-2-S.
 Sides, 8 pieces, $\frac{3}{8}$ by $4\frac{1}{4}$ by 19 inches, S-2-S.
 Backs, 4 pieces, $\frac{3}{8}$ by 4 by 10 inches, S-2-S.
 Bottoms, 4 pieces, $\frac{3}{8}$ by $18\frac{1}{2}$ by 10 inches, S-2-S.

It is not necessary that all of these pieces shall be of oak. The drawer sides, bottoms and backs may appropriately be made of yellow poplar. In this case the drawer interiors should be finished in the natural by the application of three or four coats of white shellac.

Begin work by cutting the posts to the length indicated in the drawing. The lower ends of these posts should be chamfered slightly to prevent their splintering through usage.

Next, the rails may be squared to length and width, also the shelves. Lay out the tenons on the rails and the mortises on the posts. To insure getting these mortises laid on the right sides of the posts, it is a good plan to stand the posts upright in the positions they are to have relative to one another in the finished piece and mark roughly, as with penciled circle, the approximate locations of intended mortises and gains. The face sides should be turned in. They are more likely to be true than the other surfaces, and for that reason more likely to make tight-fitting joints where

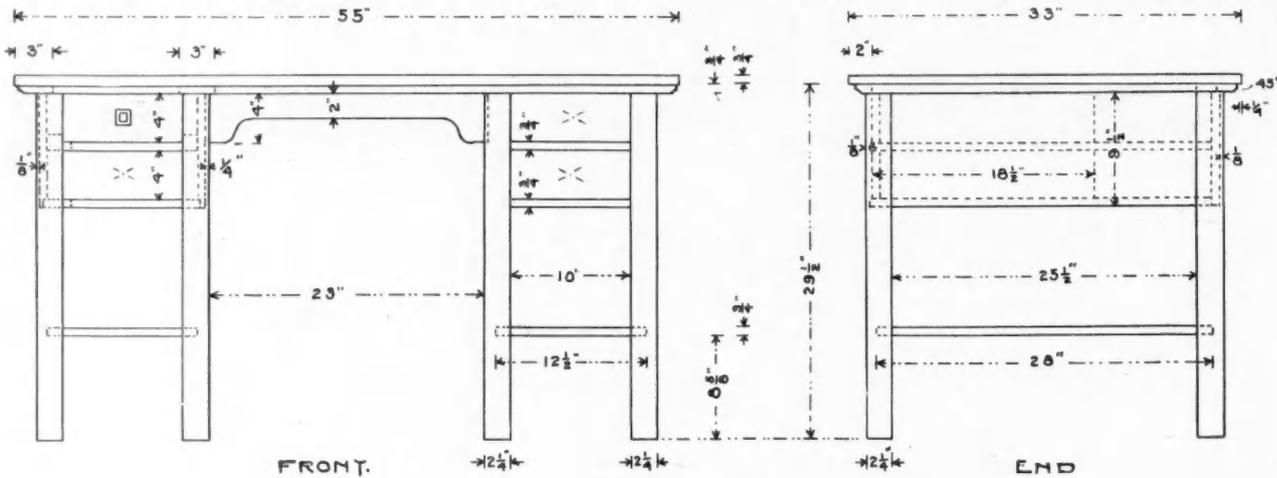
shoulders of the tenons fit against the sides of the posts.

Make and glue together the frames of $\frac{3}{4}$ -inch stock, which are to support the drawers, and also the large frame which rests upon the posts, and to which the top is to be fastened. The easiest way to make up these frames is to groove the edges of the front and back pieces which are to act as drawer supports and tenon the ends of the other pieces just enough to fit these grooves. These are then put together, using good hot glue and plenty of it.

The top frame may be similarly constructed, but the grooves should be cut deeper. Regular mortise and tenon joints would be stronger and possibly as easily

made, since the amateur will have to do his grooving by hand in all probability. These frames should have their corners "let in" to the posts and be glued when the frame of the table is assembled.

dried over night sandpaper lightly, using No. 00 paper, and apply a second coat of stain diluted by the addition of an equal volume of water. Allow this to dry and sand lightly, after which put on a very thin coat



LIBRARY TABLE

Thoroughly scrape all parts that will be visible and put the table parts together. Use plenty of good hot glue, putting glue on the sides of the mortises as well as on the sides of the tenons.

While this glue is hardening the drawers may be made. The construction of the drawers is not shown in the drawing. If one is not familiar with drawer construction he can easily find how it is done by examining any piece of furniture in which there is a drawer.

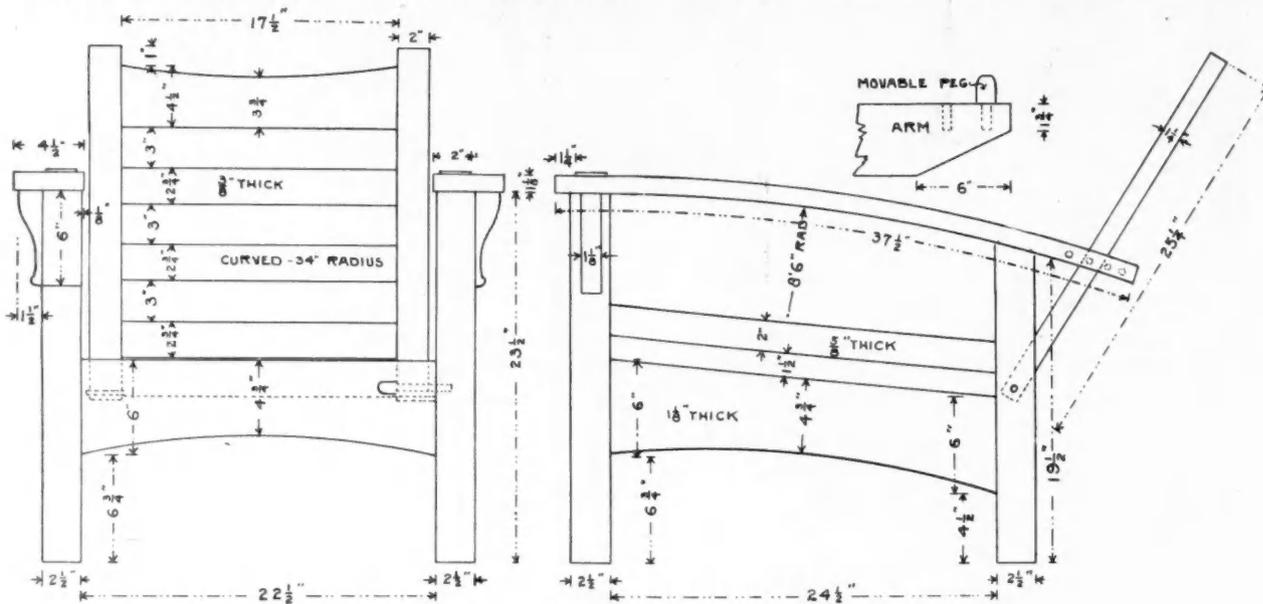
With the glue hardened, the clamps may be removed, all surplus glue removed and all parts sandpapered ready for the finish.

of shellac. This is to seal the pores of the high lights so that the filler stain will not discolor them. Sand this shellac when dry and put on a coat of black paste filler. When this filler has hardened sandpaper again lightly with fine sandpaper and apply a coat of orange shellac. Follow this with several coats of some good rubbing varnish, rubbing the first coats with hair cloth or curled hair and the last with pulverized pumice stone and raw linseed oil or crude oil. This gives a somber finish in green with background of black and is known as Green Flemish Oak.

Library Easy Chair

The top of the table is to be fastened to the top

The easy chair, if it is to be used in the same room



LARGE EASY CHAIR FOR THE LIBRARY.

frame by putting the screws through the frame from the underside.

Green Flemish Oak Finish

To finish this table, proceed as follows: Put on a coat of green Flemish water stain. When this has

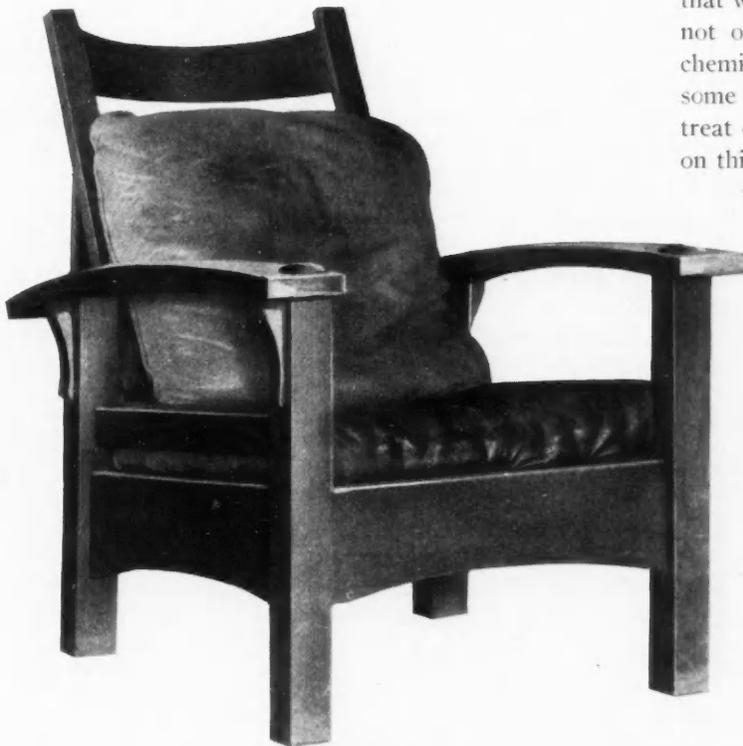
with the table should be made of the same wood and finished similarly. The dark green of the Flemish finish will be most effectually "set off" if the cushions are made of some soft but light green leather, Spanish roan skin is appropriate.

There will be needed pieces as follows:

STOCK BILL FOR LARGE EASY CHAIR

Posts, 4 pieces, $2\frac{1}{2}$ by $2\frac{1}{2}$ by 25 inches, S-4-S.
 Front and back rails, 2 pieces, $1\frac{1}{8}$ by $6\frac{1}{4}$ by 25 inches, S-2-S.
 Side rails, 2 pieces, $1\frac{1}{8}$ by $6\frac{1}{4}$ by 27 inches, S-2-S.
 Side rails, 2 pieces, $\frac{3}{8}$ by 2 by 27 inches, S-4-S.
 Arms, 2 pieces, $1\frac{1}{8}$ by $4\frac{3}{4}$ by 38 inches, S-2-S.
 Braces, 2 pieces, $1\frac{1}{8}$ by $1\frac{3}{4}$ by $6\frac{1}{2}$ inches, S-2-S.
 Back verticals, 2 pieces, $1\frac{1}{4}$ by 2 by 26 inches, S-4-S.
 Back horizontals, 3 pieces, $\frac{3}{8}$ by $2\frac{3}{4}$ by 20 inches, S-4-S.
 Back horizontal, 1 piece, $\frac{3}{8}$ by $4\frac{3}{4}$ by 20 inches, S-2-S.
 Seat frame, 4 pieces, $1\frac{1}{8}$ by $2\frac{1}{2}$ by 23 inches, S-4-S.
 Pins, 4 pieces, $1\frac{1}{4}$ by $1\frac{1}{4}$ by 5 inches, S-4-S.

Cut the posts to length, then lay out and cut the mortises. After this has been done the rails may be cut to length and shouldered and tenoned. It should be noted that the side rails enter the posts at an angle,



the bevel square will be needed in marking the shoulders. The arms are to be bent; a curved form slightly more curved than the arm is to be, will need to be prepared upon which to clamp the arms after they have been steamed. Curved forms will be needed for the back horizontals, too.

Sandpaper and smooth the parts and then put the sides of the chair in the clamps, using plenty of good hot glue. While these parts are drying, the back may be made. The horizontals should be tenoned into the verticals so that while these parts are drying in the clamps the front and back rails of the chair may be put in place.

The drawing shows clearly the manner of fastening the back to the chair proper, wooden pins being used. The easiest way to make these pins is to make the head separate from the pin, using a dowel for the pin

part. Bore a hole in the head and glue and insert the dowel. The pins which support the back are to be similarly made and shaped.

For a seat the most comfortable result is obtained by either putting in springs or as good a way is to make a frame out of the pieces specified for that purpose in the stock bill, weaving on this a cane seat, using a rather coarse weave. The loose leather cushions upon either of these is very satisfactory. If desired, of course, a seat may be made by using slats. In this case extra pieces will need to be added to the stock bill for that purpose.



For Cabinet Finishers

Wood staining is very much like textile dyeing, in that we may mordant our surface, and get many colors not otherwise obtainable. Thus we can use certain chemicals in connection with certain pigments, getting some very handsome colors. Like the dyer, we can treat our material, the wood, with a certain color, and on this apply another in the effort to get a certain rich and full color effect not otherwise to be had. As regards color, there is almost no limit to the range that is at our service. This is where the art comes in, and where the valuable man finds room in the best shops. A man good with colors is truly a valuable man in the furniture finishing room. In this connection he should have a knowledge of certain chemicals, useful with stains, and in staining. In fact, his shop should be a laboratory and he a chemist—yes, and a wizard with colors.

There is the matter of matching old wood to new, with stains. How should it be done? Well, you may darken wood with ammonia or iron sulphate, or vinegar and iron filings. You may lighten it with oxalic acid, to which add a little spirits of nitre in hot water. Bichromate of potash is a brown stainer, one ounce to the pint of water. If you wish to renew a bright yellow wood or match it, use gamboge stain—gamboge dissolved in alcohol. If red is to be matched, try alkanet root soaked in sweet oil for a day, or benzine colored with camwood.

This is merely a hint of what work lies in the direction of the laboratory of the wood finisher. He must have a perfect knowledge of all things that concern wood finishing and particularly staining. There is not only the great family of aniline dyes, but the vegetable, the mineral or earth pigments, and the chemically prepared ones. All are to be used by him, and as I have already stated, there are the chemicals, too. So that it is easily seen what a lot a finisher should know, to be at his best. Even where a full knowledge may not be called into use, as it is not in most shops, yet it is always best to be perfect master of your art or calling, for that leads to possible promotion.

CORRESPONDENCE



Design for Paneled Ceiling

To the Editor:

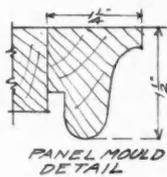
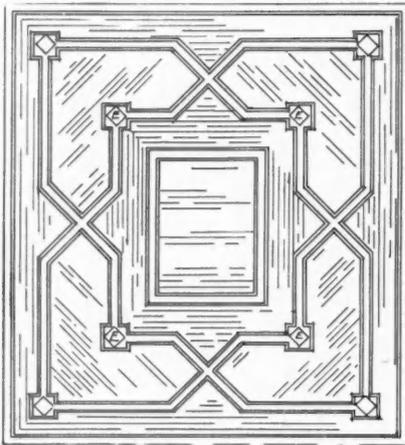
Westport, N. Y.

I have a dining-room to be ceiled overhead with southern pine; size of room 22 by 24 feet. There are to be four electric lights put in each set about 6 feet from outside corners.

Would like some plan or suggestion for properly doing the job in an artistic way; would like to start and build around each light and then cut and fill in remaining spaces with different angles, panels, etc. Please give me some idea.

JOHN A. STANTON.

Answer: We take pleasure in submitting herewith a plan



and details of the ceiling for a dining-room. Electric light outlets are marked "E." Would suggest that the beaded ceiling be of the V-jointed type, about 2 1/2 inches wide.

EDITOR.

A Waterproof Glue

To the Editor:

Janesville, Ohio.

If it is not considered a breach of etiquette I will try to recommend one kind of water-proof glue, which I have every reason to believe will answer the question Mr. H. A. Crawford has asked in the March number. Buy the best white glue and use pure cow's milk in place of water. The milk contains a certain amount of oil and fat, which goes a long way toward making a water-proof glue. Use a double boiler and be sure not to let the mixture scorch, as that would spoil it. Use it about as thick as good rich or heavy cream, and also do the work in a warm or hot room.

JOHN LE PAUVRE.

Remedy for the Creosote

To the Editor:

Cloverdale, Calif.

In the February number, W. E. S. complains of the creosote running from the stove pipe and asks "What's the Trouble?" As no one answered his question in the March number, I think I will try to help him out. The principal part of the liquid running from the pipe is the water that is contained in the fuel that you are burning. The heat converts this water into

steam and it starts out the pipe with the smoke and other gases. If the pipe is straight and not too long it passes out, and there is no trouble, but if the pipe is long and several turns, the smoke and gases cool down and the steam condenses in the pipe. This being too heavy to rise with the smoke, it flows out the seams of the pipe. This is the cause of creosote running.

To remedy, keep the smoke and gases warm until they reach the outer air. The simplest way to do this is to run the pipe straight from the stove to the roof. Where this is not practical (as in W. E. S.'s case) the pipe may be covered the same as steam pipes are covered to prevent loss of heat. Any plan, however simple, that will keep the smoke and gases hot until they reach the outer air, will prevent the creosote nuisance.

C. A. THOMPSON.

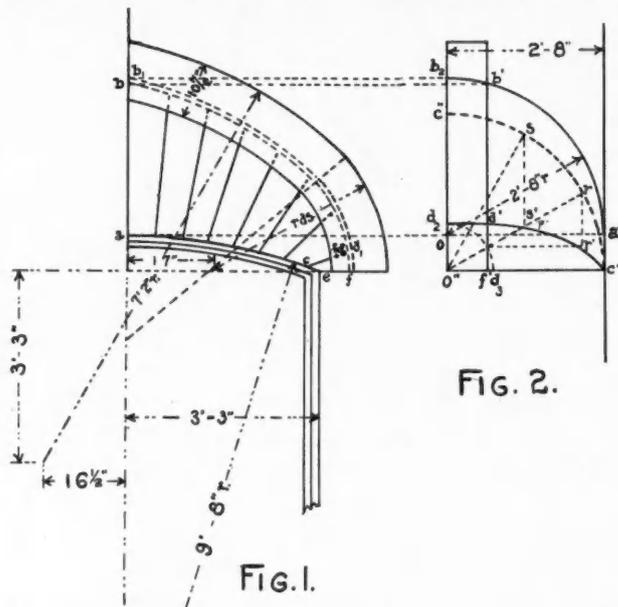
To Find the Ribs of the Door Hood

To the Editor:

Manti, Utah.

The past year I have been a subscriber to the AMERICAN CARPENTER AND BUILDER and have been greatly benefited by reading the same. I have been mostly interested in the department that has been showing the plans of the different houses and the correspondence. The new department of details is also very useful.

In the February number I notice a sketch of a front door hood that O. B. Fettes wants explained—how to find the



different ribs. I am enclosing a sketch showing how I would find the curve of the different ribs.

Fig. 1 shows one-half of the arch with ribs. The lines defining the different faces of the moulding are omitted, while those defining the width of the mould are given. In Fig. 2 only the lines defining the thickness are shown.

The dotted line $b_1 d_1$ shows where the lower edge of the ribs would come on the face of the hood mould, but they only come to the back of the mould and therefore their lower edges come in the line $b f$. Beginning on this line at the point b , lay off the centers of the ribs (in this case 8-inch centers). Then on the segment $a c e$, lay off the same number of points as there are on $b f$. Connect the corresponding points. These lines show the front view of the ribs.

In Fig. 2 we find the curves of the ribs. I have only found two, as the others are found by the same principle. The curve $a' b'$ of the rib $a b$ needs no explanation, as it is a segment of a circle. The rib $e f$ is a straight piece the length of $f' c'$. The other ribs are all parts of an ellipse. The horizontal length is the same for all of them and is greater than the vertical length, so the former will be one-half the major axis for each curve of the ribs. The respective front views will be one-half the minor axes. I have found the curve of the rib $c d$, Fig. 1, as shown by $c' d'$ Fig. 2. Take $o'' d_2$ equal to $c d_1$ of Fig. 1, with o'' as a center and $o'' d_2$ as radius, describe the quarter circle $d_2 d_3$ likewise with o'' as center and $o'' c'$ as radius describe the quarter circle $c' c''$. These are quarters of the minor and major circles respectively. Divide both these circumferences into the same number of equal parts as has been done by the radii $o'' y$ and $o'' s$. From the points where these radii cut the circumferences draw lines at right angles to the major and minor axis respectively, and where these lines intersect, as at r' and s' are points on the curve of the rib. Passing a line through these points and the two given points, we have the curve $c' r' s' d'$. The other ribs are found by the same method and each curve will answer for the corresponding rib of the other half.

NIELS C. PETERSEN.

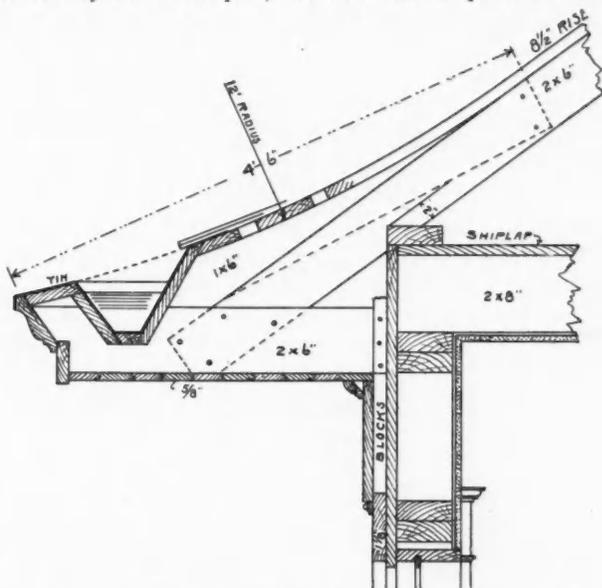
How to Construct Curving Eaves

To the Editor: Mt. Vernon, Ill.
I have only been a reader of your valuable paper a short time, but have derived great benefit from the articles contained therein.

If it is not asking too much, would like to have you explain method for laying out roof like enclosed photograph. If possible, give drawing showing "lookouts, etc." and oblige.

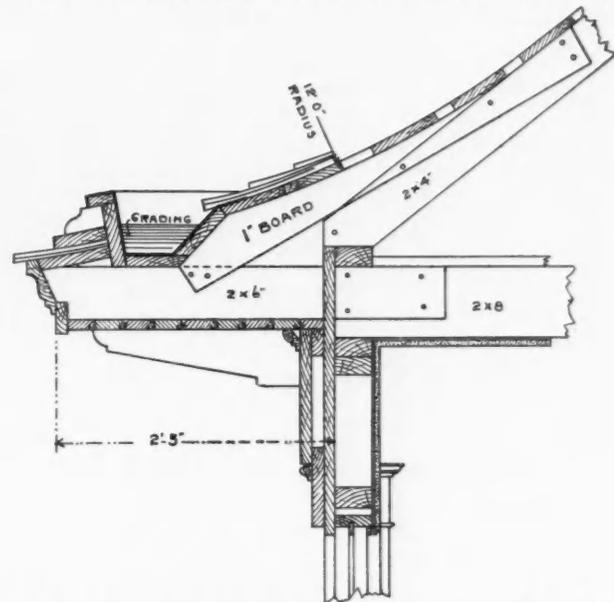
W. N. ATKINSON.

Answer: In the absence of the outlines of the building, we cannot lay off a roof plan, but the house in question shows



that of an ordinary hip roof, with a curve at the eaves. The accompanying sectional drawings show two very good ways of constructing curved roofs. The tendency in such roofs is not

to allow enough radius for the curve, making the roof too flat at the eaves. It looks better and is also better for the shingles to use a long sweeping curve; and better effect can be had by



dropping the horizontal lookouts below the plate line, as shown in these illustrations. EDITOR.

Suggestions for Cooling Room

To the Editor: Hughesville, Md.
I have just completed a butcher shop of frame construction, ceiled on inside with tongued and grooved $\frac{7}{8}$ ceiling; size 16 by 30, with 10-foot ceiling; solid cement floor. I now wish to build a refrigerator in back end which is partitioned off to the size of 10 by 16 feet. The idea is to have the refrigerator large enough to hang the four quarters of a beef at once. The question is: Of what to build, wood or concrete; how to build, to use a minimum of ice, and size to build. The question of cost will hardly enter into the question; only efficiency. I will appreciate anything you can suggest.

A GOLDEN JONES.

Answer: If you desire the best obtainable and a thoroughly efficient apparatus, you should use the "gravity-brine" system, using ice and salt for cooling. This system maintains a temperature of 30 degrees Fahrenheit, and the air is much dryer and cooler than with direct ice cooling.

In hanging the beef there is no necessity of having the room more than 7 feet 6 inches high, and you could run a track into the room if desired. To handle only four quarters of a beef at one time would not require much space, but we suppose that you will require additional space for cutting, storage of cut meats, pickled meats, etc., and we would suggest that the room be about 8 by 10 feet inside.

Concrete would be of no advantage to use in constructing a room of this kind, and we would recommend that the construction be entirely of wood with the addition of high-class insulating materials, like cork, hair felt or fiber. These materials should be used to a thickness of at least 4 inches, and the studding and floor and ceiling joist of the cold storage room should be filled with mill shavings to a thickness of at least 8 inches. All these materials should be protected on the exterior and interior surfaces and carefully separated from each other by the best grades of insulating paper. EDITOR.

Mounting Tile for Mantel Work

To the Editor: Lewisburg, Ohio.
Will you kindly give in the AMERICAN CARPENTER AND BUILDER a method or mixture for mounting tile on slabs for mantel and grate work? EDGAR J. C. HORN.

How to Frame Roof for Octagon Bay

To the Editor:

Manhattan, Kan.

I am planning a house with a one-third pitch roof. On one side will be an octagon bay window extending up to the plate. This will also have a one-third pitch roof. Now here are some things I would like to know.

Fourth. Would rafter C in the plan become a valley rafter should the building line be moved out to line A-B?

If not asking too much, I would like to have a rule or diagram explaining these points. M. M. GRAHAM.

Answer: The accompanying illustration, as shown in Fig. 1, is an elevation and plan of the roof in question.

First. Yes, the plan would be changed and would be as

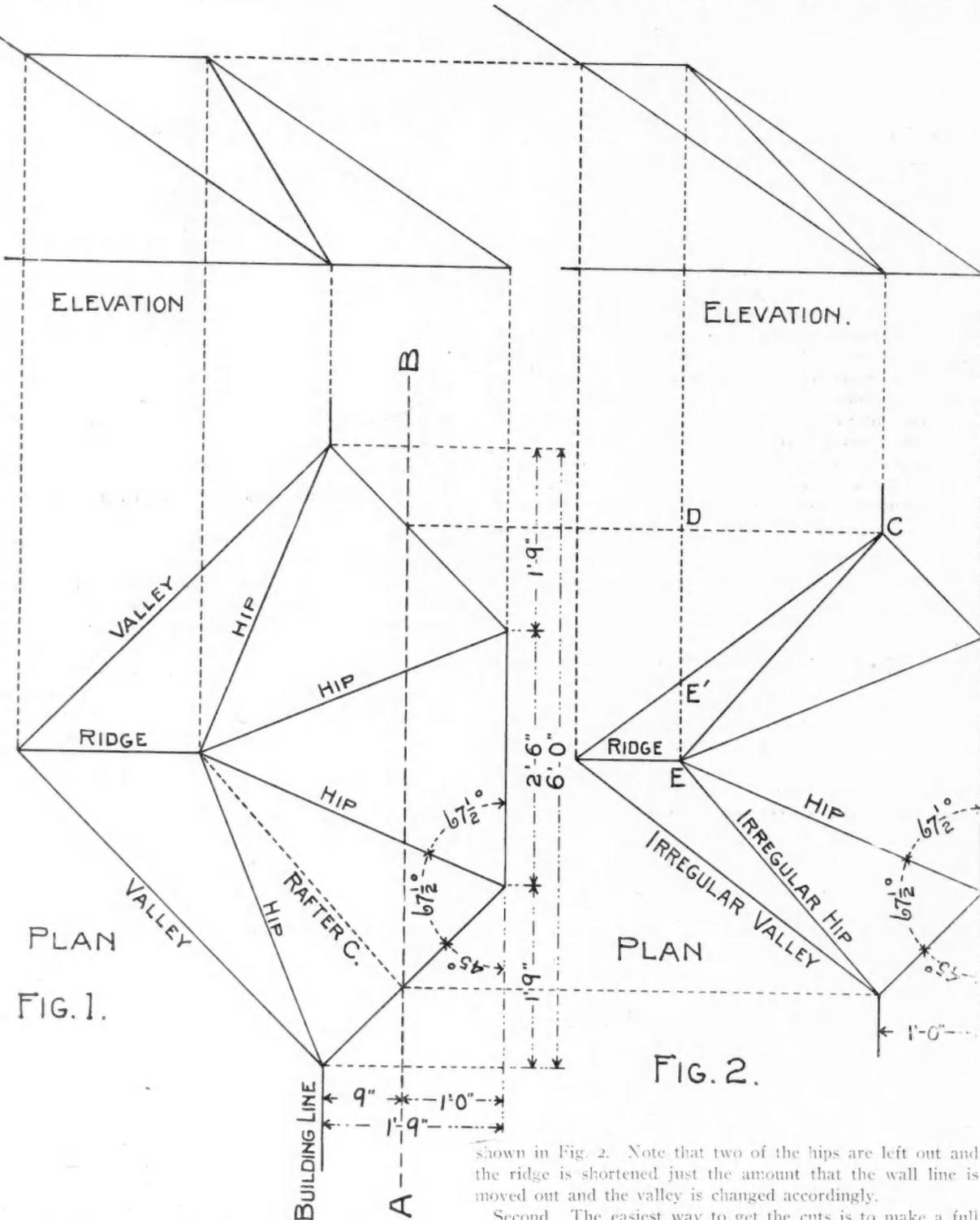


FIG. 1.

FIG. 2.

First. In the roof plan of Fig. 1, would the plan of the rafters change if the building line was moved out 9 inches, as to A-B?

Second. How can I determine the side cuts for common and hip rafters for octagon work?

Third. How can I find the lengths and cuts for cripples from ridge of bay to valley rafter?

shown in Fig. 2. Note that two of the hips are left out and the ridge is shortened just the amount that the wall line is moved out and the valley is changed accordingly.

Second. The easiest way to get the cuts is to make a full size diagram, as shown in Fig. 3. The distance between the arrow heads will be the distance apart of the two side cut marks on each rafter; these should be carried clear around the rafter, then cut diagonally across the back from one line to the other. They will fit to their respective places regardless of the pitch given the roof.

Third. Lay off a plan of this part and space off the cripples

ples. The length of the cripples in the plan will represent their runs, and as the cripple jack is a part of a common rafter, its length may be found the same way as that of the common rafter. The side cuts may be found as shown in Fig. 3, or with the steel square by taking C-D (see Fig. 2) on one arm and the length of the common rafter with a run equal to D-E on the other; the side of the square on which the latter is taken will give the side cut to fit against the irregular hip. Proceed in the same manner for the side cut to fit against the irregular valley, but take the length of the

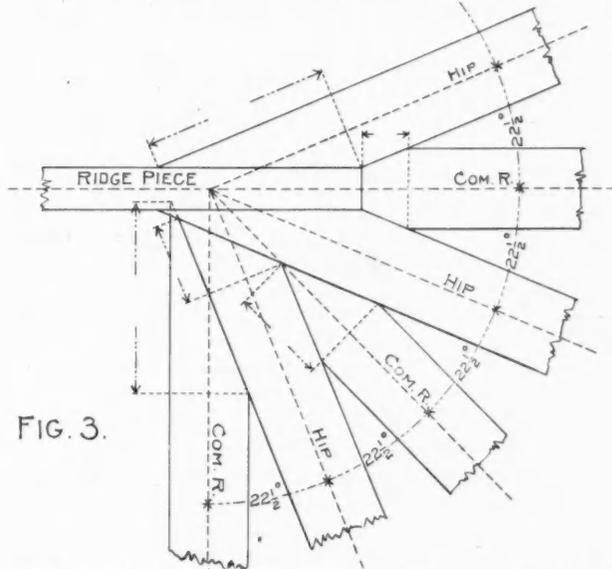


FIG. 3.

common rafter with a run equal to D-F. Remember this applies only to the side cuts of the jacks that rest between the hip and valley. The plumb cut would be found on the run and rise of the common rafter with run equal to D-E. For the side cut of the jack to fit on the other side of the irregular valley, take D-E' on one arm and the length of the common rafter (for that side) with a run equal to D-E on the other; cut on the latter. The plumb cut is found by taking the run and rise of the common rafter also for that side; cut on rise.

Fourth. No. It would be an irregular hip, as shown in Fig. 2, because the projection being 1 foot 9 inches, or 21 inches, and the building line being moved out 9 inches, the rafter's foot lacks 1 1/2 inches of being at the center. Therefore, it lacks just that much of being a common rafter as well as an irregular hip.

For the side cut for the regular octagon jack, take one-half the length of the side of the octagon and the length of the common rafter for that side; cut on length. A. W. WOODS.

Good Advice

To the Editor: Battle Creek, Mich.
I am a charter member of our great AMERICAN CARPENTER AND BUILDER. And above all the departments I think the correspondence department is the most helpful to the carpenter. We find many things in this department that we "run up against" every day.

I want to say just a word about roof framing. It seems to me that the trouble with most of the carpenters who are bothered by roof framing is that they do not understand why they do a thing this or that way. There has been a great deal written about roof framing, and it is all good and correct; but the same rule applies to all. In the first place, Mr. Reader, don't hesitate to use the gray matter in your head that God has given you to use. Don't simply be content to let your foreman make a mark for you to work to, but study out for yourself why he made that mark so and so, and don't give up till you have it. If you will follow up this principle you too may be foreman some day.

Let me give you a little experience of my own. When I first commenced working at the trade my foreman told me to frame the rafters for a one-half pitch hip roof, he laid out a pattern for the jack rafter and told me to commence with the longest and cut each set 22 8/12 inches, or practically 22 5/8 inches shorter, and that would bring them 16 inches on centers.

When I found time I took my square and figured it out, why he told me to do that, and I never forgot it.

Don't take any more jack rafters up on the roof and scribe them in when you can cut them on the ground so much easier.

WILL CARTLIDGE.

A Home Made Trammel

To the Editor: Highland, Mich.

I am now engaged in extensively remodeling a church in a country village. In the vestibule there are to be two oval (that is, elliptical) leaded art glass windows. In studying over the different ways of drawing an oval for a pattern for these windows, I concluded to use the method described in May, 1909, number of the AMERICAN CARPENTER AND BUILDER, page 180, Fig. 246. But as the square and straight edge would be unhandy to use and would describe only one-fourth of the oval, I invented the device described herewith, which will describe the whole oval and is on the same principle as that of using the square and straight edge.

Taking a wide board, I cut a dovetail groove each way across from corner to corner, as shown in Fig. 1, into which I fitted two little hardwood blocks. These blocks are made so they will slide easily through the grooves. Then selecting a straight-grained edging, I made an adjustable sweep and by means of a round-headed screw, fastened the blocks loosely to it. See Fig. 2. In using this device A to C represents one-half the long diameter and A to B one-half the short diameter. A pencil point fixed at A scribes the ellipse.

The request of O. B. Fetters in the February number for a method for laying off ribs for the entrance hood he described

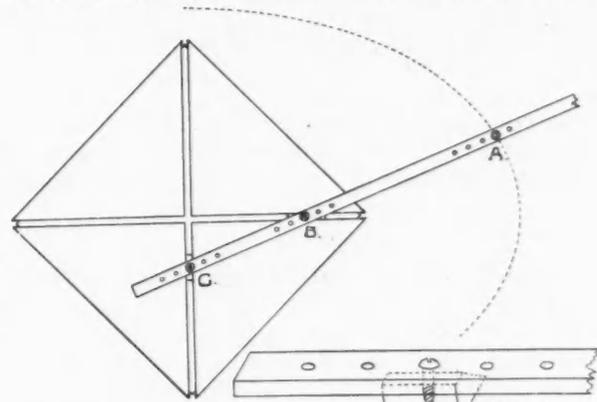


FIG. 1.

FIG. 2.

led me to send you the description of my device, which I think can be adjusted to mark out each rib. I have not studied any on this application but think I should consider the rise of each rib and adjust the block in center of sweep accordingly. The run, as I understand it, will be the same for each rib.

I do not know as this device was ever before used for this purpose, and if not, and is valuable to anyone, I will sell out my right to a patent awfully cheap, and furthermore, there will be no royalty charged the brothers for making use of it while it is mine.

ALBERT GONNE.

How to Silver Mirrors

To the Editor: Lynchburg, Va.

I want to know how to silver glass for mirrors. I have several pieces of plate glass and want to make mirrors out of them if I can learn how to do it.

H. E. CARPENTER.

Answer: The glass should be plate glass; its surface per-

fectly smooth and clean. Lay it on a flat, level, smooth and true board, bench or table. Lay over it a sheet, or sheets, of perfectly clean tin foil, being sure that no portion of the glass is left uncovered. Roll this tin foil down so that it is in intimate contact with the glass, leaving no bubbles of air imprisoned between the glass and the tin foil. Then pour mercury over the tin foil so as to completely cover it. Strips standing upright on edge may be placed around the rim of the glass to confine the mercury. The mercury will immediately amalgamate with the tin, and the glass should be slowly elevated at one end so as to let the superfluous mercury run off. When this has been removed, spread a clean, dry woolen cloth over the metal-covered surface of the glass and place on top iron weights so as to press the metal coating firmly all over on the glass. Let it stand over night or for twenty-four hours, remove weights and the cloth and the job is done. If you are not experienced, you had better try this thing experimentally two or three times on small pieces before you attempt an important job.

EDITOR.

Brick Wall With Air Space

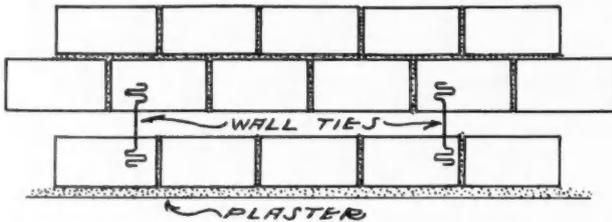
To the Editor:

Bonnors Ferry, Idaho.

I am going to erect a brick block here, and would like to know, if I build a hollow brick wall, 8 inches outside and 4 inches inside with a 2-inch air space, as shown in sketch, will the inside wall absorb too much moisture for me to plaster directly on the brick, or will I have to use furring and lath for it?

CHAS. D. ROWELL.

Answer: It is entirely safe to plaster directly onto the



inside surface of a brick wall built in this way. In fact, the object of going to the trouble of laying up such a wall is to make it possible to do away with the furring. The inner 4-inch wall is bonded to the outer brick wall by metal wall ties as shown.

EDITOR.

A Good Answer and Some Questions

To the Editor:

Rockford, Ill.

If Mr. O. B. Fetters, in the February issue, had given the plan of his niche the problem could be very easily solved; but no common radius, and, in fact, no radius at all can be given for the different ribs. On the other hand, I would not run the ribs as he has indicated on his sketch. I would run them from a common center and thus make the cutting much easier.

These ribs will not be part of a circle, but part of an ellipse in which the rise is one-half the minor axis and the run is one-half the major axis. Then with these two dimensions describe the fourth part of an ellipse, which gives the curvature of the rib. If Mr. Fetters is really in trouble and will send me the plan and elevation of his niche, I will send him drawings showing him how to obtain the ribs.

I would like to ask for some information through the AMERICAN CARPENTER AND BUILDER which I regard the best of building papers.

1. Will someone please tell me how to make good tar concrete and where can such concrete be used to good advantage?
2. Will someone please inform me of a good way to lay the floor of a loggia or any outdoor room, which will be much exposed to weather and which has a plastered ceiling below, so that it will be free from leaks and at the same time make a good serviceable floor?

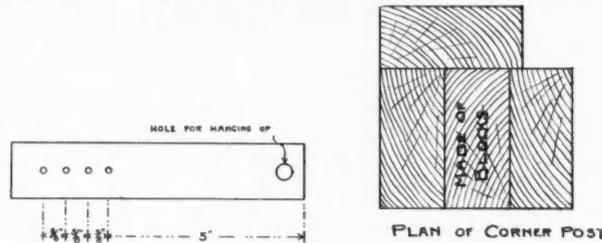
J. W. TRAFZER.

Corner Post and a Pulley Marker

To the Editor:

Adrian, Mo.

I am sending my plan of a corner post, which I believe is a little more practical than either Mr. Rieveley's in the December number, or Mr. Hartman's in the February number, considering the dimensions of the studding we get nowadays, for the reason that two pieces spiked together flatwise like they show, will not equal one piece set edgewise. The 2 by 4's we



PLAN OF SASH PULLEY MARKER

get only measure $1\frac{5}{8}$ by $3\frac{3}{8}$ inches, so their corners would lack $\frac{3}{8}$ of an inch of being wide enough one way, which would make a crooked wall inside. My plan overcomes this and does not take any more material. The center is made of blocks spiked in, of any length, and should be about 3 feet apart:

In using this post with a box sill where the end joists are set in to let the studding go down to the sill, the corner posts have to be made in pairs and two of the pieces made as much longer as the depth of the joist and heel plate.

I like the correspondence department of our paper very much and enclose also a sketch of a little tool I made to mark for pulleys in window jambs. It consists of a piece of tin, brass, copper, or any thin metal about 8 inches long by $1\frac{3}{8}$ inches wide and 5 inches from one end to the first hole. The holes, four in number, are $\frac{5}{8}$ inch apart and just large enough to stick the point of a scratch awl or other pointed instrument through to make a dot to start the center of the bit. Use No. 11 bit and trim out edges with chisel and the hole will be just right for the ordinary steel sash pulley. To use, place end opposite holes, flush with gain at top of jamb and mark in the small holes. I do not claim this as original with me, but perhaps it will appeal to some brother workman.

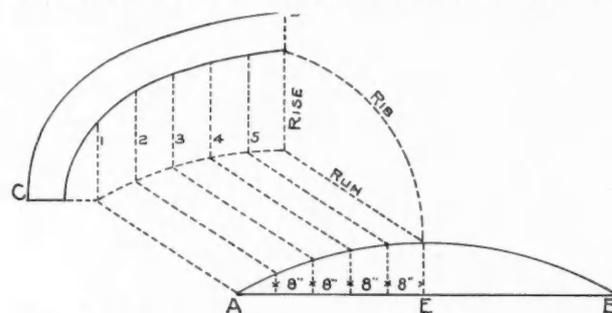
M. W. ROBERTS.

How to Shape the Ribs

To the Editor:

Yorkshire, Ohio.

In answer to O. B. Fetters question in the February number let the curve A B in Fig. 1 represent segment head of the door, and C D half of the arch spanning the opening. If the ribs are to be put in 8 inches on centers and run parallel with each other (No, they should not be parallel, but should radiate from a common center. Editor) then space off from center



of segment 8 inches, having one arm of your square parallel with the line A B. The outer end of the 8-inch line is to intersect the outer segment line. It will be seen by the diagram that the run for each rib drops a little lower as it gets nearer to the outside of the opening; this makes a difference in the rise of each rib. I would advise to have a gauge line on both arches where the ribs are to rest; and from these

gauge lines measure the run and rise as shown in the diagram. After having found the run and rise of each rib, then draw the curves for each rib the same as drawing an ellipse.

Another thing to be considered is the beveling of the ribs to give a solid surface for nailing the lath, as each rib will have to be beveled more at the top than at the bottom, also the ribs cannot be beveled alike, as the further away the rib is from the center of the arch, the more the bevel will have to be. I would draw the segment and the outside arch on a floor and then put the ends of the ribs on the arches with one side flush with the arch, and the part that projects on the other side of the rib is the amount to be removed. After marking both ends and shaping the rib you will have a pattern for the corresponding rib for the other side of the arch.

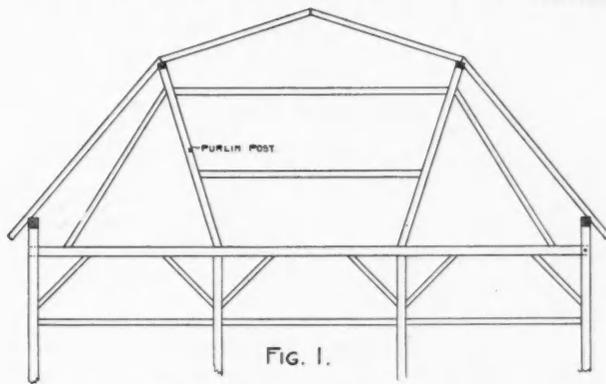
ALVIN L. OEHRTMAN.

To Find the Cut of the Purlin Post

To the Editor:

Juda, Wis.

Enclosed you will find a rough sketch showing the purlin



posts for a hip roof barn which I do not quite understand. Will you please explain how to get the length and bevel with the steel square. I can get the length from the drawing, but I wish to know how to do it with the steel square.

HARRISON GRENZOW.

Answer: The problem is a very simple one and may be treated as follows:

The purlin posts should be reckoned the same as a common

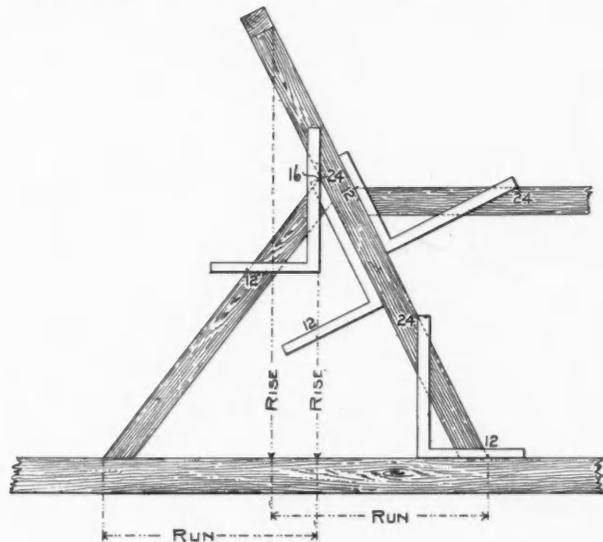


FIG. 2

rafter. The length and cuts are found from the run and rise in precisely the same way, so far as they go. That is, it is necessary to lay off the plumb line just as though it was to be cut, and to this line apply the square with the figures that give the seat and plumb cuts of the post to which it joins;

these will give the proper angle, as shown in Fig. 2. The same figures that give the seat and plumb cut of the purlin post will also give the cut of the girt that joins it, as will be seen in the same illustration.

A. W. WOODS.

Why the Varnish Cracked

To the Editor:

Clarksville, Ia.

I have read several articles in AMERICAN CARPENTER AND BUILDER about paint, but have never seen anything concerning varnish. I built a house about three years ago, the inside trim being white oak, well milled. I was called in lately to see the varnish on the woodwork. I found the side casings in bad shape, the varnish having cracked, and it seems to be across the grain of the wood. Other parts of the trim are not quite so bad, but still are cracked some. I would like an explanation of this trouble.

A. G. TENNISON.

Answer: I would say at once that the cracking is due to inferior varnish. The varnish is what we call "short oil," or one not sufficiently elastic, and containing a large quantity of rosin. Such a varnish will always crack across the grain, and the reason why it is worse in some places is because it has been applied heavier there than where it has not cracked so badly. Such a varnish has a high gloss, and dries very hard, and brittle. Water will cause white spots on such a varnish. It easily scrapes under the finger nail test. A good grade of varnish does not have so high a gloss because it has so much oil that it cannot shine with full luster. Sometimes we add some oil to poor varnish, to give it better elasticity, but the manufacturers cannot afford to do this, owing to the high cost of oil. He gives as good a varnish as your money will allow him to give. Now, I do not know what the house owner intends to do with that varnish, but he can take it off with varnish remover or sandpaper it off enough to allow of a fresh coat of a better varnish being applied. It seems a pity that a job should be spoiled in this way all in order to save a few pennies on the varnish; a very little more, say two dollars, even less than this, would give a good wearing varnish.

A. ASHMUN KELLY.

Laying Spanish Roofing Tile

To the Editor:

Miles City, Mont.

I am at the present time building a \$14,000 residence here which is to be roofed with Spanish tile, and as I have found it impossible to secure a tiler to put the roof on it is up to me to do it. Now will you please give me what information you can about laying them, etc., as I have never had any experience with tile in my twenty-three years of practical work.

J. W. BRINSON.

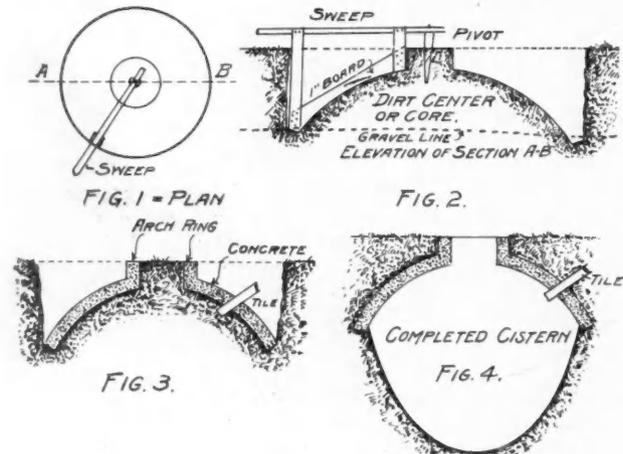
Answer: We have requested a number of the tile companies to forward you their circular literature, which contains full specifications for laying of tile and will, no doubt, give you the information you desire. You probably know that it is the roll of this type of tile which forms the bond and which gives the tile its name. Formerly it was common to lay these tiles directly on the purlins in open roof construction, the tile being simply fastened to the purlins from underneath by means of copper wire passed through the pierced lug on the underside of the tile. By far the preferable practice, however, and the one now almost universal in residence work is to use the closed roof construction, the roof being sheathed and then covered with asphalt weighing thirty to forty pounds to the square. The tile are laid directly on this protective covering and nailed directly to the roof through holes in the tile provided for that purpose. Galvanized nails should not be used as they have been found to give trouble through corrosion as well as expansion and contraction, resulting in cracking the tile. This trouble is avoided by the use of copper nails, leaving the tile sufficiently free to move slightly and thus counteract the effects of expansion, contraction and jar.

EDITOR

Cheap Way to Construct a Cistern

To the Editor: Hamilton, Ohio.
Am sending you herewith an original method of constructing concrete cistern in localities where the sub-soil is gravel. These cisterns can be built at about one-half the cost of other forms of construction and besides will not spring leaks, as the sides cannot give. The method is as follows:

Excavate a circular hole, as per plan, Fig. 1, having a cross section as per elevation on line A-B of plan, Fig. 2, using a sweep as shown, to get the hole true and round. Sift clean sand over this, then place concrete on top the required thick-



ness, as per Fig. 3, reinforcing same as desired and placing inflow tile in proper position. Have square, or circular form, for outside of arch ring. Level concrete off at desired height, then let arch harden several days and dig dirt out from under arch (passing it up through top opening), to required depth, being careful to have gravel sides sloping enough to support concrete arch. Plaster directly to gravel and under side of arch and cistern is complete, as shown in Fig. 4.

EMIL GANTZ.

Trisection Not Exact

To the Editor: Berkeley, Calif.
In your February issue, Mr. Dustman presents a solution for the trisection of any angle. So far as crude instruments and human eyes are concerned, it looks very much as if this were a geometrical truth. In reality, however, it is not true. The trisection of an angle is one of three very famous problems of antiquity; it has baffled more than one celebrated geometrician down through the ages.

It has been demonstrated that this problem is only possible of solution by the aid of higher mathematics, *i. e.*, it is impossible by the use of ruler and compasses alone. In case any reader doubts this, let him attempt to prove the angle B A J equal to the angle J A K in Mr. Dustman's solution. To make an apparent construction and then prove it true, are two very different things.

ADELAIDE SMITH.

Where Public Safety is Involved

To the Editor: Long Grove, Ia.
Will 2 by 12 inch by 20 feet No. 1 yellow pine joists, placed 16 inches on centers, be strong enough for dance hall if they have no support at the centers? If not, what would you recommend? The building will be 40 by 80 feet, frame building, with second floor for dance hall; also we figure on a flat roof. What kind of construction of roof would you advise? There shall be no supports on the second floor.

ROBERT SMITH.

Answer: For the span of 20 feet which you mention, we have very serious doubts as to the safety of such construction. The vibration due to the moving load upon such a floor in-

creases the strain in such long-span beams until it has reached a dangerous amount. Our opinion is that such a floor should have center supports in each 20-foot span or be supported by some form of trussed girder or safe I-beam.

Our advice to you in a case like this where danger to human life is involved, is that the design of this floor and roof be placed in the hands of a competent architect or engineer, who can go into the details of the construction, knowing all conditions which are liable to exist, and design this structure to meet these conditions. It is not safe for an outside party, who has no opportunity of knowing the actual conditions, to undertake to give such advice. In many cases conditions are changed after the design has been decided upon and accidents occur as a result.

EDITOR.

A New "Whetstone"

To the Editor: Troy, O.
I am a recent reader of your valuable magazine, and am much interested particularly in the questions and answers of correspondence department.

One writer thinks his explanation should forever set "at rest" the old problem of the three men carrying the stick of timber.

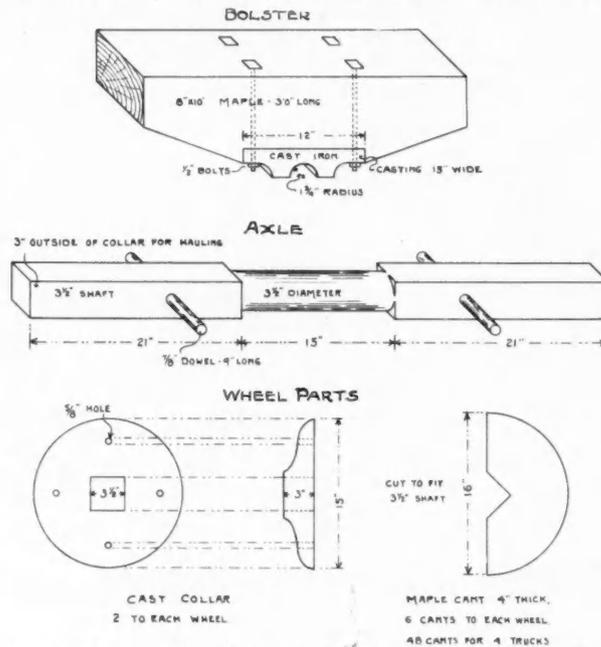
Why bless you no; it has been a mental whetstone for two generations! Let it circulate!

There are some who would rather have a new whetstone and here is one that may do.

A farmer when asked to give the rise and run of the rafters on his shed, replied: "I can only give the exact length of the rafters, which I remember is just 12 feet 3 inches." What are the rise and run?
N. W. CODY.

Moving Trucks

To the Editor: Troy, Pa.
In your March issue, W. W. Glew asks about house moving trucks. I am somewhat at home on that subject, having moved many buildings, from one ton up to 400 tons weight, and then some, and from 6 feet to a mile. I enclose rough

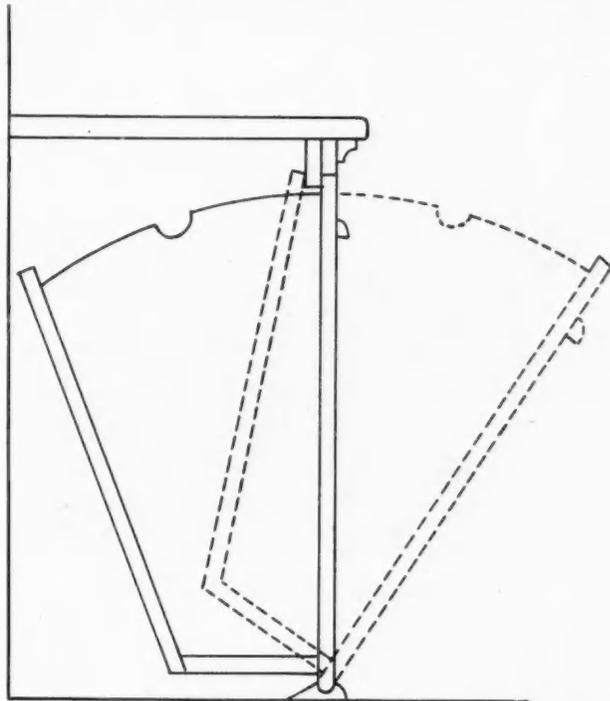


sketch of my trucks. They cost \$85 for the four. Have been in use some thirty-five years, have re-wooded twice in that time and are as good today as when new. I have used other kinds, but prefer mine. On small buildings, I only use three, placing one in center of front and one on each side toward rear. This saves a lot of work on track, as they conform to the ground without racking the building.
C. J. CASE.

Another Flour Bin

To the Editor: Thompson, Ill.
 I subscribed for the first number of the AMERICAN CARPENTER AND BUILDER, and am still taking it. Heretofore, I have not taken part in the discussions carried on in its columns, but I find them no less interesting and instructive on that account.

Noticing some different ideas on flour bins, I am sending



one of mine. While they are all alike in general, there are a few points I like very much about this one.

In the enclosed sketch, you will notice that a bin constructed in this way, works on a small threshold hollowed out and nailed to the floor; the outside edge is rounded to form a quarter round, and a finish may be obtained by joining to it the quarter round that extends around the base. The circular notch in the top of bin is for the purpose of lifting the bin out, which may be easily done by stopping the bin at this place.

This bin is easily made and it works the best of any I ever tried.

EDWARD MARTINDALE.

Windows in a Curved Wall

To the Editor: Muskegon, Mich.
 I have been a subscriber to the AMERICAN CARPENTER AND BUILDER since last July. I would like to submit a problem in building construction for the members of the craft to solve for my benefit, as well as others. I have not seen anything of the kind in the magazine since I have been taking it. The problem is as follows:

Show the method for obtaining the length and shape of the soffit for a semi-circular window in a curved wall, the jambs of which radiate from the center from which the curve of the wall is struck. The wall to be 2 feet thick and the opening 4 feet wide on the inside; the radius to the outside of wall to be 8 feet.

E. S. ROGERS.

From a Reader

To the Editor: Portville, N. Y.
 I have been a contributing member of your family for some years, and enjoy the letters very much. In the March number Albert Gonne shows how to lay out and frame hewn timbers; he puts his witness marks on the part to be cut out.

In this section of the country we place witness marks opposite the part cut out, which I think is better.

The articles on the steel square by A. W. Woods are splendid and should be a great help to members, old and young.

We raise heavy frames here with a gin pole and blocks; it is easier and much safer than by hand. An inch rope will hold for 8 by 8 inch framing if placed so that the rope will not cut.

C. M. HOPKINS.

Shingles for Bell Roof

To the Editor: Versailles, Ill.
 In answer to J. A. Kuster in your March number would say, I have shingled a bell roof, last summer, and had the finest luck. I took a piece of soft pine 4 by 12 inches and cut my shingles to shape on a band saw, and there is no exposed nail anywhere; try it and see how many shingles you can saw out of a piece 16 inches long. I am sure it will surprise you.

C. A. HAGER.

Framework for a Barn

To the Editor: Holmen, Wis.
 As I have always taken much interest in your publication,

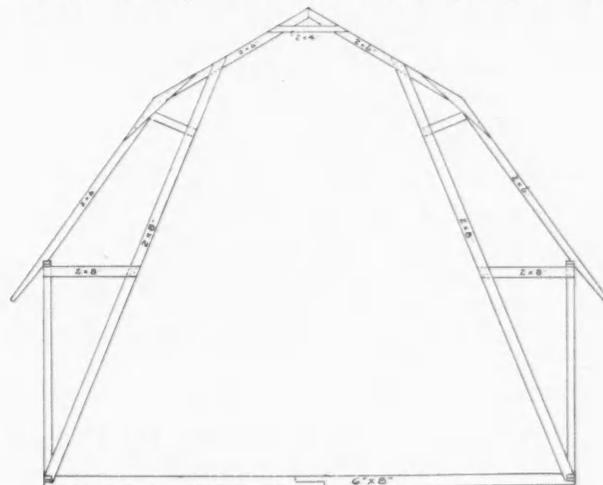


FIG. 1.

and always expect to, I am herewith sending a sketch of a trestle frame barn which I constructed the past year. It makes a very substantial frame.

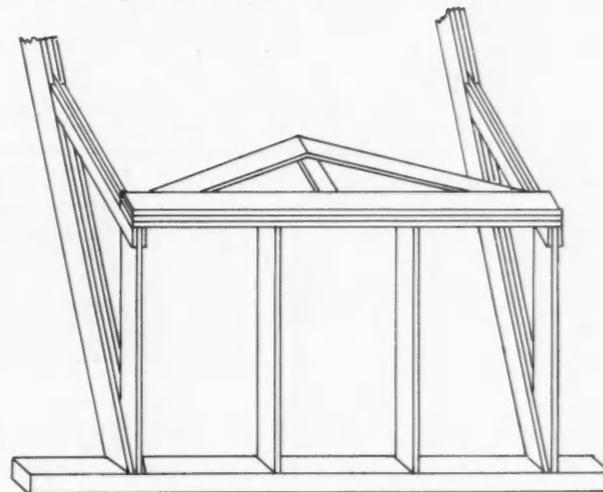


FIG. 2.

The trestles, as shown in Fig. 1, should be about 8 feet apart. The top plates should be trussed between trestles as shown in Fig. 2.

FRED BLACK.



Of Interest to Floor Finishers

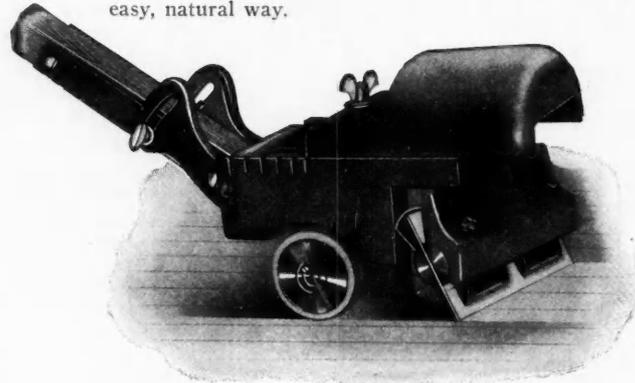
Bulletin No. 17, describing the "Adjustable" floor scraper has just been issued by Mr. H. P. Didriksen, of South Bend, Ind. This should be of special interest to any building contractor who contemplates any floor scraping or refinishing work, for the "Adjustable" is a practical machine and is said to have many features of advantage over anything of its kind that has yet appeared upon the market.

The wide range of adjustable features make it readily adaptable to any kind or condition of floor, whether hard or soft, old or new wood. A strong feature, and one in which it differs from all others, is the movable weight, by which it is claimed absolutely uniform work can always be obtained.

This weight may be so adjusted as to give any desired pressure upon the blade, and this pressure remains fixed until the adjustment is again changed, thus insuring a true even cut by the blade. This may be a deep or a thin cut, as may be desired, but it will always be true, something that cannot be claimed for any machine where the pressure upon the blade is governed by the operator lifting upon the handle.

A striking feature about this machine is the fact that the user never lifts upon the handle in operating it, and as a result its operation is very easy, for it is only necessary to

adjust the weight over the blade to the desired degree of pressure, adjust the handle to the convenience of the operator, and then simply push and pull it forward and backward in an easy, natural way.



This machine is sold strictly on its merits, and will be shipped to any responsible builder on approval, with the privilege of returning it if not found perfectly satisfactory.

Address all communications to H. P. Didriksen, South Bend, Ind.

Kawneer System

**EASE OF INSTALLATION
EFFICIENT, ECONOMICAL**

That's the complete description of Kawneer System Store Front Construction, the reason why more than 1,491,400 lineal feet of material was installed in 1909.

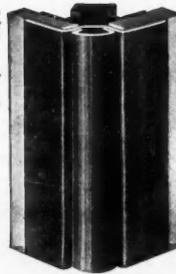
Ventilation and drainage sash is so constructed as to be readily installed against wood, iron, stone, brick, terra cotta or concrete.

Kawneer System

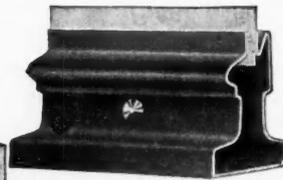
All exposed wood is eliminated—large glass area is secured—perfect ventilation and drainage is provided—all glass edges are properly protected—rate of glass insurance the lowest. The illustrations of No. 30 and No. 50 ventilation and drainage sash are one-half size, and No. 5 corner bar two-thirds size. These members



No. 30 Sash



No. 5 Corner Bar



No. 50 Sash

form an important part in good store front construction, and are responsible to a very large degree for the phenomenal success of the Kawneer system.

Do not overlook, however, the value of our jamb, sill and bulkhead mouldings; either in standard or special designs. With a complete

Kawneer System you will have a Store Front that will pay dividends to your client every day in the year.

Send for Blue Book No. 2. It contains full size details and comprehensive descriptions.

Kawneer Manufacturing Co. Home Office Niles, Mich.

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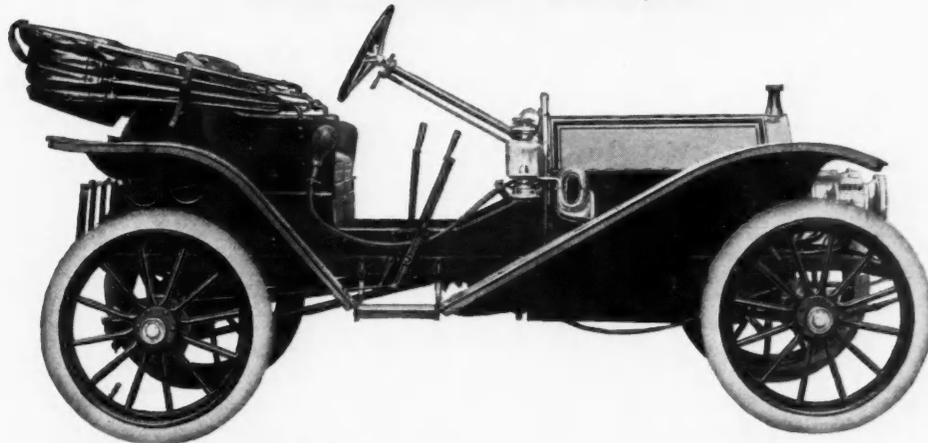
SAN FRANCISCO
PHILADELPHIA
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VANCOUVER, B. C.
LINCOLN, NEBR.
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SEE SWEET'S INDEX.

Kawneer System

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Without An Equal In The World At The Price



4 Cylinder - 20 H. P.
Sliding Gears
Bosch Magneto

Hupmobile

\$750
(F. O. B. Detroit)

The Hupmobile is a triumph of American mechanical ingenuity and manufacturing genius.

Five years ago or even two years ago such a car at such a price would have been a manifest impossibility.

It would be an impossibility today, were it not for the magnificent factory equipment of the Hupmobile Company; the splendid experience of the designers and builders; and the capacity to market the extraordinary output of 10,000 cars.

The Hupmobile has a smaller carrying capacity than the most expensive cars but it does not fall below them in quality one iota.

It has been well said of the Hupmobile that it compares with the costliest cars as a perfect small diamond compares with a large one.

In the past eighteen months it has performed prodigies of service in the hands of thousands of hard-driving owners—over rough country roads, up steep mountain slopes, through snows and cold across the open country.

Record after record for sturdiness and endurance has been achieved.

The Hupmobile at a minimum cost per month for upkeep will give you thousands of dollars worth of enjoyment and service every year at a price which every man can well afford to pay.

Scores of carpenters, contractors and builders make use of the Hupmobile for business as well as personal service; a dozen times a day they find it useful for inspecting their work in different parts of town.

Send this coupon today for full information about this unparalleled car.

**Hupp
Motor
Car Co.**

**Desk 32.
DETROIT, MICH.**

Send 1910 Hupmobile literature and name and address of Hupmobile dealer.

Name _____

Address _____

Hupp Motor Car Company

Licensed under Selden Patent

Desk 32

Detroit, Mich.

Risk Reduced by Using Cylindrical Cutterhead

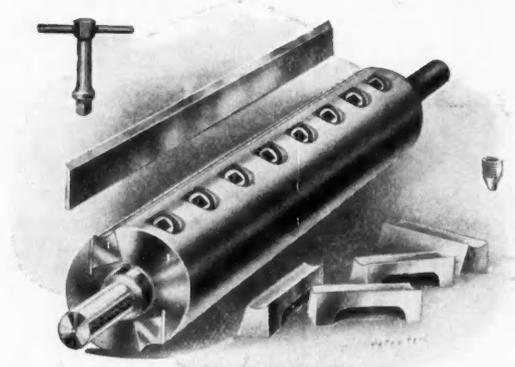
The J. A. Fay and Egan Company, of Cincinnati, are offering a decided improvement in cutter heads for hand planers or jointers. This is their new Safety cylindrical cutter head, its great advantage being that it reduces the risk for the operator in using these dangerous machines.

The most dangerous and most dreaded machine in any wood working plant is the hand planer. More fingers have been lost on this machine than any other kind of tool ever invented.

The reason for this is obvious enough. The large opening made by the necessarily wide space between tables on the hand planer makes it almost certain that sooner or later the operator will get his fingers into it.

The possibility of such an accident is eliminated by using the cylindrical head, which almost entirely fills the opening in the table, allowing only sufficient room for the knives to be operated. The illustration showing the hand on top of the head sets forth clearly the safety feature of the new cutter. The cylinder works in relatively the same opening as the old style head, but fills it at all times. A careless workman might

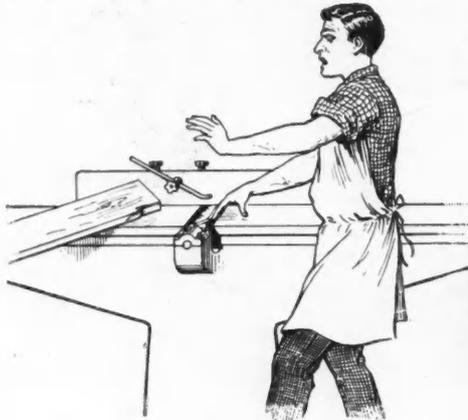
device of itself. Using the old head the open space between the two sections of the table is great enough not only to admit fingers, but an entire hand, and the records of the liability



Fay and Egan's New Safety Circular Cutter Head

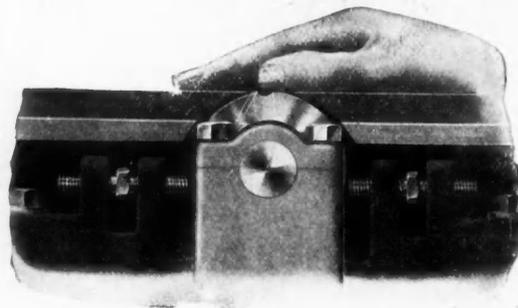
companies show occasional loss of the hand at the wrist by workmen who operate such machinery.

Catalogue No. 81, issued by the J. A. Fay and Egan Company, of Cincinnati, is devoted to consideration of the many advantages to be derived from using this new cylindrical cutterhead which is manufactured by that institution. The cover design is a two-colored illustration of the hand of a working



THE PAST

Showing the Necessity for this Improvement



THE PRESENT

lose the epidermis on the inside of his fingers, or, if he was painstaking about it, might have a nail cut off, but it would be impossible to lose fingers or hand, as many of those who operate jointers have done.

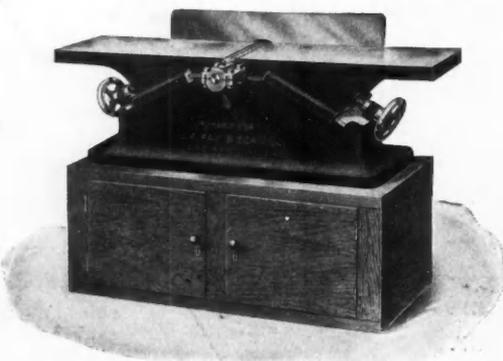
In addition to this very important safety feature the claim is made for this new cylindrical cutter head that it does more

man with two of the fingers and part of a third torn off by the old style square cutterhead on a hand jointer. The book is 9 by 12, and contains much valuable information for machine woodworkers and many interesting illustrations. It is printed on heavy enameled paper and should have a large circulation.

In addition to this new Safety cylindrical cutterhead, attention is also directed to the No. 254 bench hand planer and jointer of the J. A. Fay and Egan Company.

This No. 254 bench hand planer is designed for a great variety of small work. It occupies very little space and relieves the large machine of much work, which it accomplishes more rapidly and conveniently. It will be found especially useful in pattern and cabinet shops and manual training schools, in fact a valuable tool in any wood working shop, large or small.

This bench hand planer is illustrated in one of the accompanying cuts. Another of the illustrations shows a view of the Fay and Egan Safety circular cutterhead showing details of construction. The other illustration is a comparison showing graphically the necessity for this improvement in cutterheads. Note how the opening between the tables is about completely closed by the cylindrical form of the head. Also how the old-style square head with the wide opening between the tables makes serious accidents extremely liable.



No. 254—Bench Hand Planer and Jointer

accurate work than the old style, because there is less vibration from the operation of a solid cylinder than from a square style of head.

It is understood that the new cutterhead can be secured in sizes to fit any standard machine. The element of safety to the operator alone should be sufficient to warrant the adoption and use of the improved attachment, which is a safety

All readers of the AMERICAN CARPENTER AND BUILDER are invited by the J. A. Fay and Egan Company, 545-565 West Front street, Cincinnati, Ohio, to write for detailed information concerning this Safety cutterhead, and the No. 245 bench hand planer and jointer.



“No-Co-Do” Steel Ceilings, Side Walls and Tiling

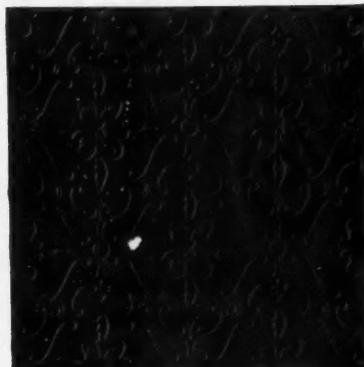
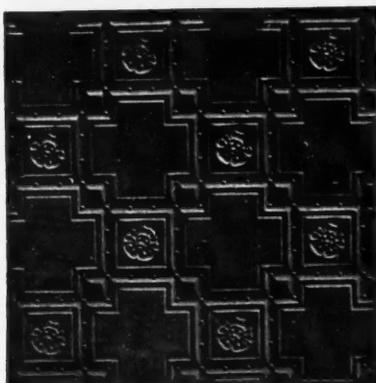
Hundreds of inquiries are received by us every week from our magazine advertising. Those from your town we'll turn over to you if you want them. Let us know at once. It makes no difference where you are—in Maine or California—you will reap the benefit of this advertising if you handle these highly artistic effects in architectural finish for interior decorations for **Hospitals, Churches, Schools, Theatres, Halls, Stores**, for the home and around the farm—appropriate for the humblest cottage or finest cathedral, in fact any class of building is bettered artistically and commercially by this durable and incombustible material.

Recognized by Fire Insurance Companies for its great protective powers—rates are always lowered wherever  is installed.

The “No-Co-Do” Catalog, besides showing installations, has a profusion of cuts illustrating the many styles and effects that “No-Co-Do” Steel is made in. Send for a copy today—it's free.

The standard of quality by which all others are judged.

Northrop, Coburn & Dodge Co.
45 Cherry Street, New York



1000 Years Progress in Roofing

For several years back the Edwards Manufacturing Company, as the leading manufacturers of roofing in the United States, have been asked by people of considerable prominence to give to this country a roofing of the alluring beauty of that of the ancient Moors. The old Spanish earthenware tiles have been considered the acme of the artistic in roof covering and it was thought that if these tiles could be duplicated in metal—thereby securing lightness with strength—they would be ideally suited to the needs of modern building. Accordingly after a long period of testing and trying, experimenting and improving, the Edwards Metal Spanish Tile has been produced.

In placing before the public this beautiful tile the manufacturers wish to emphasize that the beauty of the old Moorish tile has been carefully retained, with its disadvantages entirely eliminated. So that today Metal Spanish tile means beautiful yet practical and serviceable roof at a very reasonable price.

The accompanying photograph is an illustration in point. The beauty and dignity that Metal Spanish tile has given this, make it an object of real, whole-hearted admiration. It possesses an appearance of warmth that is delightful to the home-loving folk. Picture this home in your mind without its covering of Metal Spanish tile—its absence makes a world of difference.

The Edwards Manufacturing Company stake their reputation as the largest manufacturers of metal shingles and



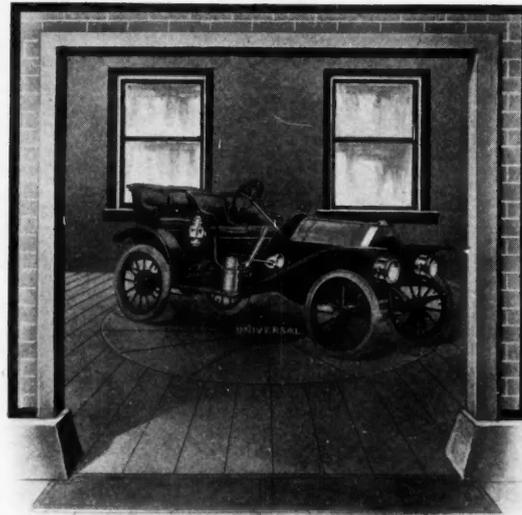
ceilings in the world on the assertion that Metal Spanish tile offer many practical advantages never before given by any other roofing material. They stand ready to back this up and to prove to the readers of the AMERICAN CARPENTER AND BUILDER that Metal Spanish tile should be specified and used in all work. They request that you write today for their catalogue 51, addressing the Edwards Manufacturing Company, 401-417 Eggleston avenue, Cincinnati, Ohio.

"Universal" Turntable for Garages

The Universal turntable is well-known to the entire garage trade of the country and it is unnecessary to repeat the details of construction. Many of the very prominent public and private garages have installed them.

The convenience of the table is more especially noted from the fact that a pit only 12 inches deep is required, regardless of the diameter of the table. They are built from 12 to 20 feet in diameter, and carry the heaviest autos with wonderful ease. Every table is fully guaranteed. The Universal has an iron top and is proof against the warping, shrinking and splitting of the wood-top tables. Once erected, it is claimed, never to get out of order. Every table is completely built in

the shop and put together, every bolt and screw perfectly fitted. The table is then tested for strength and ease in turning, and very carefully inspected before it is taken apart



and put into knockdown shape for transportation. This table is highly indorsed by architects and builders. The illustrations (herewith and in their ad.) show the construction of the table in detail, also its use.

Carpenters and builders oftentimes are called upon to install turntables required in their specifications. A nicely illustrated catalogue and detailed information will be sent by return mail to any interested parties addressing the Canton Foundry and Machine Company, 610 East 8th street, Canton, Ohio. The advertisement in this issue gives the diameter, wheelbase and weight of the various sized tables.

Francisco Two-piece Walls

The Francisco Block Machine Company, Columbus, Ohio, urge all readers of the AMERICAN CARPENTER AND BUILDER to investigate the merits of this block machine, which produces the L-style block for two-piece walls.

The advantage of the two-piece wall is that it cuts out all possibility of damp walls. The Francisco people claim that their block enables the concrete man to win back the people who are prejudiced against cement blocks on account of experiencing trouble with damp walls which the old-style dry process blocks have produced. With the two-piece L-block it is claimed the inner wall can be laid more accurately on account of the inner and outer being separate, so that plastering would not be necessary, simply a white coat, which will mean a big saving and make a much more desirable wall. The wall is laid up just as fast as the cored block and is much easier on the man laying them, as they are lighter and easier to handle. A house laid up out of L-blocks is warmer in the winter and cooler in the summer than any other style of construction.

Mr. J. B. Francisco, the inventor of the machine, has been using this machine for years. The machine is patented, and, from the very wide range of styles of walls and size of stone produced the machine seems to have special merit that deserves investigating. This machine is a down-face machine; crushed granite or any other facing material can be used; and for terra cotta designs the inventor has a special plate constructed so that plain faces, beveled or hammered, can be formed which will enable the block maker to furnish almost any desired style of work.

The Francisco Block Machine Company, Columbus, Ohio, will send catalogues and full information concerning this machine and method of construction on request.

A Bench Hand Planer and Jointer

— For —

Carpenters, Contractors, Builders and Cabinet Makers

Undoubtly, the handiest and most valuable tool ever invented for planing small work — saves much time, does the work much better and with far less labor than can possibly be done with the hand plane.



WITH OUR

No. 254 Bench Hand Planer

you can plane, surface straight or tapering, joint, edge, etc., in the most rapid and perfect manner. The price is so reasonable that the ordinary Carpenter or Cabinet shop cannot afford to be without it.

Write For Large Illustrated Circular

J. A. FAY & EGAN CO.

545-565 W. Front St.

Cincinnati, Ohio

The "Famous" Universal Woodworker

The Sidney Tool Company's "Famous" Universal woodworker is rapidly becoming recognized as the standard wood-working machine for contracting and carpenter shops where a great variety of work is turned out but where there is not room nor requirement for many different special machines.

The No. 14 "Famous" Universal woodworker combines in itself the following twelve special woodworking machines:

- | | |
|--|---------------------------------|
| 1—A 12-inch jointer. | 6—Pony planer. |
| 2—Saw table with saw arbor that may be raised and lowered. | 7—Power feed sander. |
| 3—Two-side power feed molder and edger. | 8—Boring machine. |
| 4—Band saw. | 9—Hollow chisel mortiser. |
| 5—Complete single spindle shaper. | 10—Standard single end tenoner. |
| | 11—Emery grinder. |
| | 12—Disc sander. |

The accompanying illustrations show this machine equipped and in use in two of the ways, as a disc sander and as a drum sander. With the use of this disc sander, which is attached right to the boring spindle, all kinds of circular or irregular curve sanding can be done. It is convenient for all kinds of planing mills or carpenter shops. It is glued up in sections of the very best grade of kiln-dried cherry, and is so arranged with steel ring on the outside that it is impossible for the paper to be thrown off while sander is in motion. The disc sander is 12 inches in diameter, and can be recovered without any difficulty whatever.

For the disc sander the Universal wood worker is equipped with a 12-inch sand drum. In order to use this attachment you swing the outside bearing out of the way, remove the jointer head, replace same with the sand drum, move your tables up so the drum will clear them nicely, then adjust them for the different depth cuts you desire, same as on the regular standard jointer. With this outfit it is claimed that you can take the lumber right from your planer and sand it in such a satisfactory manner that it is not necessary to use the hand planer to make the lumber sufficiently smooth for any and all kinds of work.

These are but two of the twelve machines embodied in this No. 14 Universal woodworker. The simplicity of the ad-



Used as a Disk Sander

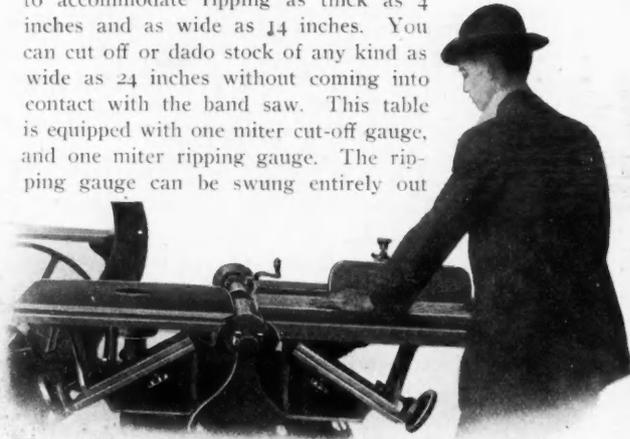
justment and change for them—as just described—is typical of all the rest.

In offering this woodworking machine to readers of the AMERICAN CARPENTER AND BUILDER the Sydney Tool Company ask "why buy twelve machines to do your work, when one is enough?" This certainly is a question well worth thinking over and investigating.

The following is a very brief description of the No. 14 "Famous" Universal woodworker with some of its various attachments.

It has a 12-inch jointer, tables 5 feet over all arranged so you can joint stock up to 12 inches wide without taking the gauges off the table, also arranged for rabbetting, and the tables are so arranged that they can be moved back from the head sufficient to put on any and all kinds of molding bits for doing special work.

The saw table has a raising and lowering saw arbor, which will accommodate saw blades up to 14 inches in diameter, which can be lowered entirely out of the way when the saw is not in use. The saw can be raised high enough in the table to accommodate ripping as thick as 4 inches and as wide as 14 inches. You can cut off or dado stock of any kind as wide as 24 inches without coming into contact with the band saw. This table is equipped with one miter cut-off gauge, and one miter ripping gauge. The ripping gauge can be swung entirely out



Used as a Drum Sander

of the way when cutting off stock. It is not necessary to remove the saw table to use any of the other attachments, but the saw table can be removed in half a minute's time. The arbor is 1 inch where the saw goes on. The table is made of wood glued up in narrow strips and planed perfectly true. Size of table, including jointer table, 33 by 33 inches. This table is also fitted with wooden throat which can be removed for using any size dado or grooving heads.

The Single Spindle shaper which is furnished with the No. 14 Universal woodworker, is only a one-way spindle and not reversible. The head is adjustable up and down as well as the table. The spindle is 1 1/4 inches where the collars go on, and is fitted with one set of shaper collars with sixty-degree bevel. The collars are inter-changeable with the jointer spindle, the head is also inter-changeable with the boring spindle arbor in case you wish to use the head for any special work.

The band saw being part of the No. 14 Universal wood worker is 27 inches, the wheels are ground perfectly true and covered with genuine rubber. The upper shaft runs in a long babbitted boxing, fitted with oil cup, arranged with spring tension, and also adjusting screw, to cause the blade to run in any desired path. The guide bar is 1 inch square and is adjustable up and down, and is fitted with the Wright frictionless roller guide, extreme height under guide when raised is 10 inches. The table will tilt to any angle up to 45 degrees, and is held in position by a new positive clamp, which comes out in front of the table, and within convenient reach of the operator. The size of the table is 20 by 26 inches. The shifter rod for the tight and loose pulleys is also within convenient reach of the operator. The tight and loose pulleys are 10 inches in diameter, 3 1/2 inches face. The length of the band saw blade is 13 feet, 6 inches.

The Sidney Tool Company maintain that the day you install a "Famous" Universal woodworker you discount competition and will be able to make profits you cannot earn without one. They stand ready to prove every claim and back each sale with a good guarantee. All they ask you to do it to send now for additional information and get their special premium, good only for sixty days. Address Sidney Tool Company, Sidney, Ohio.

It's A Good Drum Sander —and 11 Other Machines Besides

The Famous

"Universal Woodworker"

It's a machine-shop in itself. Twelve woodworking machines are combined in one at the price of one. Practically all the work that carpenters and builders need can be done on this machine. And the low cost, combined with our special proposition, puts it within the reach of everybody.

Special Proposition

If You Act Quick

We are making an unusually liberal offer that holds good for thirty days. Every carpenter, builder and contractor who uses woodworking machinery should ask for information. It means money saved so write today. Don't forget.



It's So Durable — And So Simple

To operate the woodworker as a Drum Sander all you have to do is this:

Swing the outer bearing out of the way, remove the jointer head, place the drum in position, place the outside bearing on and, — there you are!

You have a complete drum sander, perfect in every respect, ready to do as good work as a machine that does only sanding.

With this attachment you can do all kinds of sanding and with the assistance of the power feeding attachment with the sand drum, you can equip the machine as a power sander, which will sand stock up to 12 inches in width and six inches in thickness. And perfect work is guaranteed.

This is the only woodworker on earth that can be converted into a power feed sanding machine.

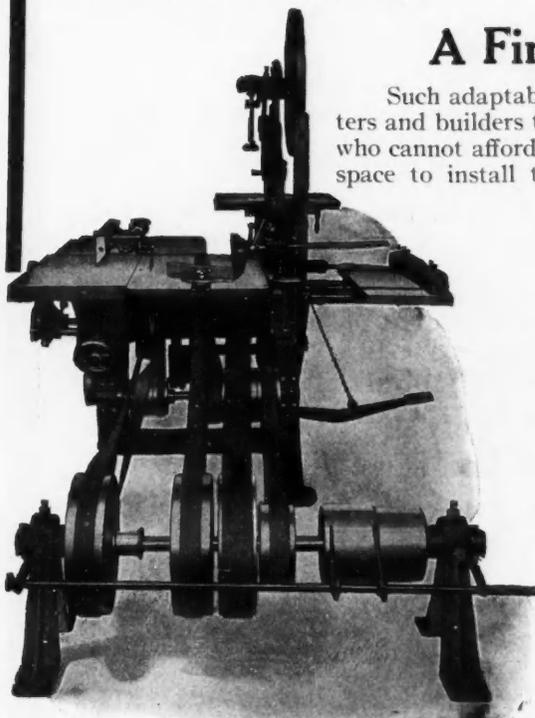
A Fine Investment for Carpenters

Such adaptability has never been known on woodworkers before. Carpenters and builders throughout America who have work for twelve machines, but who cannot afford to buy twelve separate machines — and who have not the space to install twelve machines if they had them — recognize the Famous "Universal Woodworker" as the solution of their problem.

The merits of this wonderful machine are acknowledged by everybody. Imitations are only — *imitations*. No others can compare with the famous "Universal" for the wide range of uses, quality of the work, the great durability, or the low cost. Send at once for full particulars — you ought to be posted on such a remarkable proposition.

This Illustration

— shows our No. 14 Universal Woodworker with Raising and Lowering Saw Arbor, Jointer, Shaper, Boring Machine and Band Saw, without any change whatever.



Sidney Tool Co.

Highland Ave. : : Sidney, Ohio



JOHNSON'S

Money Makers

FREE

Just Mail Coupon or Postal for Three Big Samples and Book.

LET us send you test packages of these three Johnson's Wood Finishing Specialties absolutely free. These are the best money makers among all wood finishes for Painters and Decorators and we want to *prove it to you at our expense*. Johnson's Electric Solvo — to remove old finish in a jiffy; Johnson's Wood Dye, for artistic, rich, permanent color; Johnson's Prepared Wax, for the beautiful polish of subdued lustre.

Johnson's Wood Dye

Made In 14 Standard Shades

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

Price — all shades — half gallon size — \$1.50.

Johnson's Electric Solvo softens all old finishes in 15 or 20 minutes without the slightest injury to wood. Goes farther than any other varnish remover.

Price — Gallon Size \$2.50.

Johnson's Prepared Wax gives the "hand rubbed" effect and does not catch and hold dust or dirt or show heel-marks.

Our Beautiful 48 Page Text Book

which we will send free with samples, is the most helpful guide to decorating published. Send the coupon or postal now for the whole outfit — free.

S. C. Johnson & Son
RACINE, WIS.

"The Wood Finishing Authorities"

S. C. JOHNSON & SON
Racine, Wis.

I accept your offer of a sample of Johnson's Wood Dye. Also a copy of your text book—"The Proper Treatment for Floors, Woodwork and Furniture", Edition A. C. B. 4.

Name.....
Address.....
.....

PLEASE USE THIS COUPON — CUT ON DOTTED LINE

JOHNSON'S

Business Getters

FREE



**This Set of Wood Panels —
14 Natural, Standard Colors—
Will Get Contracts for You.**

WE want you to have this complete set of Wood Panels showing Johnson's Wood Dye in its 14 shades. We'll gladly send them free because they will prove to you beyond doubt that Johnson's Wood Dye produces better results than any other wood-coloring material made.

Also, they will get you the business in competition with any other set of panels or color card ever put out.

They show the real colors on the real wood—colors of life and richness. And you are safe in contracting to match any shade—Johnson's Wood Dye never varies.

Johnson's Color Panels and Guide Book Always in Demand

In every city and town the best trade is coming to depend more and more on Johnson's Wood Finishing Materials and the Johnson Suggestions for interior decorations.

You will find our book, "The Proper Treatment for Floors, Woodwork and Furniture," Edition A. C. B. 4, equally helpful to you and to your trade. Beautifully illustrated in natural colors from life—complete in color scheme suggestions, and valuable information on all kinds of wood finishing work. Tells about the matchless results possible by the use of Johnson's Wood Dye, Johnson's Under-Lac, Johnson's Prepared Wax and other wood finishing specialties.

Cut out Coupon now to remind you, fill in your name and address and send by next mail, or mail postal if more convenient. Remember this business-getting outfit is absolutely free—All yours for the asking.

S. C. Johnson & Son

Racine, Wisconsin

"The Wood Finishing Authorities"

**S. C.
JOHNSON
& SON**
Racine, Wis.

I accept your offer of a set of Johnson's Wood Panels; also a copy of your text book—"The Proper Treatment of Floors, Woodwork and Furniture," Edition A. C. B. 4.

PLEASE USE THIS COUPON—CUT ON DOTTED LINE

Name.....

Address.....

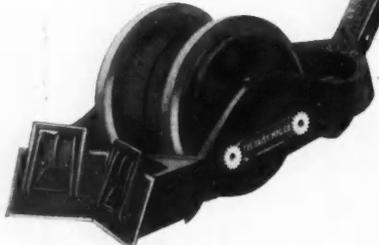
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Of Interest to Every Builder

Something Out of the Ordinary

There are on the market today a great many devices for floor scraping. Many of these are very good—they all have their merits, in fact—and this little article is in no way criticising them.

There has recently been patented, however, a floor scraping device that will scrape a floor as smooth and true as plate glass. The method used by this machine in scraping floors is, as far as we know, totally different from the method employed by any other floor scraper.



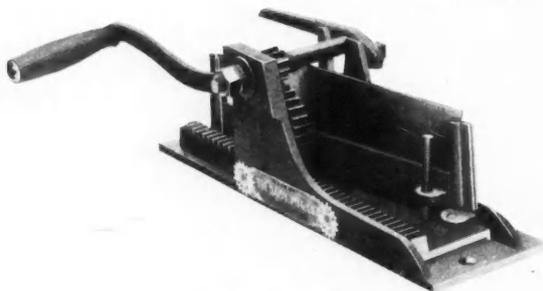
Daisy Floor Scraper

In the first place, with the Daisy floor scraper—which is the name that is given to the device—a shearing cut is always made, the advantage

of which is easily apparent to every man who has scraped floors. The weight of the Daisy is approximately 125 pounds, this weight being largely in the roller which, by the way, is totally different from others.

This roller consists of two separate and distinct parts, each part being set on a very heavy rubber tire; and also they revolve on a perfect bearing, each separate from the other. This method being used, it can be easily seen that moving the scraper is greatly facilitated; and, inasmuch as nothing but rubber tires touch the floor, it is impossible to mar the wood-work in any way.

The clamping device for the blades is something entirely new, inasmuch as a blade can be removed or replaced instantaneously, there being no nuts to loosen or tighten; and by the use of this device the operator is enabled to use practically



Edge Turner

every inch of the blade. This means a large saving, as these blades are not slotted.

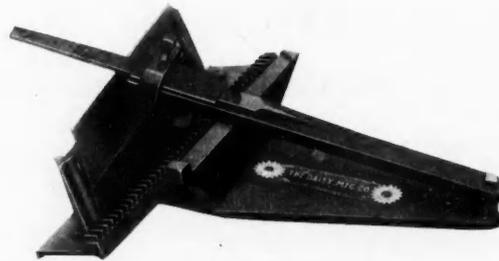
The handle of the Daisy scraper is adjustable, that is it can be used with like facility by a tall or a short man. It is of great convenience to the carpenter to be enabled to reach

any part of the floor desired with a scraper. The Daisy is so constructed that any corner can be scraped thoroughly and also the floor may be scraped flush to the baseboard.

After the floor has been roughly dressed, two blades are used for the finish, that is two blades are placed in an extended V-shape, and by this method the production of wavy floors is an absolute impossibility, inasmuch as each blade is scraping opposite to the other, and consequently the finish on the floor is as true as plate glass.

On this page is a photo of the blade sharpening device used by the Daisy Company. Look this photo over carefully and we feel sure that its merit will appeal to you. This device is so constructed that it is impossible to get anything but a true edge on the blade, and by its use at least three-quarters of the time usually spent on such work is saved.

Then again, there is a second device used for turning the edge of the blade. This is also reproduced on this page. After the blade has been sharpened it is run through the edge turner in a few seconds and the blade is ready to be used.



Filing Device

Floor scraping is an art. A well-scraped floor is a thing of beauty, and a man who can do this work with a machine ten or twelve times as quickly as he can by hand, and do it better, is the man who is going to get the job.

If the claims for the Daisy are true—their claim was fully substantiated in a trial of the machine before a representative of this company—it will do anything that you need done, and you at least ought to get in touch with these people and let them tell you what they have. Let them prove to you that their machine will do as they claim, and if it does these things, you ought to own one.

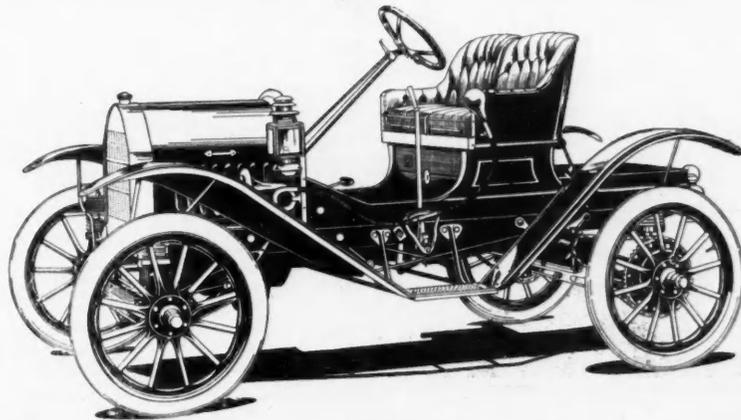
For complete information address Daisy Mfg. Company, South Bend, Ind.

Write for This

We are pleased to acknowledge receipt of the new Catalogue "E" of the Coulson patent store front construction, manufactured by J. W. Coulson & Co., 234 North 3rd street, Columbus, Ohio. We feel very sure that the readers of the AMERICAN CARPENTER AND BUILDER will be very much interested—as we have been—in looking this catalogue through, preserving it for future reference and use. In it we find clearly set forth the Coulson patent store front construction and the advantages gained by its use. This is done by means of a thorough description and by full sized sectional drawings of the different corner posts, transom and division bars and quarter rounds, together with a few reproductions of store fronts in which this construction was used. There are also a few letters of reference received from the different plate glass insurance companies, architects, contractors and owners of buildings.

We gain from this book that this construction is being specified and used in a great many buildings throughout the United States and Canada, and has always given entire satisfaction.

Everyman's Car



The
Brush
\$485

F. O. B. Factory

Price Low Enough for Every Man— Quality High Enough for Any Man

Think of it!! **\$485.00** for the best-built, most thoroughly-proven, easiest-riding, most economical, handiest, small automobile in the world. A car that has just been awarded the highest prize in an endurance contest of 568 miles in open competition with twenty-five other cars, selling all the way from \$750 to \$5,000. A car that is always ready to go, because the little troubles, which are bound to develop in the ordinary automobile, never appear in the **Brush**. There are no complicated parts to get out of order, nothing about it the ordinary man cannot understand. That's why you see it **on the road—not in the repair shop.**

Do not judge the **Brush** by price in comparison with other automobiles. It is the only car that **is** different from all others, and **still a proven success**—so judge it by the practical, sensible features of its construction; judge it by the showing it has made in the reliability and endurance contests; judge it by

what 3000 users say about it; judge it by its looks. Then, ask yourself if you can afford to be without one. And remember, in addition to its utility and economy, it makes as stylish a little pleasure car as you could buy at any price.

The **Brush** is the first automobile which the business man has been able to regard as an investment—not a luxury—and it is an investment which is sure to pay him a high rate of interest on his money.

The **Brush** is the logical successor to the horse and buggy.

Any **Brush** dealer will show you why the **Brush** should prove an excellent investment for you. On request we will send you full information about the **Brush** and the names of some users in your vicinity. Do not postpone investigating the **Brush**. The chances are you could be saving money every day by using one in your business.

Brush Runabout Company

Licensed under Selden Patent

381 Baltimore Ave.

DETROIT, MICHIGAN

Acme Woven Wood Lath

During recent years there has been a growing feeling among carpenters and builders that the ordinary lath and plaster we have been accustomed to does not form the ideal material for

27 by 50 inches, are nailed directly to the studding with either two or three-penny nails. A lap joint is used where the sheets come together so as to preserve the continuous bond.

The average lather puts on 100 square yards of the ordinary sawed lath per day. A record of 225 square yards has been

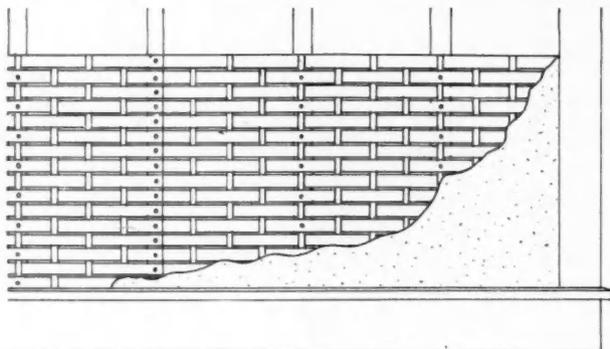


the purpose. The lath is too expensive to put on; and, owing to the ever-increasing scarcity of first-class lumber and the accompanying increase in blue, sap-stained, "dead" lath in every bundle, there has been a growing demand for something better. In response to this, wall boards of various kinds have been offered as being more easily applied and at the same time making a stronger, more enduring and satisfactory wall.

One of the foremost of these improved lathing materials is Acme woven wood lath. This possesses a great deal of merit and seems to be admirably adapted for use in modern building.

Acme woven wood lath consists of sheets 27 by 50 inches formed of interlacing wooden strips. A number of different kinds of wood are suited for this use, but the Acme Woven Wood Lath Company make it one of their strongest points that only the good, sound mature heart of trees is used. The individual strips are only about half the thickness of the old-fashioned lath, but the interlacing braces and strengthens them to such an extent that this lath is much more strong and durable than the old-fashioned kind. In fact, Acme woven wood lath has been developed to meet the modern demand for strength and durability in building construction. This it does at a very reasonable cost.

The interlacing of the strips makes a strong positive key in both directions for the plaster. This is said to prevent, absolutely, cracking or falling away of the plaster in either exterior or interior work. From the construction and texture of

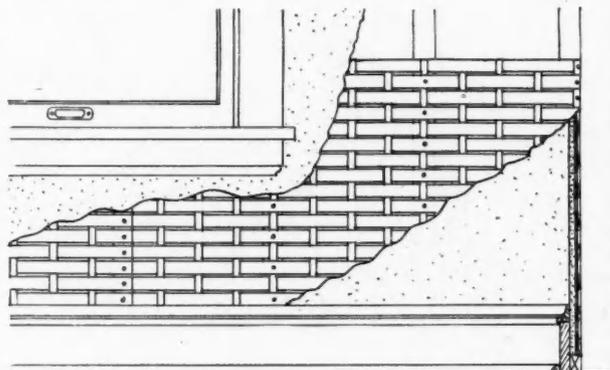


Acme woven wood lath it seems reasonable that this should be the case.

The accompanying illustrations show Acme woven wood lath as it is used both for exterior and interior work. The sheets,

established for the Acme woven wood lath, and 200 yards per days is average work. This shows that half the labor is saved. One half the nailing is saved also, since only every other lath is nailed to each studding.

Acme woven wood lath is being specified for schools, churches, public buildings and for residences large and small in all parts of the country. It is recommended for all classes of work, both interior and exterior, where ordinary lath would



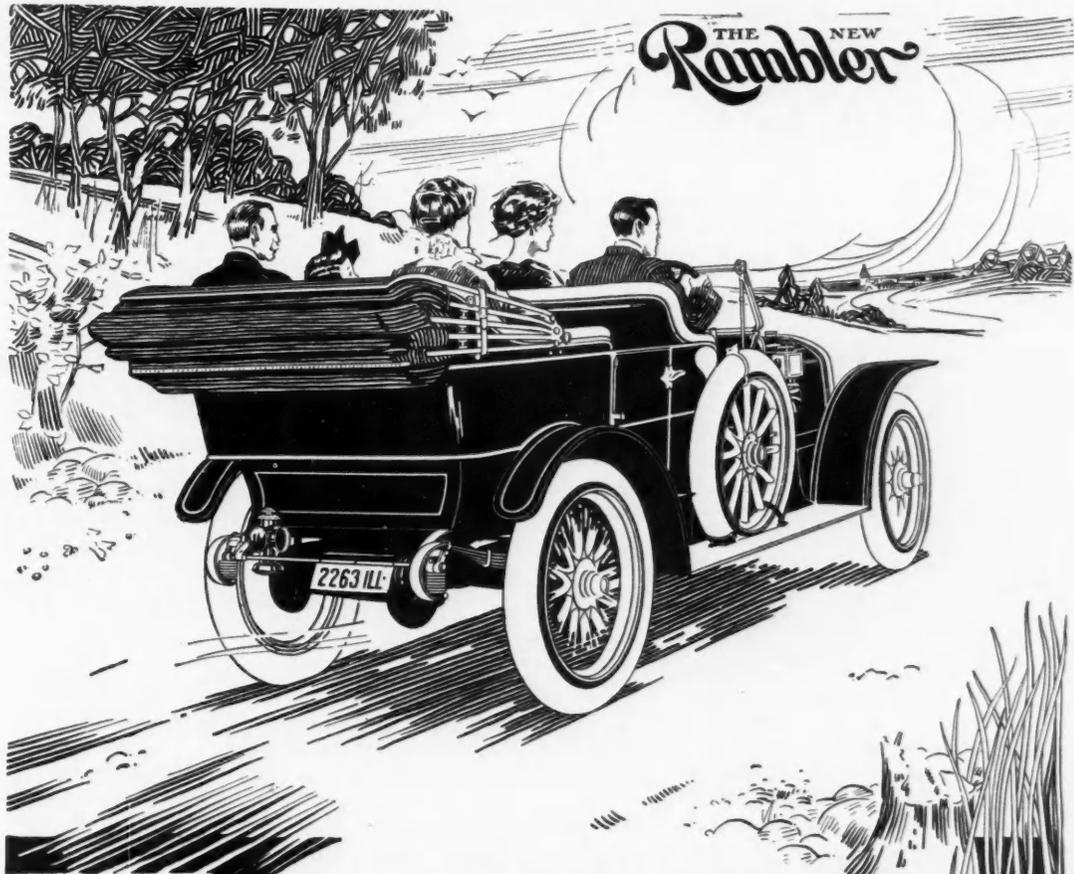
be used, forming a stronger, more durable plaster surface. It is more easily applied, and compares very favorably in cost with ordinary sawed lath.

Acme woven wood lath is guaranteed absolutely in all respects by the makers, The Acme Woven Wood Lath Company, St. Louis, Mo. They will furnish complete information in regard to this material on request.



Unito Asphalt Roofing

The United Factories Company, Cleveland, Ohio, have developed what seems to be a new idea for marketing a number of lines of goods of interest to AMERICAN CARPENTER AND BUILDER readers. It is a well-known fact that the expense for selling certain lines is fully as great as the manufacturing cost. In order to cut down this selling expense to a minimum the United Factories Company has been organized as the sales department of a number of large manufacturing concerns. It is claimed that by combining in this way much lost motion will be eliminated and a material saving made in the



The Offset Crank-Shaft

Try the new Rambler at half-speed in crowded traffic—on a hill or sand road—where flexibility or exceptional power is needed. Notice how smoothly and steadily it pulls when running even as slowly as three miles an hour under load. This is because of the Offset Crank-Shaft.

The new Rambler with such features as the Straight-Line Drive, Rambler Spare Wheel, engine accessibility and the new Expanding Clutch, is superior in many respects to any other automobile. In point of quality it is even better than any previous Rambler.

Please write for the Rambler magazine,
a monthly publication for owners.

Thomas B. Jeffery & Company

Main Office and, Factory, Kenosha, Wisconsin

Branches: Chicago, Milwaukee, Cleveland, Boston and San Francisco

cost of marketing each of these various lines of merchandise.

An instance of this saving in selling expense is shown in the "Combined Catalogues" of the United Factories Company for 1910, which has just been received. This is a single catalogue combining under one cover the following: Excell roofing, Unito roofing, Unito paint, incubator catalogue, fence catalogue, steel wheel and handy wagon catalogue, Unito fireless cooker catalogue, Unito manure spreader catalogue, Unito gasoline engine catalogue, agricultural implement catalogue, besides other special lines, including lighting outfits, fire extinguishers, vehicles, etc. It is figured that all of these lines will be of interest at one time or another to the same parties. If interested in Excell metal roofing today, a man may be interested in Unito paint tomorrow, or he may need a gasoline engine; thus this combined catalogue is worth while saving for future reference or use.

One of the leaders in this combined catalogue, and a line that is being strongly urged by the United Factories Company, is Unito asphalt roofing. This is made from the best of fiber wool felt, saturated and coated under a special process with asphalt. This makes a rubbery, densely compressed roofing felt which is said to resist the action of moisture, acid or fire. Unito roofing is not affected by heat or cold. It is easily laid, is plastic and pliable, strong and tough, and will not stick in the roll. This roofing is offered for use alike on steep or flat surfaces. The claim is made that it will not shrink or crack. There is absolutely no tar in it.

Unito roofing is sold strictly on its merits; still it is claimed that through the economy effected by this new method of selling these lines of goods, it may be secured from the United Factories Company at a very reasonable price.

The readers of the AMERICAN CARPENTER AND BUILDER will do well to get in touch with the United Factories Company, Cleveland, Ohio, and investigate their proposition. Write for this large catalogue, for there is much in it that will interest you.

New Shelby Catalogue

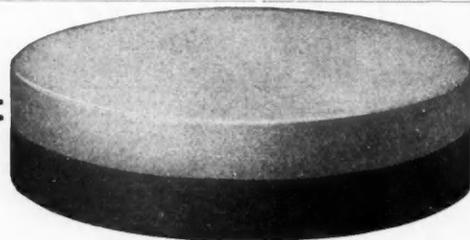
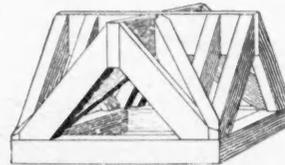
The Shelby Spring Hinge Company, Shelby, Ohio, have just issued their new catalogue, No. 15. This shows their line of double-action ball-bearing spring hinges, including the well-known Shelby "Chief" floor hinge, screen door hinges and various builder's hardware specialties.

This catalogue is very nicely illustrated and prices are given in connection with all the items, making this a very valuable book to figure by in estimating work. There is a complete index, alphabetically arranged, so that any item desired may be quickly found. This book is now being distributed to those interested, and every reader of the AMERICAN CARPENTER AND BUILDER should have it in his catalogue library.

Steel Square Framing Made Easy

As was recently stated by Alfred W. Woods in this magazine, the steel square contains within itself—for the steel square specialist—the easy solution of all framing problems. To read and make use of the information contained, however, takes a great deal of skill and technical knowledge—more, in fact, than the majority of builders possess or feel that they can take time to acquire. We all know how difficult it is to read and apply the steel square; we also know the immense handicap a workman is under who does not understand its use.

It has been truly said, "Every day we find out how little we know about most things!" That is emphatically the case when it comes to framing with the ordinary steel square, and if we had to depend on it alone for help, everything but the



USE THE ENTIRE SURFACE FOR SHARPENING

The Carborundum Sharpening Stone for carpenters is round. It is just the right shape and size to allow for the rotary motion required in sharpening a carpenter's tools—
It not only does its work better and quicker but the stone wears down evenly—there is no unused surface—

And—It's a Carborundum Stone—which means it is the **best** Sharpening Stone on earth—

Price \$1.00.

Ask your Hardware Dealer—or send \$1.00 to

THE CARBORUNDUM COMPANY
NIAGARA FALLS, N. Y.

"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.

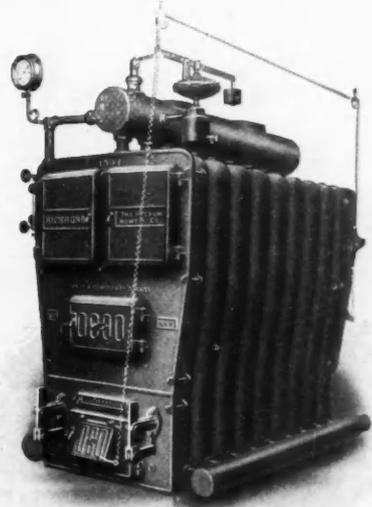


PLATE 42-9-S
"RICHMOND" Square Sectional Waterbase Steam
Boiler. (Also made for Hot Water Heat.)

"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.

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The readers of the AMERICAN CARPENTER AND BUILDER will do well to get in touch with the United Factories Company, Cleveland, Ohio, and investigate their proposition. Write for this large catalogue, for there is much in it that will interest you.

New Shelby Catalogue

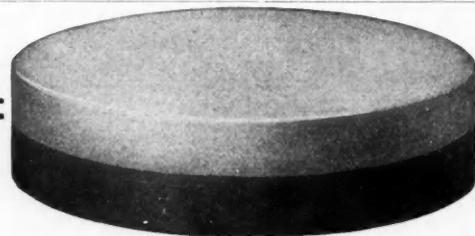
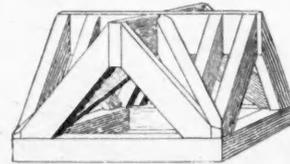
The Shelby Spring Hinge Company, Shelby, Ohio, have just issued their new catalogue, No. 15. This shows their line of double-action ball-bearing spring hinges, including the well-known Shelby "Chief" floor hinge, screen door hinges and various builder's hardware specialties.

This catalogue is very nicely illustrated and prices are given in connection with all the items, making this a very valuable book to figure by in estimating work. There is a complete index, alphabetically arranged, so that any item desired may be quickly found. This book is now being distributed to those interested, and every reader of the AMERICAN CARPENTER AND BUILDER should have it in his catalogue library.

Steel Square Framing Made Easy

As was recently stated by Alfred W. Woods in this magazine, the steel square contains within itself—for the steel square specialist—the easy solution of all framing problems. To read and make use of the information contained, however, takes a great deal of skill and technical knowledge—more, in fact, than the majority of builders possess or feel that they can take time to acquire. We all know how difficult it is to read and apply the steel square; we also know the immense handicap a workman is under who does not understand its use.

It has been truly said, "Every day we find out how little we know about most things!" That is emphatically the case when it comes to framing with the ordinary steel square, and if we had to depend on it alone for help, everything but the



USE THE ENTIRE SURFACE FOR SHARPENING

The Carborundum Sharpening Stone for carpenters is round. It is just the right shape and size to allow for the rotary motion required in sharpening a carpenter's tools—
It not only does its work better and quicker but the stone wears down evenly—there is no unused surface—

— And—It's a Carborundum Stone—which means it is the **best** Sharpening Stone on earth—

Price \$1.00.

Ask your Hardware Dealer—or send \$1.00 to

THE CARBORUNDUM COMPANY
NIAGARA FALLS, N. Y.

"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.

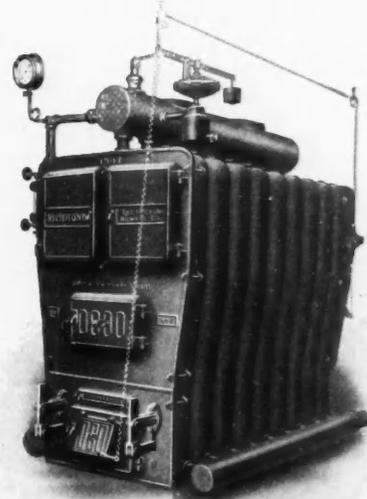


PLATE 42-9-S
RICHMOND Square Sectional Waterbase Steam Boiler. (Also made for Hot Water Heat.)

"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

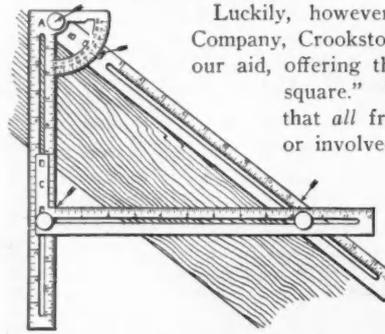
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Park Ave. and 41st St., New York City

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

very simplest of framing problems would have to remain as Chinese puzzles to most of us.



this ingenious tool, showing it in use and also *folded* for easy carrying in the kit or chest.

The other cut illustrates a number of common roof framing problems, all of which are easily solved with the "A B C protractor square."

To get the length of hip rafter and bevel on the side of the jack rafter, set member C to member A at length of common rafter, and set member B to member C at half width of building. Member B will then give the length of hip rafter and by laying member B against the side of the timber, member A will give the side bevel on the jack rafter. Now to get bevels on both ends of hip rafters, reset the square, setting member C to member A at rise of roof, then set member C to member B at the length of hip rafter as given on member B in first setting; then by laying member B against the edge of the timber, member A will give upper and member C lower bevel on the hip rafter. The plumb and base cut on the jack rafter are the same as the bevels on the common rafter.

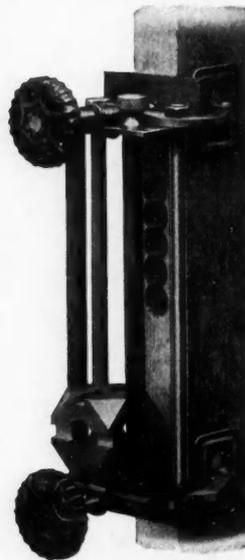
A valley rafter is obtained the same as a hip. The cripple

rafter has two plumb cuts which would be the same bevel as the upper end of the common rafter. The side cut on the cripple is obtained the same as on the jack rafter.

We are informed that this square is sold on an absolute guarantee that it will do what the makers claim for it. The Crookston Tool Company, Crookston, Minn., will be pleased to furnish readers of the *AMERICAN CARPENTER AND BUILDER* full information of this tool on request.

A New Mortise Guide

A new low-cost yet practical mortise guide, one that will do the business and do it right, is now obtainable from the Nicholls Manufacturing Company, Ottumwa, Iowa.



It will mortise lock in doors, and is excellent for making screens, screen doors or anything that has to be mortised. It cannot get out of order—can be operated by an inexperienced hand as well as a skilled one.

It cuts true and is so arranged that the auger always comes central on the door or piece to be mortised. There is no changing or adjusting to get center of door. It has one guide block which will take in $\frac{1}{2}$, $\frac{3}{4}$ and $\frac{15}{16}$ inch auger, or a guide block can be furnished to fit any size auger up to $\frac{15}{16}$ inch.

The guide block can be changed instantly to any of the different size holes.

The construction of the mortise guide is extremely simple; it is made of steel and always ready for

instant use. The guide block holds the bit absolutely square

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?

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Every Carpenter Should Have this 165 Page Book in His Tool Chest

It will be sent free.

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The book contains a complete catalog of 200 mechanics' hand tools—the largest line offered by any one manufacturer.

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P. S. & W. Carpenters' Tools are for sale by hardware and tool dealers all over the world, and are backed by 90 years of tool-making experience, ability and progress.

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That is important, for if you don't know who made your tools you can't be sure of the quality.

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MANUF'RS of the Largest Line of Mechanics' Hand Tools Offered by Any Maker

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Address Correspondence to

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with the work and true to the gauge lines. It will not mar the finish on the sides of the finest door.

To change guide block for different size holes, loosen thumb nut on top of the right hand guide bar, then spring bar out in slot, slide the guide block to the top plates and remove same, change to size wanted and replace it on the bars, push rod back and tighten thumb nut. It is said to be the cheapest mortiser on the market.

For complete information address Nicholls Manufacturing Company, Ottumwa, Iowa.

Glidden Varnish Co. Establishes Toronto Plant

The Glidden Varnish Company, Limited, was organized in Canada, March 2nd, 1910, this company having purchased the plant, business, and good will of Blackwell Varnishes, Limited, at Toronto, Canada. The plant is now being remodelled and the capacity of same very largely increased, in order to handle better the rapidly increasing trade of the Glidden Varnish Company of Cleveland, Ohio, of which the Canadian plant will be a branch. All the famous Glidden products, including their world renowned Jap-a-Lac, will be manufactured at this new Toronto branch.

Reeves Embossed Metal Tile

The Reeves Manufacturing Company, Canal Dover, Ohio, wish to impress the fact on the readers of the AMERICAN CARPENTER AND BUILDER that in their "embossed metal tile" they have produced the very highest grade metal roofing tile they know how to make. They state that they make no effort to compete in price with makers of low-grade goods, but to those who want the best both in material used, care in making and merit of goods, they are prepared to furnish a high-grade article not obtainable elsewhere at any price.

In the manufacture of Reeves embossed metal tile, we are

informed that only the very best IC and IX full weight open hearth terne plates and galvanized iron are used, and it is claimed that for this reason the Reeves embossed metal tile will weigh approximately 10 per cent more to the square than any other metal tile or shingle on the market. It will pay you to remember this.

As a roof for your house is indispensable, why not let it be one that will add to the appearance, one made of the most durable material? No money spent on a house will add more to its value than that spent on an ornamental and durable roof. A good building with a poor roof is no better than a well-roofed building with a poor foundation. Both represent false economy.

Reeves embossed metal tile are adapted for residences, schools, churches, public buildings, etc., of all kinds and sizes, having roofs of 6 inches or more pitch per foot; or in other words, wherever wood shingles or slate can be used. They are equally suitable for siding, and in some sections of the country are extensively used for such work.

Too much emphasis cannot be placed upon the embossing. This is what gives Reeves embossed metal tile its beauty, strength and rigidity, preventing rattling and buckling, adding to its durability by keeping it dry and cool. This embossing also permits of the free and uninterrupted circulation of air on the under side, preventing the accumulation of moisture and its results, rust and corrosion. After the roof is on there is no way to paint the under side. Free circulation of air alone will preserve the roof.

The lock is perhaps the most important part in the construction of any metal tile or shingle, and one of the principal reasons for the pronounced success of Reeves embossed metal tile is in the locking device. The embossed end lap is another distinctive features of Reeves embossed metal tile which absolutely prevents any moisture whatsoever from pene-

Why They Cannot Crack Split or Come Unglued

J-M SANITOR SEATS AND TANKS are moulded in one piece and saturated with a waterproof hardening material, which renders them impervious to moisture, heat or cold, and gives them greater tensile strength and durability than any wood. Being made in one piece, there are no joints to come unglued or split. Not being affected by moisture, heat or cold, they will not swell, warp or crack. They are practically **indestructible**.

J-M SANITOR SEATS AND TANKS

have no dirt-catching, disease-breeding cracks and crevices. The tanks are absolutely waterproof without lining, therefore have nothing to corrode. They will not sweat. As this material cannot water-soak, the tanks do not become heavier, and cannot warp, swell or shrink and throw the inside fittings out of adjustment.

J-M SEATS AND HIGH AND LOW TANKS are furnished complete with fittings, in mahogany, oak and white enamel. The graining is so natural that only an expert can detect them from wood.

Write nearest branch for prices and further particulars—or simply write your name and address on margin of this advertisement and mail it to us.

H. W. JOHNS-MANVILLE CO.

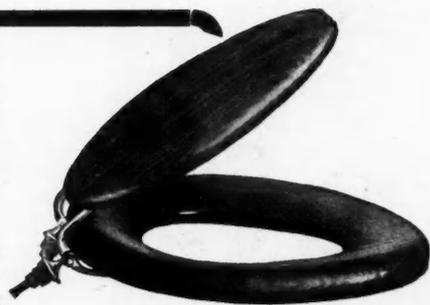
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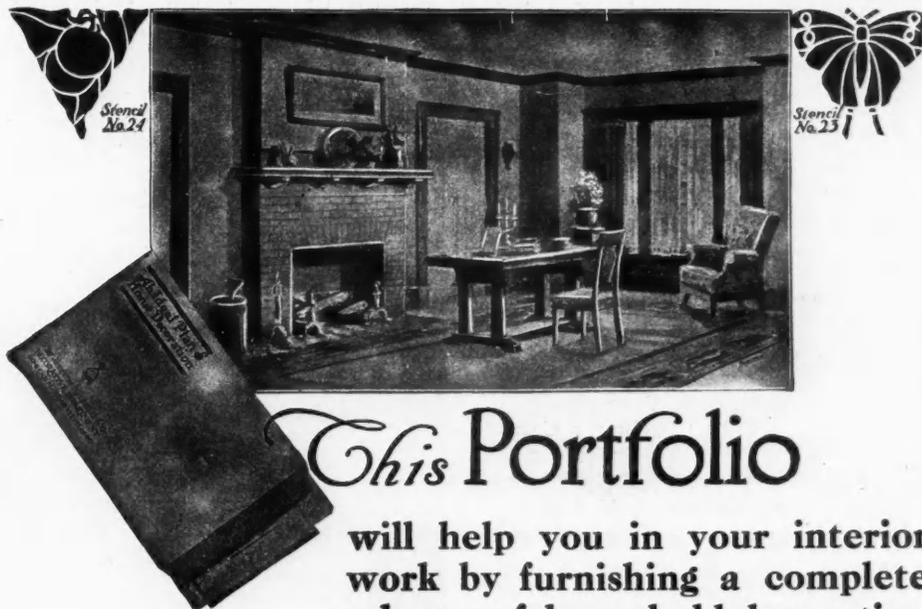
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(673)





This Portfolio

will help you in your interior work by furnishing a complete scheme of household decoration

THE above illustration is a black and white reproduction of one of the color plates taken from our "Ideal Plan of Home Decoration," which is a portfolio showing each room of a model house, illustrating in exact color the finishes, paints, varnishes, etc., to be used for the walls, floors, ceilings and furniture. Complete specifications are given as to how to obtain each result. Write today for this portfolio, which is free to any reader of the *American Carpenter and Builder*. It will save you time in planning the work which you may have on hand, as some of the suggestions for the various rooms will undoubtedly be entirely suitable, or at least suitable in part, for your work.

In using the suggestions given in this portfolio, you can be quite sure that they are new and up-to-date, as they have been worked out by the decorators in our Decorative Department. All of these color schemes are produced by the use of

SHERWIN-WILLIAMS PAINTS AND VARNISHES

We have been manufacturing paint and varnish products for over 40 years and our line includes a finish for every surface. With the experience gained through all these years of paint making, we are in a position to judge what finish is best for the surface under consideration. Remember that if the color suggestions shown in this portfolio do not exactly suit the interior work which you may be planning or designing, all you have to do is to write to our Decorative Department telling just what changes you would like to have made and our decorators will work up special color schemes for you along the lines you suggest. This service is absolutely free of charge.

We feel that the suggestions offered in this portfolio cannot help but be of benefit to every decorator, contractor or carpenter, not only in the time saved but also in the ideas which it may furnish for work at hand. Write today for our portfolio, the B-73



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trating, should it happen to find its way under the overlapping tile to the sheathing.

At the bottom of the tile is another improvement, consisting of a reverse turn-down or brake of about $\frac{3}{16}$ of an inch, which fits closely against the embossed end lap of the underlying tile, preventing driving snow and rain from drawing up under them. The reverse brake mentioned above serves to stiffen the end of the tile, preventing damage in transit, or on the job, a point which will be fully appreciated by the workman who applies the roof.

These, and many other interesting points, are fully explained in the finely illustrated catalogue now being distributed by the Reeves Manufacturing Company, Canal Dover, Ohio. Every reader of the AMERICAN CARPENTER AND BUILDER should have a copy. They will be mailed free on request.

"Hercules" Prize Winners

Announcement has been made before in these columns of the prize competition recently held by the Century Cement Machine Company. The photographs were judged at the cement show, the award being as follows:

A. T. Bradley, Esq., care Century Cement Machine Co., Rochester, N. Y.

Dear Sir: The committee named by you to select prize winners from the exhibition of photographs showing construction formed of blocks made on Hercules machines, has the honor to report the following selections:

First Prize. No. 132. Gospel Trumpet Home, Anderson, Ind.

Second Prize. No. 162. Barn, by Frank Lewis, Harpursville, N. Y.

Third Prize, No. 21. Orangery for Sir Hedworth Williamson, Bart., Sunderland, England—work by William Sewall.

Fourth Prize, No. 51. Presbyterian church, Gibbon, Neb.

Fifth Prize. No. 44. First M. E. church, Miramar, P. I., Frank B. Hatch.

(SIGNED)

PERCY H. WILSON, A. A. P. C. M.

C. R. W. EDGCUMBE, *Cement World*.

WALTER C. BOYNTON, *Concrete*.

GEORGE C. WALTERS, *Concrete Age*.

GEORGE D. PFEIFFENBERGER, Architect, East St. Louis, Ill.

FRED K. IRVINE, *Rock Products*.

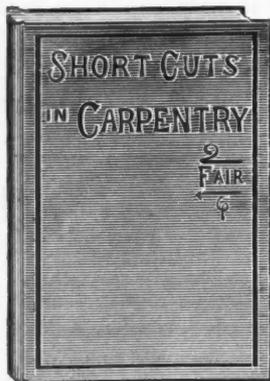
F. F. LINCOLN, *Cement Age*.

Cement Brick

"Well, it's remarkable that such a small and simple machine like that can turn out so much work!" This was a remark



Method of Placing Product for Curing. overheard at the recent cement show, in the crowd gathered



A VALUABLE NEW BOOK JUST ISSUED

SHORT CUTS IN CARPENTRY

A Collection of New and Improved Methods of Laying Out and Erecting Carpenters' Work

By ALBERT FAIR

TO LAY OUT and erect carpenters' work accurately and quickly is an accomplishment desired by all progressive carpenters. In this book, not only the simple rules for the short cut are given, but also the "reason why," so that the carpenter can apply his knowledge to many problems besides those given in this book.

The book contains 90 large (5 x 7-inch) pages, illustrated by 75 engravings in the text and a large folding plate, finely printed on ivory-finish paper and handsomely bound in green art canvas. You run no risk in ordering this book as we will cheerfully refund your money if you are not pleased.

PRICE ONLY 50 CENTS POSTPAID

This useful, practical and unique instruction book contains remarks about the carpenter and his work; the difference between carpenters and joiners. Description of the various carpenter and joiners' work about a house illustrated with a large folding plate giving the names of the various parts of doors, windows, trim, etc. (This chart alone is worth the price of the book.) The practical use of geometry in laying out carpenters' work explained in a different way so the reader will know "why." How to obtain various miters, both for straight and curved work. How to make a miter box. Descriptions of different kinds of moldings. Bending moldings around circles and the art of kerfing explained simply and accurately, telling why it is done and how to do it. Rake mouldings and how to lay them out fully explained, and several short-cut ways of doing it. How to find the corner brackets for coves. The use of the steel square in finding various pitches, degrees, miter cuts for polygons, etc. Use of the 2-foot rule in describing various figures when no other tool is at hand. The selection and use of glue. Hints on saving time when working on hardwood. The art of blind nailing. Setting door jambs, fitting and hanging doors. Fitting windows. How to cut pockets in window frames. Remarks on framing. Short cuts in placing siding. Siding a circular tower. Shingles required to cover a given roof area. Laying out octagon shingles. Quick method in finding bevel of shingles for gable. Framing a floor with short timbers. Building up a beam. Laying floors. Laying wood carpet. Constructing dished floors. The art of veneering on a small scale. Hints on inlaying. Roof framing explained on a new principle whereby you know the reason why the square is used and how to use it for different forms of roofs. How to find the sizes and cuts of braces. Bevels for hoppers. Making wheat bins. Quick method of beveling fence posts. Shaping a flag pole. Quick method of obtaining the bevel of tank staves. Making and placing well curbs, etc., etc.

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Every BEAVER BOARD wall or ceiling is a standing advertisement of your skillful workmanship

Paneled walls and beamed ceilings done in BEAVER BOARD are being used in every type of building, new or remodeled. It means steady summer and winter employment for every good carpenter that knows what BEAVER BOARD is and how to put it up.



One BEAVER BOARD job, well done, leads to another, and is a standing advertisement of the skill of the man who did it.



Read what follows, and learn all about it:

What BEAVER BOARD is

BEAVER BOARD takes the place of lath, plaster and wall-paper in every kind of building.

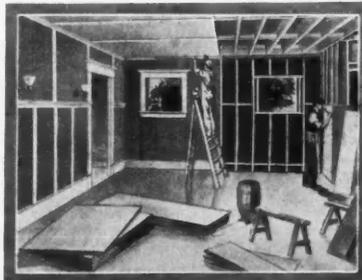
It is made entirely of selected woods, reduced to fibrous form and pressed into panels of uniform thickness, with pebbled mat surface.

It is growing in favor by leaps and bounds, because it is so quickly and easily put up, is economical, and wears better than plaster and wall-paper.

Besides that, it deadens sound and retards fire. It makes a house warmer in winter—cooler in summer. It can be put up without any of the mess and nuisance of plastering and papering.

BEAVER BOARD is sold everywhere by hardware, lumber, paint, wall-paper and builders' supply dealers and decorators. For your protection, every panel is stamped on the back with the BEAVER BOARD Trade-mark.

BEAVER BOARD BOOKLETS sent free if you mention name of your dealer. They tell you many interesting and profitable things to do with BEAVER BOARD.



This picture shows how BEAVER BOARD is put on the walls and ceiling of a new room. It can also be put on over the lath and plaster of old rooms.

How BEAVER BOARD is Put Up

BEAVER BOARD is made in panels of standard sizes and nailed direct to studding of new walls, or put on old walls without removing plaster and wall-paper. Beaver Flathead Nails are used for edges and Beaver Bunghead Nails for centers of panels.

Panels should be run clear down to floor behind base-board and fitted around window-casings, doors, etc.

The seams are covered with battens, and other battens are used for centers or diagonals where called for in specifications.

All nice, clean inside work, easy to put up in good shape.

Another profitable use of BEAVER BOARD is in making many useful and handsome household articles. We send free an illustrated booklet with plans and specifications for making many things that everyone wants around the house. With each is given an estimate of cost.

Write for BEAVER BOARD BOOKLETS. They give you all the details.



A Dining-room, showing the Fine Effect of BEAVER BOARD Panels and Battens



A Large Room Divided Into Two by BEAVER BOARD Movable Partitions



The BEAVER COMPANY of BUFFALO

GENERAL OFFICES AND WAREHOUSE, 122 BEAVER ROAD
Mills and Factory
Beaver Falls, N. Y.

Canadian Factory
Ottawa, Ontario

in front of the booth of the La Grange Specialty Company, where their "Little Giant" brick machine was being demonstrated. And it did seem remarkable; yet the operations required were so simple, and the machine itself so light and compact, that we were not at all skeptical when informed that two men, one to fill the moulds and the other to carry away

pallet. A moment's thought will show the reason and importance of this—when the pallet boards become warped and curled as they always do. With this machine it is also possible, and is very often done, to remove the brick onto level ground, sand covered, thus saving entirely the expense of pallets.

The accompanying photographs are eloquent in their story of the "Little Giant" and its prowess. One shows a typical "Little Giant" cement brick plant, the other a fine modern building constructed of these bricks.

There is no question but that there is a large and promising field, with the assurance of good money, in the cement brick industry. It is a line that is developing. The readers of the AMERICAN CARPENTER AND BUILDER will do well to write the La Grange Specialty Company, La Grange, Ind., and get full particulars concerning the "Little Giant" cement brick machine and this industry.



Huntsman Block, La Grange, Ind.
(Built of Brick Made on the Little Giant.)

the bricks, working with two of these machines, could easily make 300 perfect bricks per hour!

The "Little Giant" makes three perfect cement bricks at each filling. While this number is not large, still it works out very well in the final outcome; for with this machine there are practically no spoiled or broken bricks. This is due to the fact that they are removed and placed lengthwise of the

New Sales Manager for Pullman Mfg. Co.

We are informed that Mr. George J. MacLoughlin, formerly one of the proprietors of the Century Camera Company, has become actively interested in the Pullman Manufacturing Company, Rochester, N. Y., and will have entire charge of the selling end of the business. This company is also adding new facilities to their equipment in order to take care of the rapidly increasing business.

Slate—The Right Roof

Edward Hall, in a "Treatise on Building and Ornamental Stones," puts the case thus: "Slates are chiefly used for roofing houses and public buildings, and are valuable in proportion to their compactness and durability, their smoothness of surface, their uniformity of quality and incapacity for absorbing water."

Prof. J. L. Stone, New York State College of Agriculture

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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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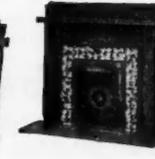
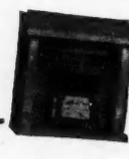
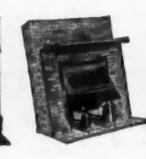
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Remit 25 cents to cover postage and packing on the most valuable mantel catalog ever issued. This amount will be deducted from the first order received

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BISHOPRIC WALL BOARD

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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, imbedded 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, of uniform thickness ($\frac{3}{8}$ inch), 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 FROM NEAREST POINT: Crate of 16 sheets, covering 256 sq. ft. of surface, \$6.40 or \$2.50 per 100 sq. ft., f. o. b. New Orleans, La., Cincinnati, O., or Alma, Mich.

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.

Requires No Paint or Other Coating. Handsome and Durable.

BISHOPRIC ROOFING

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 . . \$2.25 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.

at Cornell University, says: "We are very favorable to slate roofs for farm buildings. I have a slate roof on my own house and it has given me no trouble during the ten years it has been in use."

Cement and Slate, a leading periodical of the building trade, published the following concise and competent summing up:

"Many advantages are claimed for slate, which seems to be designed by nature for use where a clean, non-absorbent surface is required. It is strong and durable and can be made neat and even beautiful. The surface is smooth; it will not retain dirt or moisture."

From the foregoing it is evident that slate excels in durability, in cleanliness, in compactness, and in that chief of all roofing virtues, imperviousness to water, air and changes of temperature. Slate shares these characteristics with other roofing materials. It is smooth—like tin; strong—like iron; and so on. But, so these writers claim, no other roofing material combines all the good points of a perfect roofing. They claim that iron rusts, making it worthless in ten years; while sea green and purple slate does not rust and it wears five, ten, even fifteen times as long as iron. It shares with shingles the power of regulating extremes of temperature.

Copper, lead, tin cost more in the beginning—and it is said fail to compete in durability. Felt, shingles, iron cost less to put on, but soon catch up owing to their weak resisting power, the yearly loss of efficiency in a shingle roof, for instance, being 35 cents per square. In the same time wear and tear affect a good sea green or purple slate roof (the most durable of all varieties), not to exceed thirty-six mills. In other words, one slate roof equals six shingle roofs, and even then is a better investment, for while six wornout shingle roofs are worth nothing, a century old slate roof still has its price. For example, one sold at Delta, Pa., recently, brought close to the ruling market price after being in service ninety-three years.

Retail Store for "Thor" Laundry Machines

The Hurley Machine Company, manufacturers of the Thor electric laundry machines for the home, write us that they have opened a retail store for the sale of these machines at 31 Monroe street, East, between State and Wabash, Chicago.

Fellgren System of Concrete Construction

At the third annual Cement Show, recently held in Chicago, a new system of solid concrete building was on exhibition which attracted a great deal of attention. The carpenters and building contractors who were present in large numbers at this show were especially interested. As the inventors of this system, C. W. Fellgren and Sons Company, explain: it is a method of construction that appeals in a peculiar way to the carpenters; for it is, in fact, an ingenious combination of the standard frame construction, with which we are all familiar, and the new building material, concrete.

The accompanying diagrams will serve to show the method of construction. A solid concrete wall, four or five inches thick, takes the place of the sheathing and exterior siding of the ordinary house. This wall is keyed to the studding in the most substantial manner, producing a wall of great strength and durability. Lath and plaster are applied to the inside of the studding in the regular way, thus providing a 2-inch air space. This makes the wall absolutely moisture proof.

The framing for a Fellgren System house is exactly the same that the carpenter employs in ordinary work. The studding, however, have first been put through the mill and two 1/2-inch grooves rabbeted out along each 4-inch face. This is a matter of very small expense. The grooves are used when the framing is set up for the mould-boards to slip into to form the inside of the concrete wall.

With this system of concrete construction no difficulty is experienced in framing for doors and windows, or in applying



FELLGREN SYSTEM Solves the Problem

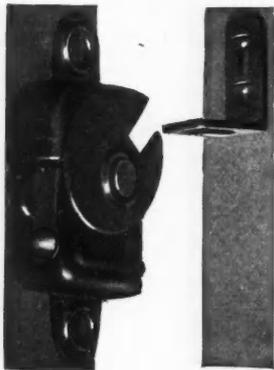
Solid Concrete Houses—At Last—Without Expensive Forms or Lumber Waste

THIS is an example of the beautiful, substantial, modern houses being built by the Fellgren System of Concrete Construction. (Patented.) The only practical, satisfactory method. Strong, Fireproof, Damp-proof. No lumber wasted for Forms. Dead-air space makes Dry Walls. Framing and Construction Easy. The Fellgren System has been Tested and Approved.

CARPENTERS AND BUILDERS—INVESTIGATE

Write today for particulars and for money-making proposition

G. W. Fellgren & Sons Co. 4874 Magnolia Ave **Chicago, Ill.**



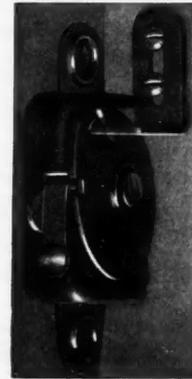
The No. 21 Watrous Screen Door Catch

The Latest and Best Thing in Screen Door Catches
THE CATCH WITH THE POSITIVE LOCK

The case comes flush on door jamb. The strike is adjustable. Needs no templet. A child can set it without making a mistake. A light trip and a strong hold. Positive lock does away with necessity for hook-and-eye, or other fastener.

Sells at Sight

THE E. L. WATROUS MFG. CO., DES MOINES, IOWA



The MAN Who Stood Still!



You can't afford to be **The Man Who Stood Still**. You don't want to stick to the plane, the saw and the hammer all your life. You don't want to continue to work for the next twenty or thirty years just as you do now. You must want to advance, and you can advance by studying

Radford's Cyclopedia of Construction CARPENTRY, BUILDING AND ARCHITECTURE

Twelve great, big, massive volumes. More thorough, more complete, more exhaustive than anything before even attempted. Over four thousand pages, thousands of illustrations, diagrams, charts, plans and working drawings, made especially for this set of books, including three complete volumes on cement and concrete construction, the only thing of the kind in existence. Practical carpentry, steel square, framing, roof construction, and even manual training, painting, glazing and decorating are thoroughly treated in addition to the bigger work, such as masonry and steel construction, heating, ventilation and plumbing, reinforced concrete, contracts and specifications. And all this explained thoroughly without the use of a single square root sign or algebraic equation, or the use of anything but simple arithmetic. **Practical information from start to finish.**

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Delivered to you at bare cost of manufacture merely to introduce the set. Privilege of examination free. We pay transportation both ways if you don't keep the books. One dollar with your order and two dollars a month pays for the books. Order on the coupon below and get all the benefits of the One-quarter Price Offer—\$23.80 instead of \$79.00.

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Medinah Bldg.
Chicago

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Medinah Building, Chicago, Ill.

CINNATI

INVESTIGATE THIS MONEY-SAVING "THIN FLOORING"

It has all the beauty of heavy flooring, with strength and durability far beyond that of the ordinary thin flooring. The reason is:—*more wood is left above the groove.*

Think of the saving in lumber cost, and the great convenience in laying a thin floor of this quality. Little thicker than carpets or rugs, it can be laid over any floor without the need of cutting off doors.

Nails are blind-driven obliquely through the tongue, therefore there are no nails to punch or holes to fill with putty. Floor is practically one solid piece.

Cincinnati Thin Flooring has revolutionized the flooring business. Write us for sample, also booklet that tells how you can make more money by laying Cincinnati Floors. When layed, they require very little planing, sand-papering and finishing and will save you a great deal of time and money.

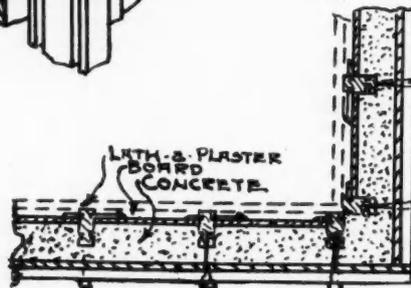
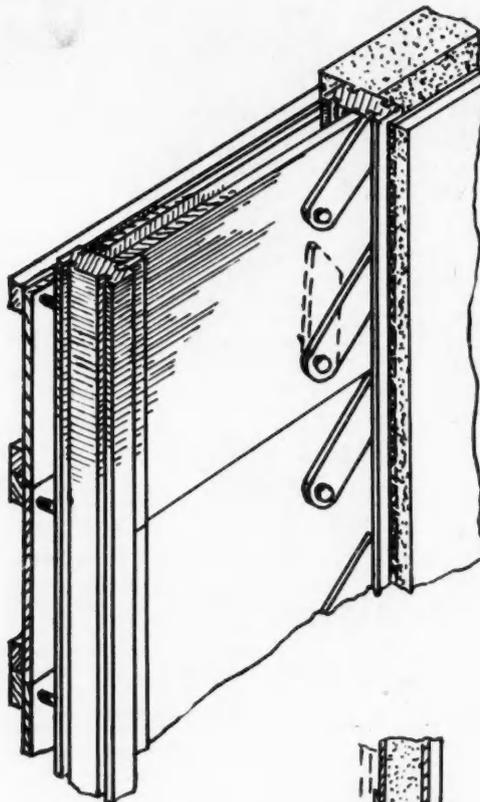
—WRITE TODAY—

CINCINNATI FLOOR CO. 228 West Fourth St. CINCINNATI

the interior trim, since all of this work is done exactly the same as in regular frame construction.

For these reasons the Fellgren System seems to unite the well-known advantages of frame construction—ease of working, freedom from moisture, etc.—with all the advantages of solid concrete building, with its fireproof qualities, freedom from repair, evenness of temperature, etc.

The practical advantages of cement have been fully demonstrated in the foundations of our largest buildings, but this material has not lent itself so readily to use in the upper parts of the building. The difficulty has been in devising an economical system of supporting the walls during erection, and



then of securing an air space in the wall so that it will be moisture proof when complete. The Fellgren System solves this difficulty in a very ingenious way. The wood studding holds the moulding boards in place while a course of the concrete wall is deposited. In a short time the concrete is sufficiently hard so that the boards may be raised and another course deposited. In this way, a strong, self-supporting, concrete wall is built up, the same moulding boards being used over and over again.

These moulding boards are permanent assets of the contractor using this system. They are movable from building to building. The same moulding boards and tools can be used irrespective of the thickness of the outside walls designed, for a simple iron screw holds the outer forms to the studding. By lengthening or shortening these lag screws a variation in the thickness of the wall is secured.

This system has been thoroughly tested by the C. W. Fellgren and Sons Company, the inventors, in their own contracting work in Chicago. The accompanying photograph shows

SAVE MONEY

FLY TIME IS NEAR

"Superior" Window Screen Frames

Make Your Own Window Screens

This frame is made heavy and substantial from selected kiln-dried lumber. Size of sticks $\frac{3}{4}$ x $1\frac{1}{2}$ inches. The construction is simple and the frame is easily put together. The side pieces have grooves in the outer edges. Slide sticks for fastening to the window casings are furnished, also mouldings for covering the edge of the wire cloth.

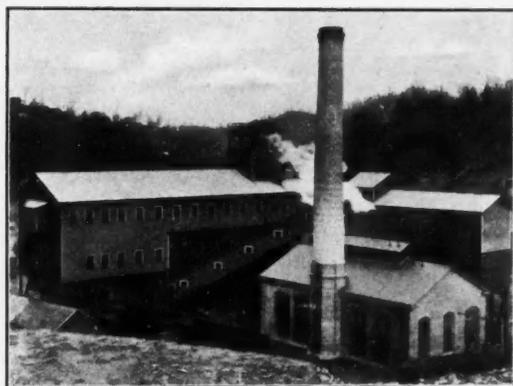
Galvanized steel corners and lifts, with the necessary nails, are furnished for putting the frame together, all of which are packed one set in a box, with full printed directions explaining in detail the simple construction of this frame. These frames are easily put together and are rigid, making a first-class window screen in every particular.



Furnished in All Sizes

If your dealer cannot furnish—Write us

The Continental Co.
DETROIT, MICH.



Asbestos "Century" Shingle Roof—Tipple and Coal Bin of the New River Collieries Company Sun, West Virginia.

ASBESTOS "CENTURY" SHINGLES

"The Roof that Outlives the Building"

Here is the one roofing that you can recommend with a clear mind.

You know that your client is getting full value for his roofing investment—is *free for good and all from the expense and annoyance of painting and repairs.*

Asbestos "Century" Shingles are shingle-like sheets of reinforced concrete. Hydraulic cement reinforced in every direction with interlacing asbestos fibers.

They grow tougher and more elastic the longer they are exposed to the weather. Fire-proof—weather-proof—time-proof.

Laid like any shingle or slate—easily fitted and cut.

Asbestos "Century" Shingles are made in three colors—Newport Gray (silver gray), Slate (blue black) and Indian Red, in numerous shapes and several sizes. Ask your Roofer for new quotations. Write for Booklet "Everlasting 1910."

The KEASBEY & MATTISON COMPANY, Factors, Ambler, Pennsylvania

A DEPENDABLE ROOF

is not only a matter of much satisfaction, but also of economy. Leaks are expensive. The old reliable



32 POUNDS COATING ROOFING TIN

"The Terne which turns the elements"

makes a roof of service and satisfaction. The continuous unbroken surface of good terne plate, free from open joints, practically seals the top of the building, and is absolutely impervious to all conditions of weather. Then too, it is light, clean, fireproof, easily applied, reasonable in cost, and lasting. The Old Style, hand dipping, palm oil process is strictly adhered to, and its use for good roofs is not an experiment but a matter of wisdom.

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



Why hesitate one minute

Your commonsense tells you to get the roofing made of Trinidad Lake asphalt. Nature gives it waterproofing qualities that man has never equaled

Genasco Ready Roofing

is made of Trinidad Lake asphalt. There are no secret materials in it. There's wool-felt for foundation, and mineral surface (on some) for finish. The Trinidad Lake asphalt is the life and backbone. It prevents cracks and breaks; does away with leaks and repairs, and makes Genasco last longer than any other roofing.

Write for the Good Roof Guide Book, and find out more about Genasco; get samples too. Mineral or smooth surface. Look for the trade-mark at your dealer's, and insist on Genasco. A written guarantee—if you want it.

THE BARBER ASPHALT PAVING COMPANY

Largest producers of asphalt, and largest manufacturers of ready-roofing in the world.

PHILADELPHIA

New York San Francisco Chicago

Cross-section, Genasco Stone-surface Ready Roofing



Varnishes

M. P. DURABLE EXTERIOR VARNISH
(GREEN LABEL BRAND)

Is a wonderful varnish for outside or inside exposed woodwork. Especially adapted for front doors, window sash and sills. Is very elastic and flows out with a beautiful deep lustre. Is for use upon exposed parts of residences, buildings, yachts, etc., or wherever an exterior or spar varnish is required.

PRICE
\$4.00 per gallon
Quarts \$1.00 each

For sale by paint dealers everywhere. If not at yours, we will send by express prepaid on receipt of price. Full descriptive price list on application.

THE GLIDDEN VARNISH CO.
Makers of High Grade Varnishes for all purposes
GLIDDEN BUILDING, CLEVELAND, OHIO

Glidden

a cottage built by them using this method of construction. The owner, Arthur F. Weber, 2027 Estus avenue, Chicago, in a recent letter to Mr. Fellgren says: "I wish to advise you that the reinforced concrete bungalow that you erected for me during the past summer is giving entire satisfaction. I find the same to be warm, dry and sanitary. I believe your form of



Monolithic Cement Cottage Built by the Fellgren System

construction excels any other." The total cost of this house was \$2,922, itemized as follows:

Excavating	\$ 20
Carpentry and interior finish.....	1000
Cement work, including reinforcement....	600
Plastering	235
Plumbing	250
Heating	275
Wiring	35
Hardware	25
Fixtures	35
Glass	40
Painting	75
Sheet Metal.....	67
Tile Roofing.....	265

Others who have had buildings erected using this method of construction state that they find them very warm in winter and cool in summer, thoroughly dry and altogether sanitary. It is predicted that this method of construction will play an important part in future building operations.

C. W. Fellgren and Sons Company, 4874 Magnolia avenue, Chicago, Ill., are the originators of this system of construction and hold the patents which fully cover it. The readers of the AMERICAN CARPENTER AND BUILDER would do well to look into this matter with a view to securing district rights for its use.

Vertical Spindle Boring Machine

The accompanying engraving represents the No. 6 vertical spindle boring machine of the Defiance Machine Works, Defiance, Ohio. It is designed for use in chair, furniture, implement, wagon, carriage, automobile and pattern shops and for wood-workers in general, for straight or angular boring in hard or soft wood.

The frame is designed on graceful lines, heavy and strong, cast in one piece with cored center and a broad floor base to stand firm.

The boring spindle of ground steel, 1 5/16-inch diameter, slides into a splined sleeve, which rotates in bronze journal bearings which are self-lubricating. The lower end is fitted with a 1/2-inch straight hole to receive the boring bit. It is provided with a vertical movement of 12 inches and brought

SEND FOR OUR CATALOG. "HOME HEATING"

HOT-WATER HEATED \$198

by ANDREWS SYSTEM EACH



4 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.

We also furnish plumbing, air pressure and sewage disposal plants.

Let us make an Estimate for you—we take all the risk.

ANDREWS HEATING COMPANY, 1113 HEATING BUILDING. Minneapolis, Minn.

MANUFACTURERS CONTRACTORS CONSULTING ENGINEERS

Throw Away that Wet, Soggy, Wheezy Pipe

And Get One that Smokes as Pleasantly as a Fine Cigar



Single Pipe, \$1.
Lots of 6, \$5.

Notice the shape and construction of the Acme bowl, made of the finest Vienna Meerschaum with vertical walls and flat bottom like a pan.—The tobacco cannot pack solidly like in other pipes.

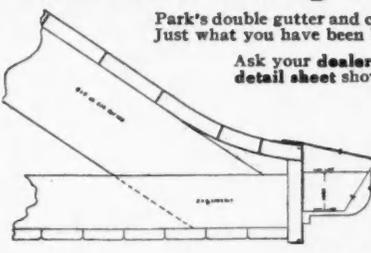
Again notice the series of holes in the bowl angling through solid meerschaum to a center hole at the bottom. This construction insures a free circulation of air throughout all parts of the tobacco which is the secret of the cool, pleasant smoke of a fine cigar.

Then the air chambers in the briar part of the pipe make it impossible for the saliva to get into the bowl. The bowl of the Acme is guaranteed never to get wet.

Cut this ad out and wrap a dollar bill in it and forward to us and you will receive promptly the best pipe you have ever smoked.

THE ACME PIPE CO.
STATION M. CINCINNATI, O.

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



Pioneer ROOFING

DO YOU KNOW IT?

The roof that proves. Sunproof and rainproof. Needs no paint or repairs. Easy to put on. Sure to satisfy. Better than wood, gravel, tar, tin or tile. Exactly right for residence, hotel, business block, outhouse—flat or pitched roof. Covers the entire coast from Alaska to Mexico. Demand steadily growing eastward.

Write for samples and illustrated roofing booklet. Address Dept. 21.

Asphalt-Compo Board

We are refiners of Asphalt and manufacturers of Asphalt Paint. Let us supply you direct from our factory in Los Angeles. Also, California Agents for Northwestern Compo-Board Company.

PIONEER PAPER COMPANY
LOS ANGELES - - - CALIFORNIA

**I never saw
a saw, saw
the way this
saw, saws.**



From tip to handle the Simonds Saw shows the result of utmost care.

The very fit of the handle is exactly right to give a perfect grip with an easy "balance" and just the right "hang."

The steel from which the saw is made is the famous *Simonds steel*, made expressly for and used only in the Simonds Saw.

Its temper is as nearly perfect as human thought has yet achieved. Tempered by our own secret process it holds a keen cutting edge in a marvelous manner, requiring but little attention or sharpening.

When you buy the Simonds Saw you are getting the highest grade saw made.

Thousands of experienced carpenters testify that

SIMONDS SAWS ARE THE BEST

And They ARE The Best

Protect yourself against imposition in buying saws by looking for Simonds trade mark. Whatever saw you find that on you are safe in buying, and *don't buy any other* unless you are prepared to be disappointed.

If your dealer does not keep the Simonds, let us know and we will see that you are supplied.

**SEND FOR "SIMONDS CARPENTER GUIDE"
MAILED FREE**

This booklet will tell you about Simonds Saws and give other information of real interest and value.

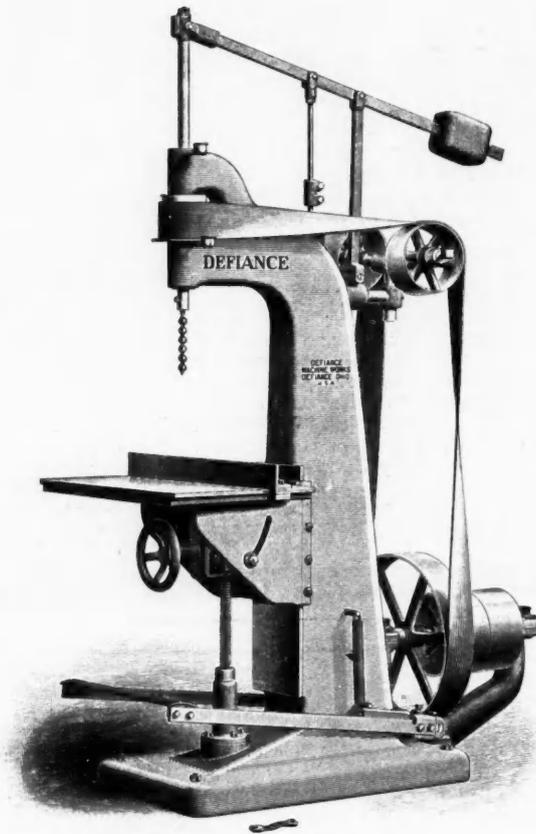
SIMONDS MANUFACTURING CO.

Fitchburg, Mass.

Branches in leading cities

down to its work by a convenient foot treadle, with a quick return movement by means of a weighted counter balance. Suitable stops are provided for gauging the depth of boring.

The table is 18 by 27 inches in size, is gibbed to the frame and can be raised or lowered by means of a convenient hand wheel. It is provided with a guide, adjustable clear across the face of the table, and it can be clamped in any position. The table has a lateral and longitudinal adjustment within a limit of 30 degrees for angle boring. Five boring bits are furnished, $\frac{3}{8}$ -inch, $\frac{1}{2}$ -inch, $\frac{5}{8}$ -inch, $\frac{3}{4}$ -inch and 1-inch.



The idler pulleys are adjustable to properly track the belt and they are fitted with bronze bearings and are self-lubricating.

The counter is a part of the machine, and it can be belted to from any direction. The tight and loose pulleys are 10-inch diameter by 5-inch face, with the loose pulley fitted with bronze, and they should run 800 turns per minute, giving a bit speed of 3,300 turns.

Horsepower to drive is one-half; floor space occupied is 31 by 62 inches. For further information address the Defiance Machine Works, Defiance, Ohio.

Prentiss Vise Company Moves

We are informed that after twenty years at 44 Barclay street, New York, the Prentiss Vise Company are about to move their New York office and salesrooms to 106-110 Lafayette street. They hope to be settled in their new quarters about April 15th.

Cost of Auto Parts

While it is quite common for original purchasers to compare prices of cars, it does not occur to the inexperienced buyer to obtain a comparison of the cost of extra parts of the automobile which he may select.

ACME WOVEN WOOD LATH

Won't Warp, Won't Buckle, Won't Rust.
It solves the problem of cement coated houses.
The United States Government is using it.

IT STANDS ALONE, IN A CLASS BY ITSELF

Why don't you write us today for our illustrated
booklet? It's free for the asking.

Acme Woven Wood Lath Co.

1015 New Bank of Commerce Bldg.

ST. LOUIS, MO.

U. S. A.

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.

Protect Your Plate Glass



Use the system of store front construction that secures the glass against breakage—not one that will break it. Some bars do that very thing—break the glass—but not so with Petz Bars. Petz Bars are the strongest, most rigid bars made, and, withal, the most artistic. They have been used for years without a single report of breakage except from outside causes. It is the kind you should specify. A booklet, "Modern Store Front Construction," shows and describes the various Petz Bars. Write for a copy.

DETROIT SHOW CASE CO.
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Charles T. Jeffery, of Thomas B. Jeffery and Company, says that he has recently made a comparison of the prices of parts of various cars and finds the cost of parts of the New Rambler are one-half to two-thirds lower than the parts of other cars.

It is part of the Rambler policy not to endeavor to make a buyer believe that a car that lasts for five or six years and perhaps may meet with an accident will never require an extra part.

Every part of the new Rambler is made in the Rambler factory and duplicate parts of every car ever manufactured are ready for shipment on twenty-four hour's notice.

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Metal Frames for Cellar Windows

The accompanying illustration shows the new "Sectional" metal window frame made by the Majestic Furnace and Foundry Company, Huntington, Ind. In our description of



this new appliance in last month's magazine, this cut was inadvertently used wrong side up. We regret this occurrence and desire to call the attention of AMERICAN CARPENTER AND BUILDER readers again to this meritorious cellar window frame.

Sasgen Derricks

A line of builders' hoisting derricks that deserves the special attention of AMERICAN CARPENTER AND BUILDER readers is being offered by Sasgen Bros., 2744 Lincoln avenue, Chicago, Ill.



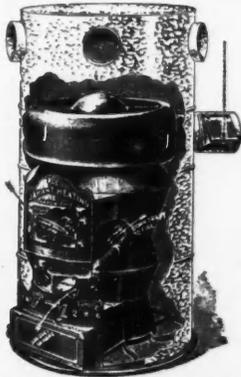
Four of these derricks are illustrated herewith. They are the circle swing builder's derrick, the circle swing wheelbarrow derrick, the Sasgen pole derrick and the improved setter derrick.

The Sasgen circle swing builder's derrick is without question one of the most practical hand-power derricks made for hoisting timber, joists, flooring, door and window frames, stone, concrete blocks,

terra cotta, iron girders, etc.

It is very simple in operation and construction. By removing two nuts and one bolt it comes in two parts, so that it can be easily handled for transportation. It can be

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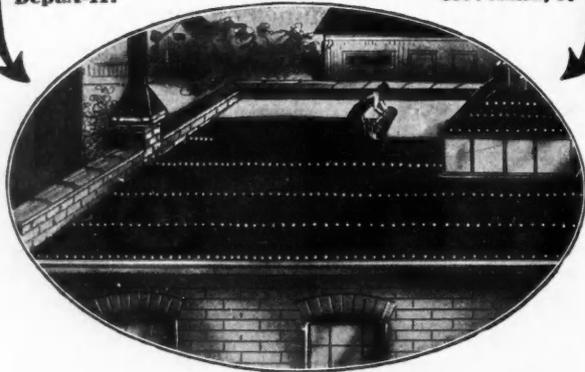
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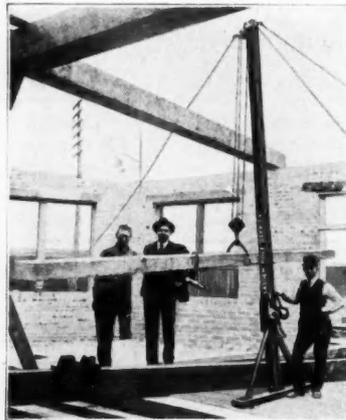
regulated in a few minutes to suit the work being done, can be set up by one man in 15 minutes and is operated by one or two men. The height is 8 feet, has a circle swing of 12 feet, weight 250 pounds, capacity 1000 pounds, which can be increased to 1,500 pounds by fastening guy lines to top of post and back and changing cable from double to triple.

The Sasgen circle swing wheelbarrow derrick is safe, easy to handle, quickly and easily erected and is a light weight apparatus. It may be used with horse or other power.

It is equipped with a handle so load may be lowered slowly. It can be operated to the handle is a brake so load may be lowered slowly. It can be operated by one man, load can be swung to any point desired when raised.

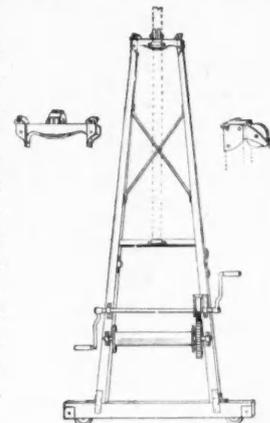
The Sasgen pole derrick is extensively used by builders to set posts, girders, heavy joists, stone, coping, etc. It is quick

in operation, easy to set up, being handy and light to move around. The weight of the pole derrick is about 200 to 225 pounds, equipped with winch, 100 feet of cable, and block ready for hoisting except guy lines. It is made of 5½ by 5½ selected Norway, and equipped with extension shive frame which enables to hoist the load without scraping the pole. The pole is fastened to a 4 by 6 inch 6-foot bottom connected



to the pole by a malleable casting and angle iron braces.

The Sasgen improved setter derrick has many improvements over the old style Setter derricks, which we know would be worth your while considering. The top frame is equipped with two shives and does away with the block on top. This frame is supported by 5/8-inch truss rod and has locks for guy lines in front and back and also clamps for fastening extension pole. The top frame shows an extension which enables to hoist the load without scraping the derrick. The bottom and the side pieces of this setter derrick are connected with two malleable castings, the same are fastened by means of bolts, making the derrick easy to be taken apart, if necessary, for shipment or removal.



No building contractor needs to be told the necessity of having a good serviceable hoisting derrick on the job. Those interested in new equipment of this kind should write at once to Sasgen Bros. for full information.

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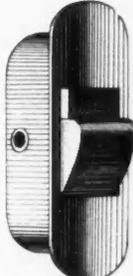
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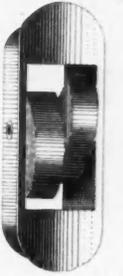
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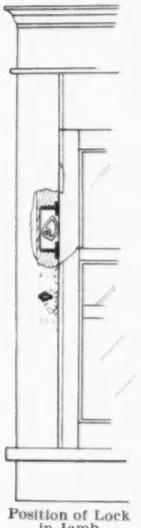
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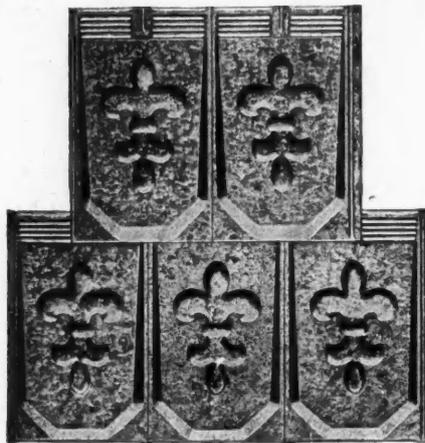
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results from its use often results to more than the cost of a half dozen good roofs; so good roofing is a consideration of the highest importance to every builder and property owner.

There have been numerous kinds and brands of roofing offered the building public during recent years and various advantages have been put forward in connection with each. Some have based their claim entirely on low cost, others on durability, others on their fire-resisting properties and some on their artistic effect. The users of the Neverleak metal shingles claim that this roofing material combines the good qualities of all the others, yet has a minimum amount of their faults. Neverleak metal shingles are durable and fire-resisting without being heavy. They make a very attractive appearing roof. No special construction is needed for their use and any practical mechanic can lay them. With the



Neverleak metal shingles no solder is required, and there are no exposed nails. The accompanying illustration shows one of the designs of this metal shingle. It has been said that a roof should be more than a mere protection; it should ornament and increase the value of the building to which it is applied. There is no question regarding the artistic and attractive qualities of the Neverleak metal shingle.

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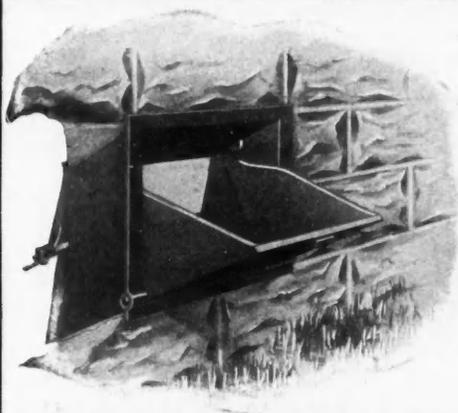


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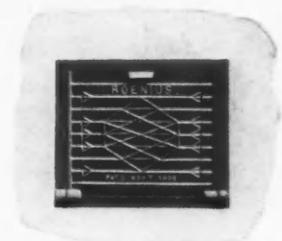
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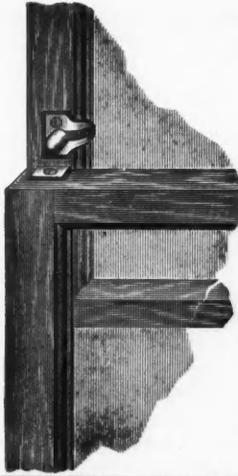
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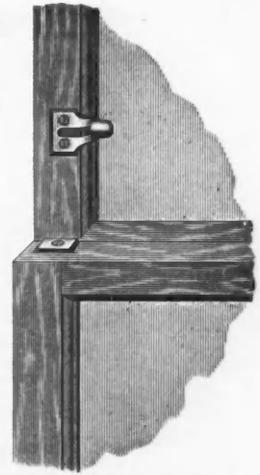
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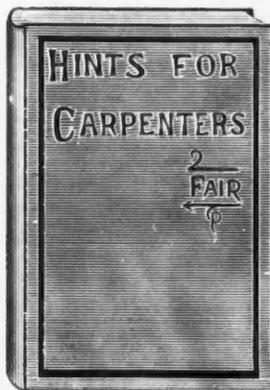
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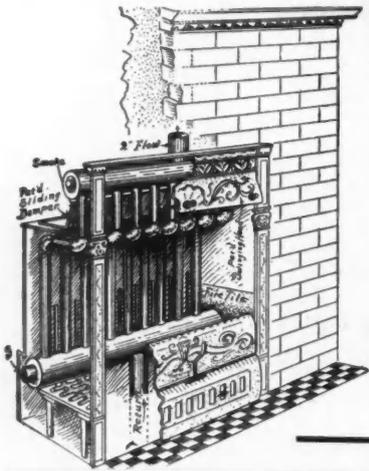
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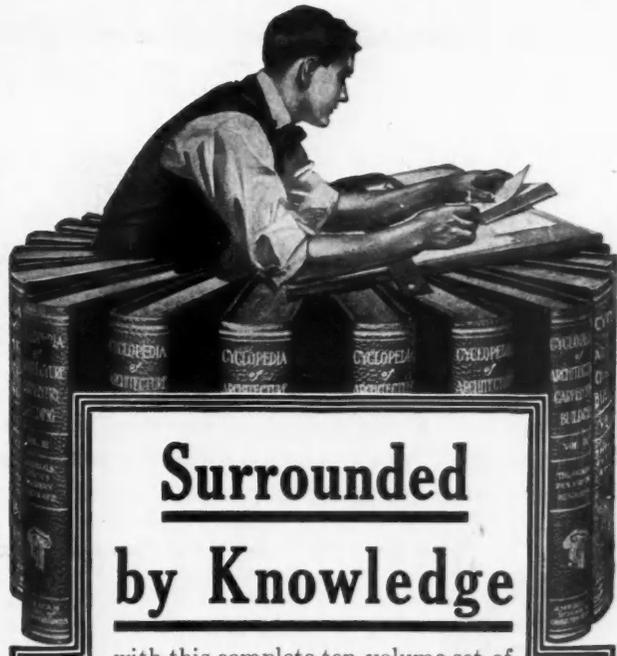
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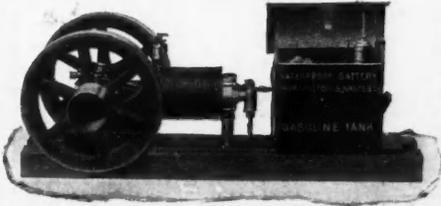
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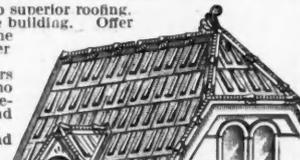
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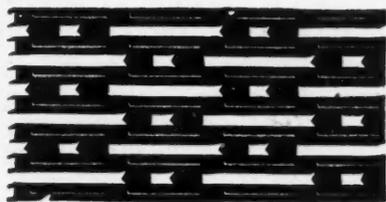
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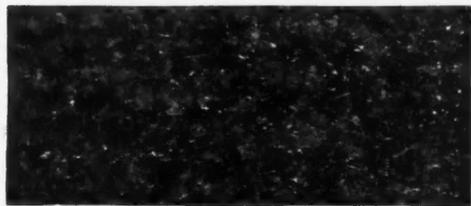
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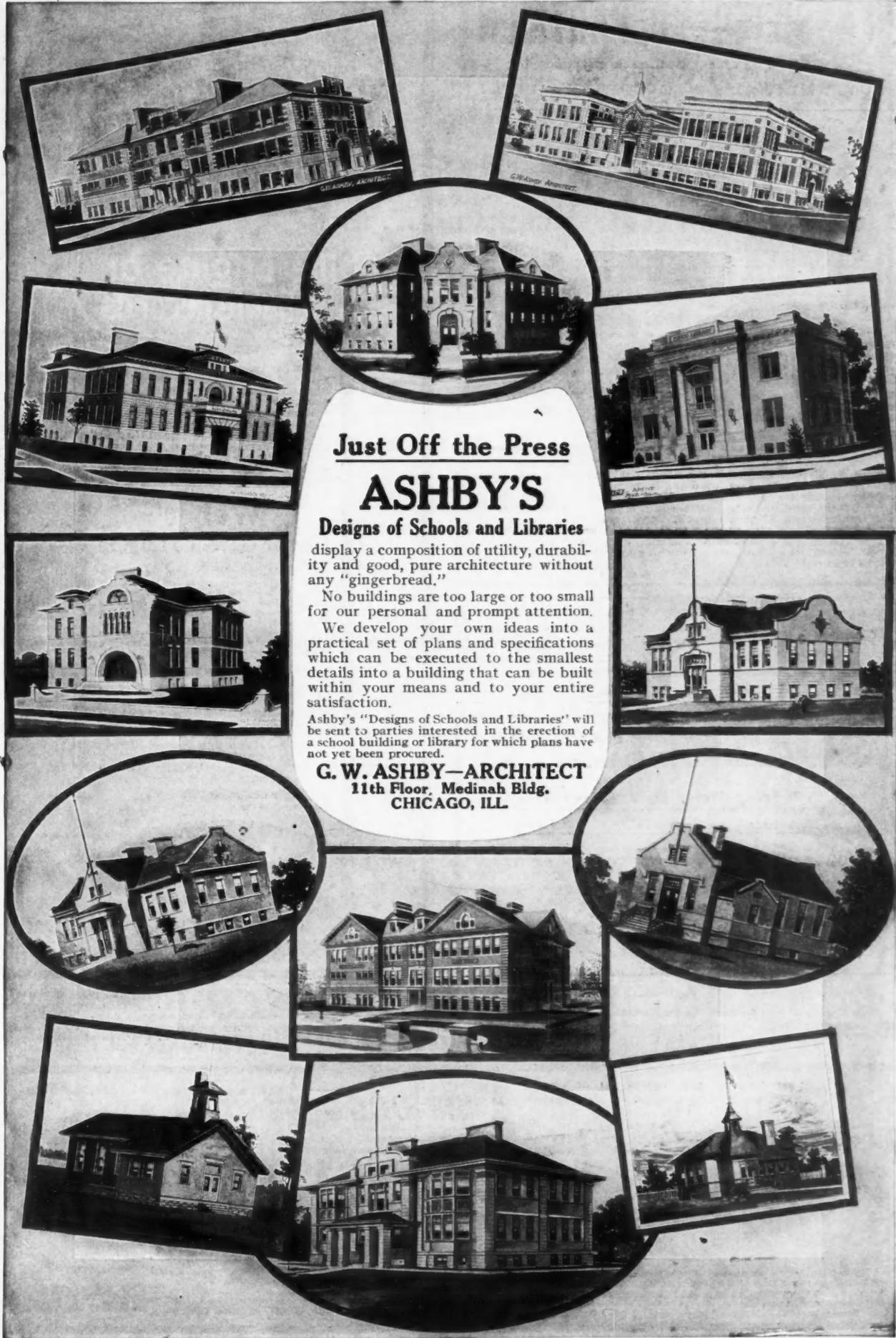
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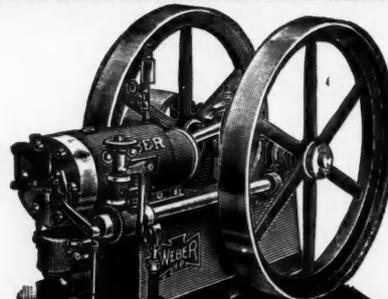
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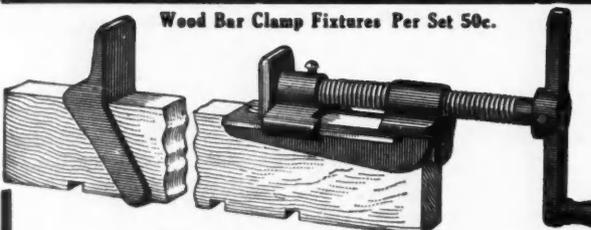
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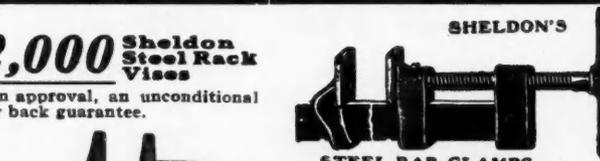
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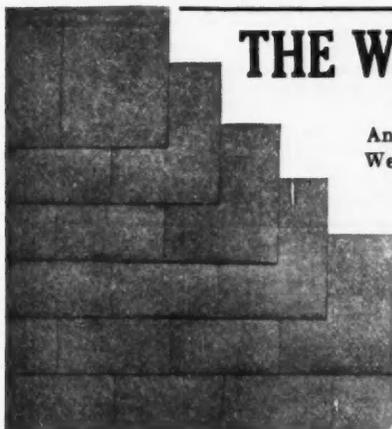
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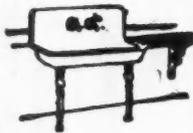
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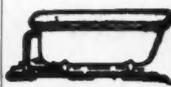
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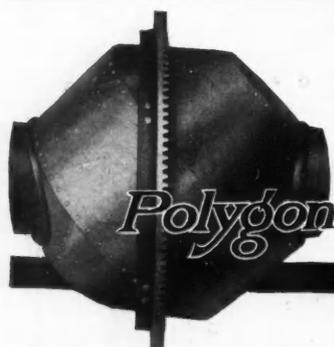
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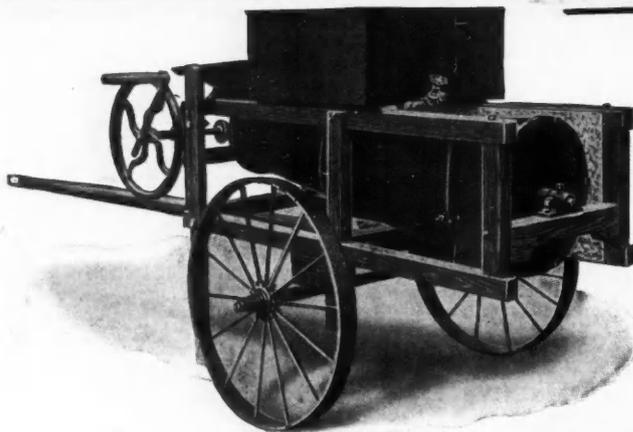
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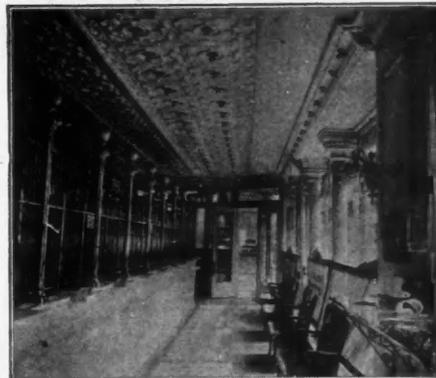
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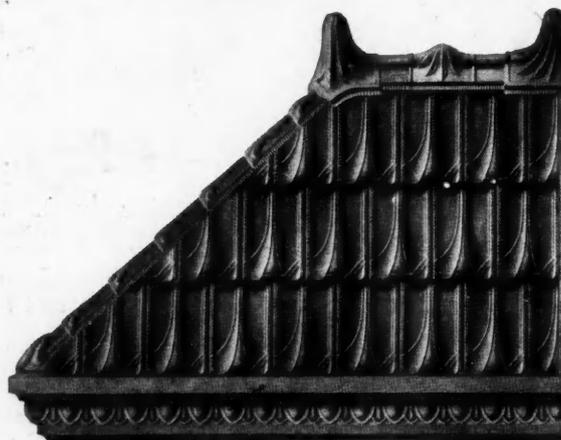
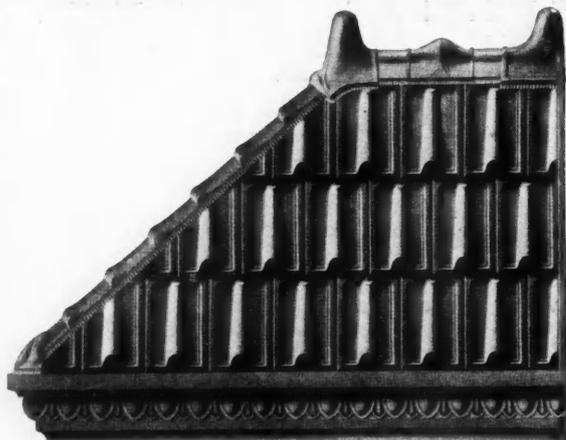
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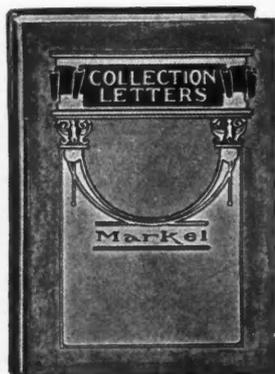


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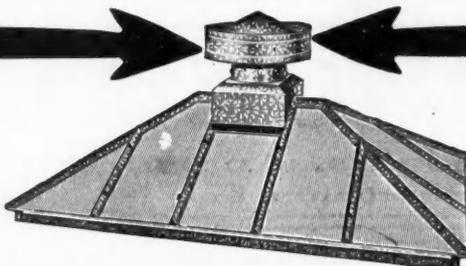


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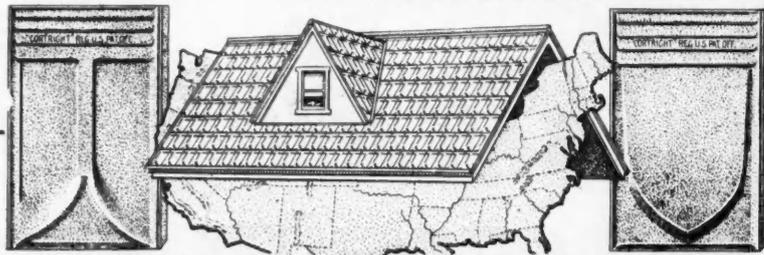
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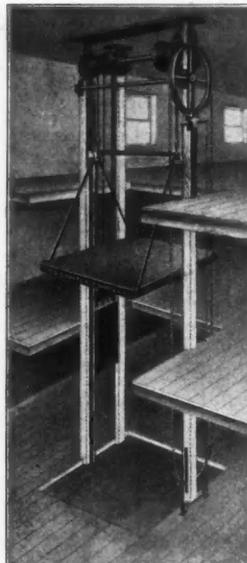
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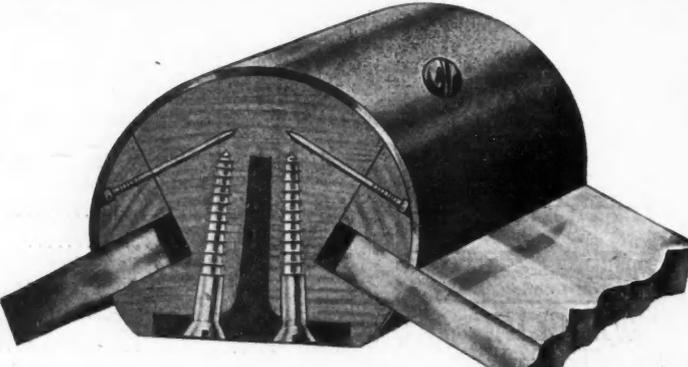
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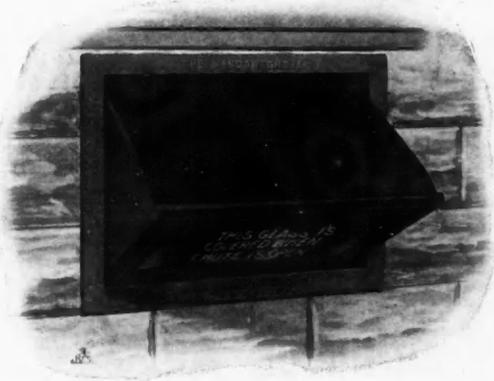
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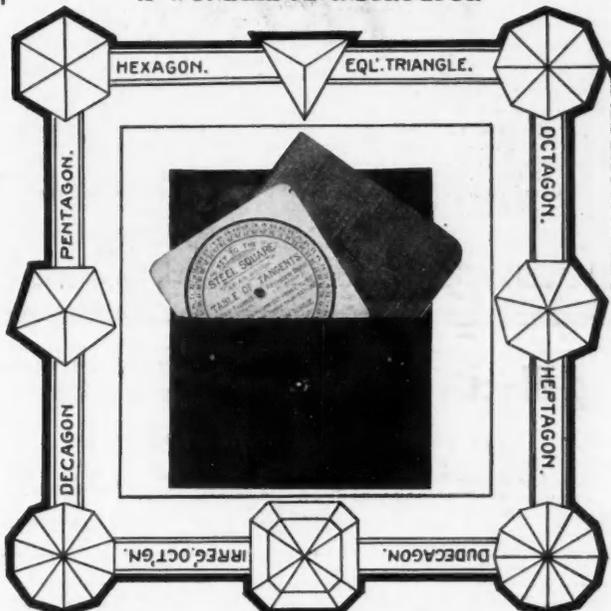
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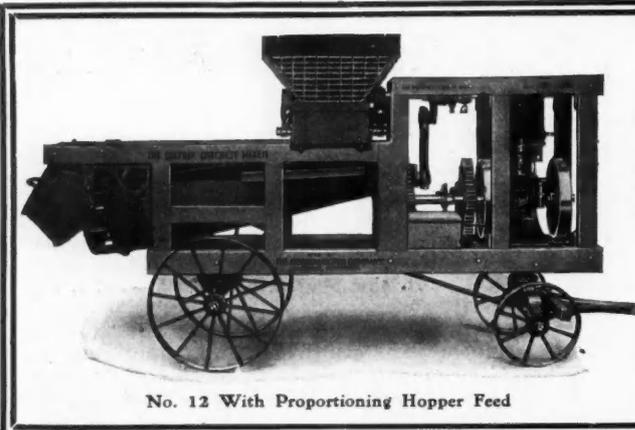
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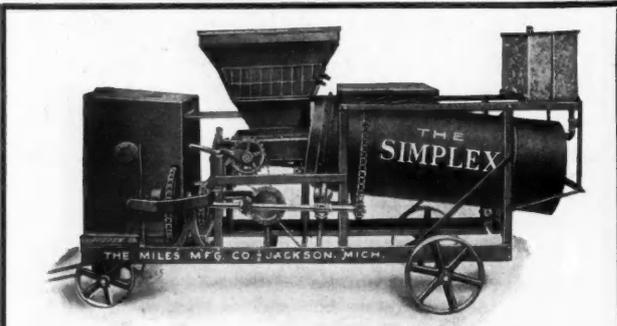
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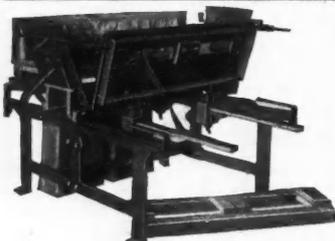
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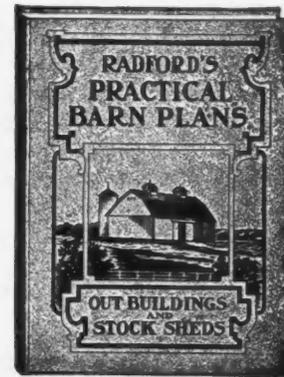
The Illustrations in the book are large drawings of floors, sides, ends and frame work, together with perspective views, sufficient to guide any carpenter or builder in the construction of same. It is a book which should be in every farm home, if you only intend to repair a little, or just build a small chicken coop. It is a good thing to even sit down and read, as the knowledge so gained will be highly valuable in hundreds of other ways.

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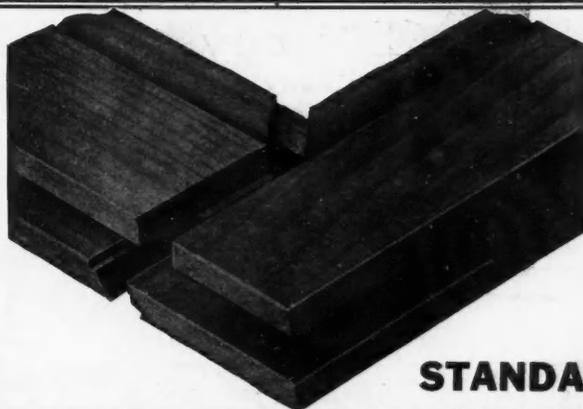
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This Book was Compiled by Mr. Wm. A. Radford, President of "The Radford Architectural Co.," Author of "The Steel Square and Its Uses," and "Practical Carpentry," Editor in Chief of the "Cement World" and the best authority in the country on all matters pertaining to the building industry. Price, postage prepaid.....\$1.00



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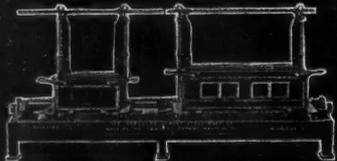
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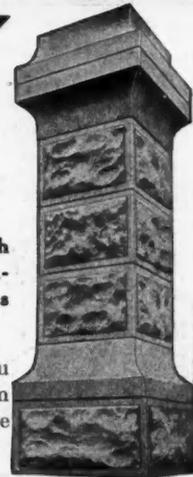
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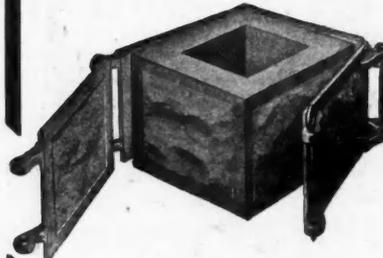
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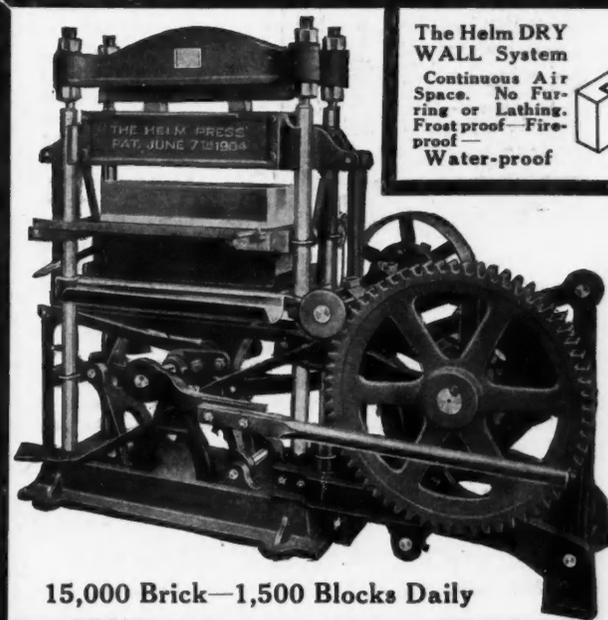
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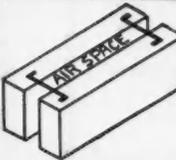
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- U { MAKER OF CEMENT BLOCKS?
- A { CONTRACTOR OR BUILDER?

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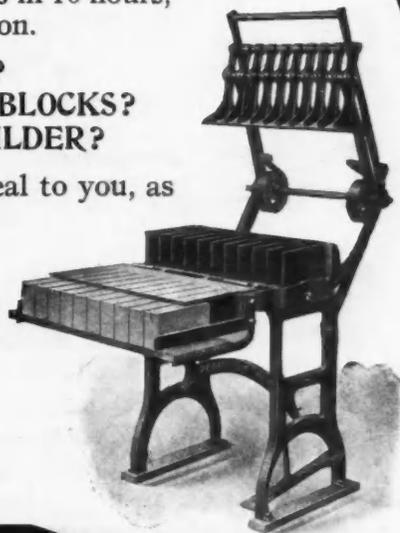
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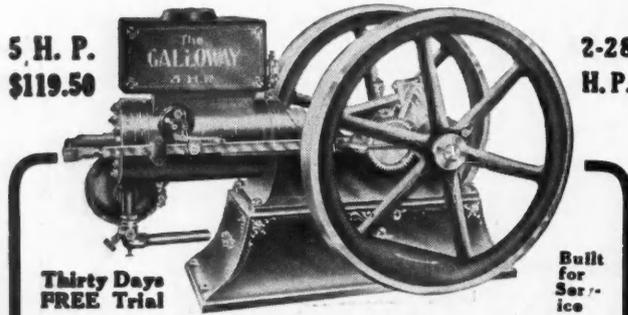
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Price includes our "Queen" Coal Grate with best quality enameled tile for facing and hearth. Gas Grate \$2.50 extra. Mantel is 82 inches high, 7 feet wide. Furnished with round or square

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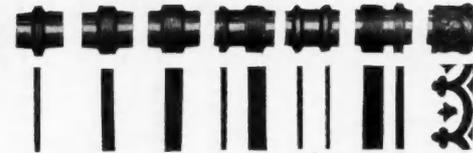
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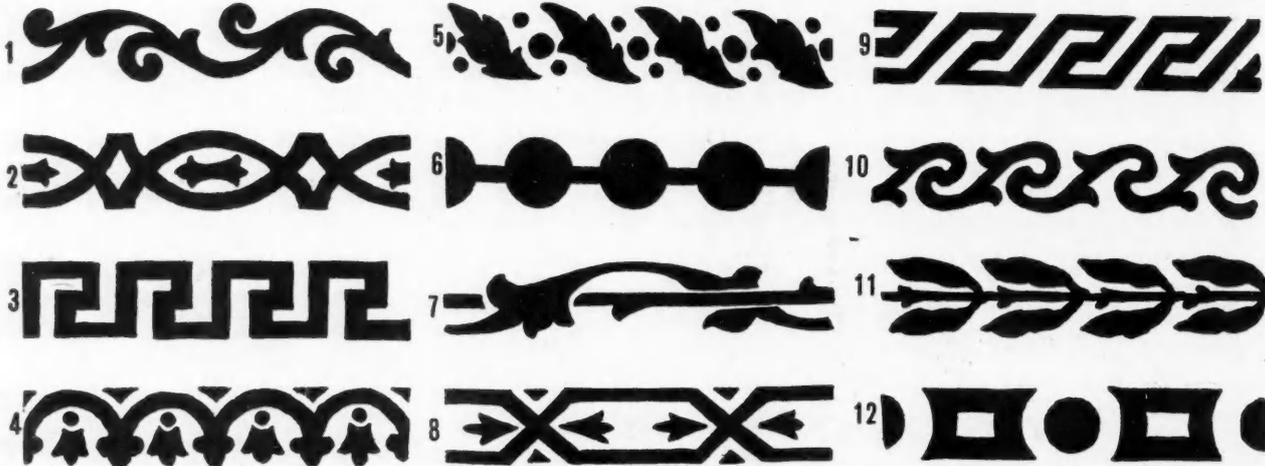


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NOTICE TO ADVERTISERS

New copy, changes and corrections for advertisements must reach office of American Carpenter and Builder, 1537 Jackson Boulevard, Chicago, not later than April 20, in order to insure insertion in May number.

Columbia



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CAMPANARI The Famous Italian Baritone
sings exclusively for the Columbia.

Be sure to hear his two selections from "Nozze di Figaro"
No. 1 (Front) "Se vuol ballare"
A 740 (Back) "Non piu andrai."
10-inch Double-Disc \$1.50

Double-Disc Records

If you haven't heard a Columbia record made during the last few months, you cannot know what the modern graphophone can do. *Your* machine (Columbia or other make) will play Columbia Double-Disc Records—music on *both* sides—one selection on the front, another on the back. 65 cents will bring you a sample and the name of a nearby dealer. Catalog free.

THE COLUMBIA GRAFONOLA

The Columbia Grafonola is the one incomparable musical instrument. Wherever people of refinement congregate, the field of entertainment and utility of the Grafonola "Regent" is practically unlimited—in the living-room, the music-room, the library, and the rooms of clubs and lodges. Catalog free.

Dealers Wanted—exclusive selling rights granted.



The COLUMBIA
Grafonola
Regent" \$200

COLUMBIA PHONOGRAPH COMPANY, GEN'L.
Dept. AZ, Tribune Building, N. Y.
Prices in Canada plus duty. Address Confederation Life Bldg., Toronto.
Creators of the Talking Machine Industry.
Pioneers and Leaders in the Talking Machine Art.
Owners of the Fundamental Patents.
Largest Manufacturers of Talking Machines in the World.



Fine Files for Fine Tooth Saws

Any old file won't sharpen every old saw properly. This is especially true of fine tooth saws. Until lately it was almost impossible to get a file that was small enough to go to the bottom of the tooth and at the same time cut the side to the proper angle. Now almost every dealer carries a stock of

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

—the slimmest taper files made. They go right down to the bottom of the teeth on a fine tooth saw, cutting true and quickly. For any other fine work they are just as suitable.

Like other Keen Kutter tools they are designed and built especially for the work. The teeth are accurately cut by improved machinery on blanks of the best tool steel. Tempering is done by natural gas, which gives them unequalled hardness and toughness. The cutting surfaces are uniform, every tooth being of the same depth. This gives 100% cutting efficiency compared with the 65% of ordinary files.

Compared with the general run of files these slim taper files are very long-lived. Instances are numerous where one file had sharpened 15 or 20 saws, and in one case 35 saws had been sharpened with the same file.

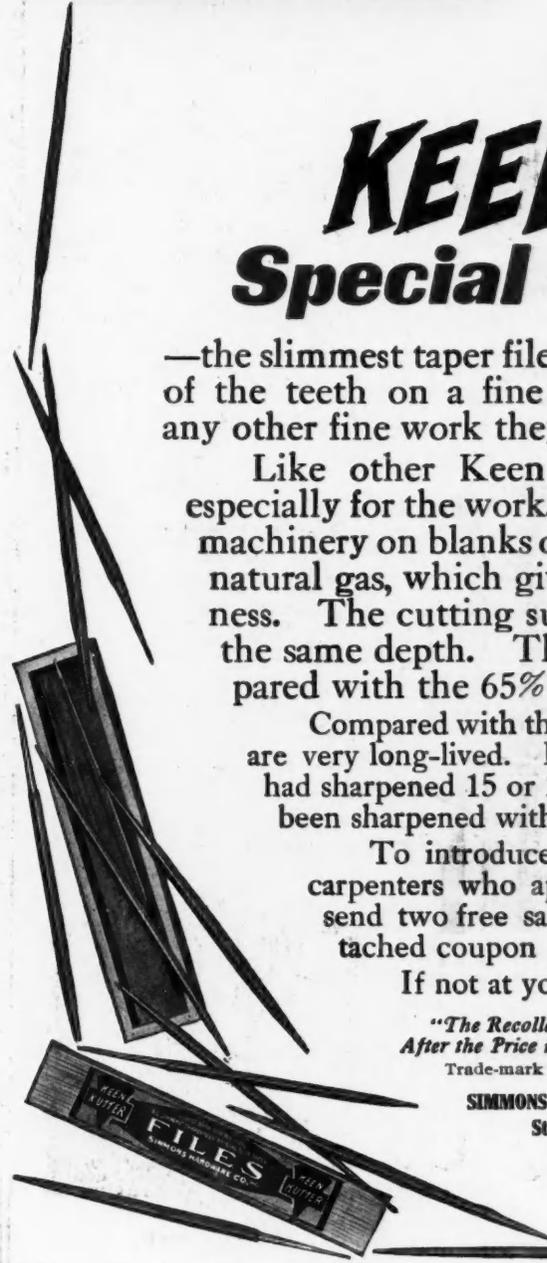
To introduce our special slim taper file to carpenters who appreciate good tools, we will send two free samples on receipt of the attached coupon properly filled out.

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 COMPANY, Inc.
St. Louis and New York
U. S. A.



(Coupon)

SIMMONS
HDW. CO.,
(Div. A. C.)
St. Louis, Mo.

Dear Sirs:

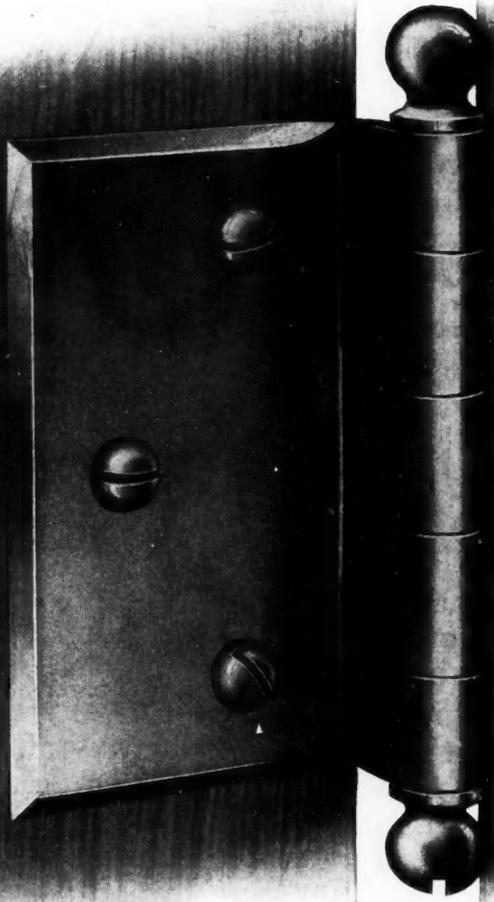
Please send me
FREE, Charges Prepaid, two
E. C. Simmons Special Slim
Taper Files, as per your offer,
with the understanding that I am
under no obligation to buy.

NAME _____

ADDRESS _____

WE INITIATE—NEVER IMITATE

Did You Ever



try to take down a door hung with the old style Butts? Didn't the pin stick and make it necessary for you to use a hammer and chisel. You knocked all the lacquer from the tip and probably the chisel slipped and marred the wood work. Even then, the chances are, the pin failed to move and you lost your patience and said things.

Here's the moral—in the future hang the doors with "NATIONAL" Butts. They have the **threaded tip** which screws into the butt. The tip is also slotted for a screw driver, making it easy to remove the tip and affords ready access to the pin.

The **SLOT** also indicates instantly which is the bottom of the butt. You can tell at a glance how it should be attached. A time-saving feature.

3½ inch 450B Ornamental Butt

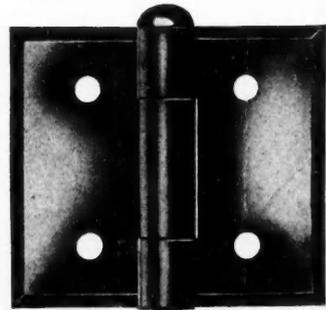
most popular design and can be furnished in sizes from 1½ inches to 4 inches inclusive. These Butts have beveled edges; are highly polished and double plated.

Get our booklet "Ornamental Ideas" which illustrates and describes our full line of these goods, and give us your dealer's name.



Trade Mark

When buying Butts, be sure to look for the flag—it is stamped on all "National" Butts. It stands for **quality**.



Surface Hinge

National Manufacturing Co.

STERLING, ILLINOIS