

# AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER

## LEADING FEATURES THIS MONTH

### *Practical Carpentry*

FRAMING AND FINISH FOR BRICK VENEER  
"BOWLED" FLOORS FOR AUDITORIUM  
STRENGTH OF BEAMS AND POSTS

### *Building Plans and Designs*

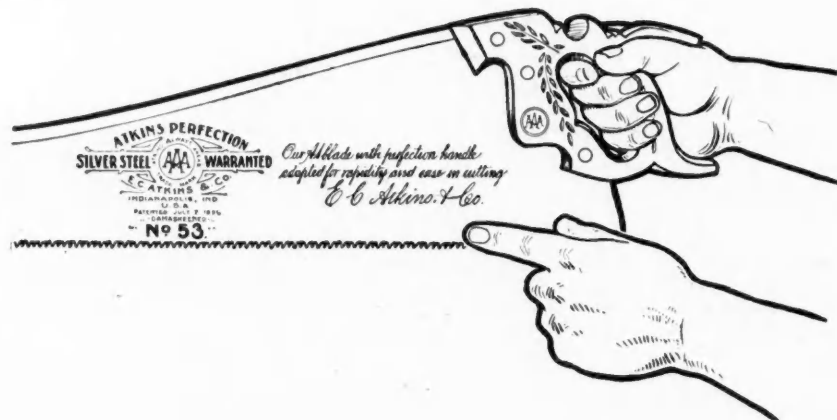
COMPLETE PLANS FOR MODERN RESIDENCE  
PLANS FOR MODEL DAIRY BARN  
TWO GARAGE DESIGNS

### *Of Interest to Builders*

VARNISH AND VARNISH RUBBING  
CONCRETE AND THE CARPENTER  
MODERN STEAM HEATING



140 Pages of Practical Building Helps in This Number



## Now Gentlemen—Fair Warning!

**Don't accept any saw represented as being an Atkins Saw unless it bears our name and trade-mark. The Atkins quality, the Atkins guarantee, and the Atkins trade-mark ALWAYS go together.**

If you let anyone persuade you that you can get the Atkins quality and the Atkins guarantee with any saw that doesn't bear the Atkins trade-mark, you're the loser.

Think a moment.

Every genuine Atkins Saw represents over fifty years of effort to produce the fastest cutting, easiest running, most durable saw on earth.

That saw is our representative, has to make friends for us, has to uphold our reputation, has to advertise our business.

That's why it has to bear our name. And because it does bear our name, it mustn't disgrace that name. It has to *make good*.

If you want to take chances on a saw that doesn't bear the maker's name as evidence of his pride in its quality, that's your affair.

But if you expect Atkins quality in any such saw, you're going to be disappointed.

So remember that the famous old Atkins Saw always—not merely most of the time, but ALWAYS—bears the Atkins name and trade-mark.

### Different and Better

Times have changed. So have saws.

The Atkins Saw represents PROGRESS—the ability to do more and better work, with less effort.

You'll find Atkins Silver Steel the best steel that was ever put into a saw blade. Better steel than is used in most of the high grade razors. Our own secret formula—used exclusively in Atkins Saws for over fifty years.

When gas-tempered by the Atkins secret process, this Silver Steel blade holds its shape better, stays sharp longer, needs less filing, and yet files easier, than any other saw you ever owned.

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

The blade is taper-ground—thinnest at the back and thickest at the tooth-edge. Not merely beveled a little along the back, but *tapers all the way* from the tooth-edge to the back. With almost no set, the teeth cut a path through which the rest of the blade follows without a struggle. No binding! No sticking in the wood!

The easiest running, fastest cutting saw you ever touched!

The Atkins Perfection Handle prevents wrist-crimp—a great improvement over the old muscle-straining handle. But you can have either style of handle you prefer.

**Try an Atkins Under This Strong Guarantee:—**

Go to your dealer and select an Atkins Silver Steel Saw. Take that saw and try it—compare it with the saws you have been using. If the Atkins doesn't prove itself to be the very best saw you ever used, take it back to the dealer and he will refund your money.

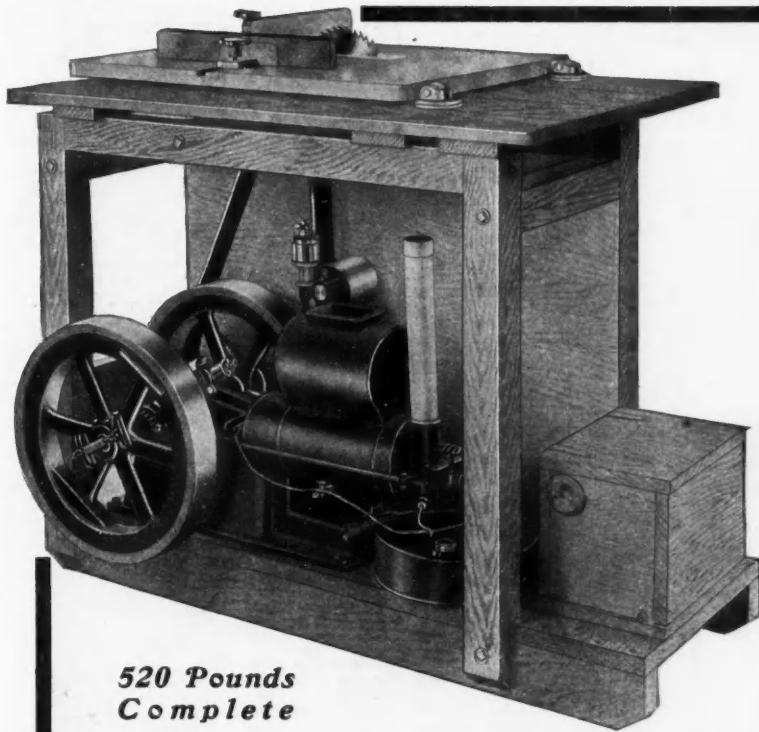
Be sure the blade says "Silver Steel"—that's our best saw.

### FREE—To Carpenters

Write us today (enclosing 10 cents to cover postage) and we'll send you free a good strong nail apron and two mighty useful books—our Carpenter's Time Book and our popular "Saw Sense" which contains a lot of handy information. Address our Carpenter's Department.

**E. C. Atkins & Co., Inc.**  
INDIANAPOLIS, IND.

*Largest Exclusive Saw Manufacturers in the World*



520 Pounds  
Complete

A TURN OF THE  
CRANK

# Saves 4 MEN'S PAY

This Portable  
Saw Rig on the  
job or in the shop  
will pay for itself  
in a short time.

The Three-Horsepower Water Hopper Cooled Engine pulls the 10-inch saw with ease, cutting up to 3-inch lumber.

## It Will Pay You

To Order Quick—Why not Now? All Parts  
From Engine Up Made in Our Factory

## TRENCH PUMP

This Portable Trench Pump is a complete power-driven outfit for use of builders where it is necessary to raise large quantities of water. *Write for Folder*

**Inter-State Equipment &  
Engineering Company**

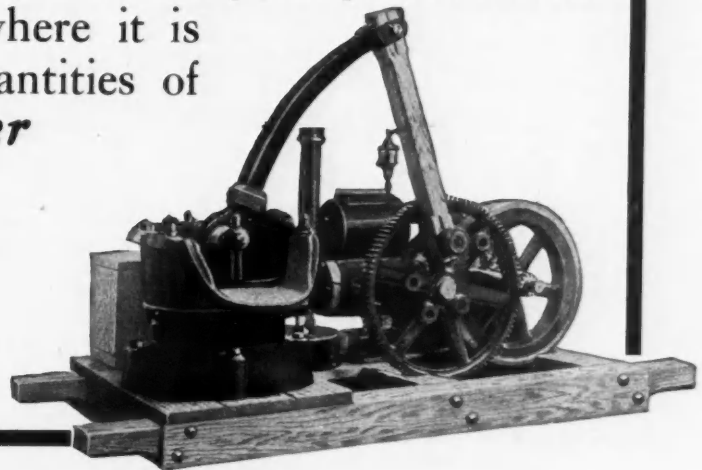
1775 Old Colony Building

CHICAGO

::

::

ILLINOIS



WATER  
FIRE  
AND  
LIGHT  
-NING  
PROOF

# "TITELOCK" METAL SHINGLES

ARE THE "EASIEST AND QUICKEST" SHINGLES TO LAY



VENTILATING  
"TORPEDO"  
SKYLIGHTS






EMBOSSED  
"MILCOR"  
CORNICES

*Invisible Joint*  
**STEEL CEILINGS**  
SEND FOR CATALOG

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

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

## 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 catches 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

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

## The "AUTOMATIC" SASH HOLDER

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

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

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

**Automatic Sash Holder Company**  
277 Broadway, New York City.



## HAVE YOU

our No. 4 Builders hardware catalogue and net price list? If not, why not? **IT'S FREE**—to contractors and material men.

No. 5311 Old Copper Inside Lock—as per cut Per Dozen Sets **\$5.00.**



**REHM HARDWARE CO.**  
1501 Blue Island Ave.  
CHICAGO

## No. 231 Richards Steel Folding Builders Bracket



**SAFE, strong, convenient and durable.** Can be folded compactly without loosening or removing bolts or pins. The picture tells the story. Convenient for handling and requires small storage space. The strongest bracket made and the most easily applied. These brackets costs no more than wood brackets and will last a lifetime. Save their cost on any job requiring two dozen or more brackets. Contractors are enthusiastic about them. Made in two sizes, No. 1, 3 ft. long; No. 2, 4 ft. long. Sold by the Hardware Trade.



**MADE BY**  
**THE RICHARDS MANUFACTURING CO.**  
DOOR HANGERS AND HARDWARE SPECIALTIES  
AURORA, ILLINOIS, U. S. A.  
Our new "Architects' Edition" catalogue just out. Copy mailed on request.



# YOU CAN FEEL IT

If you feel over an undressed piece of wood, with your finger tips, you know it is not smooth, but to feel if a dressed piece is smooth—as smooth as plate glass—you must feel with the palm of the hand flat on it. The sense of touch is much keener there. Almost anyone can make a floor feel smooth to the finger tips rubbing with the grain, but to make it have that whole hand smoothness, that will feel smooth *across* as well as *with* the grain



THE WRONG WAY

THE RIGHT WAY

## THAT CAN BE DONE ONLY

With The

# “Daisy” Floor Scraper

“THE ONE THAT DOES”

It always scrapes with a shearing cut, either *with* or *across* the grain with equal ease and the result is always a whole hand smooth floor,

SMOOTH AS A PIECE OF PLATE GLASS

The “Daisy” Scrape Floors  
is Guaranteed To Please You—To

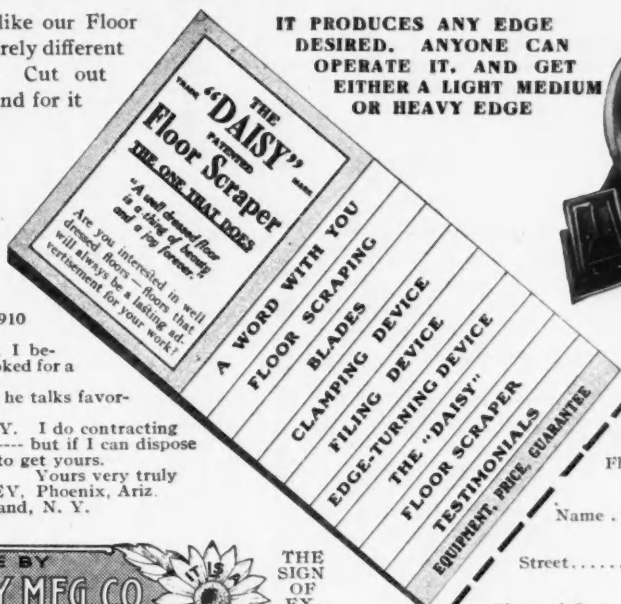
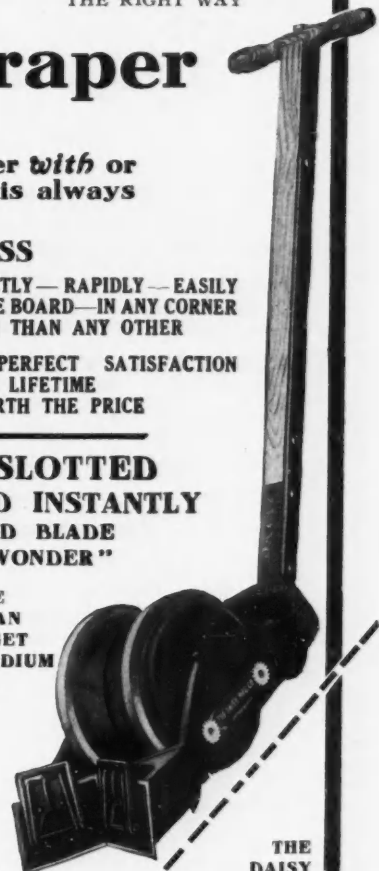
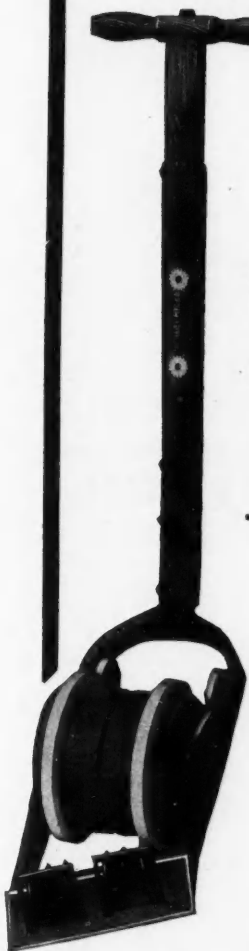
PERFECTLY — RAPIDLY — EASILY  
TO BASE BOARD—IN ANY CORNER  
BETTER THAN ANY OTHER

GIVE PERFECT SATISFACTION  
LAST A LIFETIME  
BE WORTH THE PRICE

“Daisy” BLADES ARE NOT SLOTTED  
CLAMPS ARE ADJUSTED INSTANTLY  
FILING DEVICE INSURES PERFECTLY FILED BLADE  
EDGE-TURNING DEVICE IS OUR “DAISY WONDER”

Our Booklet, like our Floor Scraper, is entirely different from others. Cut out coupon and send for it today.

IT PRODUCES ANY EDGE DESIRED. ANYONE CAN OPERATE IT, AND GET EITHER A LIGHT MEDIUM OR HEAVY EDGE



Phoenix, Ariz. May 9th. 1910  
Daisy Mfg. Co.  
Your scraper is the right principle. I believe, and the price certainly right. I looked for a price of \$75.00 or \$80.00  
I let a contractor here take booklet, he talks favorably of buying.  
I am here for the winter from N. Y. I do contracting there. One year ago, I bought a ----- but if I can dispose of it for about one half price, I'm going to get yours.  
Will return to N. Y. July 1. Yours very truly  
WILL LACEV, Phoenix, Ariz.  
Home address 91 Maple Ave., Cortland, N. Y.

THE DAISY MFG. CO. South Bend, Ind.

Gentlemen:—  
Send me the “Daisy” Floor Scraper Booklet

Name .....

Street.....

City and State.....

Occupation.....





Trade Mark Registered 1910.

## OILED Lion Brand Insulating Sheathing

GUARANTEED WATER, AIR  
AND VERMIN PROOF

36 inches wide, in standard rolls of 22 to 24 lbs. each  
450 to 500 square feet.

**ROSENBERG PAPER CO.**

NOT INC.

MANUFACTURERS, CHICAGO

## Use Oiled Lion Brand

The Latest and the Best Insulating  
Sheathing for Building Purposes

Oiled Lion Brand Insulating Sheathing is guaranteed by us to be absolutely water, air and vermin proof. Use it under all Siding whether Clap-boards or Stucco; use it between all Floors and under all Roofs. Shingles will not rot or Tin will not rust when laid over Oiled Lion Brand Insulating Sheathing. Make your houses Warm and Dry and protect the wood from rotting by using Oiled Lion Brand Insulating Sheathing. It costs no more than the low grades now used.

Oiled Lion Brand Insulating Sheathing will help you to build up a Reputation for Thorough and Satisfactory work. Recommend it and use it.

We will accept orders with check from builders and contractors for 50 rolls or more at 60c per roll, F.O.B. Chicago. Ask for samples, before placing orders, to satisfy yourself of its protective qualities.

## The Fox Will Save You Time Money and Trouble

SENT ON TRIAL

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

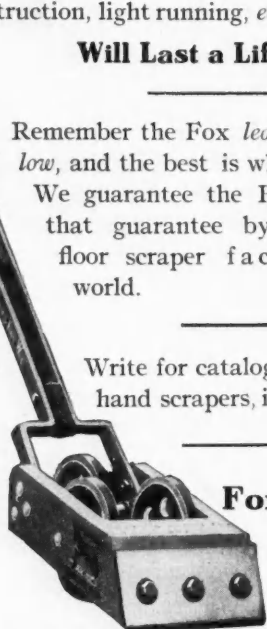
Will Last a Life Time

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.

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

**Fox  
Floor  
Scraper  
No. 1**

A Perfect  
Machine  
for  
Perfect  
Work.



**Fox Mfg. Co.**

Brooklyn,  
Wis.

## ACKERMANN

### Floor Scraper

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

**J. B. Ackermann Co.**

100 Pearl Street  
GRAND RAPIDS,  
MICH.

### Knife Sharpening Device

A new feature is the Ackermann **New Knife Sharpener**—which insures a sharp edge all the time and which works automatically. It means a big saving in time and labor.

The request brings the machine to your shop for you to use **free**.



# Right up to the wall

**ONE MACHINE  
DOES THE WORK OF TWO.**

You don't have to use two machines—or special knives—to do perfect work all over the entire floor. A simple adjustment quickly made drops either end of the blade sufficiently to enable you to scrape right up to the baseboard without marring it. With a Weber you can push as well as you can pull—there isn't a piece of floor anywhere so narrow you can't give it an elegant finish clear up flush with the wall or stair landing. It can be instantly 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-end-socket bearings which absolutely prevent chattering and the leaving of waves in the floor—an improvement exclusively Weber.

## The WEBER DOUBLE ACTING Floor Scraper

is accurately balanced and, on a shearing cut, works straight away—no twisting nor side draft in any way. It can be quickly sharpened to a true edge by means of our special sharpening device—which goes with every machine without removing the knives.

### TRY ONE AT MY RISK.

I will send a machine to any responsible contractor to be put into competition with any other make on the market, and if after a fair trial—you don't think it is the best one you have ever seen, send it back and the trial won't cost you a cent. I mean this. If my scrape doesn't suit you perfectly, I don't want your money—it would not be good business to take it. If every machine I sell were not a standing advertisement, do you suppose my sales would show the enormous increase they do each year? Write today for my catalog, free trial offer, and price list—but don't buy a Floor Scraper until you have seen a Weber in action.

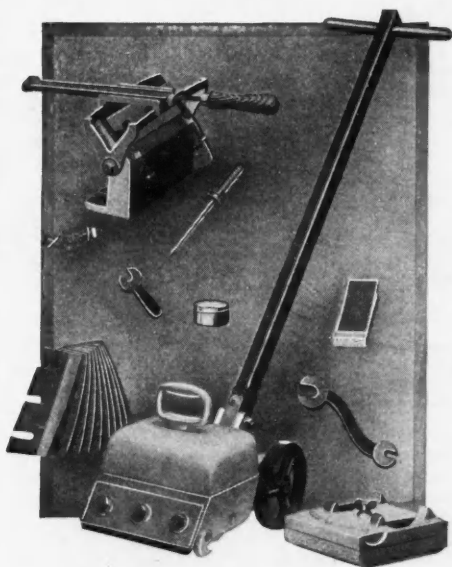
**John F. Weber, Pres., Weber Manufacturing Company**

670 71st AVE., WEST ALLIS, WIS.

**I PAY THE FREIGHT**



## Will You Accept This Free Offer?



Every Carpenter and Contractor is interested in a floor scraper because it does away with the old fashioned back breaking method of scraping a floor, and because it saves him much time and money. The question however is, how is he to know what make to get? The solution is simple—Try before you buy.

I offer to ship to you at my expense the complete **Acme Floor Scraping Outfit** on a **Week's Free Trial**. If it does not prove satisfactory in every respect, simply send it back.

The **Acme Floor Scraping Outfit** is acknowledged by those who know to be the best equipment on the market, because the scraper works automatically, the blade will not butt into the floor; it has a removable weight and also an extra attachable one, and the blade scrapes with a shearing cut. The outfit also includes a blade sharpener (which by the way is the only practical one ever invented) and always assures you of having just the right cutting edge on the blade. There is also a sander attachment for finishing.

I could enumerate many other features, but the best way for you to find out just what the **Acme Floor Scraping Outfit** can do is to accept my free trial offer and give the machine a thorough test.

*Further information and booklet will be sent on request.*

**JOS. MIOTKE,**

**247 Lake Street,**

**Milwaukee, Wis.**

## Only Perfect Floor Surfacing Machine

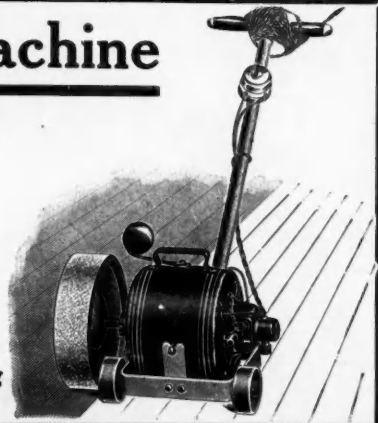
Will do perfect work on any kind of floor, whether even or uneven. Recommended by the best architects and contractors.

### A BOY CAN OPERATE IT.

Sold on absolute guarantee. Price, complete with motor switch and 50 feet electric cord ready to connect with light socket, \$125.00.

Write for further information.

**MARSH COMPANY, 970 Old Colony Building  
CHICAGO, ILL.**



### The Builder Who Knows: vs The Builder Who Guesses

It is easy to tell which wins out. Stop guessing. Learn to estimate safely and rapidly.

The New Sixth Edition of

### THE LIGHTNING ESTIMATOR

shows you how

**SIMPLE RAPID ACCURATE RELIABLE PRACTICAL SYSTEMATIC**

Easily adjusted to any locality. Based on experience not theory. Amply illustrated and bound in CLOTH. This is **Your Opportunity** to get on to the road to Success. Don't let it go by, but send \$1.00 TO-DAY, for a copy of this interesting book.

**BRADT PUB. CO.**

1260 Michigan Ave.

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JACKSON, MICH.

## HESS MEDICINE SANITARY LOCKER

The only modern **Sanitary** Steel Medicine Cabinet or Locker.

Handsome beveled mirror door. Snow white, everlasting enamel, inside and out.

### FOR YOUR BATHROOM

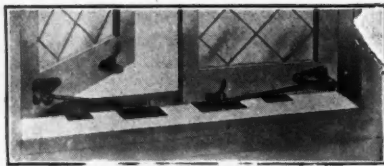
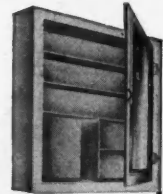
Costs less than wood and is better. Should be in every bathroom.

Is dust, germ and vermin proof and easily cleaned with warm water.

Made in four styles and three sizes. **Price \$7.00 and up.** Send for illustrated circular.

**HESS, 920L, Tacoma Bldg., Chicago**

Makers of the Hess Steel Furnace. Sold on Approval. Free Booklet.



"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. Counter sunk 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 St., Frederick, Md.

### ZIMMERMAN'S "All Steel" SHUTTER FASTENER

and Casement  
Window Adjuster

## 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.



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

## Perfect Results Are Easily Obtained By Using Schlueter Rapid Floor Surfer

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.

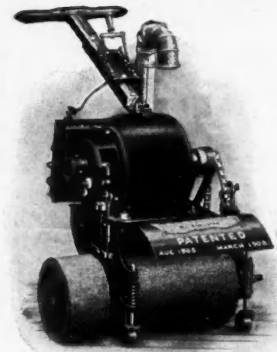
The **Schlueter** will remove all joints or warped edges, and oil, wax, lime stains, or the "muck" from skate wheels, in a most satisfactory manner.

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.



# POWER WITHOUT EXPENSE

The Tireless MOTOR SPRING in the Triple "A" Floor Smoother requires no "Juice" or Gasoline. It's always ready and you can scrape a square in 20 minutes with the Triple "A" Spring Driven Floor Smoother. The work of running an ordinary floor scraper is all in the pull while the forward stroke is idle and non-productive. The TRIPLE "A" MOTOR SPRING stores POWER on the forward stroke which PULLS THE MACHINE on the cutting stroke. It does the work of a power machine at the cost of a hand machine. Scraping floors by the old method is hard work. Make it easy by using the TRIPLE "A" SPRING DRIVEN, (the machine that runs itself).



Weights, handle and knife clamp are adjustable to meet every practical requirement.

The Machine you will eventually buy.

Sent on free trial anywhere.

Recommended by leading architects and guaranteed by us to do perfect work

In EASE of OPERATION, QUALITY and QUANTITY of work, the Triple "A" Spring Driven Floor Smoother HAS NO EQUAL.

Much depends on the quality of steel in the scraper blade. The high grade tempered steel blades furnished with the Triple "A" Spring Driven Floor Smoother are manufactured especially for us and are guaranteed to be the best on the market. These blades when used in the Triple "A" Spring Driven Floor Smoother will scrape any floor, old or new.

The Triple "A" Floor Smoothing outfit is the most complete on the market. It consists of a power driven floor scraper a handy knife-sharpening outfit and an improved up-to-date sandpapering attachment.

**Triple "A" Machine Co.**  
112 S. Clark St. Chicago, U. S. A.

# TRY BEFORE YOU BUY

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

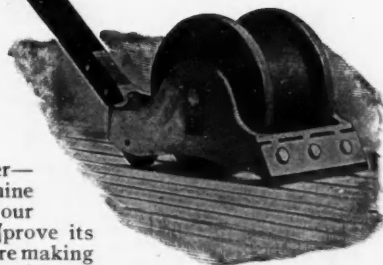
A request from you brings the "Little Giant" Floor Scraper to your door—you send no money and we pay all expenses. After you have given it a fair trial and have tested it as thoroughly as you know how, and have found it satisfactory, pay for it. If you do not think it is the best floor scraper made,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

25,000 "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.



Write us for our Special Price

## Hurley Machine Company

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

## 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.

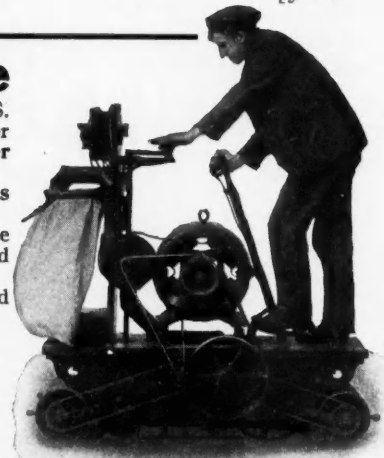
Don't be fooled with an imitation, but get a machine that does work in paying quantities, and can be operated in small rooms.

The only one whose construction is guaranteed and sold on its merits.

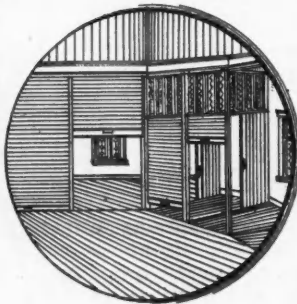
Write for our book "Surfacing Floors as a Business."

Manufactured by

**The American Floor Surfacing Machine Co., Toledo, Ohio.**



## ROLLING PARTITIONS



Use our Rolling Partitions to subdivide rooms.

### Ventilated Wardrobes

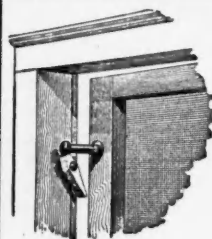
Space-saving and sanitary for modern schools.

### WINDOW BLINDS

of all kinds; also

### ADJUSTABLE SHADES

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



## Silent Screen Door

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

## "Dime"

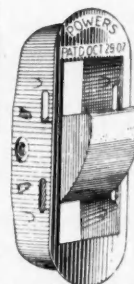
## Screen Door Check

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

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

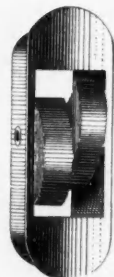
Straight-grained cedar that cuts like cheese; smooth, tough leads that make clean-cut, strong marks—that's the way Dixon's Carpenter Pencils are described. Send 16c for generous sample lot 183 J.

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



## THE LOCK THAT PROTECTS

Just what you have been looking for. Not only locks window, but when desired takes the place of sash weights. No. 1 on upper sash, No. 2 on lower. On balanced windows, use No. 1. Mortised in jamb, just above and below meeting rails. No. 2 uses same case as shown in No. 1.



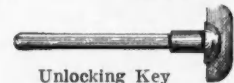
No. 1. Single Cam Lock

Send card to-day for catalogue and prices, giving dealer's name.

No. 2. Double Cam Lock

Powers Burglar-Proof Sash Lock Co.

Hastings, Neb.



Unlocking Key



# 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.**

# "FAMOUS" UNIVERSAL WOODWORKER

## A Complete Machine-Shop in Itself

The "FAMOUS" Woodworker is really **fourteen** woodworkers—each doing a different line of work—combined on one base because of the low cost of purchase, and economy of maintenance.

Carpenters have long waited for this wonderful proposition. At last they can obtain a machine that's a band saw, a planer,—or a dozen other machines—by making a few simple adjustments.

Ordinary everyday business-sense is against buying fourteen expensive machines when one will do the work of fourteen. It's not business economy to waste all that extra floor space. Next to having the "FAMOUS" Universal Woodworker installed in your shop, is sending for catalog. Kindly write for particulars **today**.

### The Friction Reverse Shaper Spindle

in an added feature that puts the "FAMOUS" Universal Woodworker still one further step ahead. Most carpenters need a Shaper Spindle. The reversible shaper attachment on the "FAMOUS" woodworker is a **good** shaper spindle. There is a multitude of work in carpenters' shops requiring such a machine and the wonderful success that has attended this attachment is real evidence of its efficiency.

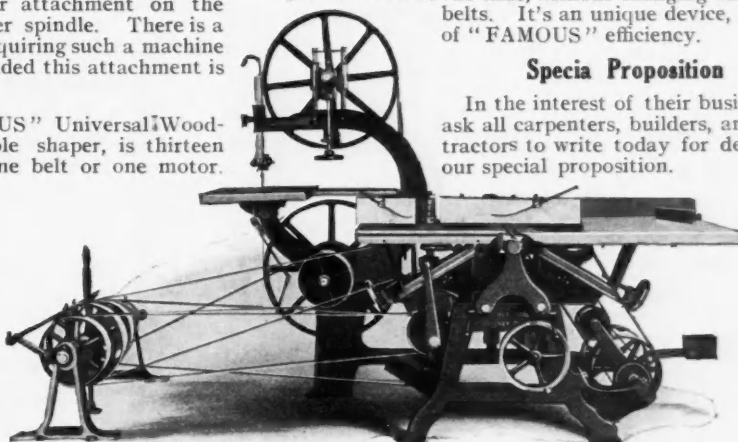
But don't forget that the "FAMOUS" Universal Woodworker, besides being a good reversible shaper, is thirteen other machines besides—all driven by one belt or one motor.

### New Friction Counter-Shaft Setting on Band Saw—

end of machine is arranged with friction so that you can disengage any of the different attachments, or run them all at one time, without changing any of the belts. It's a unique device, typical of "FAMOUS" efficiency.

### Special Proposition

In the interest of their business we ask all carpenters, builders, and contractors to write today for details of our special proposition.



**The Sidney Tool Co.**  
SIDNEY, : : OHIO.

# 14 Machines In ONE

*Every Carpenter Needs One*

## Take No Chances

—USE—

### A CRESCENT Jointer with Safety Head

You run no risk of losing your fingers or a hand when using a Crescent Safety Head.



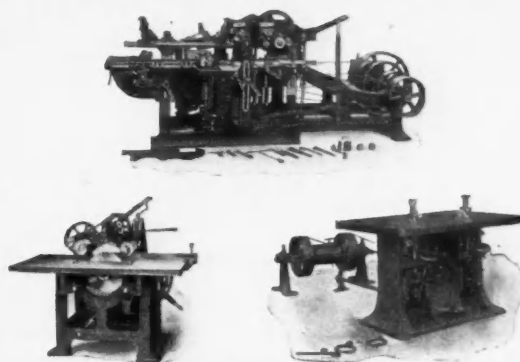
The knives in the Crescent Safety Head are made of high speed steel which hold the edge longer and turn out better finished and more accurate work than can possibly be done on a common jointer with ordinary knives. You can crowd this machine to the limit and the quality of the work will remain the same as if run at the ordinary speed.

### The Price Is Reasonable

Write today for our new 1910 catalog giving complete description of our elegant line of Band Saws, Saw Tables, Jointers, Borers, Shapers, Planers and Matchers, Circular Saws, Swing Cut-Off Saws, Disc Grinders, Variety Woodworkers, etc.

**The Crescent Machine Company**  
224 Main St., Leetonia, Ohio, U. S. A.

## SMITH Machines for Working Wood Are Copied but Never Equalled.



### ATTENTION

To get results—which means success—it is necessary to have modern machines—the kind that save power, shorten time and turn out accurate work.

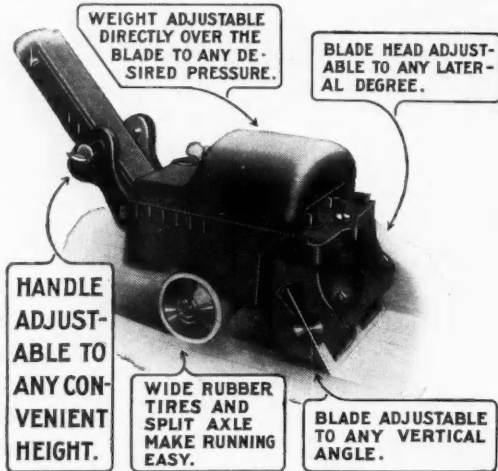
**Smith Machines** are the culmination of more than Sixty-five years experience in the manufacture of **Wood Working Machines** and positively secure these results.

The annexed cuts show only a few of more than 150 different machines which they make for *working wood*. If experience, and the knowledge which they have secured from thousands of machine operators, are worth anything, then they ought to know *what to build and how to make it*. Send for literature relating to **Up-to-date Wood-Working Machines**.

ADDRESS

**H. B. Smith Machine Co., Smithville, N. J., U. S. A.**

New York Chicago Atlanta Memphis



### Do You Want a GOOD Floor Scraper?

Then let me send you

### An Adjustable On Approval—Freight Paid

Compare it with all others, and, if you don't find it easier to operate, do more and better work than any other regardless of price, ship it back to me at my expense.

Don't buy any Floor Scraper until the Adjustable has had a chance to speak for itself.

**H. P. DIDRIKSEN**

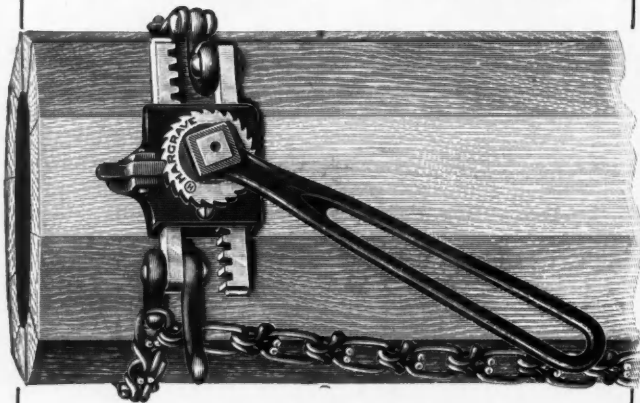
1008 High Street

SOUTH BEND, INDIANA

### Stop! Look! Listen!

**HARGRAVE**

### COLUMN CLAMP



MOST PRACTICAL, QUICKEST ADJUSTED ON THE MARKET

Write for Circular Price \$2.00 each

Department H,

**The Cincinnati Tool Co.**

NORWOOD, CINCINNATI, OHIO

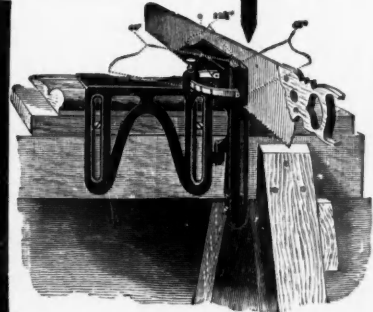
### "SEAVEY" MITRE BOX

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.



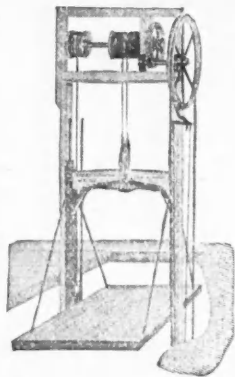
Portable—Can be carried in the Tool Kit

Weighs 2

**SMITH & HEMENWAY CO.**

108 Duane St. New York City

Pounds



PERFECTION

### ELEVATORS

The Best Value for the Money in the World

Mechanically Correct

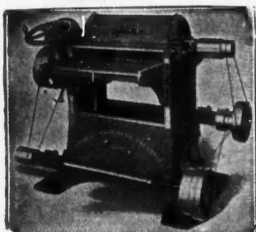
Dumb Waiters, Carriage and Store Elevators, Sidewalk Hoists, Etc., Etc.

Our Elevators are noted for their EASY RUNNING and SERVICEABLE QUALITIES. They are practically self-contained, and can be erected by any carpenter in a few hours. We furnish plans for erecting.

**The Low Cost Will Surprise You**

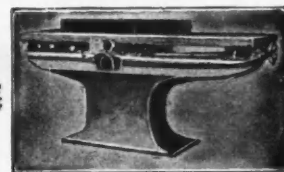
State your requirements, giving capacity, size of platform and number of feet to travel and we will name our lowest money saving estimate.

**SIDNEY ELEVATOR MFG. COMPANY, SIDNEY, OHIO**



Chicago No. 35 Pony Planer

# Machines for Contractors



Chicago Hand Jointer  
8, 12 and 16 in.

## 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.

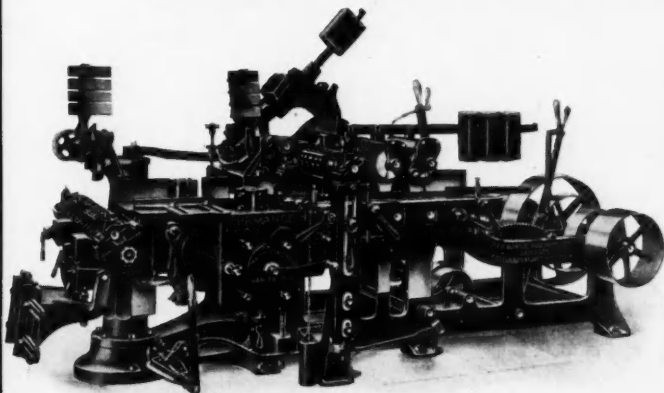
## Money Saving Machinery

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.

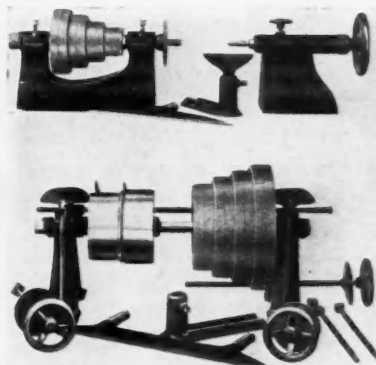
**Prices are Favorable** Our line is the most complete in the country and our prices are most favorable. All our machinery is of special construction to secure fine finished surfaces and reduce sand-papering to the minimum.

**Send for Lists and Circulars** Our monthly list (free to contractors) shows just the machines you ought to have. Write today.

**Chicago Machinery Exchange, 159-161 North Canal Street Chicago**



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



Wood Turning Lathe and Countershaft  
16 and 20 inch



Chicago No. 7 Improved Swing Saw

# "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.

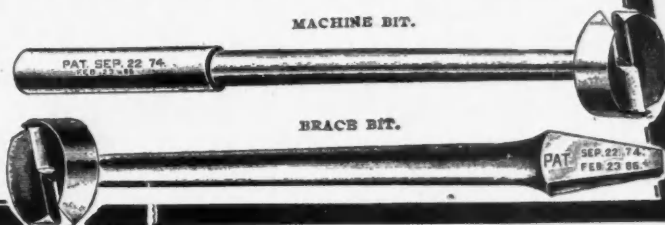
## Unequaled for Delicate Work

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.

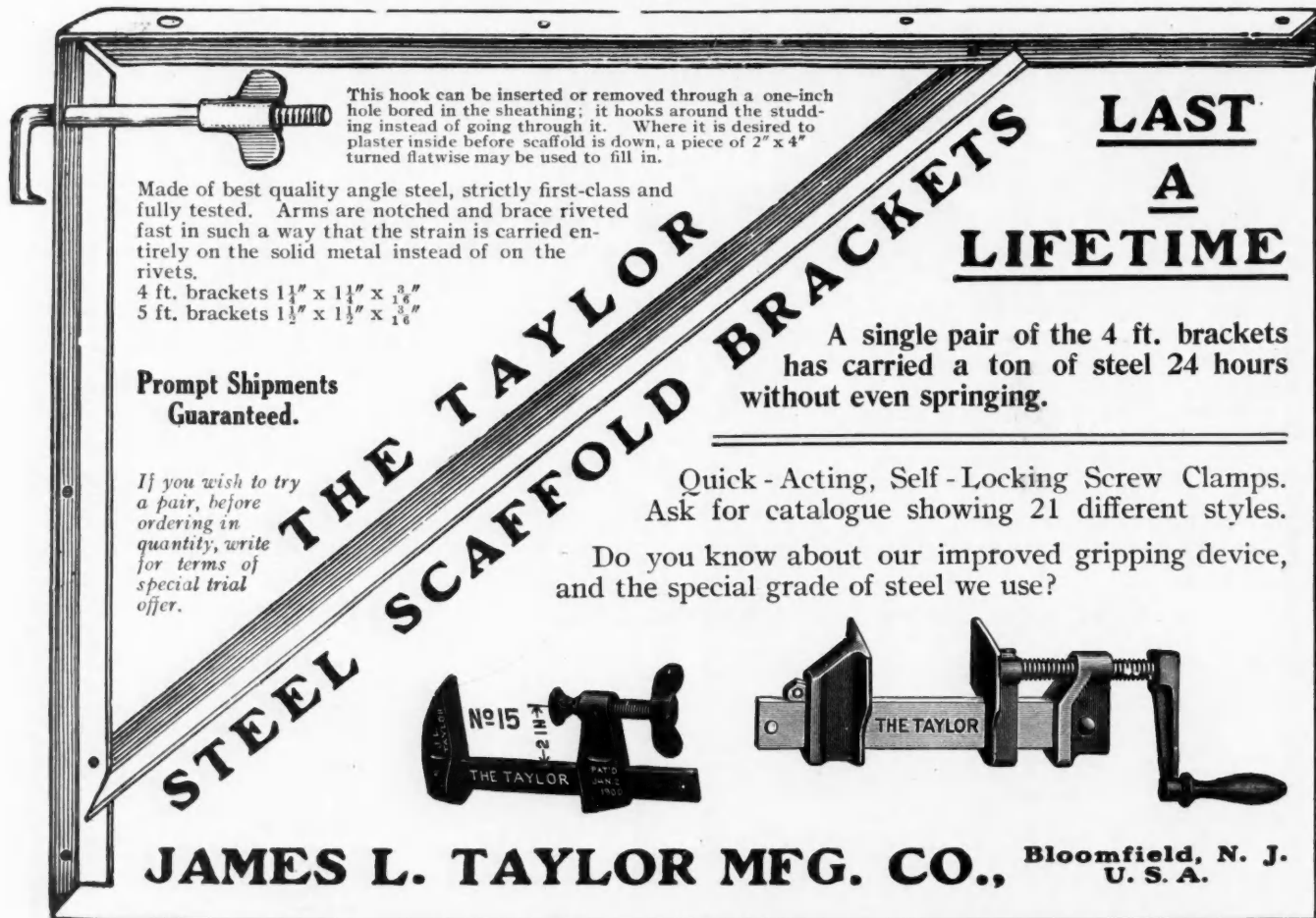
**The Progressive Mfg. Co.**

Torrington, Conn.



MACHINE BIT.

BRACE BIT.



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

Made of best quality angle steel, strictly first-class and fully tested. Arms are notched and brace riveted fast in such a way that the strain is carried entirely on the solid metal instead of on the rivets.

4 ft. brackets  $1\frac{1}{4}" \times 1\frac{1}{4}" \times \frac{3}{8}"$   
 5 ft. brackets  $1\frac{1}{2}" \times 1\frac{1}{2}" \times \frac{3}{8}"$

**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 of the 4 ft. brackets has carried a ton of steel 24 hours without even springing.

Quick - Acting, Self - Locking Screw Clamps. Ask for catalogue showing 21 different styles.

Do you know about our improved gripping device, and the special grade of steel we use?



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

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



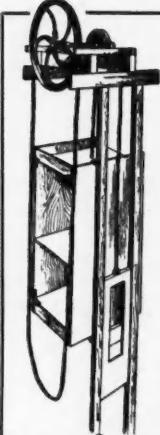
Can be used on any Circular Saw Mandrel.

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

Showing Arrangement of Cutters.

Try our Scraper Blades and you will use no others.

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



**This DUMB WAITER**  
 complete ready to erect for - **\$18.50**

**SELF RETAINING MACHINE**  
**HARDWOOD CAR**  
**SECTIONAL WEIGHT**  
**ROPE, GUIDES, HARDWARE,**  
 knocked down and shipped with the only complete directions for erecting ever issued

**SEND FOR SPECIAL PAMPHLET**

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

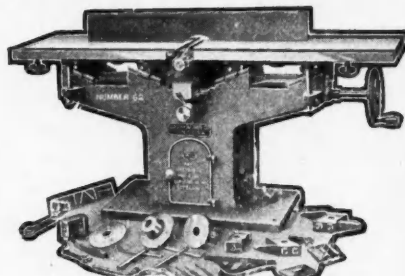
**A WHOLE WOOD-SHOP IN ITSELF**

**Are You Looking For a Machine That Will**

Plane out of wind; surface straight or tapering; rabbet door frames; rabbet and face inside blinds; joint; bevel; gain; chamfer; plow; make glue joints; square up bed posts, table legs and newels; raise panels, either square, bevel or ogee; stick beads; work circular mouldings; rip; cross-cut; tenon; bore; rout; rabbet; joint and bead window blinds; work edge mouldings, etc? If so, write for illustrated circular Sheet No. 1-G. It shows two large half-tone photographs and contains full description of our No. 62 Universal Woodworker, together with a number of illustrations of the work done on this machine.

**WRITE TODAY.**

**J. A. FAY & EGAN CO.,**  
 545-565 West Front Street CINCINNATI, OHIO



No. 62 Universal Woodworker.

# "DEFIANCE" WOOD-WORKING MACHINERY

For Making:

**AUTOMOBILE SPOKES, RIMS, WHEELS, and BODIES.** Carriage and Wagon Hubs, Spokes, Rims and Wheels, Wagons, Carriages, Shafts, Poles, Neckyokes, Singletrees, Hoops, Handles, Spools, Bobbins, Insulator Pins, Balusters, Table Legs, Oval Wood Dishes and for GENERAL WOODWORK.

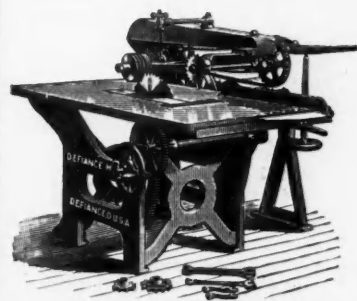
Invented and Built By

**The Defiance Machine Works**  
Defiance, Ohio

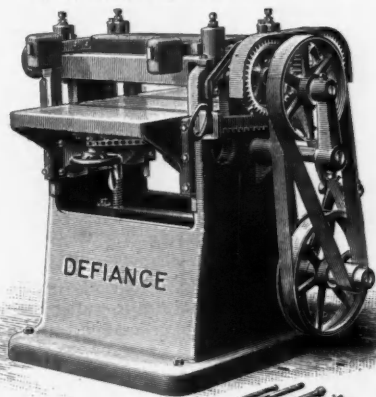


No. 1 Swing Saw

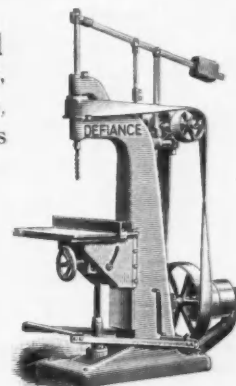
SEND FOR CATALOG



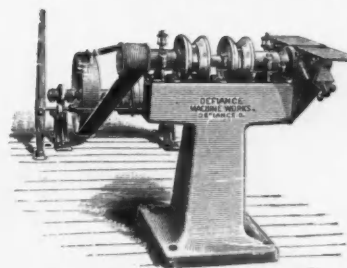
No. 3 Power Feed Rip Saw



24" Single Surface Planer



No. 6 Vertical Borer

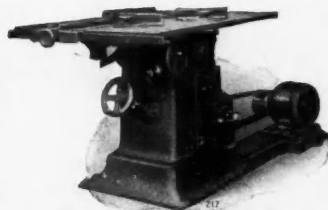


No. 0 Rounding, Chamfering and Cornering Machine

## ROTH MOTORS

Save 30 to 50 %

When operating individually, as compared with group drive.



N. Y. Office 136 Liberty Street

Ask ROTH For Information

**ROTH BROS. & CO.**

1422 W. Adams St.  
CHICAGO, ILL.

## PARKS' COMBINATION WOODWORKING MACHINES

Make a Complete and Economical Operating Mill for Carpenters and Contractors Take our No. 410 for instance—here is a Combination of Three Machines in One—



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

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

Prices and Catalogue on Request.

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

Originators of the Circular Saw, Band Saw and Jointer Combination, also Foot and Hand Power Machines.  
BOURNIVAL & CO., St. Barnabe, P. Q., Agents Canada

## Read what the State Superintendent of Construction of Minnesota says about the A B C 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 A B C 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 A B C was well taken.

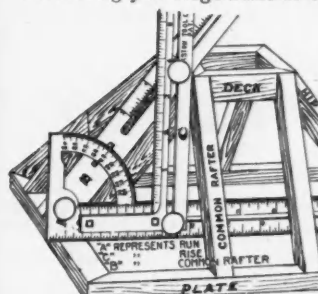
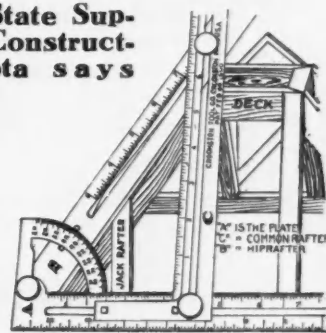
Predicting you large sales of the tool as soon as its usefulness becomes known to the progressive mechanic,

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

Do not try to work without the A B C Protractor Square.

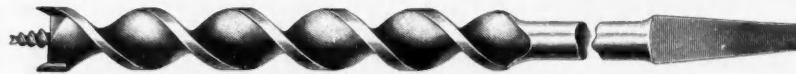
Price \$3.00

**Crookston Tool Co.**  
Crookston, Minn.



# 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.

$\frac{3}{8}$	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
\$0.28	.28	.28	.28	.32	.34	.38	.42	.50	.50	.55	.55	.62	.62	.73	.73	.85	.85

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

## CARPENTERS KNOW

that the best Bit is the

## "RUSSELL JENNINGS"



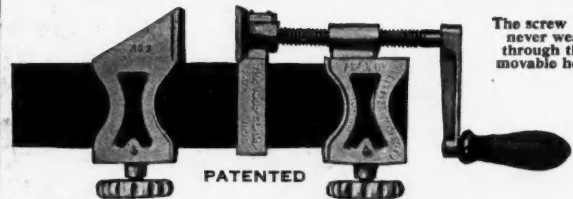
Made from Selected Crucible Steel  
 Made by men of long bit making experience  
 Put up in attractive boxes and rolls  
 The best obtainable

Ask for new Catalog No. 30

**Russell Jennings Mfg. Co.**

CHESTER, CONN., U. S. A. 21-17

## The TODD Clamp Will Save You Money

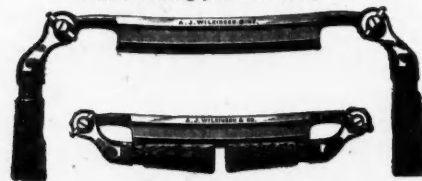


Quick adjustment. No steel bars to spring. Clamping range unlimited. No notches to weaken the bar. Heads always square with the work. Send for circular giving full description.

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

## FOLDING HANDLE DRAW KNIFE.

Have you seen the Folding Draw Knife?  
 It's the Draw Knife that will draw;  
 It will quickly draw attention;  
 Slickest thing you ever saw.



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.

## 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.**



# The GRIMM WOODWORKER

PORTABLE

- NINE MACHINES IN ONE**
- 8" or 10" Rip Saw
  - 8" or 10" Cross Cut Saw
  - 6" Dado Head
  - 4" Jointer
  - 10" Sander
  - Moulder, 8 prs. Knives
  - Jig Saw, 3 Blades
  - Boring Machine, 3 Bits
  - 2 Emery Wheels



**IN THE SHOP OR ON THE JOB**

Complete Power Plant and Mill—Always Ready for Use with one Turn of Fly Wheel 4 h. p., 4 cycle, air cooled Gasoline Engine "built in" does the work

Uniform speed under all loads  
 Cost of operation less than 3 cents per hour  
 Does the work of five men

All, or your choice of attachments furnished! Every machine carefully tested before leaving factory

Ready to start as soon as uncrated

**Type A**  
 Ready to Rip, Size, Joint or Straighten

Weight, 350 lbs. Height, 33". Table Top, 29"x38". Angle Iron Legs. Oak Girders.

You will be able to figure lower on your contracts after you have purchased a Grimm Woodworker. The building season is on. Your order should be with us **Now**. Our six months' guarantee against imperfection in material and workmanship goes with every machine; and your order is subject to your rejection of machine if it doesn't prove satisfactory after a seven days' trial.

Write today for our attractive Booklet and Prices

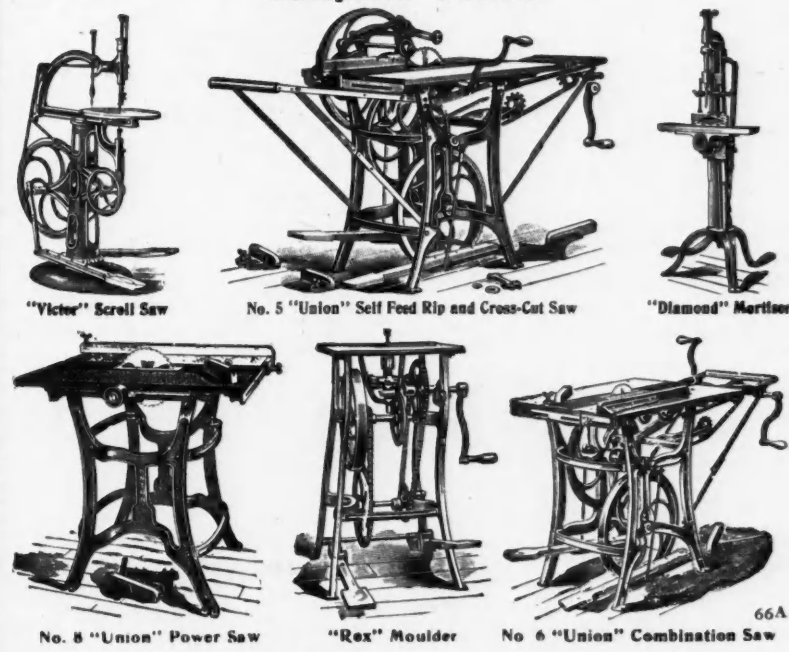
Manufactured by  
**GRIMM MFG. CO.**  
 Buffalo, N. Y.

**LITTLEFIELD & CLARK**  
 General Sales Agents

46 Erie, St.  
**BUFFALO, N. Y.**

## FOOT, HAND and POWER Wood-Working Machinery

FOR WORKING WOOD IN ANY MANNER  
 Complete Outfits



"Victor" Scroll Saw

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

"Diamond" Mortiser

No. 8 "Union" Power Saw

"Rex" Moulder

No. 6 "Union" Combination Saw

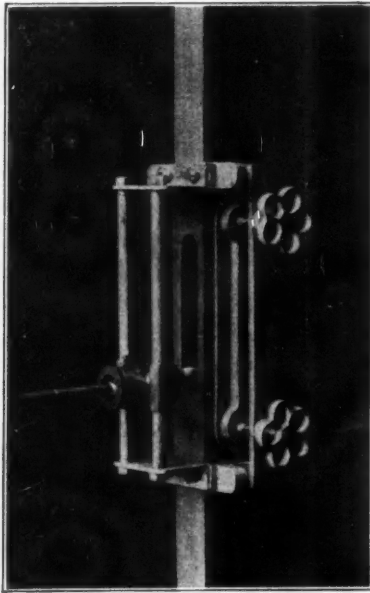
Carpenters, builders, cabinet-makers and wood-workers generally can successfully compete with the large shops by using our labor saving machinery. With any one of our machines one man will do the work of four to six men using hand tools.

They are built for hard work, accurate work and long service.

Each machine is carefully tested before leaving factory. We guarantee them to give entire satisfaction, and they may be returned at our expense, if, after ten days' trial you prefer your money back.

Ask for Catalog "A"

THE  
**Seneca Falls Mfg. Co.,**  
 218 Water Street  
 SENECA FALLS, N. Y., U. S. A.



# FREE 10 LOCK MORTISERS

**A BIG SPECIAL OFFER TO PROVE TO ALL PROGRESSIVE, PRACTICAL MECHANICS JUST WHAT THE NICHOLLS LOCK MORTISER WILL DO.**

We want every Contractor, Carpenter or Builder who appreciate good time-saving tools to have an opportunity to test our Lock Mortiser and discover the merits embodied in same. All you have to do is to deposit \$4.50 as an evidence of good faith, we will then ship you a mortiser prepaid, you are to test and try our machine in every way. Find out how many uses it can be put to. Then write and tell us your experience. To the five best testimonials, the ones giving the best arguments in favor of our mortiser and its good qualities, we will refund the \$4.50, thereby giving them a first class tool absolutely **FREE**. We want to get the actual experiences of all practical mechanics to be used for advertising purposes. No names mentioned without consent of writers.

**REMEMBER**—We will refund the money paid us for any and all mortisers sent out should the same not be perfectly satisfactory—all that we claim—and just what the mechanic desires. All you have to do is to return the mortiser at our expense and we will promptly refund your money.

You have the opportunity of trying one of our machines with a chance of getting it absolutely free of cost, and you run no risks whatever. We know that after once seeing and using our machine you would not be without it for ten times the price.

**THIS OFFER IS GOOD FOR 30 DAYS ONLY**

**GET IN LINE NOW**

**MONEY REFUNDED IF MORTISER IS NOT SATISFACTORY**

ADDRESS ALL ORDERS TO

**SAX-NICHOLLS-COHN CO. (Incorporated) FAIRFIELD, IOWA**  
Sole Manufacturers



**Do  
You  
Use  
Your**

Strong right arm in mortising window frames for the sash pulleys? Just consider boring  $1\frac{3}{8}$ -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 SAMPLE**

Say what pulleys you are using and how many you buy

**Grand Rapids Hardware Co.**

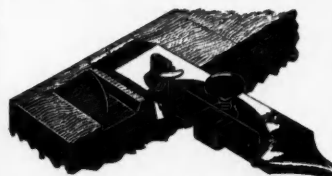
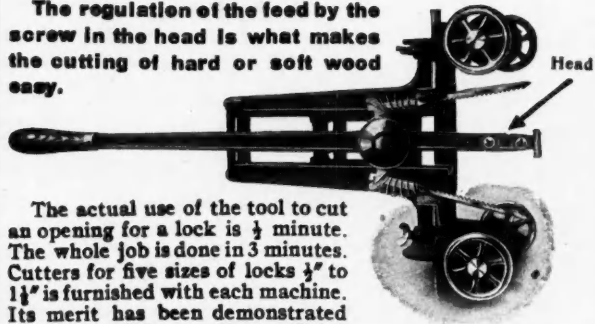
36 Pearl Street  
GRAND RAPIDS, MICH.

## Miller's Lock Mortiser

**IS SCIENTIFIC**

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

The actual use of the tool to cut an opening for a lock is  $\frac{1}{2}$  minute. The whole job is done in 3 minutes. Cutters for five sizes of locks  $\frac{3}{4}$ " to  $1\frac{1}{2}$ " is furnished with each machine. Its merit has been demonstrated thousands of times. *Sent on Trial.*



### Butt Mortiser

Cuts the seats for butt hinges in doors, jambs and other work. It does the work in one-third the time and makes a neat, clean, accurate job. Price, including rule gauge, 75 cents.

**A. W. Miller Mfg. Co.**

Western Office:  
RIVERSIDE, CALIF.

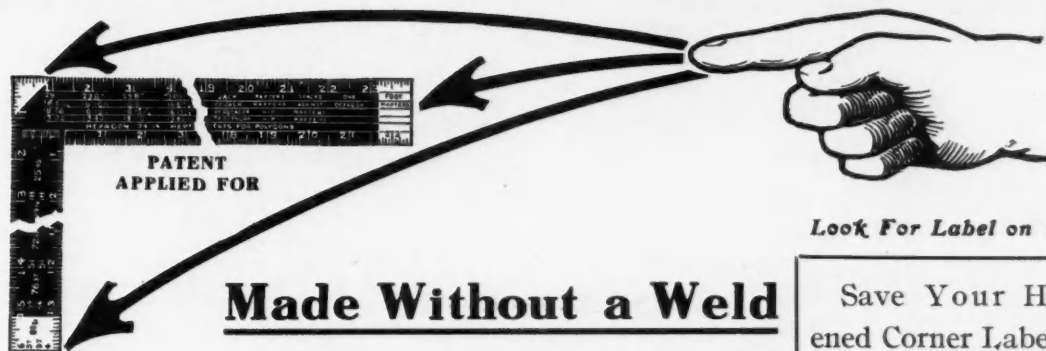
Main Office:  
CINCINNATI, OHIO.

# HARDENED CORNERED SQUARES

*Manufactured by a Secret Process*

If you buy our Framing Squares or our No. 100, No. 1, No. 2, and No. 3 Standard, you get a Hardened-Corner Square, one that will not wear round, but if you buy any other make you get a Soft-Cornered Square.

**Which Will You Take? No Extra Charge for Hardened Corners.**



*Look For Label on Wrapper*

**Made Without a Weld**

Save Your Hardened Corner Label and Watch this "Ad" in next Month Issue for Special Offer.

## Our True Mortise Guide

You can bore a hole and at the same time watch Halley's Comet. The hole will be perfectly true.

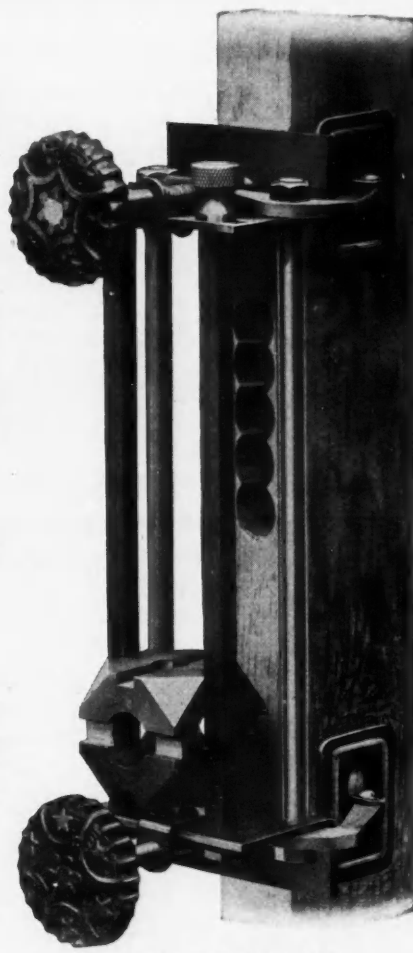
The kind of wood has no effect on bit. One size only.

No. 20, Satin Nickel Finish  
**PRICE \$3.25 DELIVERED**

## Guide Block

for 1/2, 3/4, and 1 1/8 auger, or we will furnish extra blocks for any size auger up to 1 5/8.

No Adjusting  
to Get Center of Door.  
It Always Comes Central



PATENT APPLIED FOR

It will mortise anything from 3/4 to 2 3/4 inches thick.

**It Weighs 3 1/4 Pounds**

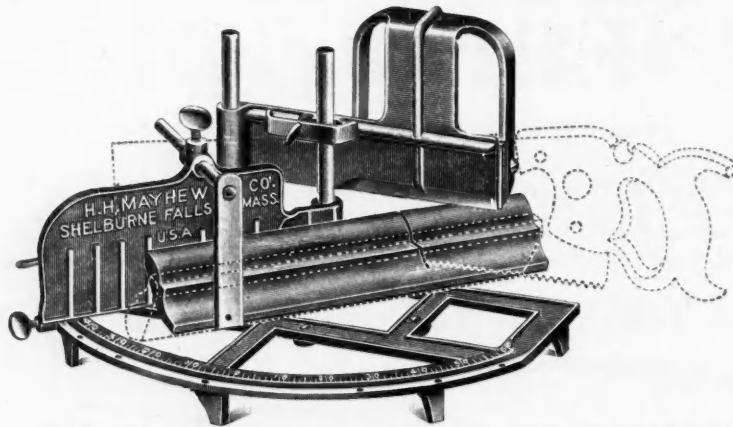
and is always ready for instant use. Our Trade-Mark speaks for itself.



**OUR HOBBY**

**Nicholls Mfg. Co.**  
Ottumwa, Iowa  
*Sole Manufacturers*

# MAYHEW 60° MITRE BOX



This box embodies more distinctive features than any other made.

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

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

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

Saw guide adjustable for any thickness of saw.

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

In mitering duplicate cuts there is no restriction on length.

Will cut compound mitre.

Parts take down into space 10x10x4 inches.

Weight 15 lbs. complete.

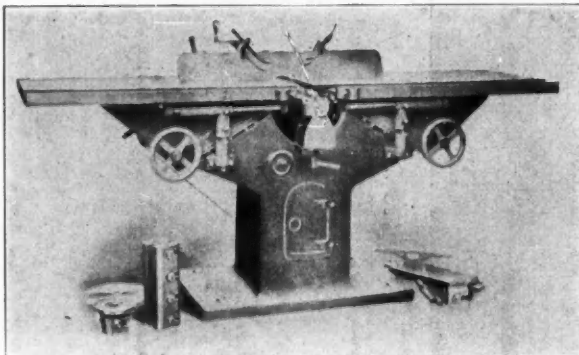
Box contains full directions for use

PRICE EACH, \$10.00

**H. H. MAYHEW COMPANY, SHELBURNE FALLS, MASS.**

## Universal Wood-Worker

Planes, Joints, makes moulding, Rips, Cross-cuts, Gains, Dadoes, Rabbets, Tenons, Raises Panels, Bores, Mortises, in fact its range in general work is unlimited



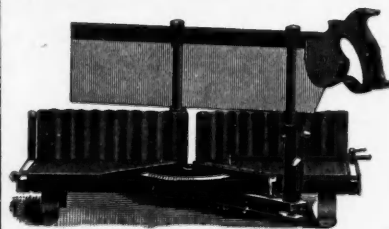
It is a machine every shop of any importance should have. It is ten years ahead of any other wood-worker on the market. Write for photographs, circulars, prices, etc.

**The Cordesman-Rechtin Co.**

Cincinnati, 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.**

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,

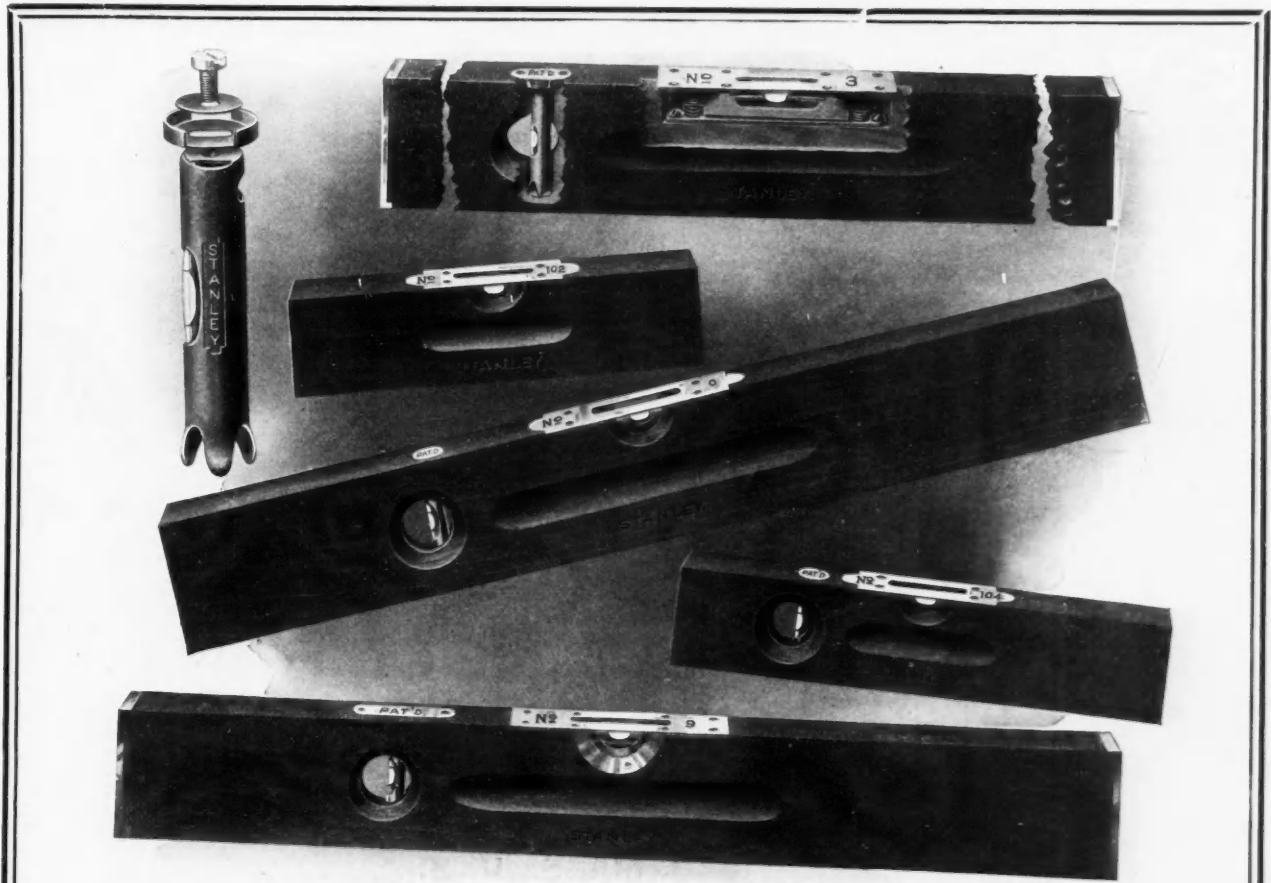
Highest in price.  
Highest in quality.  
Easiest to work.  
Quickest to set.



and the trial will not cost you a nickel. During June, 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.

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. June 1, 1910.

**GAGE TOOL CO., Vineland, N. J.**



Copyright, 1909, by the Stanley Rule and Level Company

**Stanley Tools** STANLEY Plumbs and Levels both adjustable and non-adjustable are made of thoroughly seasoned and selected stock and have many special features which appeal to the workman; among them are:

**A new form of adjustment for both plumb and level.** Glasses carefully proved with the central position of the bubble plainly indicated by two indelible lines, and so located that the bubble may be readily seen from either side or from below in overhead work. **"HAND-Y"** grip on the side making it easier to handle or carry—and general heavy trim and fine finish.

**Made in all styles and sizes for CARPENTERS, MASONS, PLUMBERS, MACHINISTS, MILLWRIGHTS, ETC.**

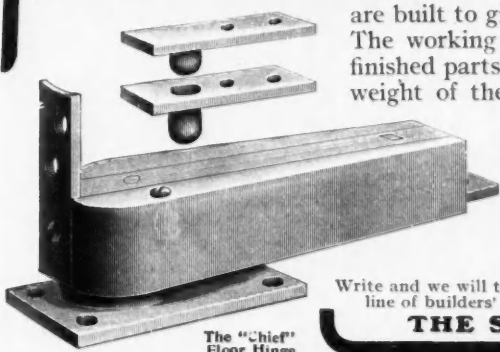
The name STANLEY appears on every tool we manufacture and is a guarantee that for quality of workmanship and material they are UNSURPASSED.



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



### The Shelby Double-Acting Ball-Bearing Spring Hinges



The "Chief" Floor Hinge

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 the 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**

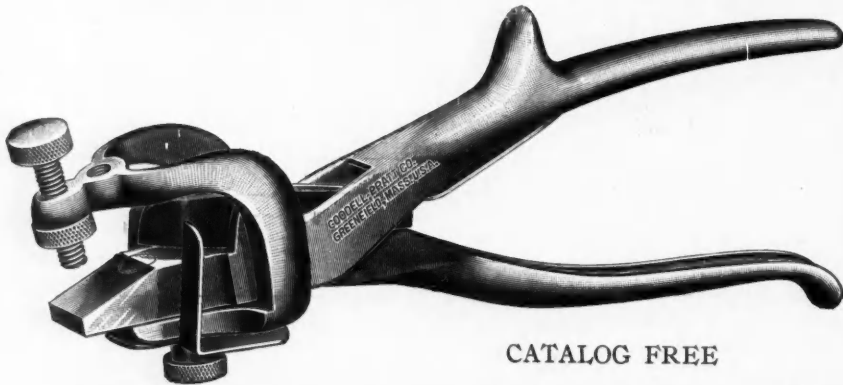


Spring Butts

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

# SATISFACTION

THAT'S WHAT YOU WANT TO GET



CATALOG FREE

**GOODELL-PRATT COMPANY**

*Toolsmiths*

**GREENFIELD, MASS., U. S. A.**

When you buy tools you want those that will do your work and do it right. It is well worth while for you to insist that your dealer supply you with tools that will.

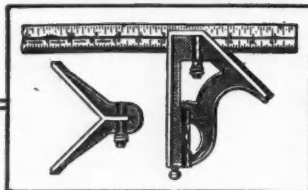
Ask for GOODELL-PRATT'S and see that you get it.

GOODELL - PRATT'S designs and workmanship always give satisfaction.

# 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

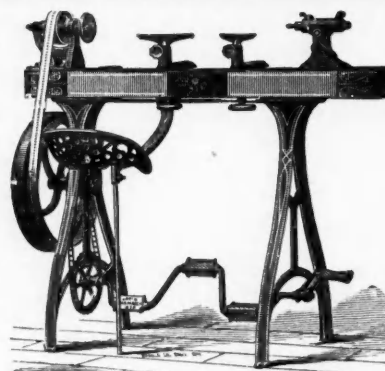


STARRETT

**COMBINATION SQUARE**

THE ORIGINAL : THE MUCH IMITATED  
Send for free Catalogue No. 186, of Fine Tools for all kinds of mechanics.

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



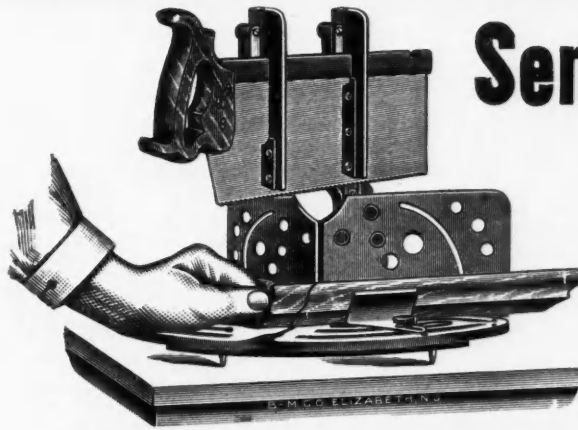
**COMPLETE OUTFIT**

Hand and Foot-Power MACHINERY

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

Write for Particulars

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



# Sent on 10 Days Trial

The Famous Dorn Revolving Miter Box. Will saw compound as well as plain miters any width with a back saw 4 inches wide.



Compound Miter

Send for Booklet Called "Tools That Last"

### OUR "CHISEL" GUARANTEE

We guarantee that our chisels will hold their edge all day with one sharpening, even if used on quartered oak across the grain.

Chisels look simple, but there is no tool of which such hard work and varied service is required. Recognizing this we have given the choice of the steel, regardless of cost, and the design of these chisels, the most extensive study and experimentation, and in their manufacture the greatest care and highest order of skill is employed.

### SPECIAL OFFER

To further increase the number of carpenters who insist on having B. M. Co. Chisels we will sell direct to readers of the American Carpenter and Builder, express prepaid any chisel or set of chisels with privilege of returning after ten days trial if they do not prove to be the BEST EVER USED.



BEVELED EDGE BUTT CHISEL



SOCKET BUTT CHISEL

**BRAUNSDORF-MUELLER CO., - Elizabeth, N. J.**



### The Carpenters Ever Ready DOOR CLAMP

Durable, Efficient and Inexpensive

Saves cost in time and labor on one job. Holds doors firmly on edge while hinges, lock and other attachments are being fitted.

Adjustable to any width of door. Clamping faces padded to prevent injury

**SATISFACTION GUARANTEED  
OR MONEY REFUNDED**

— Write for Free Trial Offer —

Price so low you can't afford to be without one.

**WILLSHIRE CLAMP CO.**  
WILLSHIRE, OHIO

### 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.

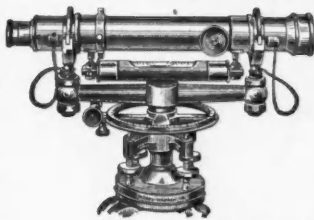
Manufactured by

**SASGEN BROS.,**  
2053-2057 Racine Ave.  
CHICAGO, ILL.

New York Office: 103 Park Ave., N. Y.

### "Sterling" Convertible Level

Two Instruments in One



The only perfect Builders' Level made that can be converted into an Instrument for Vertical Sighting.

Price complete \$65.00

Send for 1910 Complete Catalogue.

Sole Manufacturers

**Iszard-Warren Co., Inc.**

136 N. 12th St.

PHILADELPHIA, U. S. A.

**LUFKIN**

Tapes & Rules

are Standards of Accuracy, Durability and Workmanship.

SEND FOR CATALOG

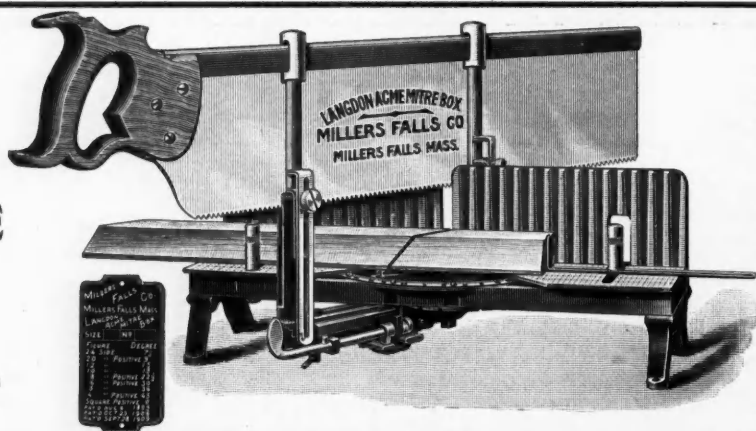
**THE LUFKIN RULE CO.**

SAGINAW, MICH.

NEW YORK  
LONDON, ENG.  
WINDSOR, CAN.



**THIS IS THE MITRE BOX YOU WANT**



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

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

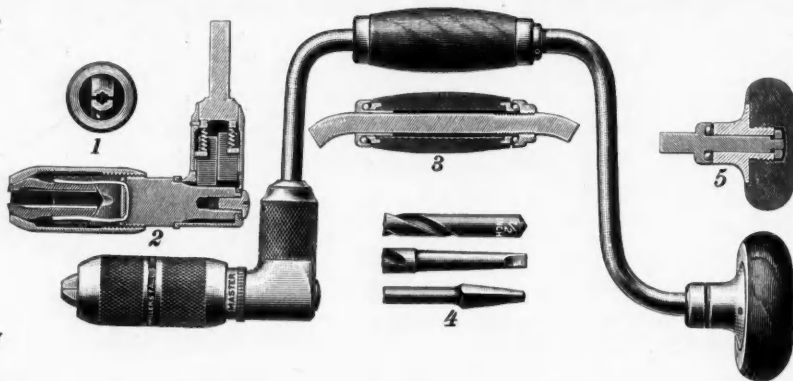
**Millers Falls Company**  
28 Warren St., New York, N. Y.

**The Master Bit Brace**

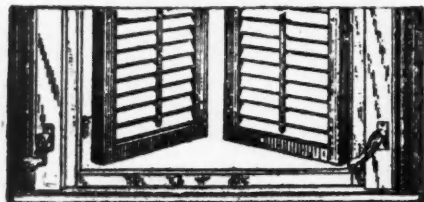
is our latest product in this line of tools. It has a ball bearing head, ball bearing center handles, covered ratchet, and chuck that holds securely all sorts of shapes. In producing this Brace we have endeavored to make it a perfect tool in every particular. Sample it and decide for yourself whether we have succeeded or not.

Our new catalogue describes this Brace in detail. Ask for one.

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



**MALLORY'S**



**Standard Shutter Worker**

New and improved patterns and designs.

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

**MALLORY MANUFACTURING CO.**  
204 Flemington National Bank Building. FLEMINGTON, N. J.

**The "UNIVERSAL" ADJUSTABLE HANGER**

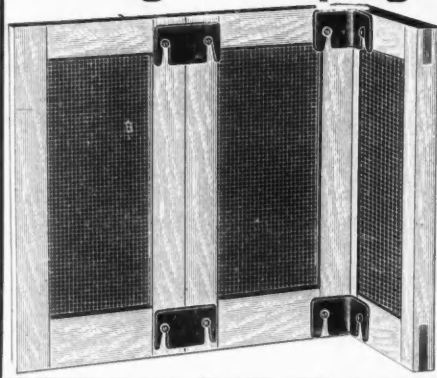
can be used anywhere. It forms a perfect, practicable lock; sash hung with it cannot be opened or removed from the outside; it cannot be blown open by storms; makes practicable the only substitute for the half-sash sliding screen; is sold in sets, half sets, or in any other way the trade demands; indestructible;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

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

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



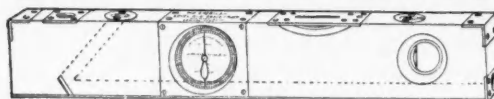
**The Big 4 Couplings**



Cuts representing the Big 4 Couplings made for putting up storm houses, porch screens and portable screen cottages, or stiffening box corners, in fact they can be used in many places where a rigid corner or coupling is desired. These couplings are valuable to the carpenter and contractor as well as to the consumer, as they can be attached or detached very readily by simply loosening the screws so that they can be slipped on or off at will. These couplings are sold only in gross lots. Prices quoted on application.

Manufactured by **Diehl Novelty Co.**  
Sheboygan, Wis.

**THE AMERICAN Combined Level and Grade Finder**



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

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

Write at once for large list of testimonials from all over the United States, and special introductory price given only to first applicants with privilege of taking agency. Address

**EDWARD HELB.** P. O. Box 55, Railroad, Pa.



# PEARSON'S IMPROVED Nailer



SEE THAT NAIL

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

*The L. & I. J. White Co.*  
*Buffalo, N. Y.*

*The BEST that Money Can Buy*

**GUARANTEED PERFECT**  
*In Quality, Shape, Material and Temper*

The strongest, finest finished and most accurate Edge Tools made. For use on any wood, any job at any time. Always ready, sharp, accurate and perfect. *The Best tools for Best work.* If not at dealers, write us.

Dep't  
A



*The Mark of*



**BEST EDGE TOOLS**

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

Makers of

## Fine Hand Made Hand Saws

The Purest of Quality Our "GREYHOUND" Hand Saw



**I**N introducing our "GREYHOUND" brand of Saws to the trade, we have departed from our usual custom in naming instead of numbering the saw. This saw will be known as our "GREYHOUND" and will be the only Bishop brand of saw known by name.



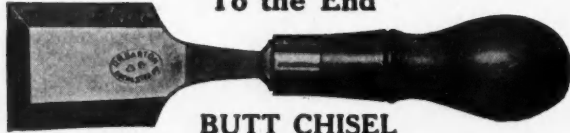
We have had a Chemist experimenting for years to originate a purity of steel with a fine grain and tough body that would stand up under such a fearless warranty as we place on our "GREYHOUND" brand of saws. We now have it. We know its worth as well as its value. As workers of steel we understand it. We had to name it and we have christened it Bishop's Refined "GREYHOUND" Steel, associating our trade mark with its name. We have in this "GREYHOUND" Saw blade a purity of steel that is tough, tempers accurately and even—together with the special way it is made—enables us to guarantee that this "GREYHOUND" brand of Saws will cut faster and run easier in all kinds of wood, hold its sharpness and set longer than any other makes of good Saws in the world. We Refund the Money if 30 days' trial does not prove our guarantee. Our pride is quality with an honest opportunity for the purchaser to judge. Each Saw is tagged with our warranty on it. No expense has been spared to make this Saw the most perfect in the world. We invite correspondence with anyone who has our "GREYHOUND" brand of saws in use.

Made in both straight and skew back. Packed One in a Box.

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

If this saw cannot be found in the Hardware Store and they will not order it for you, write to us. Price for 26 in. saw, \$3.00 delivered. We make anything in Carpenters' Saws.

**"Last a Lifetime and Give Satisfaction To the End"**



**BUTT CHISEL**

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

**[THE CELEBRATED BARTON TOOLS]**

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

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

TRADE MARK



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

**"SILVER LAKE"**

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



substitute, as our name is stamped on every foot of cord. Silver Lake Sash Cord is the Original Solid Braided Cotton Sash Cord, and has been the standard since 1868. No other is just as good.

**"OHIO" CHISELS**

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



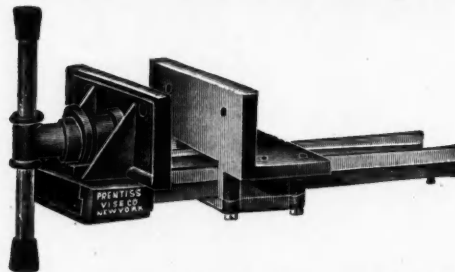
Every "Ohio" Tool is fully warranted. They have been on the market a great many years and the experienced mechanic who does not care to take any chances on tools of doubtful quality always insists on having "Ohio" Tools from his dealer. He knows them to be good tools, with keen and tough cutting edges.



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**

**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.



**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.



# BURLINGTON



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

## Venetian and Sliding BLINDS Screens and Screen Doors

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



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

**BURLINGTON VENETIAN BLIND COMPANY**  
341 Lake Street, Burlington, Vermont

# PHOENIX INSIDE SLIDING BLINDS

WILKES BARRE, PA.

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

**Comfort!  
Economy!**

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.

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

# Commonwealth Hotel

OPPOSITE STATE HOUSE, BOSTON, MASS.



Offers rooms with hot and cold water for \$1.00 per day and up, which includes free use of public shower baths.

## Nothing To Equal This in New England

Rooms with private baths for \$1.50 per day and up. Suites of two rooms and bath for \$4.00 per day and up. Dining Room and Cafe First-Class. European Plan.

### Absolutely Fireproof

Stone floors, nothing wood but the doors. Equipped with its own Sanitary Vacuum Cleaning Plant.

Long Distance Telephone in Every Room

Strictly a Temperance Hotel

SEND FOR BOOKLET

**STORER F. CRAFTS, Prop.**



The Latest and Greatest

# "YANKEE" Breast Drill

With Automatic Double Ratchet

Adjustable Ball Bearings—Cut Gears

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

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

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

**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.,**  
Dept. A, PHILADELPHIA, PA.

# CHICAGO SPRING BUTTS



**A PRODUCT OF RECOGNIZED SUPERIORITY**

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



**Chicago Spring Butt Company,**  
CHICAGO NEW YORK

Send for Catalogue C-26.

## A New Book About STEEL CEILINGS—



that *YOU* need if you want to be sure of getting a design exactly suited to each particular job—no matter how particular.

Sent *FREE* on request only to interested persons living *WEST* of the Mississippi river. Ask for your copy now. We'll co-operate with you to insure best results.

**Knocked Down Skylights**

Strong but not bulky. Take low freight rate. Easy to erect. Comply with all insurance rules. Storm-proof and condensation-proof. Shipped anywhere *WEST* of Mississippi river. Ask for catalogue No 11.

**Other Products**  
Roofings, Cornices, Gutters, Ventilators, Crestings, Fire-proof Windows and Doors, etc.



### ST. PAUL ROOFING, CORNICE AND ORNAMENT COMPANY

*"The Leading Sheet Metal Plant of the West"*  
ST. PAUL, MINNESOTA



## PULLMAN —SPRING SASH— BALANCES

Require only a mortise in the frame. No pockets, cords, weights, etc. Let us send catalogue.

**Pullman Mfg. Company**  
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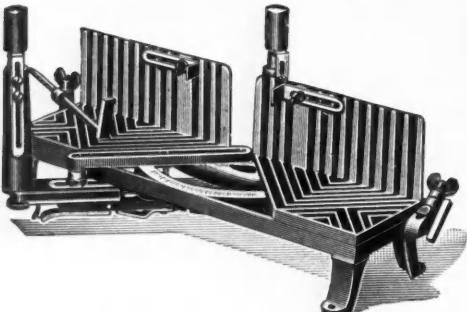


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**Cypress**

THE shifting scenes in the lumber world bring cypress to notice again, especially in the middle states, where a great deal more is now seen than a couple of years ago. Cypress is not only extensively used in doors and millwork, but also in bevel siding, for which purpose the cypress manufacturers have been industriously pushing it of late. It seems to be a very desirable wood, too, and the only objection heard to it is that it is a little difficult to finish off smoothly.

This objection, cypress men say, can be removed by the use of sharp-edged tools. It simply takes keen-edged tools to work in cypress, and this they say is

not so much of a burden, for cypress is comparatively free from hard knots, and is therefore not hard on tools. Anyway, without arguing for or against it, it is desired to call attention to the fact that cypress is a more prominent building material than ever before and gives promise of growing more so during the coming year. Therefore it is well to make a study of its qualities and how to get the best results in working it.

**Laugh it Off**

Are you worsted in a fight?  
Laugh it off.  
Are you cheated of your right?  
Laugh it off.  
Don't make tragedies of trifles,  
Don't shoot butterflies with rifles—  
Laugh it off.

Does your work get into kinks?  
Laugh it off.  
Are you near all sorts of brinks?  
Laugh it off.  
If it's sanity you're after,  
There's no recipe like laughter—  
Laugh it off.

**Hiding Poor Architecture**

BADLY designed houses can always be improved in appearance by a covering of vines. It is a matter of regret that the work of the turning lathe and fret-saw still holds its place in many American houses; but as long as we continue to decorate our dwellings with jigamarigs and porch-posts turned and carved into ugly, fantastic shapes, those who can discern their ugliness must content themselves by hiding it with the leaves and flowers of clinging vines.

The growing of temporary vines is only to be tolerated when permanent vines will follow. They should be planted together in order that, during the two or three years required to bring the permanent plants up, the temporary vines may serve as a substitute and then be dropped without much loss of beauty.

## How the Mexicans Build Their Houses

By Leonard Lytle



A Typical Mexican Street Scene—Note Scarcity of Windows

**L**IKE people in all other countries, the Mexicans make use of the materials easiest obtainable and best adapted to the conditions. Timber is scarce and lumber is high priced; stone is widely distributed and is cheap; brick clay is plentiful and with peon labor brick floor tile and roofing tile are manufactured and sold for about one half the prices current in the United States.

It is the general assumption that Mexico is a dry and nearly rainless country. This is true of that great plateau which is the extension of the Rocky mountains. This plateau extends nearly the full length of Mexico and slopes to the ocean on both sides. The altitudes vary from 3,000 to 9,000 feet with the average being close to 7,000 feet. On the plateau the rains come in the summer in the way of showers and at about the same time of the day, the total rainfall being light. Along the seacoast and in the lowlands called "Tierra Caliente" tropical conditions exist and rains are fre-



Pile of Adobes with Adobe Wall

quent and heavy, the yearly rainfall being very large. On the high and dry plateau all houses are built with flat brick roofs, which allow of a firewall or a parapet to be built all around to conceal the roof and to form

a cornice. In the rainy country sloping pitched roofs covered with tile are a necessity and it is for these reasons that there are two distinct styles of architecture in the republic.

I will first give a description of the flat roof houses and details of their construction, taking for example a common one-story adobe house. Cellars are not put under houses for a number of reasons, chief of which is the hard rock which would have to be excavated in most places, the fact that no furnaces are needed and also that it is not necessary to store vegetables through a long winter season, as these products may be obtained fresh nearly all the time.

The ground is leveled off and the foundation put in, rubble stone and lime mortar being used. Then the walls are built of large adobe bricks or blocks laid in mud. The adobes are usually about 4 by 12 by 20 inches and made sometimes right on the ground or not far away. The dirt is dug out and put in pits where it is wet, and thoroughly mixed by the bare feet of the laborer; a quantity of straw or other fibres is added and the mud pressed into wooden moulds and smoothed on top with the hand after having first been dipped into water. These brick are allowed to sun dry for some time and are then stacked up loosely where they continue to dry and harden until they are used. These sun-dried bricks are hard enough to give a little ring like a soft clay brick when struck. I was not able to learn what these bricks are worth in Mexico but was told by a contractor in El Paso that a wall built of them cost in that town, \$15 per thousand, adobe count, and this price would certainly be less in Mexico where labor is cheaper. That they must be cheap is evidenced by the fact that corrals, barns and even sign boards are made of them.

The mortar or mud is carried to the masons on the tender's head in a hod which looks for all the world like mother's chopping bowl. The walls are made one or two feet thick, using either one or two adobes. No window sills are used but over all openings lintels are placed, made of pieces of the joists. When the

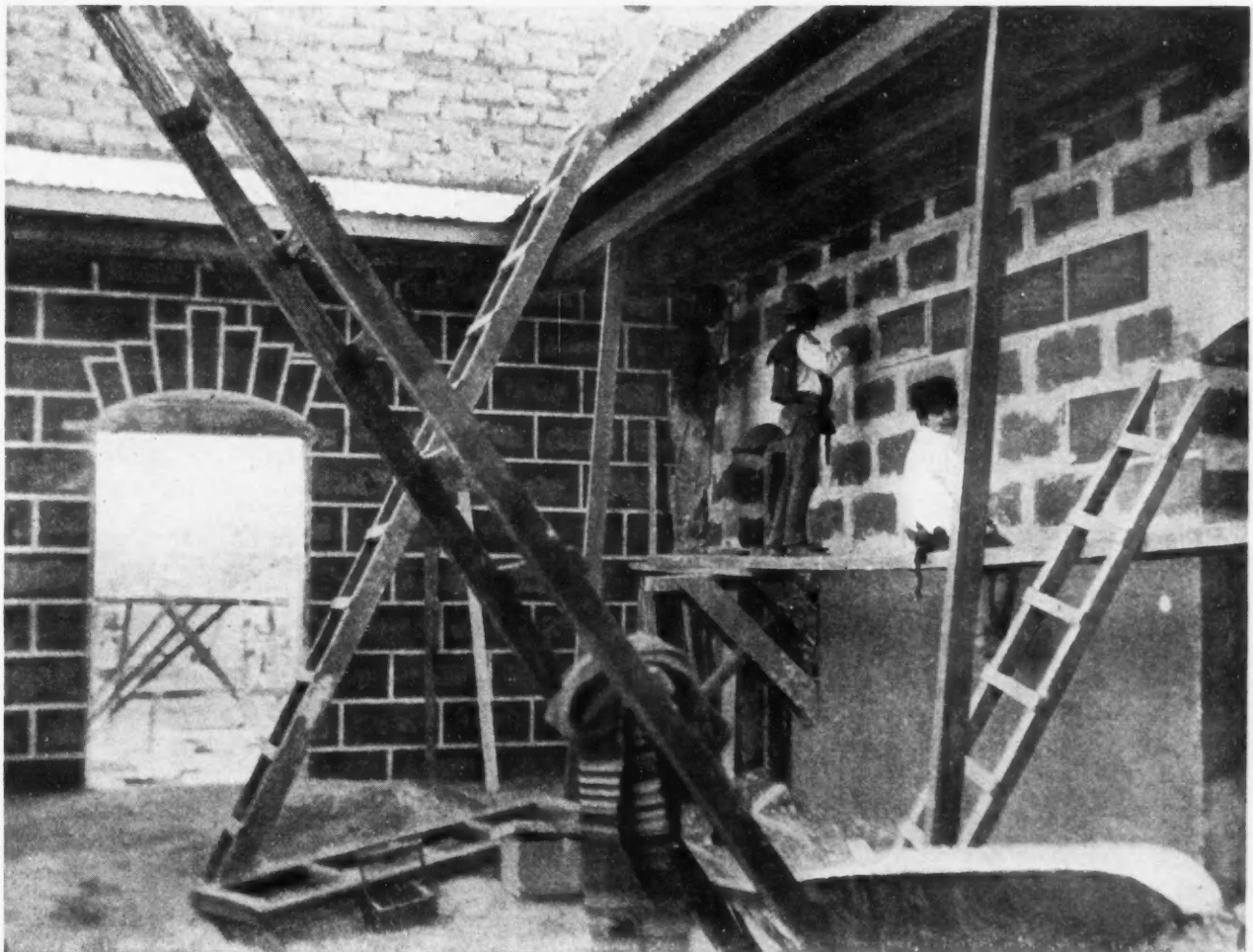
ceiling height is reached, the joists are laid across and built into the wall just as we do, except that the ends are not beveled as we would do on a brick building. These joists are always about 4 by 8 inches and are of some kind of native wood which is very tough, like our hickory. The joists are about the same size all over the country and in many places they are rough hewn.

There are a number of materials used to cover the joists and to hold the thick layer of earth which is always put on. Formerly reeds were used in some localities but now one inch sheeting boards are most commonly used. In some places a rough tile is made about 10 inches wide and 20 inches long and laid across the joists. In the city of Mexico and in many other

and there is sufficient cornice to throw the water well away from the foundation, these buildings will last for centuries in that climate.

The dirt on the roof is leveled off and sloped two or three ways toward the outside walls. It is then covered with a single layer of large clay-burned bricks laid in cement or lime mortar, a grout is made and brushed into the joints and the roof is water tight and will need but little attention besides an occasional repointing or regrouting. It must be remembered that while the nights are cool in Mexico there is never any freezing or heaving from frost.

Where the water comes through the fire wall there is a 2 or 3 inch tin spout about 4 feet long, the exposed end being ornamented. Other materials are used for



Plastering the Patio of a 5-room Adobe House—Plaster Blocked off to Imitate Stone

places, galvanized corrugated iron is used. The foot of earth is placed on the joists and the walls built on up about 2 or 3 feet above the roof. About one half of the adobe buildings have the last foot of the wall built of brick laid in cement or lime mortar and then finished with a cement or stone coping. The other half built more carelessly are run all the way up with adobes and left without any semblance of a coping. The top of these walls soon crumbles away and if unattended, the entire structure becomes before long, a heap of dirt. But if the tops of the walls are kept protected

spouts, those in churches and fine houses being of stone and elaborately carved into grotesque heads and shapes of mythical beasts. All Mexican houses in cities are built right beside the sidewalk and these spouts have a disconcerting way of pouring their stream during a shower down a person's neck, the writer having had the experience. The stream strikes about the outer side of the walk and this is said to be the origin of the custom of the gentleman always taking the outside while the lady walks next to the building.

If the house is in a town the walls will likely be



Tile Covered Houses at Vera Cruz

plastered both inside and out with lime plaster. In the country farm buildings are more often unplastered and are in consequence less durable and more ugly. It will be well here to say that the limes made in Mexico are much better than those made in the United States. Mr. Lamb, a prominent American builder in the city of Mexico, told the writer that he considered the limes of Mexico nearly equal to Portland cement. The first coat is thrown onto the rough wall from the trowel or paddle which leaves the surface very rough. The second coat is troweled on and made as smooth as we make our hard finish. The Mexicans are good plasterers and their cornices are works of art. The in-

terior walls are plastered in the same way. I have seen some very poor houses that looked as if they had been plastered with mud. All partitions are made of adobe and not less than 12 inches thick.

The dirt on the floor is leveled down, and, in the poor people's houses, forms the only floor they ever have. In the better class houses concrete is laid and covered with red glazed tile, 8 or 10 inches square. Cement tiles are sometimes used and even cement floors, but by far the most common is the red tile. In some of the Smelters' company houses at Aguas Calientes, the floors were of beaded ceiling and the ceiling joists were covered with 4-inch yellow pine flooring. This



Stone Foundation for Large House with Piles of Adobes Ready to go into the Walls



shows how the native workman delights in doing things wrong end to. An Irishman who had been a resident of the country for a long time, in speaking of this perversity of the Mexican, said: "Be dad but we have the best of them in one thing. When they want to dig a hole they have to start at the upper end!"

The ceilings in Mexico are never plastered. This is probably due to the fact that earthquake shocks are so frequent. The roof joists, which are also the ceiling joists, are covered from view with a canvas or muslin put up in some ingenious way which leaves it perfectly free from wrinkles. At each corner of the room there are round brass plates about 3 inches in diameter inserted in the canvas to give ventilation and prevent the rotting of the joists. The native painters do beautiful work and their ceilings are elegant.

Chimneys, like cellars, find no place in a Mexican house. One can go up on a high roof and look over a city and not see a single chimney. The poor people do their cooking on the dirt floors of their houses, using



An Unplastered House Without Windows

a charcoal fire in a small vessel. The smoke is allowed to go where it will and the outside plaster over doors and windows is always black. The better classes have stoves made of brick and about the size of a flat-top desk. There are holes in the masonry to hold the charcoal, but no chimney.

Most small Mexican houses have no windows, the wide door being used to let in the light and air and to let the smoke out. Recently windows have become more popular and now block after block of houses may be seen with the large door and the large window, both of which will be open in the day time, but are barred and locked at night. Both doors and windows are made by hand on the job, the workmanship being very crude. Double doors and double French windows are the only kind seen.

The hardware for doors and windows is noticeable because of its light weight and flimsy character. All of the older houses have iron over the windows but now ornamental iron railings are very common. Houses of the type just named are those found without a court and might contain as many as 4 rooms, although the one and two room houses are by far the most common. In the construction of a house with a patio or court the rooms are laid out around the court, which is open to the sky and is a beautiful little garden spot. The roof is made to project over the patio far enough to make a covered passage way all around to give access to the different rooms. Practically all houses are built next to the walk and have no front yard. The Mexican has ideas of his own regarding privacy and the patio serves the purpose admirably.

In some towns and cities stone is very abundant and is used almost entirely for all kinds of buildings but even then the external appearance is the same as that of an adobe house on account of the plastering.

It is not to be thought that there are no houses in Mexico other than the kind just described, for most of the modern cities have some very fine residences occupied by Americans and Europeans.

#### Forest Products Laboratory Opens

The opening of the Forest Products Laboratory at Madison, Wis., will take place on June 4. To aid by means of experiments and demonstration in lessening waste in the manufacture and use of wood is the object of this laboratory. The state of Wisconsin has erected for the purpose a new building at the university, and will provide light, heat and power. The Forest Service has supplied the equipment and apparatus and will maintain the force of thirty-five or forty persons required to carry on the work. Through this arrangement the United States has secured perhaps the largest and best equipped wood-testing laboratory in the world.

The laboratory will be prepared to make tests on the strength and other properties of wood, to investigate processes of treating timber to prevent destruction by decay and other causes, to study the saving of wood waste by distillation processes, to examine the fiber of various woods for paper and other purposes, and to determine the relation of the microscopic structure of wood to its characteristics and properties. Facilities are at hand, in fact, for almost any kind of test on wood that practical conditions may require.

It is expected that the lumber manufacturing and wood-using industries will make large practical use of this laboratory in finding methods of reducing the waste of wood—a subject of vital concern. Already they have proposed many experiments and supplied much test material, which is awaiting attention. Without doubt the laboratory will be from the start an important center of interest for all the industries which handle wood.

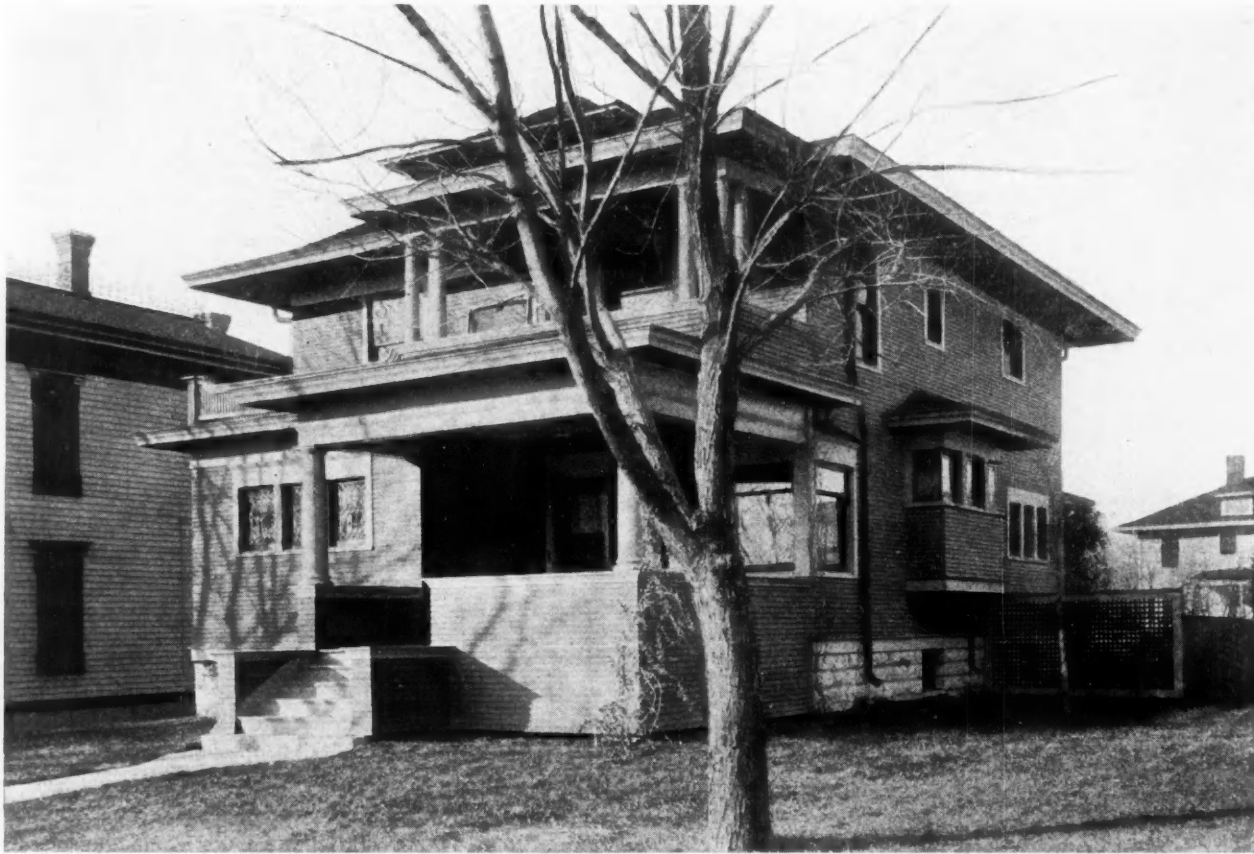
## Three Successful House Designs

PHOTOGRAPHS AND FLOOR PLANS OF SOME ADMIRABLE RESIDENCES OF TESTED AND APPROVED DESIGN—SPECIAL FEATURES NOTED

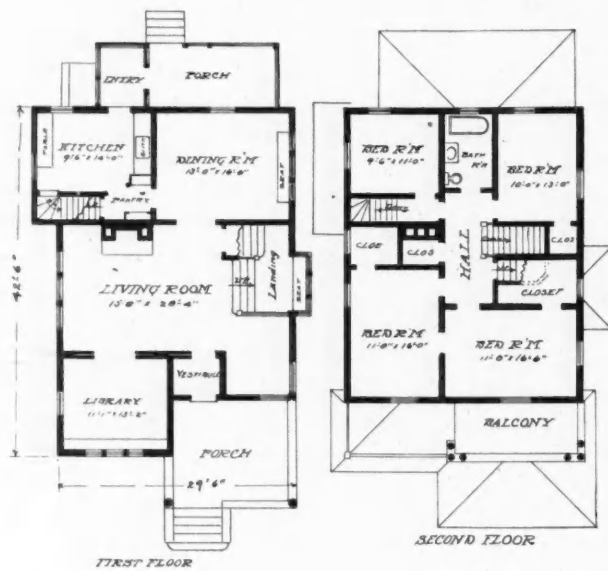
**T**O anyone who has ever given the matter of scientific houseplanning any thought, actual examples of practical and successful work will always furnish material for interested study.

paring the work now being done with what we were all familiar with twenty years ago, this improvement does become very striking.

While some of this progress is due, of course, to



Comfortable Square Type Residence at Lincoln, Neb., Fisk and Dieman, Architects



It has been often said that domestic architecture is constantly improving in this country; and, com-

the general education of the public in matters of taste, still more must be credited to the practical carpenters and builders and to their architectural friends. By their combined thought and careful study, the excellence of modern American house planning has been attained.

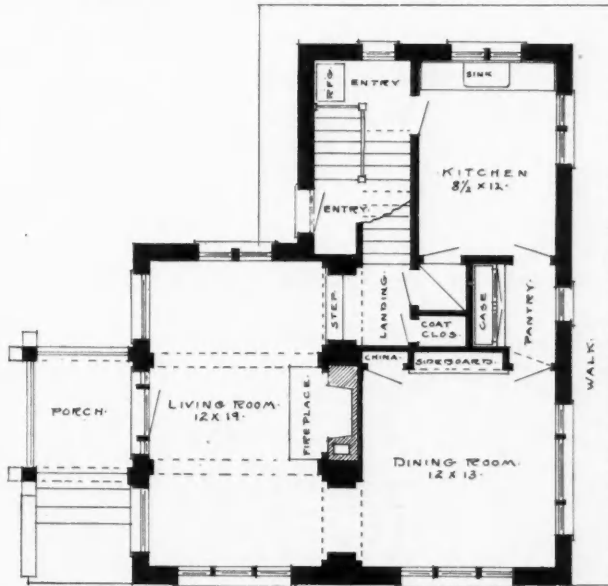
In almost every residence built recently, some points will be found of special worth which may be incorporated in some future design to advantage. Carpenters, particularly those who make a specialty of house building, should lose no opportunity to file such away for reference and use. To have the name of being something of an authority on all matters pertaining to construction and house planning will be greatly to the advantage of any builder.

The three house designs shown in connection with this are all of medium size and medium cost. They are fairly typical of what is now desired by most home builders.

The first is a comfortable frame house of eight

rooms. The arrangement of space on the first floor is rather unique and the second story balcony over the front porch is a very good feature.

The third house has a split field stone under-pinning with cellar under entire house. The outside is finished with clapboards for the lower part painted



First Floor Plan



Second Floor Plan

The second house illustrates a very popular and successful city type. The porch is small and is placed at the side so as not to obstruct the light from the front. The arrangement of the rooms in this house is considered very good indeed. The lines of the exterior are also very graceful.

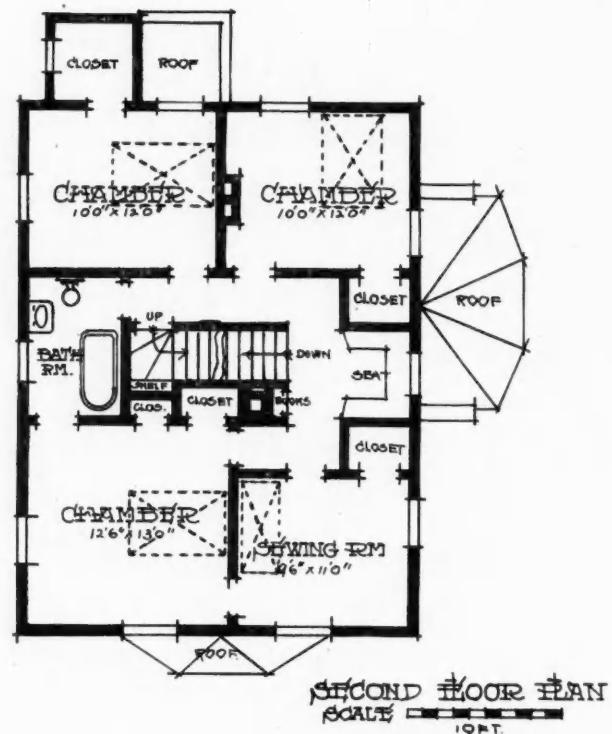
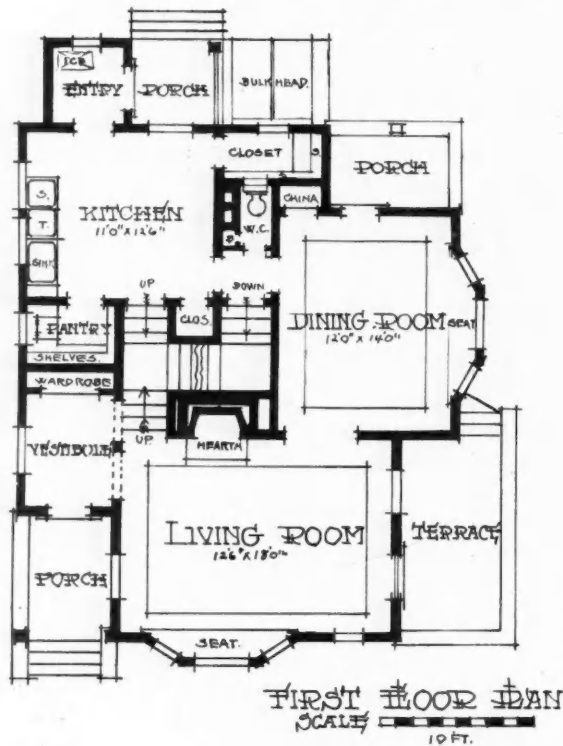
a brick red; and cement plaster slap dash finish on upper part; cement color natural. The entrance porch is practically inside of the house and may be screened or glazed in. On the south side there is a terrace 7 feet wide. There is also a small porch off the dining room. Both are reached through



Beautiful Home of Mr. Harry Hobbins, Oak Park, Ill., Barfield and Herr, Chicago, Architects

French casement doors. The seat in bay in living room is fitted with covers hinged to lift up, making a space under seat for miscellaneous articles.

rooms are furnished in cypress stained a deep brown. Kitchen and bath have hard pine finished natural, chambers painted. The house is heated by



Attractive Home Built for \$3,500 at Brockton, Mass., W. F. Barlow, Jr., Architect

A down-stairs toilet is another feature. All floors are of hardwood. The plumbing is first class goods with nickel plated trimmings. Dining or living

rooms are furnished in cypress stained a deep brown. Kitchen and bath have hard pine finished natural, chambers painted. The house is heated by steam. With a slight variation of floor plans, this house can be built for less than \$3,000. As shown, it was built complete for \$3,500.

# DETAILS of CONSTRUCTION AND FINISH



CHARLES F. RAWSON



## Framing and Finish for Brick Veneer

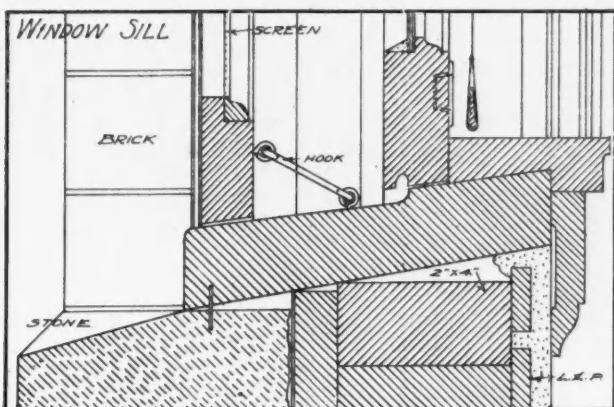
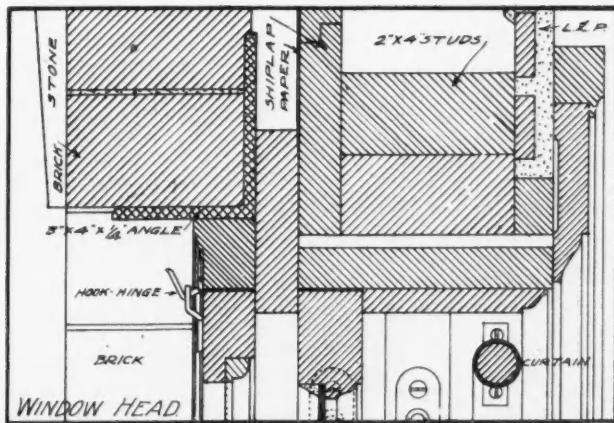
WORKING DETAILS ONE QUARTER FULL SIZE OF FIRST QUALITY BRICK VENEER WORK—WALL SECTIONS, WINDOW, DOOR AND CORNICE ARRANGEMENTS

**I**N MANY sections of the country, especially where lumber is cheap and brick work comparatively expensive, it is quite common to build dwellings with the outer walls of frame construction, veneered with a 4-inch facing of brick. This method of construction gives the same appearance both outside and inside as when the walls are built of solid brick, and possesses the added advantages of lower cost and dead air spaces; which prevent the passage of moisture, heat and cold.

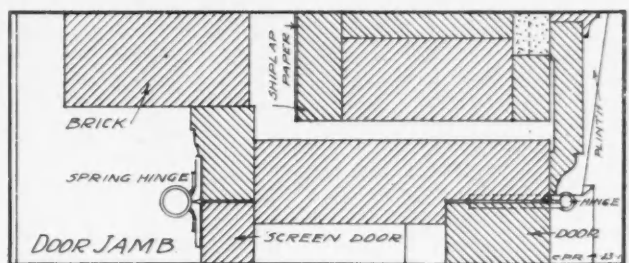
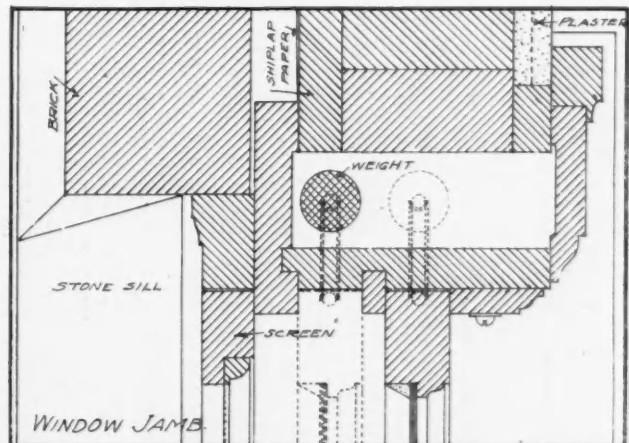
In addition to the more rich and substantial appearance about the only advantage possessed over well-built frame buildings is that this method reduces the insurance rate. A veneered brick building will not catch fire from the outside as readily as one covered

with siding, but will burn as rapidly when the fire is started on the inside.

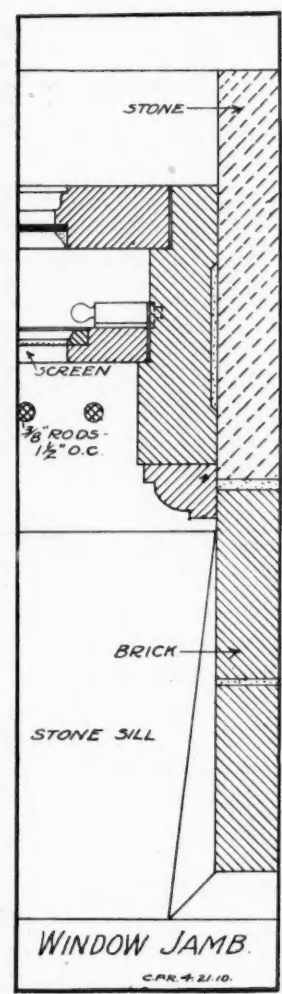
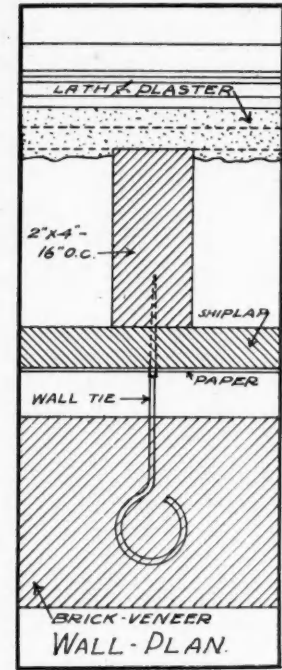
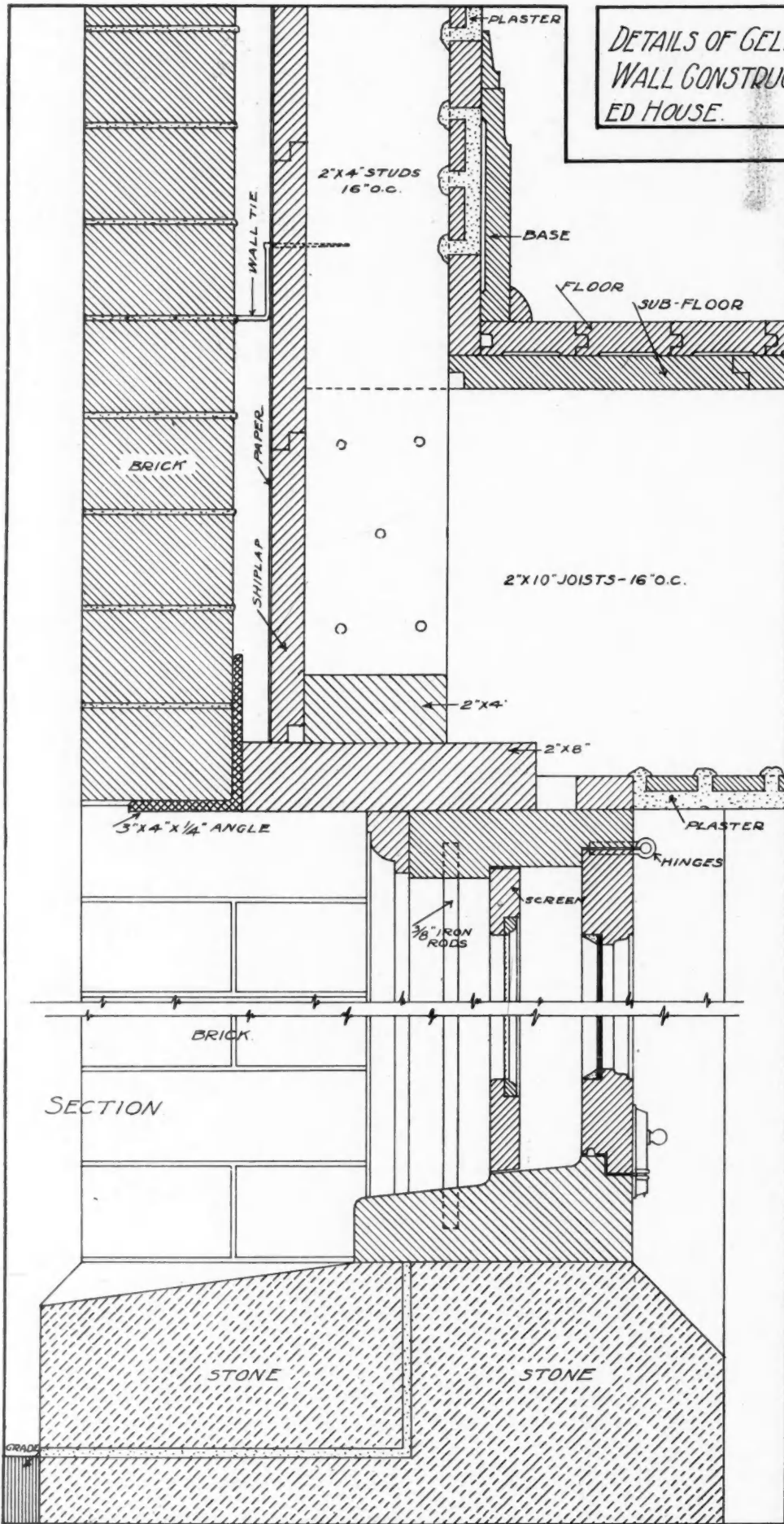
In planning a brick-veneered building, it is necessary that the foundation walls be about 5 inches larger each way than the frame work above, in order to form support for the veneering. The wooden frame should be constructed in the ordinary manner, sheathed and covered with first quality building paper. It is important that the framing lumber be as dry as possible. The veneer is usually laid with pressed brick or face brick, and is secured to the framework with metal ties, placed on every other brick in every fifth course. The details show the construction ordinarily employed in brick-veneered buildings, but the same are capable of some variations. The details are all one-fourth full size.



WINDOW & DOOR DETAILS IN BRICK-VENEERED HOUSE. SCALE - 3" = 1'-0"



DETAILS OF GELLAR WINDOW, SILL & WALL CONSTRUCTION IN BRICK-VENEER-ED HOUSE.  
SCALE 3"=1'-0"

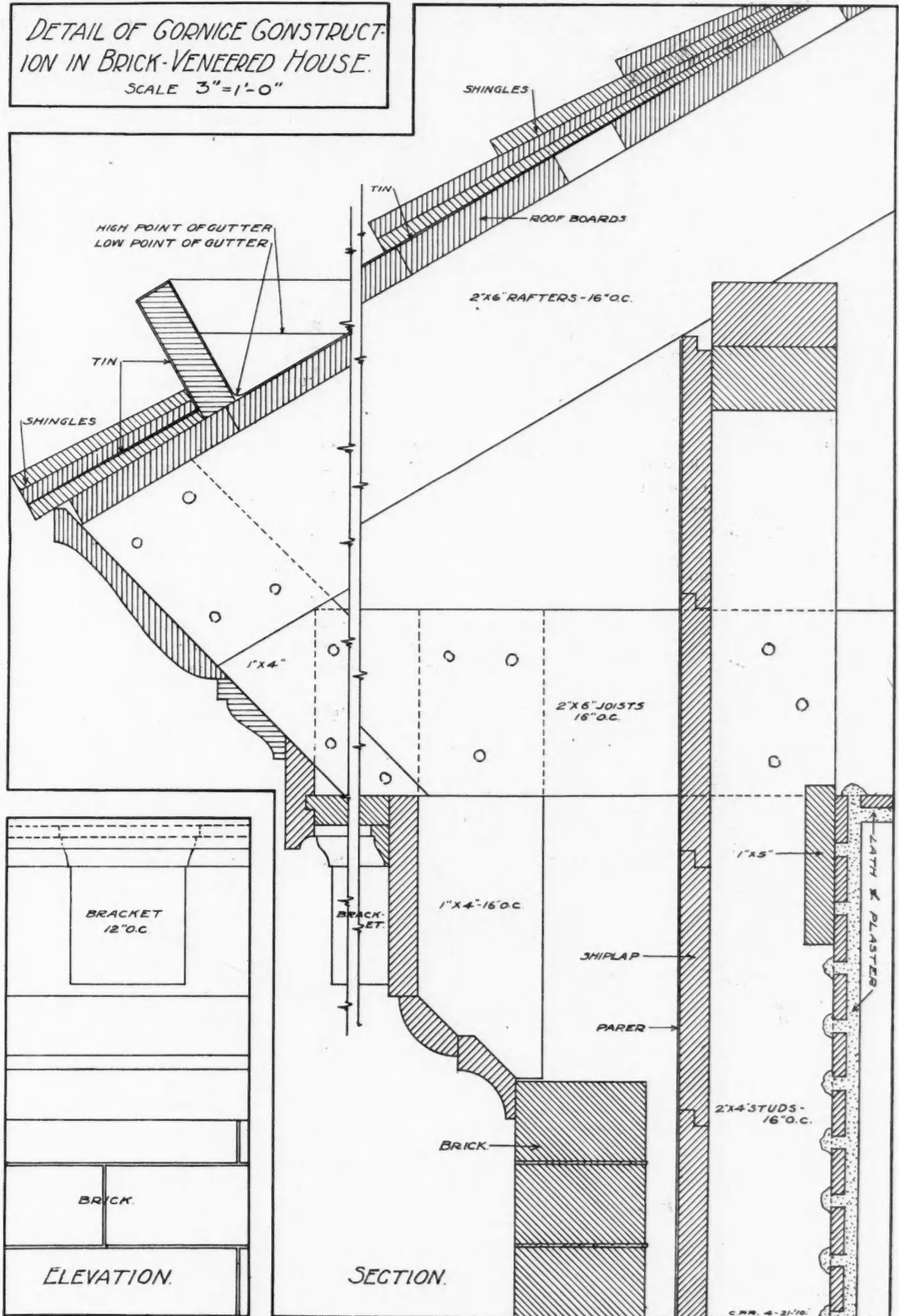


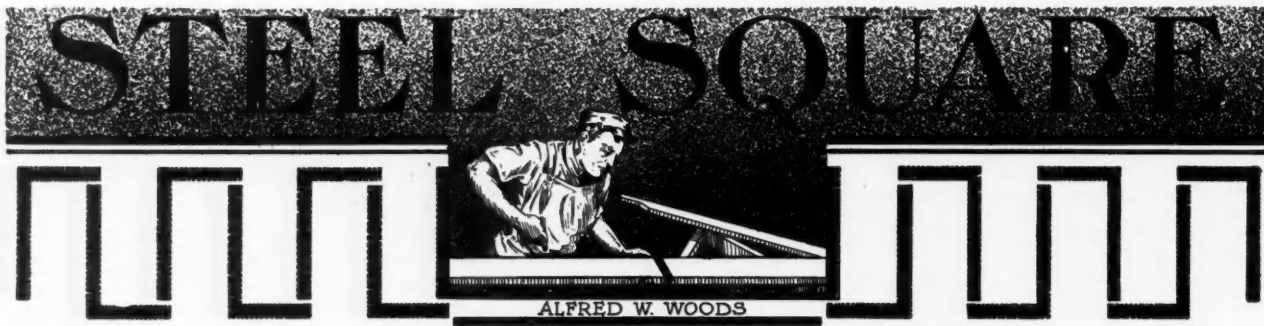
SECTION

WINDOW JAMB.

CPR 42110.

DETAIL OF GORNICE CONSTRUCTION  
 IN BRICK-VENEERED HOUSE.  
 SCALE 3"=1'-0"





## Problems of Roof Framing Solved

SIXTH ARTICLE—GENERAL RULE FOR FINDING THE LENGTHS AND CUTS OF RAFTERS FOR ANY SHAPED CORNER—FINDING THE COMMON DIFFERENCE OF JACKS

IT HAS long been conceded that the steel square, in the hands of one versed in its uses, is an instrument of mighty reckoning powers, yet as true as this is, to the majority of those having occasion to use it, it is only a measuring instrument or a tool for squaring off the ends of boards or other timbers; and for obtaining a few of the simple cuts, such as the seat and plumb cuts of common rafters. Beyond that, its use is locked in mystery and to them its usefulness ends. It is the purpose of this series of articles to show those not skilled in its use, how to apply it intelligently and at the same time illustrate in a simple way why it gives correct results. Most all framing is for square cornered or right angled buildings; so

the foot run. The plan is represented by the triangle, A B C, just the same as in the two preceding illustrations for the square and pentagon buildings; but in those we showed only the geometrical solution, that is, by a system of lines and letters. But as this is a little hard for some to catch onto, we will now illustrate with the square, showing why certain figures are taken on the square to obtain the desired results. Remember we said in our last article that the figures that give the miter of the corner on which the hip rests furnish the basis from which the lengths, cuts and bevels may be obtained. So we will take the same examples as in the previous article, a square and a pentagon building using, as we said before, a 9-inch rise to the foot. In Fig. 16 are shown the position of the squares in reference to the timbers to obtain the different cuts, as follows:

Note the plan A B C. B C represents the run of

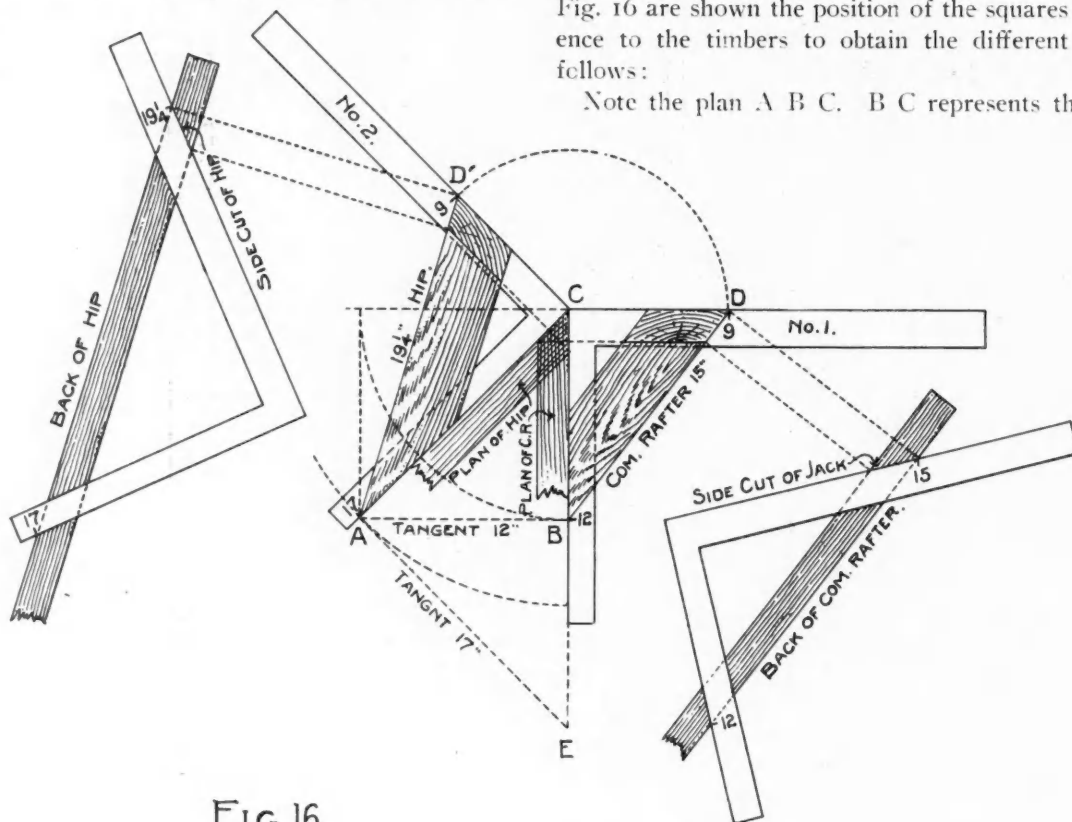


FIG. 16.

we will start out with a common example, one of the more common pitches.

Fig. 16 is for such a case. Here is a 9-inch rise to

the common rafter for 1 foot, as shown by Square No. 1; and A C represents the corresponding run for the hip, as shown on Square No. 2, and will be seen



is equal to 17 on the tongue. A B represents the tangent and is equal to 12 inches, which in this case is the same as that of the run for the common rafter. Hence, 12 and 12 taken on the steel square give the miter for the square corner, which corresponds to the roof we have under consideration. Then 12 and 9 give the seat and plumb cuts for the common rafter, as shown on Square No. 1. Seventeen and 9 give the same for the hip or valley, as shown on Square No. 2. This is plain enough; everybody understands these cuts so far, but it is the side cuts we wish to illustrate.

The reader will notice that, resting parallel with the pitch of these rafters a plan of their backs, respectively, is shown; with the squares in position to give the side cuts. The proportions of which are as follows:

The tangent (A B) on the tongue and the length of the common rafter (B D) on the blade (which in this case is 15 inches) always give the side cut for the jack rafter.

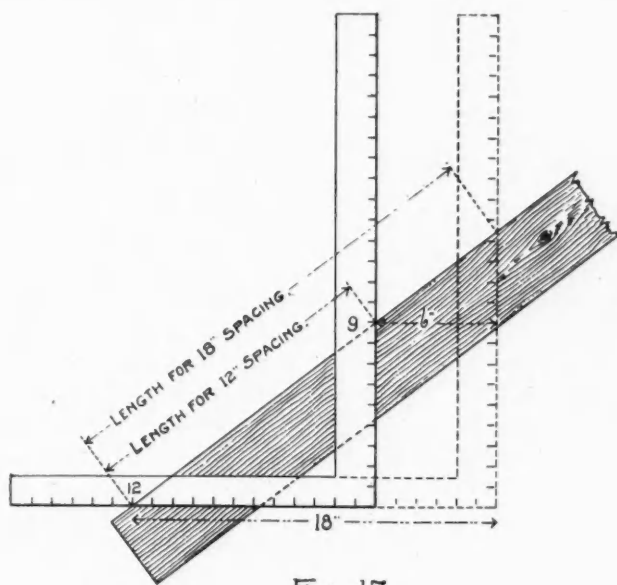


FIG. 17.

For the side cut of the hip, it is the tangent (A E) on the tongue and the length of the hip (A D') on the blade; and the latter will give the side cut of the hip.

To prove this, trace the dotted lines from the plan of these rafters shown in the plan A B C and they will be found to coincide with these cuts.

The tangents in the square cornered building are equal to the runs of the rafters; but this does not occur in any other shaped building.

In the pentagon building, the tangent A B is equal to  $8 \frac{17}{24}$  instead of 12 inches; but the procedure is just the same as here shown for the square cornered building. It also applies to unequal pitches for square cornered buildings, which we will take up and illustrate more fully next month.

However, before closing, we wish to call attention to the jack rafters. We have been requested several times to explain how to find the common difference in the length of jacks with the aid of the steel square.

This is a very simple operation and any one who knows how to find the length of the common rafter by running the steel square as shown in the early part of this series, ought to be able to readily find the common difference, because the jack is only a part of the common rafter. Therefore, the length is found in identically the same way. If the jacks are spaced on 1-foot centers, the common difference would be 15 inches, as shown in Fig. 17. Now, if the jacks are spaced on 18-inch centers, the length would be  $1\frac{1}{2}$  times 15, equals  $22\frac{1}{2}$  inches, which represents the length of the first jack or common difference. Or, if one is not versed in figures, the length may be readily found by placing the square on the side of the rafter at the figures which give the seat and plumb cuts and as shown. Now mark along the tongue and slide the square out with the tongue on this line 6 inches further and the length along the edge of the rafter from the tongue to the blade will be the proper length for the first jack, or common difference, as shown in the illustration. From this, it will be readily seen that fractions of an inch in the spacing can be as easily taken care of as whole numbers.

The above applies to the jacks for square cornered building. In our next, we will take up the subject for other shaped corners.

#### Grading Rules for Mahogany

The Hardwood Manufacturers' Association has included in its 1910 grading rule book, which became effective March 31, rules on Cuban, Mexican and African mahogany. The greater detail is given to the grading of Mexican and African mahogany, and it is a little difficult to understand at first why all mahogany might not be put under general rules, yet there is probably a difference in species, making this separating of the grades necessary.

The Cuban mahogany is divided into five classes, as follows: Prime, selects, rejects, shorts and counters, and the lengths run from 2 feet up, measuring odd as well as even lengths, and the widths 3 inches and up.

Mexican and African mahogany is separated differently in grades, which run as follows: No. 1 common, No. 2 common, shorts and counters. The lengths and widths are the same as the Cuban. In both instances the thickness is given as standard, and applies to mahogany lumber.

#### Louisiana Leads in Cypress

Louisiana again in 1908 was pre-eminently the cypress-producing state, furnishing almost two-thirds of the total cut of lumber of this kind. In this state the production of 1908 was less than that of 1907 by only 20,995,000 feet, or 4.1 per cent. While the quantities of cypress lumber cut in the other states were relatively small, their combined output was larger in 1908 than in 1907. The cut from this species has increased heavily since 1900.



## “Bowled” Floors for Auditorium

HOW TO LAYOUT AND CONSTRUCT THE DISH SHAPED OR “BOWLED” FLOORS FOR CHURCHES, HALLS, ETC.—POINTS TO BE NOTED

FROM time to time requests have been received for pointers on the design and construction of “bowled” floors. The following letter is an example and offers opportunity for taking up the subject at length.

To the Editor:

Sackville, N. B.

I have been a constant reader of your valuable magazine ever since it started and I look forward for its monthly arrival with considerable pleasure. I classify its different departments and preserve them on file, which gives me a handy and veritable encyclopedia of construction. The collection of artistic homes, bungalows, churches, school houses, barns, etc., make a volume which surpasses anything of the kind I have ever seen on the market.

There is one thing which perhaps would be of interest to more than myself, and that is the description of the construction of “dished” floors for an audience-room. Would like two or three points made clear. Should the front circular rows of seats be level from end to end, or is it permissible that the outer ends be somewhat elevated? What is the proper incline and should it continue to the rear of the seating space or can, say a one-fourth or one-third of the rear be made level?

J. W. DOULL.

It is comforting to know that the efforts that are being put forth to make the AMERICAN CARPENTER AND

are a decided improvement over the all-level floor. The audience can see the speaker better and the speaker can see his hearers; and if there is any one thing that a public speaker desires above another, it is to be able to look his people squarely in the eyes all the time, so that he may have their undivided attention. Nothing lends to this end so much as the inclined floor.

We believe practically all new church buildings of any importance nowadays are being built with bowled floors. It is true they cost more, but the extra expense required to build them is well spent, and when once done the extra cost is never regretted.

How to build and what the best pitch to give them are questions requiring careful consideration before the construction is attempted. Otherwise the builder will soon find himself engulfed in a brain-wracking, lop-sided problem that will tend to make him almost, if not wholly, forget what churches were ever intended for. There are high floors, low floors and intermediate floors that lead off from the bowled floor into lecture-room, etc., all of which should be carefully figured out as to the proper levels with one another; since they

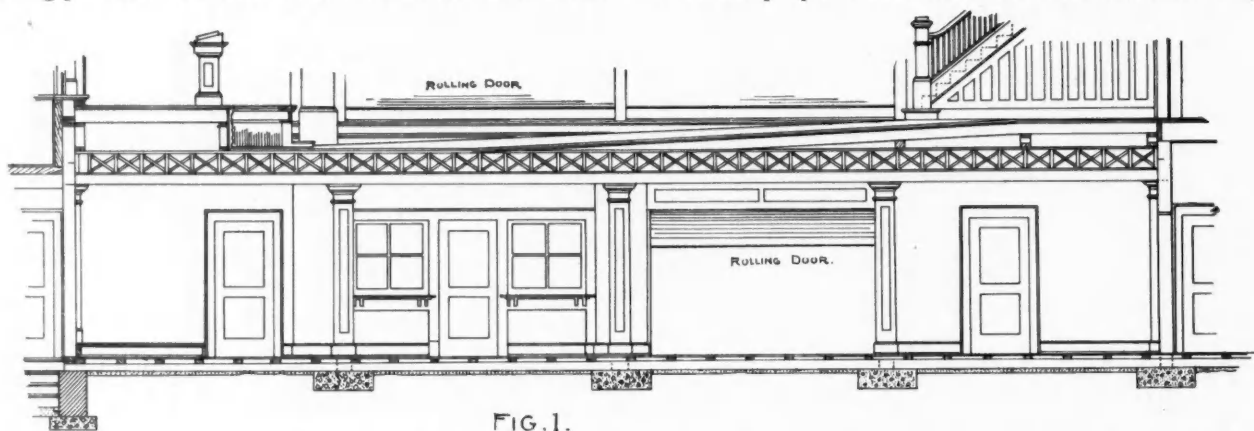


FIG. 1.

BUILDER the best building journal ever published are appreciated by Mr. Doull and many others, as their letters that come to our desk bear witness. It helps to make *Ye Editor* forget his troubles, because it helps to smooth the rough places in his path and makes his labors seem worth while.

As to the question concerning dish-shaped or “bowled” floors, as they are called, will say that they

effect the stairways, doors, entrances, height of windows—especially those in the basement—as their tops should clear the ceiling in the lowest part of the basement, the height of the water-table, etc. In fact, to have all these things harmonize inside and out is the part which properly belongs to the architect to put down in black and white for the builders to read and follow.

The proper slant to give the floor varies with the size and arrangement of the rooms. Usually from a half to three-fourths of an inch to the foot will be found to give very satisfactory results. All points should slope to a common center on a line back of the speaker's stand. This point should be in the open; that is, it should be a fixed point at an accessible place, a point to which a light wire may be attached to use for a radius to strike off the required arcs or part of circle at front and back; that is, where the slant dies out on the low floor and where it begins to fall from the high floor. Thus, it will be readily seen that any point of the dish will be at a dead level with any other point on the radius line of equal distance from the central point. Then each row of seats will be level from

better still, with shiplap, which will serve for a working floor, during the construction of the building. Then after all heavy work is done, on top of this floor build the dished floor with lighter timbers; 2 by 6 inch joists will do if properly supported. These joists must rest with reference to the common center as before mentioned, and should be cut to a feather edge where they die out on the lower floor. These joists should be covered with sheathing, changing their course as often as necessary to get good bearing for same; then on this place the finished floor, straight across the dish. It is necessary that the foreman in the factory that builds the seats should know the incline given the floor and the radius of the front and back curves, so that he may lay out the seats accordingly, so that their backs will

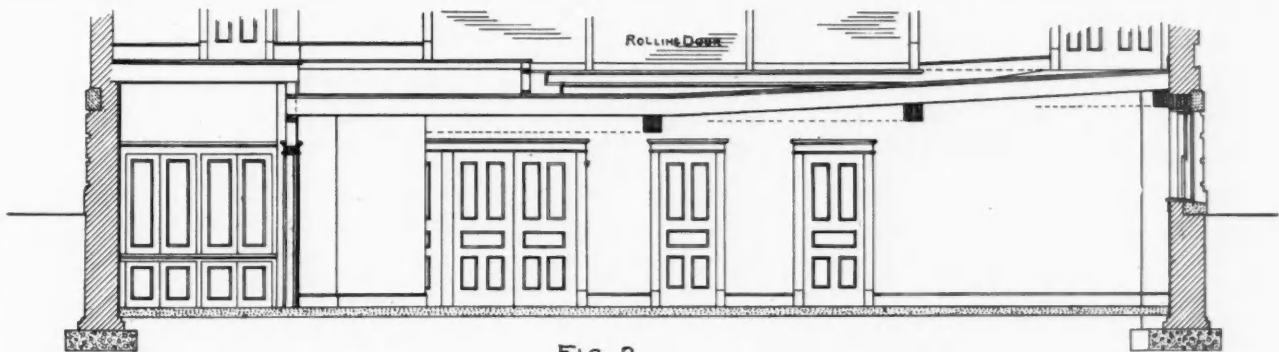


FIG. 2.

end to end as they should be. Mistakes are often made by not understanding this leveling question by supposing that the line of the dish where it strikes the wall or sides of the room is a straight incline. This cannot be, except where the central point is located in the corner of the room; then the walls are in line with that point and consequently the lower edge of the base will be straight.

Where one set of joists are used to form the dish, they must be laid in line with the central point, or fan shape, and the girders on which they rest, must be a part of a circle conforming to the radius from the central point. These girders should be built up with  $\frac{7}{8}$ -inch dressed plank with width equal the desired depth of girder, sprung to the proper curve and well nailed with joints broken, and be continuous from end to end. This construction, as shown in Fig. 2, is all right where it is not particular about the supporting posts being regular in the basement rooms, or to have the ceiling level, as the posts must conform to the girders' curve and the ceiling to the slant of the floor. But where it is desired to avoid these objections, it is best to have a supporting floor level with the lower point of floor. This will require straight girders, which with their supporting posts will permit of better taste in the arrangement of the basement rooms, and the ceilings will be level. The joist for this floor should be reckoned not only heavy enough to carry the live load that it will be subject to, but also its own weight and the dished floor that is to go on top of it. These joists should be covered with good sound sheathing, or

have the proper flare and the pew ends fit to the floor. Then when all is completed each row will be level from end to end. The pews should be placed from 32 to 36 inches apart. It gives the best effect to have the first two or three rows of seats rest on the level floor before starting the incline, which should extend back to the last row in the rear of the room.

The accompanying illustrations show sectional elevations of the construction of bowled floors.

Fig. 1 shows the level bearing floor as before specified, and on this the bowl floor is constructed.

Fig. 2 shows the section of a bowl floor at the outer wall line, the bowl being formed by the one set of joists which must rest on circular girders to the curve to correspond with that of the bowl. The basement ceiling would, of course, have the same incline as the floor above. This section shows that for a corner rostrum, the center from which the curves are struck, being at the corner of the room.

#### \* Cottonwood

The cottonwoods are among the most widely distributed species of wood, and yet the bulk of the lumber manufactured from them comes from the Central and Southern states. There are also included under this heading relatively small quantities of lumber cut from the aspens or other species of the genus *populus* which grow in the Northern and New England states, where they are known locally as "poplar" or "popple," and also small quantities from the balsam poplar or balm of Gilead in Minnesota.

# Valuable Data for Builders

THIRD ARTICLE CONTINUING SERIES FROM FEBRUARY NUMBER—HOW TO FIGURE STRENGTH AND SAFE LOADS FOR WOOD COLUMNS AND BEAMS

By Paul T. Leshner

**W**OODEN columns are used principally in such buildings as large stores, houses, factories and warehouses, and constitute part of a system of slow-burning construction. In case of fire the wooden columns will become charred upon the outside, and thus protected, the body of the column will retain its strength.

The following formula can be applied to all wooden columns, the length or height of which is not under 10 times nor over 45 times the dimension of the least side. If under 10 times the least side we can use the full compressive value of the material of the column, which will be the value "u."

$$Sc = u - \left( \frac{u \times l}{100 \times d} \right)$$

Sc is the ultimate breaking value of the column per square inch of cross section.

u is the ultimate compressive strength of the material of the column per square inch of cross section, which can be found in the table on the ultimate compressive strength of materials.

l is length of the column in inches.

d is the least unsupported or unbraced diameter or side of the column in inches.

**Problem:** What should be the size of a square yellow pine column or post 15 feet long to support a load of 150,000 pounds, using a factor of safety of four?

**Solution:** We have a load of 150,000 pounds that the column must support with safety, and as we are required to use a factor of safety of four, the ultimate load that the column will be designed to support will be four times 150,000 pounds or 600,000 pounds. In the table we find that yellow pine has an ultimate compressive strength of 4,400 pounds per square inch, and to find the approximate number of square inches required in the cross section of the column, we will divide 600,000 pounds by 4,400 and have for an answer 136. As the column increases in length, its compressive value decreases, so say we will assume a 13-inch square column, which has 169 square inches of cross section, and then apply the formula,

$$Sc = u - \left( \frac{u \times l}{100 \times d} \right)$$

in which u equals 4,400 pounds; l equals 180 inches, and d equals 13 inches.

$$Sc = 4400 - \left( \frac{4400 \times 180}{100 \times 13} \right)$$

Sc equals 4,400 minus 610.

Sc equals 3,790 pounds.

Therefore sc is 3,790 pounds, which is the ultimate breaking value of the column per square inch of cross section, and as we have 169 square inches of cross section in our column, the ultimate load that the column

is capable of supporting will be 169 times 3,790 pounds, or 640,510 pounds.

As we are required to support an ultimate load of 600,000 pounds, 150,000 pounds with a factor of safety of 4, we can see that a 13-inch square column will answer the purpose.

### Breaking Loads for Yellow Pine Columns

The following is a table of the approximate breaking loads for northern yellow pine columns in thousands of pounds, calculated by the above formula:

APPROXIMATE BREAKING LOADS FOR NORTHERN YELLOW PINE COLUMNS IN THOUSANDS OF POUNDS.

LENGTH	6"x6"	7"x7"	8"x8"	9"x9"	10"x10"	11"x11"	12"x12"	13"x13"	14"x14"	16"x16"
8.....	133	186	275	...	...	...	...	...	...	...
9.....	130	182	242	313	...	...	...	...	...	...
10.....	126	178	238	308	387	...	...	...	...	...
11.....	123	174	236	302	381	468	...	...	...	...
12.....	120	170	230	298	376	462	556	...	...	...
13.....	118	167	224	293	370	455	550	650	...	...
14.....	114	164	222	289	366	450	545	645	755	...
15.....	111	160	218	284	360	446	538	639	749	1000
16.....	108	156	214	278	355	440	532	632	741	991
17.....	105	152	208	275	350	435	525	625	735	983
18.....	101	148	202	270	346	428	520	620	726	974
19.....	98	145	200	266	339	423	513	615	717	965
20.....	94	141	197	261	334	417	506	606	712	955

For white pine take 7/10 of the above loads.

For hemlock take 1/2 of the above loads.

For spruce take 7/10 of the above loads.

For oak take 3/4 of the above loads.

By dividing the values in all cases by the required factor of safety, usually 4, 5 or 6, the safe supporting strength of the column will be obtained.

### Wooden Beams

To find the size and strength of square and rectangular wooden beams for the usual systems of loading we have at hand very convenient and simple formulæ, by which the size of the beam to carry a certain load can be found, and also the safe load a beam of given size can carry. In the following formulæ, we will use a constant "C," the value of which for certain woods are as follows:

White pine.....60 pounds

Hemlock.....50 pounds

Spruce.....65 pounds

Yellow pine.....90 pounds

Oak.....70 pounds

**Case I (Fig. 5).—Beam Fixed at One End, Load at Other End:**

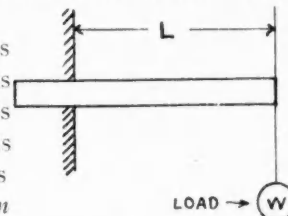


Fig. 5

$$\text{Safe Load in Pounds} = \frac{\text{breadth} \times \text{square of depth} \times \text{"C"}}{4 \times \text{length in feet}}$$

$$\text{Breadth in Inches} = \frac{4 \times \text{load} \times \text{length in feet}}{\text{square of depth} \times \text{"C"}}$$

**Problem:** What safe load will a yellow pine beam 4 inches wide by 6 inches deep carry, if fixed in a

wall, with the load located 5 feet from the wall?

*Solution:* Using the formula for safe load and using the value "C," for yellow pine, which is 90 pounds, we are ready to solve the equation, which will be as follows:

$$\text{Safe load in pounds} = \frac{4 \times 6 \times 6 \times 90}{4 \times 5} = 648 \text{ pounds.}$$

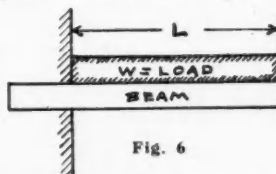
*Problem:* What size yellow pine beam is required to carry a load of 1,000 pounds, the beam being fastened into a brick wall at one end, with the load situated 6 feet from the wall?

*Solution:* In this case it is necessary to assume the depth of the beam, which we will take at 8 inches, therefore the equation to find the breadth of the beam will be as follows:

$$\text{Breadth of beam} = \frac{4 \times 1000 \times 6}{8 \times 8 \times 90} = 4.2 \text{ inches.}$$

Therefore we will use a 4 by 8 inch beam to support the load.

*Case II (Fig. 6).—Beam Fixed at One End and Loaded with a Uniformly Distributed Load:*



$$\text{Safe Load in Pounds} = \frac{\text{breadth} \times \text{square of depth} \times \text{"C"}}{2 \times \text{length in feet}}$$

$$\text{Breadth in Inches} = \frac{2 \times \text{length in feet} \times \text{load}}{\text{square of depth} \times \text{"C"}}$$

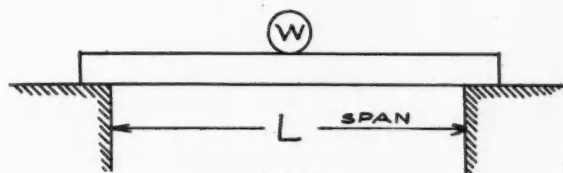


Fig. 7

*Case III (Fig. 7).—Beam Supported at Both Ends and Loaded at Middle:*

$$\text{Safe Load in Pounds} = \frac{\text{breadth} \times \text{square of depth} \times \text{"C"}}{\text{span in feet}}$$

$$\text{Breadth in Inches} = \frac{\text{span in feet} \times \text{load}}{\text{square of depth} \times \text{"C"}}$$

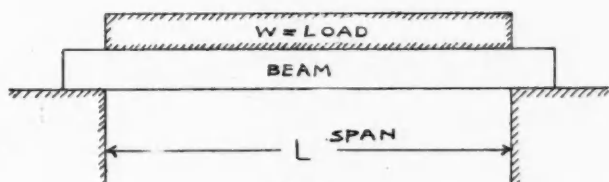


Fig. 8

*Case IV (Fig. 8).—Beam Supported at Both Ends with Load Uniformly Distributed:*

$$\text{Safe Load in Pounds} = \frac{2 \times \text{breadth} \times \text{square of depth} \times \text{"C"}}{\text{span in feet}}$$

$$\text{Breadth in Inches} = \frac{\text{span in feet} \times \text{load}}{2 \times \text{square of depth} \times \text{"C"}}$$

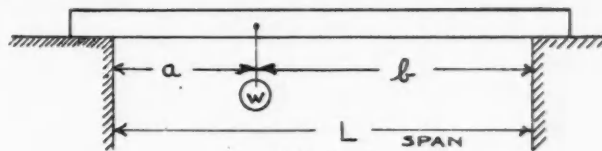


Fig. 9

*Case V (Fig. 9).—Beam Supported at Both Ends, with Concentrated Load Not at Center:*

$$\text{Safe Load in Pounds} = \frac{\text{breadth} \times \text{square of depth} \times \text{span} \times \text{"C"}}{4 \times a \times b}$$

$$\text{Breadth in Inches} = \frac{4 \times \text{load} \times a \times b}{\text{square of depth} \times \text{span} \times \text{"C"}}$$

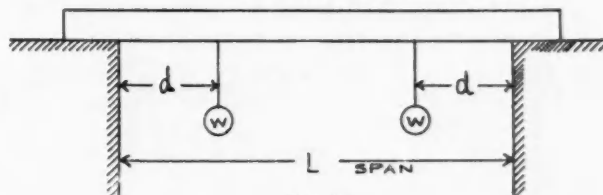


Fig. 10

*Case VI (Fig. 10).—Beam Supported at Both Ends and Loaded with W pounds at a Distance, "d," from Each End: "d" is taken in feet the same as the spans.*

$$\text{Safe Load W in Pounds at Each Point} = \frac{\text{breadth} \times \text{square of depth} \times \text{"C"}}{4 \times d}$$

$$\text{Breadth in Inches} = \frac{4 \times \text{load at one point} \times d}{\text{square of depth} \times \text{"C"}}$$

*Problem:* What safe load is a 4 by 6 inch hemlock beam capable of supporting, having a span of 10 feet, and the load situated 3 feet from one end?

*Solution:* First draw the diagram (see Fig. 11) to see the conditions and referring to Fig. 9 in Case V

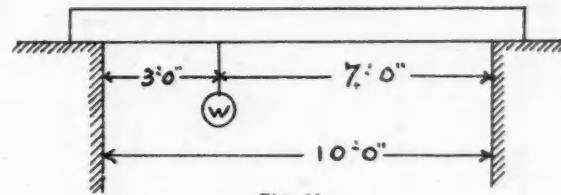


Fig. 11

we find that "a" equals 3 feet and "b" 7 feet. Putting the values in the formula for safe load given in Case V we have the following equation:

$$\text{Safe load in pounds} = \frac{4 \times 6 \times 6 \times 10 \times 50}{4 \times 3 \times 7} = 857 \text{ pounds.}$$

Therefore a 4 by 6 inch hemlock beam will safely support 857 pounds, when loaded under the above conditions.

*Problem:* Find the size of a yellow pine beam, 20-foot span, to carry a load of 2,000 pounds, load located 8 feet from one support.

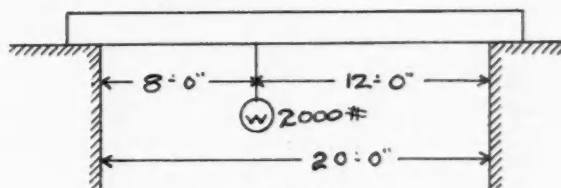


Fig. 12

*Solution:* Referring to Fig. 9, Case V, we find that "a" equals 8 feet and "b" equals 12 feet, as shown in the diagram, Fig. 12. We will assume a depth of 10 inches and apply the formula given in Case V for breadth in inches. The equation will then be as follows:

$$\text{Breadth in inches} = \frac{4 \times 2000 \times 8 \times 12}{10 \times 10 \times 20 \times 90} = 4.2 \text{ inches.}$$

Therefore a 4 by 10 inch beam can be used with safety.

*Problem:* What safe loads will an 8 by 12 inch spruce beam carry, having a span of 20 feet, each of

the loads being located 5 feet from their respective ends?

*Solution:* In this case our "d" values equal 5 feet, and using formula given in Case VI, we have the following equation:

$$\text{Safe load } W \text{ in pounds at each point} = \frac{8 \times 12 \times 12 \times 65}{4 \times 5} = 3,744 \text{ pounds.}$$

The stiffest rectangular beam containing a given amount of material is that in which the ratio of depth to breadth is as 10 to 6; hence in designing beams, the depth and breadth should be made to approach as near this ratio as is practicable.

## Kitchen Cabinets and Cases

HOW THE MODERN SMALL KITCHENS SHOULD BE PLANNED, FINISHED AND EQUIPPED FOR CLEANLINESS AND CONVENIENCE—PRACTICAL CABINET DESIGNS

A SMALL kitchen may be likened to a compact little work shop or laboratory. To be a success it must be built rightly, then equipped rightly. Robert Spencer, Jr., in a recent number of *"American Homes and Gardens"* offers some suggestions along these lines which should be useful to the readers of the AMERICAN CARPENTER AND BUILDER.

Right building means right planning. The location of the kitchen should give it enough sun-light to keep it sweet, not so much as to make it needlessly hot. The prevailing summer winds should carry kitchen odors away from the house—not into it. The small

no better looking, more comfortable or sanitary floor covering than heavy linoleum, preferably laid down in one piece before the floor connections for the plumbing have been made and before the mouldings covering the joint between the baseboard and floor have been placed. A good linoleum will last and give excellent service for at least ten years. It is agreeable under foot and easily cleaned. It should always be laid on a fairly good, durable wood floor with the joints of the boards planed true and level, in order that they may not show through the linoleum and cause uneven wear.

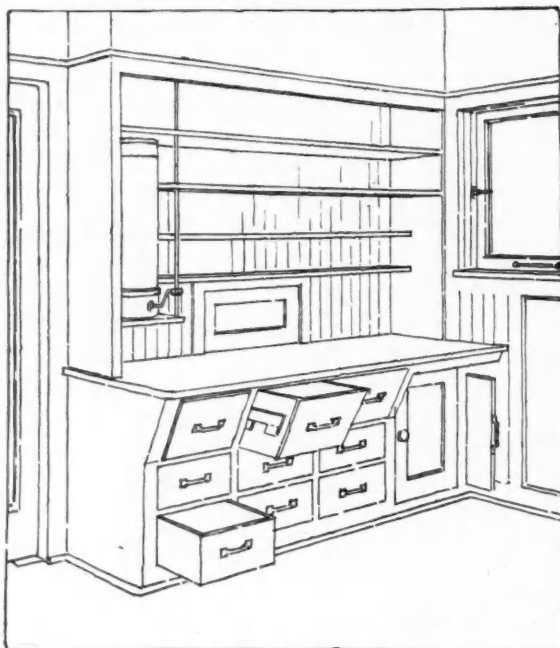


Fig. 1.—A Liberally Planned Working Case for the Pantryless Kitchen

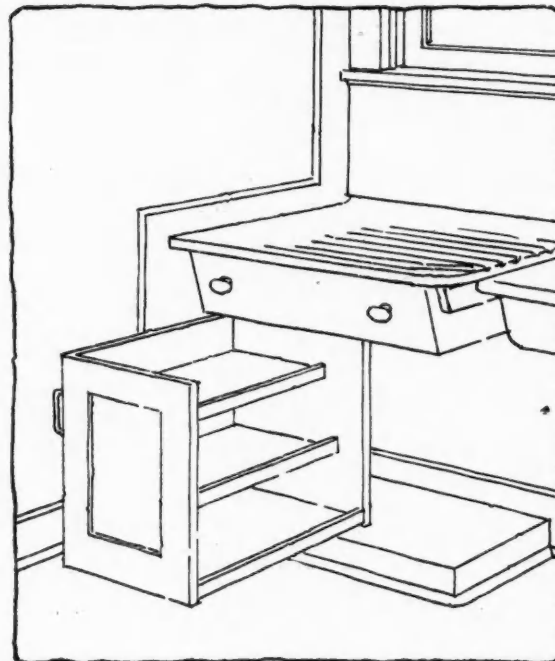


Fig. 2.—Showing Cupboard for Pots, etc., on a Left-hand Sink Drain Board

kitchen may be relatively long and narrow, amply windowed on one side or approximately square, never deep and narrow with windows only at one end.

Nearly every woman would like to have a kitchen with tiled floor and tiled walls, but it is seldom that the appropriation for a small house is sufficient to provide these luxuries. For the average kitchen there is

The kitchen walls should be finished in a good standard cement or patent hard plaster, troweled to a smooth polished surface, then painted at least four coats with a dull gloss finish. There are a number of paints on the market specially prepared to resist heat and moisture which are particularly suitable for kitchen finish. For the woodwork, which should be as plain as pos-

sible, I prefer a similar painted finish, in ivory white. If the woodwork is sufficiently plain and devoid of mouldings, which catch the dirt, a white painted finish is not at all difficult to keep clean.

Work counters, sink drain-boards, window stools, etc., should be of birch or white maple stained and oiled. The finishing hardware used in the kitchen, such as door knobs, butts, drawer pulls, etc., should always be of solid or stamped bronze metal. Plated steel, so commonly used through false economy, soon rusts in the kitchen and becomes unsightly.

The accompanying illustrations of typical kitchen and pantry cabinets, cases, etc., exemplify some ideas of kitchen equipment which have been found to work excellently. Fig. 1 shows a liberally planned working case or cabinet for the "pantryless kitchen." The shelf supporting the sifting flour can is hung by a flat steel bar from the top of the case. The three upper drawers are "bin-drawers" with extension slides. Next to the cupboard at the right is a pocket with rollers at the bottom, to receive the bread-board when not in use. A slide connects the counter of the sideboard on the opposite side of the partition. Note that the two lower shelves are comparatively narrow, in order to allow the free use of the counter as a work table. The front of a case of drawers under a table or work counter should be recessed toward the bottom, in order to allow room for the feet when standing, a point overlooked in most kitchens and pantries. The lower shelves above the counter of a built-in cabinet should be comparatively narrow, in order to clear the head of a person working at the counter; the upper shelves above head height may be 10 or 12 inches wide.

Where proper jars and receptacles are provided for the various supplies and materials, it is more convenient if doors be dispensed with in connection with these shelves. A great convenience in the kitchen or cook's pantry cabinet is a series of three or four deep "bin-drawers" with flaring fronts just below the counter, arranged to pull out almost full length on hardwood anti-friction slides. Fitted with removable bright tin linings, these drawers make most convenient receptacles for sugar, pastry flour, cornmeal, oatmeal, etc. In the average small suburban home, flour is nowadays seldom bought by the barrel, and can therefore be conveniently kept in a large tin flour can fitted with a rotary sifter in the bottom. A flour can of this type can be set into the shelving at a convenient height above the counter, where it is out of the way and always ready for use.

The most convenient type of sink cupboard for pots and pans is the swinging cupboard illustrated in Fig. 2, which was devised by Mr. Spencer because of the somewhat dark, inconvenient and unsanitary character of the ordinary pot closet. As shown, the swinging cupboard is practically a rather wide and low paneled gate, strongly hinged on one side with several shelves on the inside, the largest at the bottom, for pots, pans and covers. By means of a large bar-pull, which

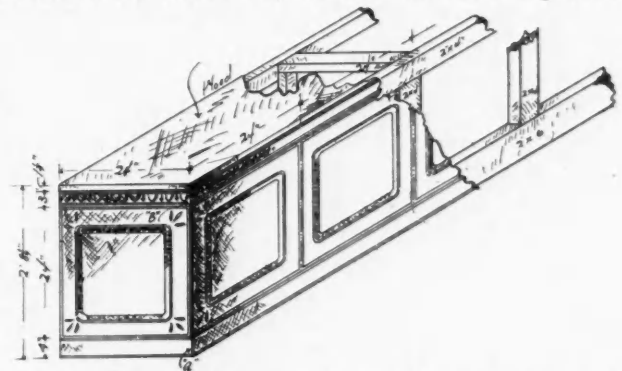
serves as a handle, it may be easily swung out into the full light of the kitchen for easy access, inspection and cleaning. When closed, it is neat and simple in appearance.

There is little new to be said about the equipment of a good serving and china pantry. A convenience sometimes overlooked is a suitable storage rack for table leaves or a deep pocket for the sections of extra round table tops. As to the relative merits of swinging or sliding glazed doors for china cases, it is easier to secure fairly satisfactory results with the swinging than the sliding doors, owing to the difficulties involved in keeping the latter in permanent good working order.

### How to Make a Metal Counter

BY W. W. DANIELS.

This is the steel age. Every piece of furniture in the home and office will soon be at least part metal. The writer will explain briefly the construction of a metal-covered counter. The scarcity of timber and the high rate of labor combined, put fine paneled counters beyond consideration. This is something the carpenter can do better than any other craftsman on account of the woodwork, which is the most important

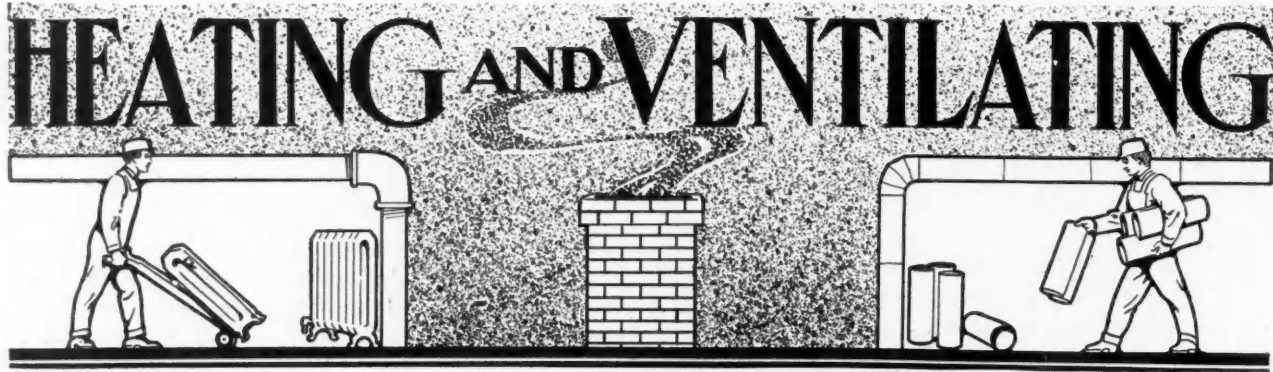


part. This should be well done. Then the metal will give the finishing touch.

*Framing.*—The framing is all rough lumber. Use any convenient size. The object is to get a frame to nail the metal to, all well braced. The carpenter will need no special instructions along these lines.

*Metal Work.*—In selecting metal for counter as shown in sketch, the object was two-fold; first, to reduce number of joints; second, plainness. Four members complete the work, as follows: 3-inch metal crown mould; 24 by 24 inch metal panel, 1 1/4-inch recess; 4-inch metal base mould, and 5/8-inch corner bead. No cutting or fitting are necessary, except at "a"; here the carpenter will have to form a miter. The miter in crown mould is furnished ready formed by manufacturers. All joints must be well nailed with a small flat-head nail.

*Estimated Cost.*—A counter finished as described above will cost approximately \$1.00 per foot. Some very attractive finishes can be had at about the same cost. The metal is estimated at 15c per running foot, leaving a balance of 85c for lumber, paint and labor.



## Modern Steam Heating

THIRD OF A SERIES OF ARTICLES DEALING WITH THE VARIOUS SYSTEMS OF HEATING—HOW TO INSTALL A MODERN LOW PRESSURE STEAM HEATING SYSTEM

IN A preceding paper, April number, we have discussed the subject of hot water heating for residences. Last month we took up warm air heating and showed how such a system should be installed for best results. The present article has to do with modern practice in steam heating. Steam heat has been too long in use and its advantages, especially for buildings of large size, are too well known to make necessary any argument as to its efficiency and success. It is in order, however, to consider briefly the best methods for installing such a system together with the rules for figuring amount of radiation, pipe sizes, etc.

The modern low-pressure system of steam heating is usually a gravity job, the boiler or steam generator being placed below the level of the steam mains. While the two-pipe system is still at times advocated and employed, practically all of the installations of low-pressure steam heating in these days are erected by what is known as the one-pipe method. There are several adaptations of this method—namely, the “one-

and after the total amount of radiation has been determined, the proper size boiler can be figured.

### How to Figure Radiation

The amount of radiation required depends upon three factors: (1) the size and location of the room; (2) the square feet of its glass exposure (windows and outside doors counted as glass); and (3) the square feet of outside or exposed wall surface. Too many fitters and contractors are using “rule of thumb” methods in calculating such requirements, thereby causing trouble and unsatisfactory results from installations of this character. Only such rules as are absolutely accurate should be used in figuring on work.

The Mills rule, known also as the rule “2—20—200,” is easily applied, and it is the one generally used by heating men. Its explanation follows:

Find the following three quantities in each room to be heated: (1) the cubic feet of contents, by multiplying together the length, width, and height; (2) the square feet of exposed or outside wall (not deducting the space occupied by doors or windows); and (3) the square feet of glass (counting outside doors as glass). After obtaining these results proceed in figuring thus:

For each 2 square feet of glass, allow 1 square foot of radiation; for each 20 square feet of exposed wall, allow 1 square foot of radiation; for each 200 cubic feet of contents, allow 1 square foot of radiation.

The total of these different results will be the number of square feet of radiation required to heat the room to 70 degrees with a pressure of 2 pounds of steam, the outside temperature being at zero.

For example, consider a corner room (two walls exposed) having three windows 3x6 feet in size. Dimensions of room, 15 by 20 feet, with a 10-foot ceiling.

$$\begin{aligned} 3' \times 6' &= 18 \text{ sq. ft.} \times 3 = 54 \text{ sq. ft. of glass} \\ 15' + 20' &= 35 \text{ feet} \times 10 = 350 \text{ sq. ft. of exposed wall} \\ 15' \times 20' \times 10' &= 3,000 \text{ cu. ft. of contents} \\ 54 \div 2 &= 27 \\ 350 \div 20 &= 17.5 \\ 3,000 \div 200 &= 15 \end{aligned}$$

Total, 59.5 sq. ft. of radiation required.

Having determined the number of square feet of

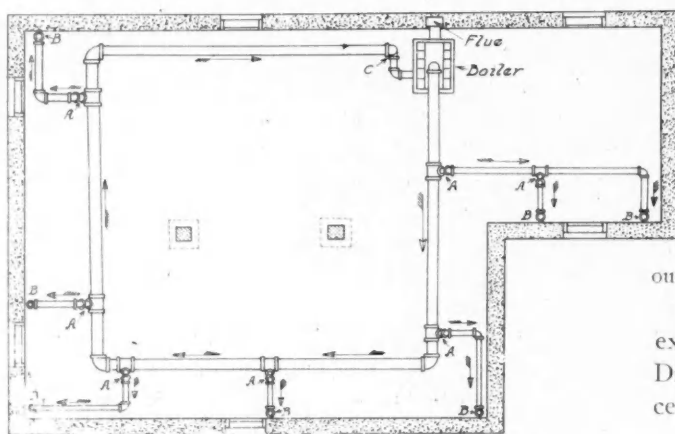


Fig. 1—One-Pipe Circuit System of Steam Heating

pipe circuit” system, the “divided-circuit” system, the “one-pipe system with dry returns,” the “one-pipe system with wet returns,” etc.

In planning for the installation of a low-pressure steam heating apparatus, it is necessary to figure the size of radiator needed for each room to be heated;



radiation necessary to heat the building, we proceed to the selection of the boiler.

The selection of a boiler of sufficient size means much for the efficient and economical operation of the entire job.

The catalogue ratings of all boilers for house heating, or "low-pressure" boilers, are gross ratings; that is, in the stated capacities, not only is the amount of radiation to be supplied considered, but all pipe, fittings, etc., on the work are counted as radiating surface, and allowance must be made for the same in accepting the printed ratings.

A safe plan when using such ratings, is to make the following allowances:

Actual square feet of radiation in building.....	600
Add 25 per cent for uncovered mains and risers.....	150
	750
Add 20 per cent for friction and condensation loss.....	150
	900

showing that for good service on the work the boiler selected should have a gross rating of approximately 900 square feet.

For economy, choose a boiler so constructed that it may be easily and thoroughly cleaned in all its parts. Soot is a great non-conductor; and the heating surfaces, to be effective, must be kept free from an accumulation of it.

The firebox and grate provided are features worthy of particular attention, as a firebox of proper depth, and a type of grate which can be easily cleaned and which is able to carry its full load of fuel without a sagging of bars, are essential points to consider.

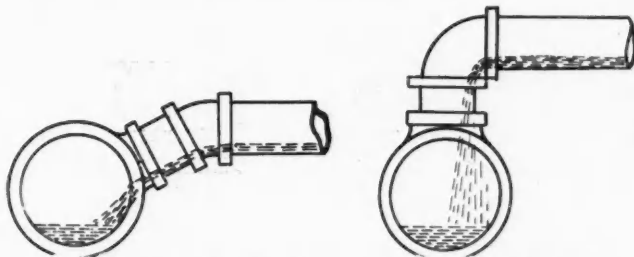


Fig. 2. Illustrating How Steam is Saturated by 90-Degree Connection to Main

A large amount of direct heating surface above the grate, with a length of fire travel sufficient to consume and utilize the gases of combustion, means economy of fuel.

#### One-Pipe Circuit System

The one-pipe circuit system of steam piping is doubtless used more than any other plan, as it is the one having the most advantages when installed in a square or rectangular building.

In this system, the upright pipe out of the boiler rises to as high a point as possible, up to within a few inches of the cellar joists. On its top is placed an elbow from which the circuit is started. This starting place is the high point of the main steam pipe; and from it the main should have a gradual fall or pitch

from the boiler of  $\frac{1}{2}$  to 1 inch in each 10 feet of length. The branches should pitch up from main at least 1 inch in each 5 feet of length, and as a rule should be of one size larger pipe than are the risers which they feed.

The circuit continues around the basement at a distance of from 3 to 4 feet from the outside wall, con-

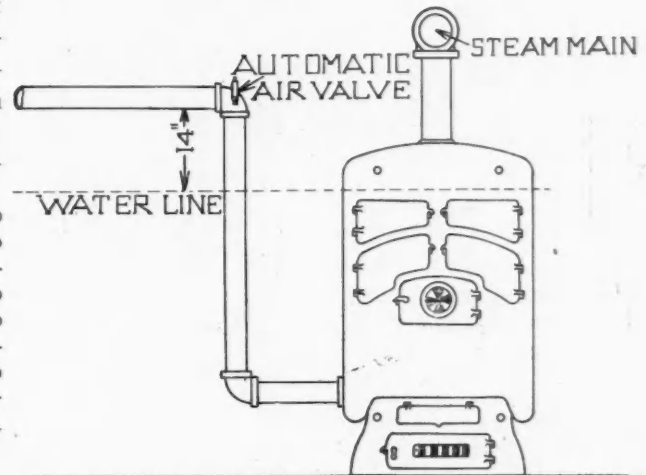


Fig. 3. Elevation of Boiler and Return Connection of a One-Pipe Circuit System of Steam Heating as Shown in Plan in Fig. 1

tinuing until an advisable point at or near the boiler is reached, where a reducing elbow is placed on the end of this main, and a drop made with a smaller size of pipe into the return opening of the boiler.

Fig. 1 shows the basement plan of a piping job of this character. The main acts as a reservoir supplying the various branches leading to the radiators, and also as a return pipe receiving the condensation from the various branches it feeds. By reason of this latter function, it should not be reduced, but should be run full size from the boiler to the end where the return connection is made. The condensation from the system runs along the bottom of the main in the same direction as the course of the steam.

At the extreme end of the main, where the connection to the return is made, there should be placed an automatic air-valve, in order that all air in the main may be quickly exhausted, and the main put in shape to be rapidly filled with steam so that all branches will be supplied at practically the same time, thereby securing an equal proportion of heat for all radiators.

Each branch connection may be taken from the main by either of two methods—namely, (1) by using a nipple and 90-degree elbow, and (2) by using a nipple and 45-degree elbow. The first method is preferred for the reason that in all low-pressure mains the steam flows along the top, the condensation along the bottom. With the 45-degree connection, the condensation from each branch enters the main without saturating the steam, while with the use of the 90-degree connection this water of condensation flows into the main on top of the steam supply, saturating it and thereby greatly reducing its efficiency. This difference is very clearly explained by Fig. 2.

Points marked A A A on Fig. 1 indicate the 45-degree connection; B B B, the risers to radiators; and C the point at which the automatic air-valve should be placed. The arrows indicate the downward pitch of the main and the upward pitch of the branches.

The end of the steam main should never be lower than a point 14 inches above the water line of the

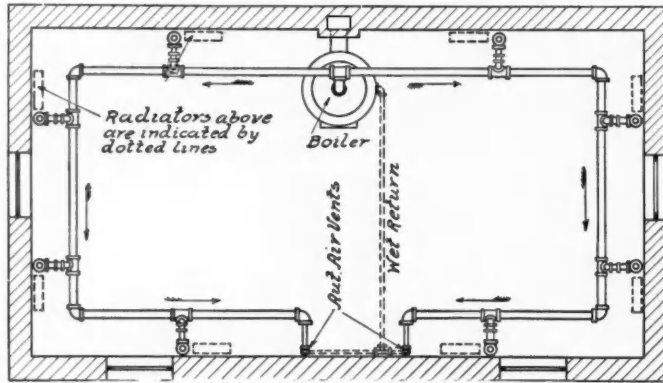


Fig. 4. Divided-Circuit System of Steam Heating

boiler; and, if possible, a distance of 20 inches should be maintained between the two points. Fig. 3 shows an elevation of the boiler and return connection of a piping system as shown in plan in Fig. 1 and clearly indicates the space to be maintained between the end of the main and the water-line of the boiler.

**Divided-Circuit System**

The divided-circuit or two-circuit system is quite similar in its general plan to the single-circuit, and what has been said regarding the details entering into the one will apply to the other. When the boiler is located on one side of a rectangular building, frequently it is better practice to run the main in two

ing around the basement until they meet at the side opposite to the boiler, or perhaps at some other point, the place of junction depending upon the character of the building or on circumstances surrounding the installation. At this point a reducing elbow and an automatic air-valve are placed on the end of each main, and a drop made to the floor of the basement, where, below the water line, these returns are connected together, and a single pipe having a capacity equal to that of both the drop pipes is run across the cellar floor, either on the surface or under it, to the boiler, where it is connected into the return opening.

Fig. 4 illustrates the divided-circuit system.

One distinct advantage of a one-pipe circuit system is that all piping is overhead and out of the way. In addition it affords a very neat and attractive method of piping, and will be found sufficiently effective provided care is exercised in properly proportioning the sizes of the pipes. Pipe-sizes for one-pipe systems are given in the following table:

**Sizes of Main and Return Pipes—One-Pipe System of Steam Heating**

Boiler Pressure, 2 pounds gauge.		Size of Main	Size of Return
Sq. Ft. Direct Radiation			
125 to 250 sq. ft.		1 1/2 in.	1 in.
250 " 400 " "		2 " "	1 1/4 " "
400 " 650 " "		2 1/2 " "	1 1/2 " "
650 " 900 " "		3 " "	2 " "
900 " 1,200 " "		3 1/2 " "	2 1/2 " "
1,200 " 1,600 " "		4 " "	2 3/4 " "
1,600 " 2,000 " "		4 1/2 " "	3 " "
2,000 " 2,500 " "		5 " "	3 1/2 " "
2,500 " 3,500 " "		6 " "	4 " "
3,500 " 5,000 " "		7 " "	4 1/2 " "

NOTE: The maximum amount of radiation given for any size of pipe is based upon favorable existing conditions, such as a short main (under 100 feet) and a compact job. When the mains are extremely long and the amount of radiation scattered, the larger size of pipe should invariably be used.

While some engineers consider the sizes as given somewhat excessive, the fitter can make no mistake by adopting them on heating work. Perhaps circum-

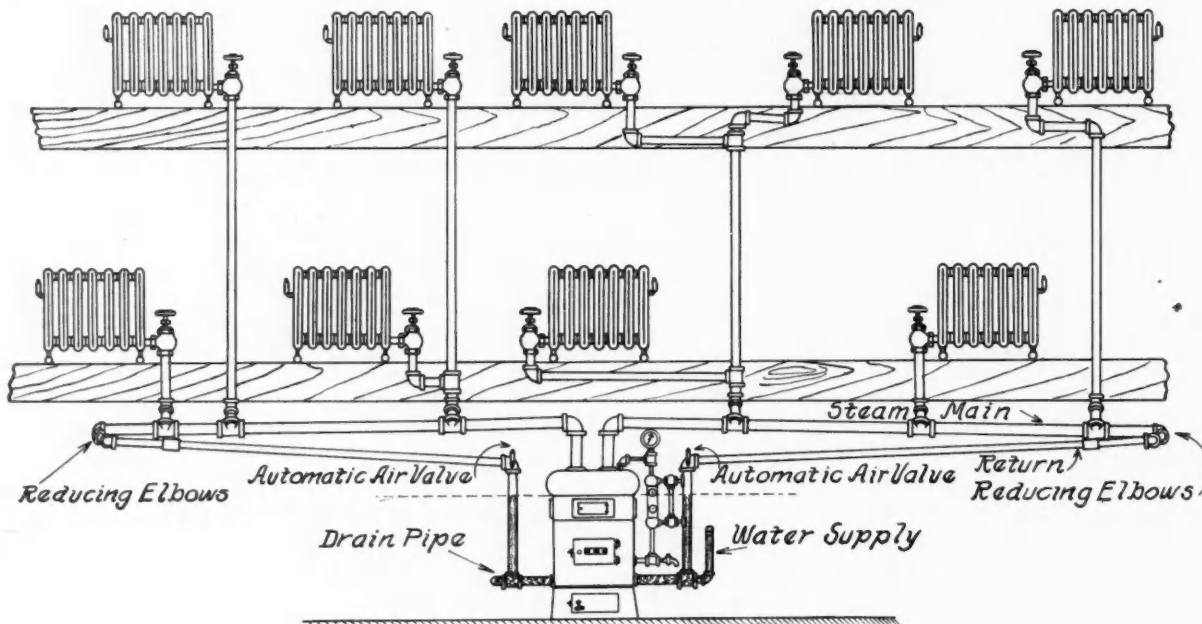


Fig. 5. One-Pipe System of Steam Heating With Dry Returns

circuits; and the method this provides is known as the *divided-circuit system*. On leaving the boiler, the mains pitch down from it in either direction, follow-

stances surrounding installations in some particular instances might warrant material reductions in the stated pipe sizes; but unless the fitter is fully conver-

sant with the effect these conditions exert on the plant, it is better to be guided entirely by the sizes given, which have been proven by conclusive tests as worthy of general adoption.

#### One-Pipe System with Dry Returns

The one-pipe system of steam heating is so called from the fact that there is but one pipe connection to each radiator, this pipe acting the dual role of flow and return. For this reason the use of this arrangement requires pipes larger in size than those necessary for the two-pipe system. There are several adaptations of the one-pipe method, that illustrated in Fig. 5 being the one particularly suited to a building where the main flow pipes may be run straight from the boiler in either direction.

Note the manner in which this connection is made. The return pipe is always one or two sizes smaller

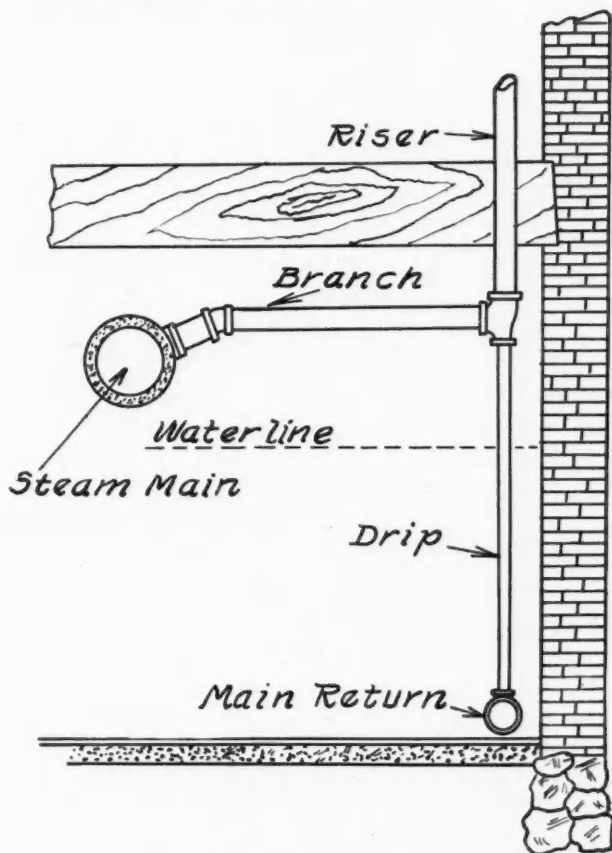


Fig. 6—Bleeding a Riser in Installing a Wet-Return System

than the flow, and the connection from main to return is accordingly made with two reducing elbows and a close nipple.

Where the elbow is placed on the end of the dry return for the drop connection into return opening of boiler, an automatic air-vent should be used, and this point should not be less than 14 inches above the water-line of the boiler, as previously described.

All branches are taken from the main with a 45-degree connection and they should always pitch upward from the main at least  $\frac{1}{2}$ -inch in each 5 inches of length. When supplying large radiators, the branches, as a rule, should be one size larger than the

riser or radiator connection which they feed.

It is well to make connections to radiators in such a manner as will permit of some expansion of the riser. A swing joint at base of riser is sometimes employed for this purpose.

#### One-Pipe System with Wet Returns

The one-pipe system of steam heating with wet returns does not differ materially from any one of the methods previously described so far as the manner of running the mains and connecting the branches is concerned. There are some heating men who favor a wet-return system, believing that the provision of the wet return steadies the working of the system or "balances" the job. This system is specially adapted to jobs where the mains are exceptionally long or when surroundings make it necessary to work unusually close to the water-line of the boiler.

A wet return would be started on a circuit job as soon as the last branch or radiator has been connected, but the drop should not be made directly at the last connection. The main should be extended not less than two feet beyond this point, where a reducing elbow tapped for an air-valve should be placed on the end, and the drop then made into a wet return. This return, as a rule, is carried along the cellar wall to a point where a connection with the boiler can be conveniently made.

One method of installing a wet-return system is to bleed all risers, as illustrated in Fig. 6. If the job is of such a character that the risers can be treated in this manner, much smaller piping may be employed than is ordinarily necessary with one-pipe work, as no condensation enters the main from radiators or branches, and its entire area is free space for the conveyance of live steam. Also, where risers are dripped into the return in the manner illustrated, it makes no difference in the results attained whether a 45-degree or a 90-degree connection is used in starting the branch from main.

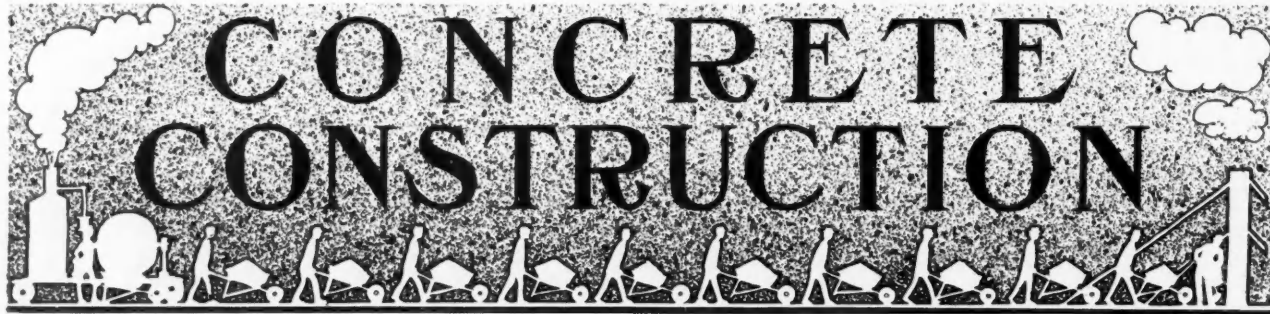
#### Imperfect Gas Heaters Cause Death

Improperly installed gas water heaters and stoves especially in bath rooms have caused many deaths from carbon monoxide gas poisoning in different parts of the country recently. Attention was called to this danger in a forceful manner for the first time about a year ago when an entire family was killed at Washington, D. C. Undoubtedly many deaths ascribed to asphyxiation by illuminating gas have been due to this form of poisoning. There is always danger where the gas heater or stove is improperly installed and there is no ventilation for the room. All the oxygen in the room is quickly consumed, and the poisonous gas fills the lungs. Several instances of death in this form occurred within the last month in Chicago.

#### Erased

"Is there any soup on the bill of fare?"

"No, sir—there was, but I wiped it off."



## Concrete and the Carpenter

THE CARPENTER'S INTEREST IN MODERN CEMENT CONSTRUCTION—POINTS IN THE MANUFACTURE AND USE OF BLOCKS OF INTEREST TO BUILDERS

By James F. Hobart, M. E.

THE carpenter cannot deny the fact that his trade is in a precarious condition, due to the increasing scarcity of lumber of all kinds. The ever-increasing price tells the story all too plainly; and unless the carpenter "takes the bull by the horns" he will be severely maimed, if not exterminated, by that same bovine. For years the builder has been on the lookout for a substitute for wood and he has tried almost every material to be found upon the face of the earth. Within the last few years he has come to accept a material so common and so despised that it had been overlooked by everybody as utterly useless for that purpose.

Less than ten years ago, only a few far-sighted people realized that the despised gravel bank contained a substitute, not only for lumber but for brickwork and stonework as well. Not only is gravel proving a very efficient substitute, but it is found to possess qualities

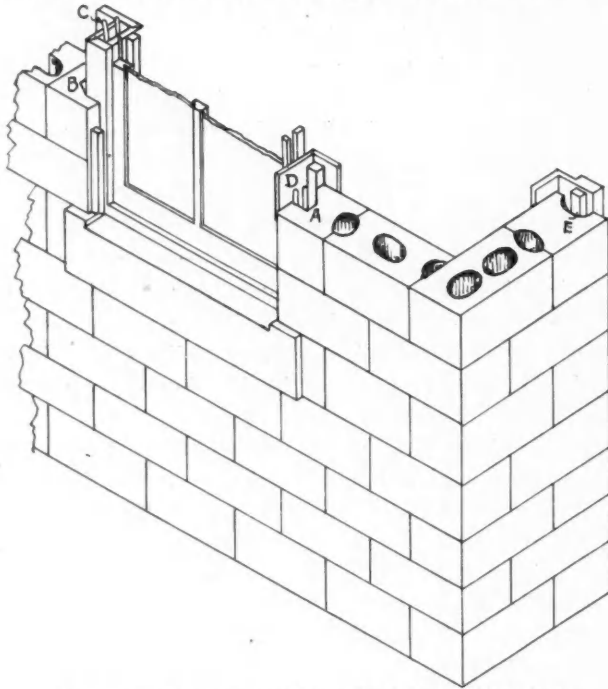


Fig. 1—Window and Door Frame in Concrete Block Wall

which place it far in advance of either the lumber pile, the stone quarry or the clay bank.

The gravel bank, when properly combined with a

certain quantity of good hydraulic cement and water, forms a material which will not burn or crush, and which neither wind, sun, rain nor earthquakes can destroy. While lumber may rot or weather and dissolve under the action of rain and sun, while certain kinds of stone may be dissolved by the elements, properly made concrete will endure forever. Concrete is always becoming harder, but it never attains its full strength. This may seem a queer statement to the man who has not given the matter thought, but such is the case. While concrete attains nearly its full strength in 28 days after having been properly made and kept wet for that period of time, the concrete hardens a little more during the succeeding 28 days, but not nearly as much as during the previous period.

And succeeding periods or months witness still further hardening until the material does not harden in a year as much as it did in the first week. And in the next year and each succeeding year it does not harden as much as it did in the preceding year, yet it hardens a little—though very little in each of the latest years. By "hardening" it is understood that the strength of the concrete as to resistance to crushing, increases each year.

The writer has repeatedly demonstrated that from any ordinary gravel bank containing material up to the size which will pass through a  $\frac{1}{2}$ -inch sieve and be retained upon a  $\frac{1}{4}$ -inch sieve, there can be made at will building blocks which will, with 12% of cement, weigh 175 pounds to the cubic foot, crush at least at 2,300 pounds to the square inch, and absorb less than 5% of water. Also, that from the same gravel bank there can be made blocks which will not weigh more than 155 pounds to the cubic foot, which will crush at 800 pounds to the square inch, and which will absorb at least 20% of water! All this from the same gravel and anywhere between the extremes noted above. In the case of the dense, strong concrete the sizes of sand and gravel will be exactly proportioned, while to make the porous block, a single size of material will be selected, hence the necessity of properly combining the several sizes of sand and gravel in a manner which will insure the voids being filled completely.

Even though concrete blocks are abused horribly in their making, they are abused worse in the setting. It is comparatively easy to pile the blocks one on top of two others, in the form of a wall, but that does not constitute all there is to concrete block using—not by a good deal. Only today a gentleman wrote to know why his blocks cracked so badly. He stated that at nearly every window and every door a crack had developed at a corner, either above or below the opening, and he desired to know how to remedy the trouble, which prejudiced people against the blocks he made.

Here, blocks were saddled with a trouble which did not belong to them; for insufficient foundation, which permitted local settling, was the cause of this man's trouble. How often have we seen the walls of brick houses cracked at doors and windows, from the same cause, yet no one ever thought of trying to lay the trouble on the bricks from which the walls were made. It's another apt illustration of the old adage: "Give a dog a bad name and it'll hang him sure."

And there is another matter which is brought up against houses made of concrete blocks—they ask how to put up interior finish, and how to attach it to the concrete work! Now, really, wouldn't that jar you? Do you hear anybody ask how to put up finish in a brick or in a stone house? No. Then why not do the same way with a concrete house? Door and window frames should be set in exactly the same manner that they are handled in a brick house. Fig. 1 shows the manner in which a window jamb should be fastened into a block wall. In making the block two methods are available: an attachment may be used which will turn out a block as shown at A, Fig. 1, or a plain block of wood may be placed in the mold as at B, to form the corner or jog in the concrete block to receive the window jamb and the weights.

And the making of window and door frames fast in the block walls? Why, a splash of mortar is all that is required, the same as when frames are set in brickwork! A cleat nailed to the wall side of a door jamb and well flushed with mortar when setting the blocks will hold the door-frame tightly in place for more years than any person will ever live to see or use the door.

The concrete block made with the block machine attachment, as shown at A, Fig. 1, is for a frame made very slight and cheap, with a corner piece as shown, and mere cleats of box casings to hold both inner and outer sash in place against the parting bead. The block made by placing a block of wood in the mold is to receive a regular box casing as shown at C, Fig. 1, makes a much more satisfactory job, and it also costs a good bit less than the arrangement shown at A, where the weights hang directly in a pocket in the concrete wall.

If desired, nailing pieces may be built into the inside faces of the blocks to receive the nails in inside window casings, but more often these nails are driven right

into the mortar joints between the block courses, the same as is the practice in nailing to a brick wall.

In setting door frames, the jamb block may be used the same as for windows, or the ordinary block may be employed and the frame held in place by means of a strip or cleat nailed to the frame as shown at E, Fig. 1, and with cement mortar flushed into the block around the cleat, the door-frame can never shift its position in the least. Personally I would recommend, however, that whenever custom or convenience calls for a bit of wood, as in the nailing strip, or in the door frame or even in the door, a way should be found of putting in something else instead of wood. The steel window frame, the steel door frame and the steel door and steel window are all here to stay. The steel cornice has been in use for ten years and then some, and no builder would today think of putting up one of the heavy, clumsy, fire-trap cornices used twenty years ago. When the desire comes to put a nailing strip in a concrete block, see if some other way cannot be found to do the same work without the use of wood. Fig. 2

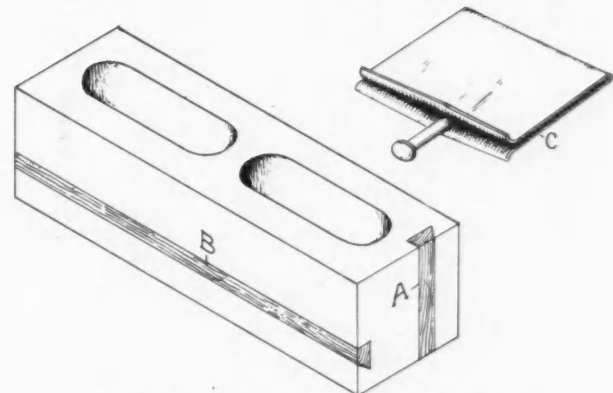


Fig. 2—Some Nailing Strips and a Substitute

shows a couple of nailing strips and the manner in which they are made into the blocks when the latter are molded; A shows a vertical nailing strip and B a horizontal strip. C shows a metal nailing strip which may be purchased by the yard, or in any length desired, by the thousand, and placed in the block joint just where it is required to receive a nail.

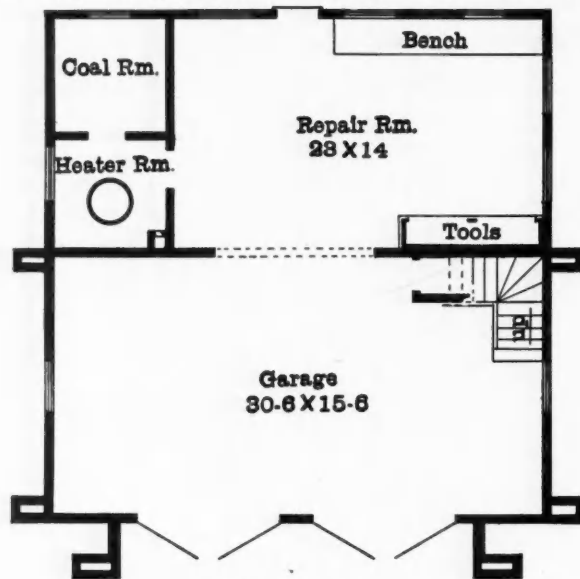
But the use of metal nailing strips, or pockets, requires a detailed laying out of the inner walls, so that each and every nail may be accurately located before the blocks are made for the building. Furthermore, it calls for the numbering of each and every block and the placing of that block in the exact position called for by the drawings. This seems like a whole lot of work, but it is really very simple. The wooden nailing strip (when used) must also be accurately located. The cut-stone contractor has long been making drawings of each stone, fitting each very accurately and then numbering them—he has been doing this for many years, and why should not the block maker do it as well, as long as it adds to the accuracy of the work to fireproof qualities thereof, and to prospect of a profession independent of lumber or its increasing scarcity?

## Two Garage Designs

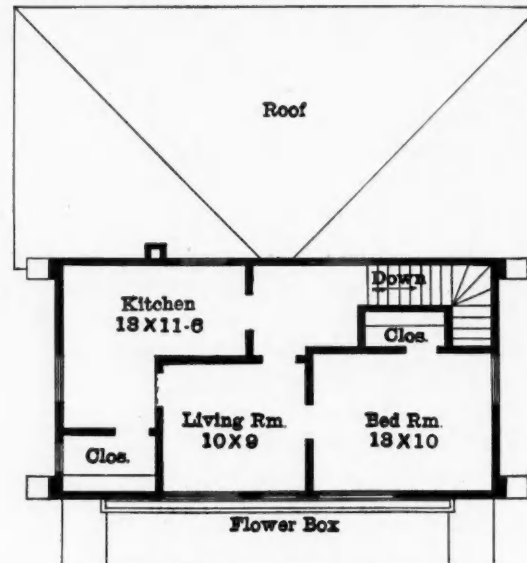
REQUIREMENTS FOR A GARAGE TOGETHER WITH THE INCREASING DEMAND FOR THIS KIND OF WORK—TWO GOOD DESIGNS, ONE LARGE AND ONE SMALL

AS a factor in the evolution of business and social life, the automobile, or self-propelled power-driven vehicle, is already playing a part as spectacular and important as did its predecessor, the bicycle. While it is probable, on account of its cost, that the automobile, for purposes of pleasure and social intercourse, will always be classed as a "luxury" and its use confined to those who might be designated as the "well-to-do," yet for business purposes the facilities it affords are

the motor vehicle is perhaps most apparent among people living in suburban towns and in the outlying districts of the larger commercial centers; but even in the crowded business sections it is much in evidence, and is the basis of a distinctly new line of commercial activity—that of the erection and maintenance of special structures for the safe housing and storing of automobiles and meeting the fluctuations of supply and demand for the conveniences that these afford. These buildings are known as



First Floor Plan



Second Floor Plan

coming more and more to be looked upon as a "necessity" even for those of moderate means; and in this connection it is destined to play a part of continually increasing importance as a great modern convenience and a much-needed supplement to any business equipment.

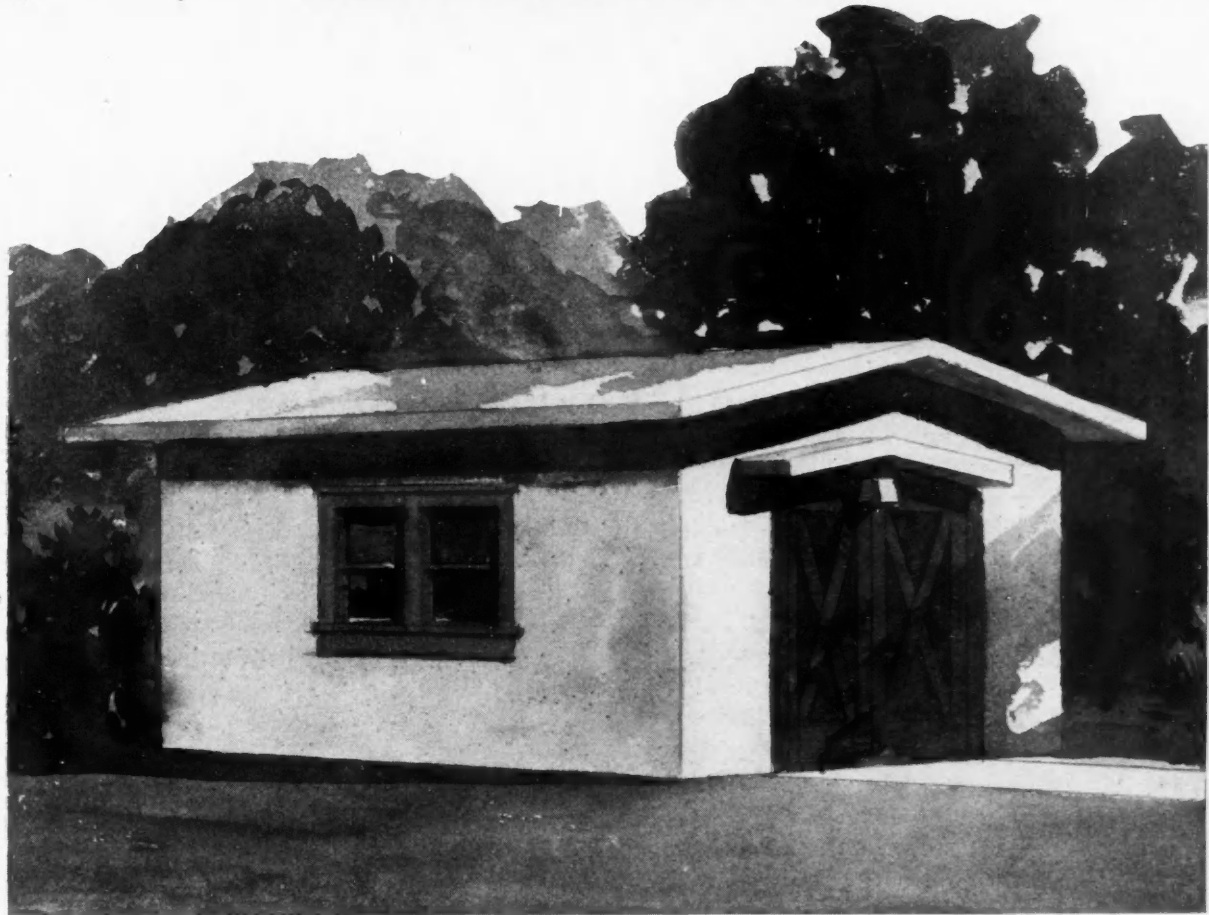
At the present time, the increasing popularity of

garages—a term of French origin—and they range from the simplest type of protective enclosure to very costly structures fitted with elaborate details of accessories and equipment.

The first design presented is for a two-story private garage to be built of stucco. Lower floor is devoted entirely to the storage of machines, work



Two Story Private Garage with Living Quarters on Second Floor. Cost \$2500.

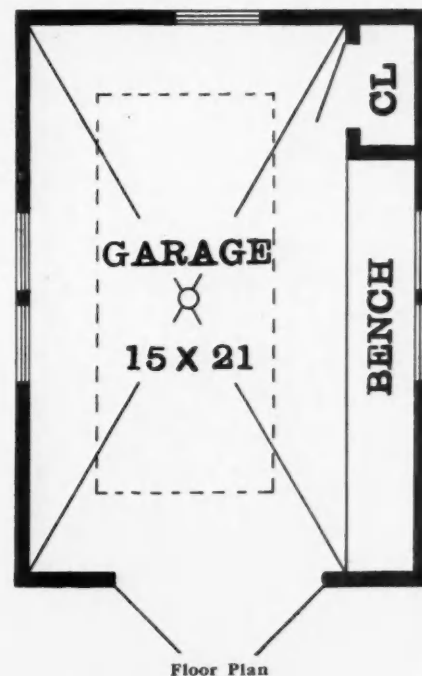


Small 1-Car Garage of Stucco Which Can Be Built for \$500.

room, coal room and heater room. The second floor contains the living quarters for the chauffeur. The pleasing features of this design is the wide cornices and the flower box over the front entrance. The other is a very attractive Mission design in stucco for small private garage.

Common sense should prevail in the construction of garages, just as truly as in any other line of intelligently directed activity. And yet we know of instances where a stable costing \$2,000 or upward is used to house a one-hundred-dollar horse, while a \$5,000 automobile is committed to the protection—or rather the counterfeit pretense of protection—afforded by a flimsy wooden shack that offers no obstruction to vandalism or the ever-present danger of a catastrophe of fire.

On account of the necessity of storing gasoline, oil, and other combustible materials, a garage—specially if built entirely of wood—is peculiarly exposed to the dangers of fire either as a result of carelessness on the part of the chauffeur or other help in the storing of materials, the handling of lights, tools, etc.; from spontaneous combustion; or, as often happens, from the spread of fire from outside conflagrations. Special precaution should therefore be taken to provide against the danger by adopting a material and type of construction that will reduce the risk to a minimum. The increase of safety is a consideration that will far more



Floor Plan

than offset the small excess of cost in a substantially fireproof structure as compared with the ordinary flimsy shed that is liable to burn at any moment.

Automobile owners are beginning to realize this, and are demanding that all the conditions of safety as well as economy and convenience shall be met in the plans from which their garages are built.



## Varnish and Varnish Rubbing

SOME PRACTICAL SUGGESTIONS AND RULES FOR SUCCESSFUL WORK IN PRODUCING THE MODERN EGG-SHELL GLOSS AND DEAD FLAT FINISHES

By A. Ashmum Kelly

THE architect specifies hard wood rubbing in two forms, namely, the egg shell gloss and the dead flat. Simple as the operation is, yet varnish rubbing demands an experienced hand. And the varnish must be right, saying nothing of various other conditions which make or mar success. Varnish intended for rubbing is made with that specific purpose in view, and it must contain the right proportions of gum and oil if it is to rub well. Then, the workman must understand the varnish, and be able to tell just when it is fit to rub. If the directions on the can call it a two-day rubbing varnish, it may undoubtedly be that, but it is not well to be guided solely by those directions, for more will depend upon the weather and the atmosphere of the room. If, when you press a finger nail into the surface, it does not yield, that is a good rule. Otherwise it is too soft to rub well; when the varnish is not hard dry enough it will rub up under the rubbing, and go soft also. An amateur hand once came to me to say that his work was all in little bare patches, and what could be the matter? He was rubbing with oil, and the oil had softened up the varnish, and the pumice had cut through. The trouble was with the varnish not being sufficiently dry for the rubbing. Then, the oil is more liable to rub up than water, so that it is safer for the learner to rub with water, which, particularly if very cold, tends to harden, rather than soften the varnish. When you rub through that way the job is spoiled as far as the work goes. The entire surface varnish must be removed and done over again.

Water rubs faster than oil, but oil is safer where there are joints that water would get into causing damage.

Rubbing should be in the direction of the grain, and never across the grain. Rub in a rotary fashion, not bearing on too much, and make a steady, measured movement from one end to the other. Be very careful about the edges and corners and mouldings, that you do not cut through. Rub in one place no more than in another. Don't let your rubbing pad become dry. Dip frequently in water and powder and use plenty of both. Both are cheap.

After you have rubbed for a while, clean off with

water and look at the work. The idea is to rub just as little as will do the work, over-rubbing doing much harm, while under-rubbing can easily be remedied by a little more rubbing. What is desired is to merely remove the gloss from the varnish, and not to level it down.

The rubbing accomplished, wash off with water, plenty, and a sponge and dry with a chamois skin.

The finest work will demand more coats of varnish, and each coat rubbed. After the rubbing with pumice stone powder and water you can rub with oil and rotten stone. The pumicestone makes many fine scratches on the work, and it is the office of the rottenstone to remove these scratches. Further rubbing may be done, on the very finest work, with the palm of the hand, which is considered to be the best possible rubbing pad. The last coat may be a high-grade varnish. When rubbing with the hand is done dry lampblack and sweet oil is used. Then cornstarch is dusted on the work, this taking up the oil and removing it. Yet it does not remove every trace of the oil, a very thin film remaining to mar the polish, and this is removed in turn by a rag moistened slightly with alcohol, the rag being passed quickly and very lightly over the surface. Easily indeed might the entire fine finish be ruined if this were done carelessly. The alcohol would do the work. But the expert dampens the rag in the alcohol, then wraps another piece of rag around that, and very deftly wipes off the surface, causing the full polish of the work to show.

### Use and Abuse of Varnish

When a can of fine varnish comes to us from the maker thereof we find it in a fluid condition, ready for use. It has a very pleasant odor, and an unctious feel. There is no sign of skin about it, though the varnish may have been in that can a year. Pour some of it into a shallow dish and set it away until the morrow. A skin has formed. Coat a piece of wood or glass with the varnish from the can, and in a day it is apparently dry all the way through. Such in brief is the process that varnish goes through in drying. Keep the air away from it, as in a can, and it will maintain its fluidity indefinitely. Contact with the air



causes it to dry. Perhaps drying it is not the proper word, for it does not dry as wet cloth dries in the breeze, but, rather, it takes up oxygen and hardens. When we apply a coat of varnish to a proper surface we want it to dry within a reasonable time, failing to do which the job will not be right. Varnish needs air to dry in, and the air must be pure, and there must be sufficient circulation of the air and ventilation too. Impure air interferes with the drying. Air full of gas and vapors impairs the luster. The varnish room should of course be shut up, but there must be in it plenty of fresh and clean air from the outside. Then, after the varnishing is done, open up and let the air in freely.

Varnish will not dry well in the dark; this seems strange, but it is true. It will dry more in an hour of daylight than in two hours of night time. The best work we do is that done in the morning. Then the varnisher needs plenty of light that he may see to do his work well. Varnishing demands good eyesight and plenty of daylight. Dry air is essential. The temperature of the room should be not lower than 60 degrees, nor higher than 70 degrees. Too high a temperature will retard drying.

#### **Surfacing and First-Coating**

After the wood has been filled with paste filler it should be coated with a liquid filler, which is not a filler at all, but a surfacer. Though the wood has been well filled with paste filler, yet the fibres will absorb a good deal of liquid if given the chance, and unless we apply a surfacer to satisfy this thirst it will come out of the first varnish we apply to it. When this occurs we will find the varnish full of pin-holes, showing where the varnish was taken in by the wood fibres. Shellac is often used over the filler, but something cheaper will do just as well. Any good varnish makes a surfacer, with a little mineral in it. Thin it a good deal, the same with shellac when used for this purpose. What is known as liquid filler, used on cheap work, will not do in this case. It makes a rough surface and one very hard to smooth down. A thin surfacer does not form a rough surface, and it is easy to rub down smooth.

#### **Some Rules for the Varnisher**

See that the surface is clean, free from dust or grease or marks, and smooth, or the varnish will not bear out brilliant.

If the varnish coating is too thin it will not bear out well; if too heavy it will not spread and level up smoothly.

Use clean varnish, clean pot, clean brushes, clean overalls.

Never turn back into the can any unused varnish; pour it into another can for another purpose, or for work that is not particular.

Never wet your brush with oil or turpentine during the operation of varnishing.

See that the varnish room is free from flies, dust

and dirt. For the flies, set a saucer near the light, and in it place some formalin, diluted with water, which makes a good fly killer.

Allow each coat of varnish as much time for drying as possible, and never less than one day, while two or more are better still.

Never add cold oil or turpentine to the varnish if it is thick, but heat either and heat the varnish too, then add the thinners. Shake well also. Too much turpentine will effect the lustre of the varnish, while too much oil will make it too soft.

Varnish often cracks because the first coat was not dry when the second coat was applied.

Keep your varnish stock in an even temperature, and never let it become chilled. If chilled it is not fit to use until heated. Chilled varnish will spoil a job.

Light bodied varnish brushes out easily and does not show the brush marks as a heavy varnish will unless carefully laid.

Heavy bodied varnish should not be brushed out much, but be flowed on in a full coat, so that it will level up itself.

Always use a brush of a size suitable to the extent of surface that is to be coated. Sometimes a bristle brush is best, and at others a soft hair brush, depending on the nature of the varnish and the character of the work. For ordinary house varnishing use a good elastic hog bristle brush is good. Usually the varnish used on house work is more or less heavy bodied and needs a stiff bristle to cut through; then the bristles in cutting the varnish allow the air to enter more freely.

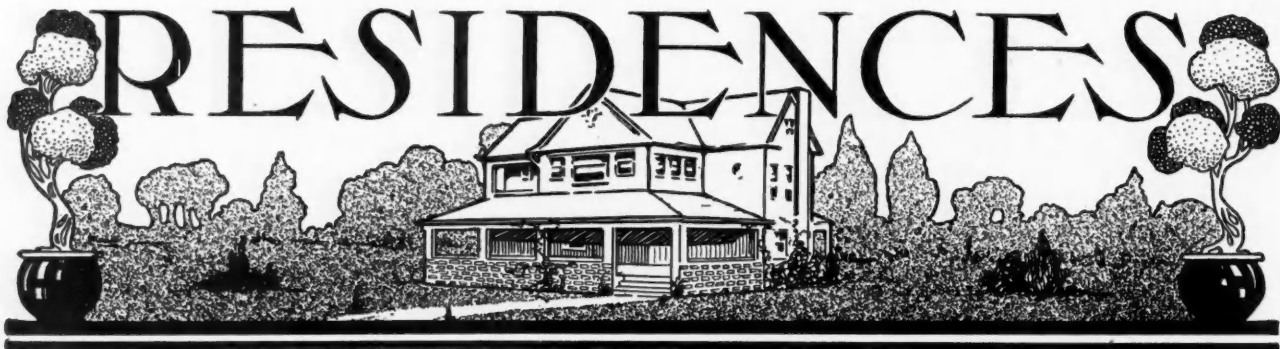
Never try to hasten the drying by adding driers to the varnish. It will pin-hole the varnish when it is on and dry. If the varnish is too slow, better add some quick-drying varnish to it.

If the varnish you are using remains sticky after it has had ample time for drying, be sure that it is a very low grade article. It contains rosin and rosin oil likely. Neither will dry, but get softer the longer it remains.

Always use the varnish that was made for the purpose in view. Never use a varnish for a purpose to which it is not adapted.

#### **Chestnut**

For several years Pennsylvania has ranked first as a producer of chestnut lumber, its proportion of the total cut in 1908 being 18.9 per cent. The output, however, was a decrease of more than 25,000,000 feet from the cut in 1907. West Virginia ranked second in 1908, as in 1907, though with a decrease of 28,900,000 feet, or 24.5 per cent, in the later year. The output of chestnut lumber in Connecticut in 1908 was 2,711,000 feet more than in 1907, giving this state third place instead of Tennessee, which held it in the previous year. The decrease in the output in Tennessee was nearly 15,000,000 feet in 1908 as compared with 1907. Taken together, these four states furnished three-fifths of the total production in 1908.



## Complete Plans for Modern House

FULL SET OF ARCHITECT'S DRAWINGS FOR A VERY FINE BRICK VENEER AND CEMENT PLASTER RESIDENCE OF NINE ROOMS

**T**HE accompanying is a rendered perspective of a very attractive and substantial residence, thoroughly modern in both construction and design. On the eight pages following will be found the complete working plans for it, all drawn to scale and carefully worked out in every detail.

Standard frame construction is used, with the popular exterior treatment of dark brown pressed brick for the first story, from grade up to the second story windows, and cement plaster above. The design would undoubtedly be improved by keeping

ing as large a space as possible that could be thrown into practically one room on occasions. Sliding doors between living room, hall and dining room accomplish this.

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### From an Experienced Paint Man

As to the best time to paint, a practical painter writes *Brush and Pail*, that the wide-awake painter who is out for business, will advocate spring painting in springtime, and fall painting in autumn.

As to the durability of paint, here is my experience:



Beautiful Residence of Brick Veneer and Cement Plaster Designed for F. W. Schooly, Kansas City, Mo.

the dormers plain; in this particular case the circular arch roof had to be introduced to get space for a full height attic room.

The first floor was laid out with the idea of hav-

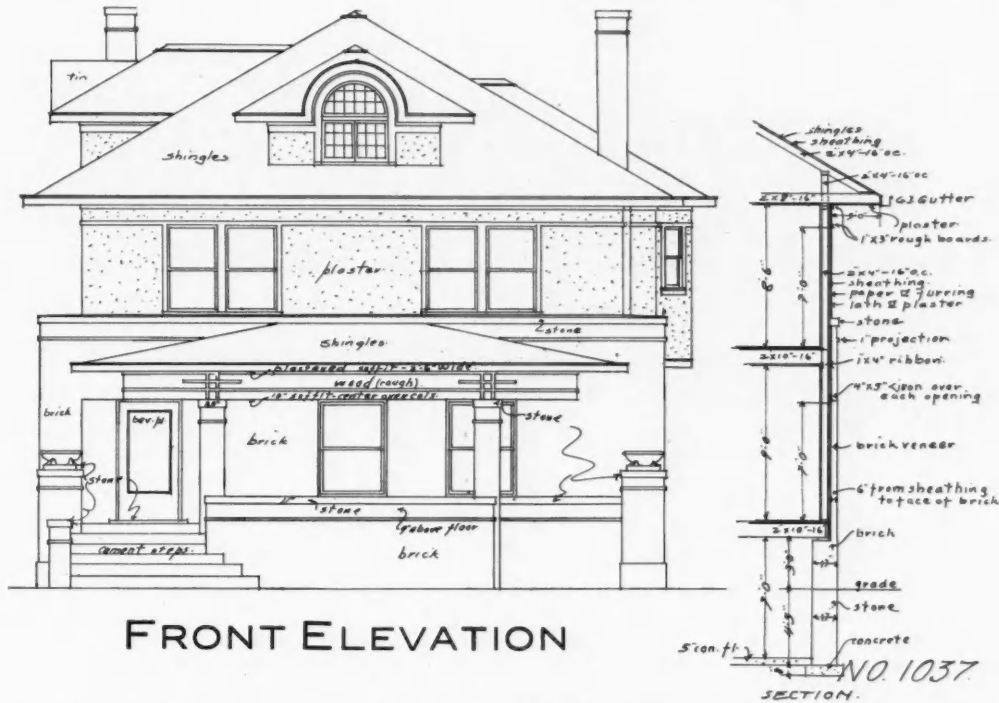
First—Paint applied to a damp surface will not stand.

Second—Paint applied three hours before frost will not stand.

Third—Paint mixed with boiled oil in midsummer will not stand.

Fourth—Paint applied to any surface containing even the smallest per cent of alkali will not stand; the

with a good brand of mixed paint, and both houses painted by first-class painters—may show a vast difference in wearing body. In this southern country the mixed paint house may show up better in five years.



FRONT ELEVATION

alkali must be eliminated or a new, "inert" surface made.

Fifth—Paint mixed with a large portion of turpentine, benzine or kindred products will not stand on outside work.

Sixth—I have had as good results from some of

In Minnesota the lead and oil job may show up better. In an eastern state or in Mexico the difference may again change. Again, two houses may be painted with the same brand of paint—one by a practical painter, the other by a novice—then a man half blind can see the difference.



RIGHT SIDE ELEVATION—HOUSE PAGE 58

the leading brands of ready-mixed paint as from straight lead and oil, but no better. Good mixed paint, used by a scientific painter, is as good as lead and oil, but no better.

Two houses—one painted with lead and oil and one

Further, on my experience as to the time to paint: Paint applied on the outside in the spring should be mixed with raw linseed oil, with just enough dryer to set it in five hours. In paint applied in summer there should be no dryer, no turpentine, simply straight raw

oil. Paint applied in fall should be mixed with boiled oil, and if the owner is wise to his interests and has one more coat applied the next spring with pure raw oil, he will undoubtedly have a durable job.

All ready-mixed paint should be thinned for priming, with boiled linseed oil, and for finishing with raw

turpentine or benzine or burned up with dryer is bound to stand if applied by an expert brush wielder. Ready-mixed paint thinned with raw linseed oil and put through a strainer and applied by a practical painter will stand, if it is a good brand of paint.

A painter often thinks that because his keg of lead



LEFT SIDE ELEVATION

oil. This makes a durable job if you have a good brand of mixed paint.

Yellow pine should not be primed with any kind of paint containing turpentine or benzine.

or his can of paint looks clean it does not need to be strained, but there he is wrong, for he may stir and stir till he is weary, and when he uses to the bottom of his paint bucket he will find lumps and particles

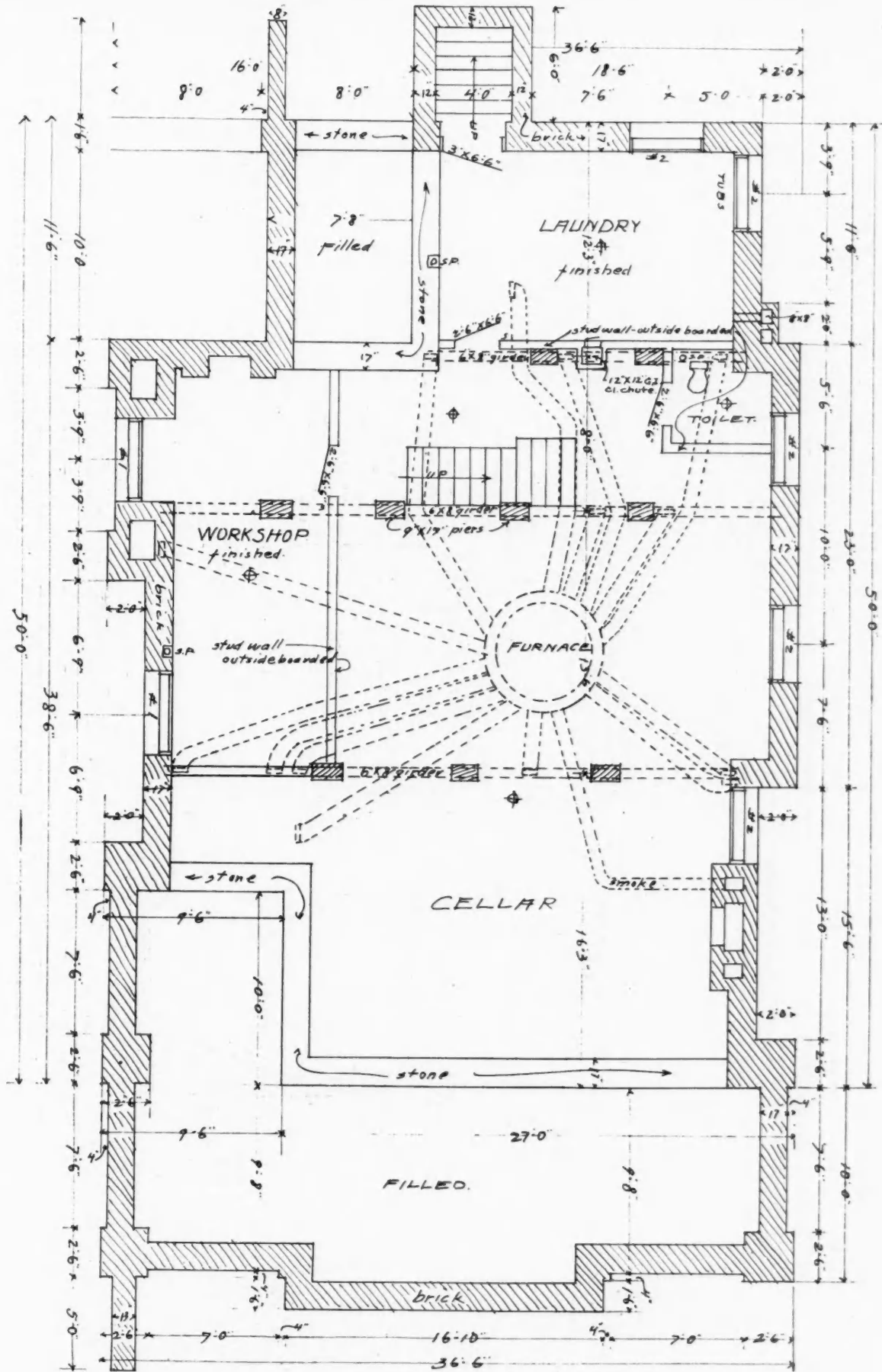


REAR ELEVATION—HOUSE PAGE 58

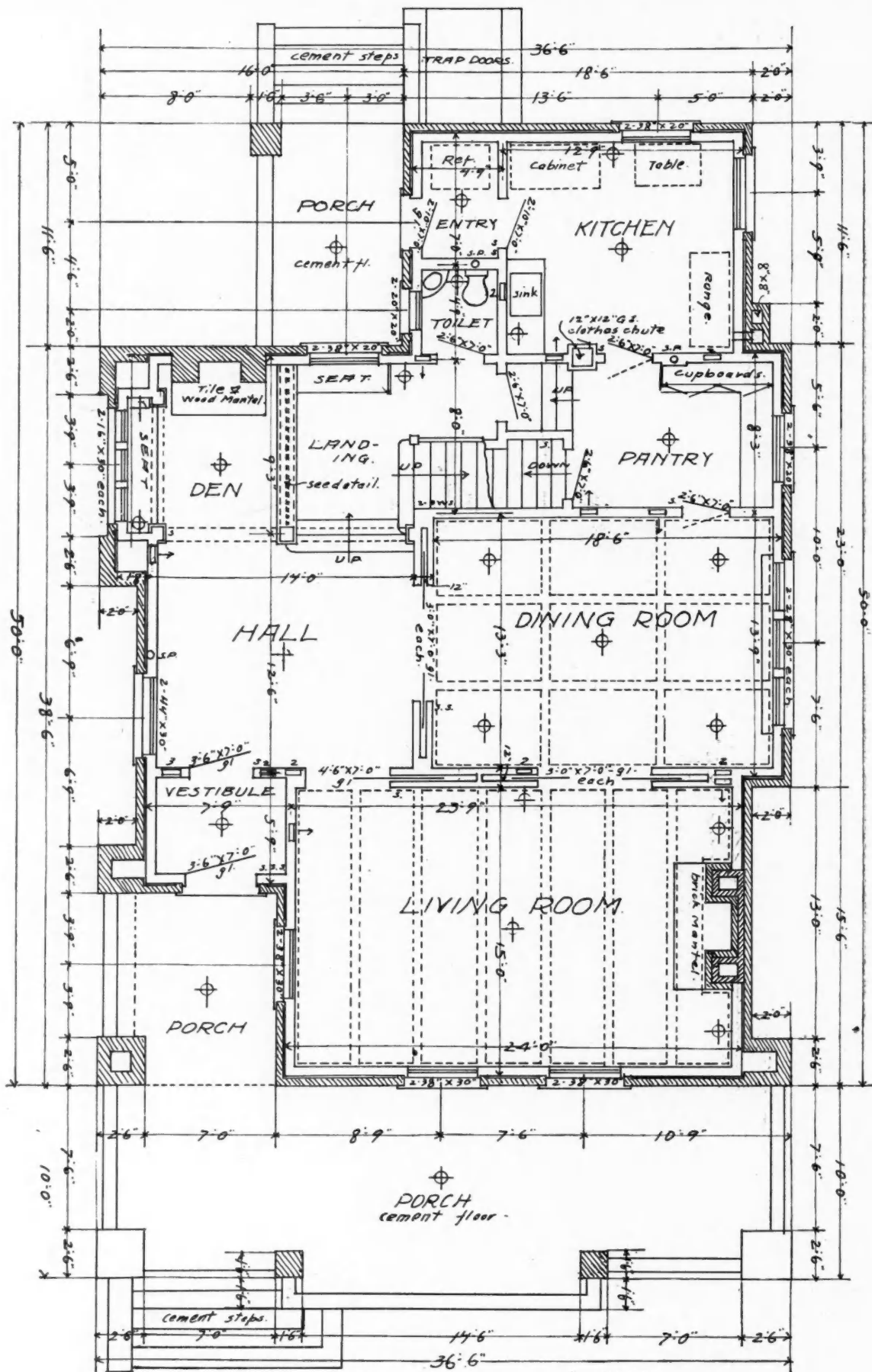
Many painters first cut their lead with turpentine, because it saves elbow grease. This is a mistake. Many painters mix lead and oil and apply it without straining, and then wonder why it chalks off.

Lead mixed with raw linseed oil and run through a piece of cheesecloth so that every particle of lead has its required amount of oil and is not cut up with tur-

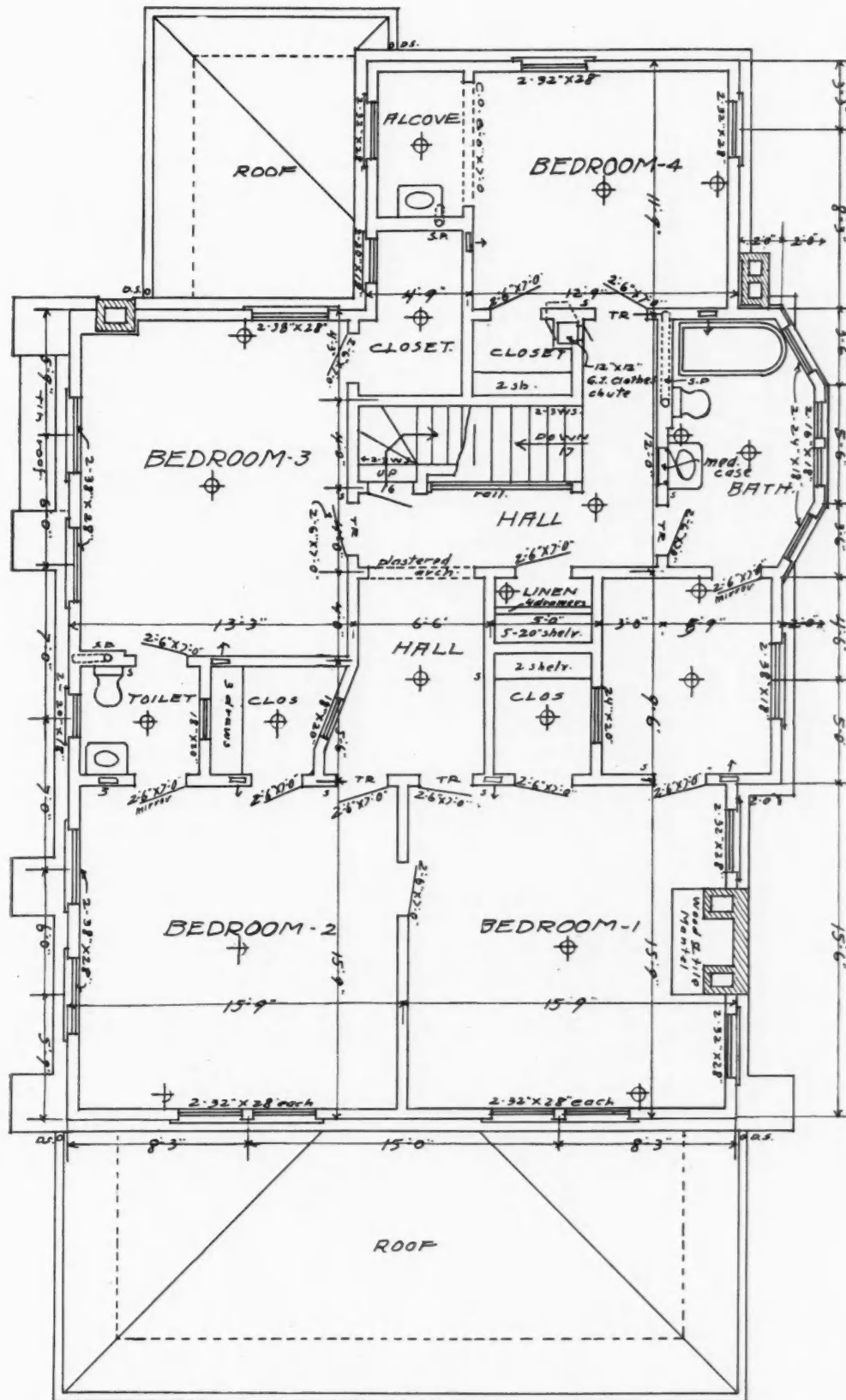
that are not well mixed; but if he uses his strainer properly, the last brushful will be as good as the first. It pays to strain, it pays to study climatic conditions, and it pays to take interest enough in your business to know how to mix your paint to combat the biting frosts in winter and the fierce rays of Old Sol in mid-summer.



FOUNDATION AND CELLAR PLAN—HOUSE PAGE 58



FIRST FLOOR PLAN—HOUSE PAGE 58



SECOND FLOOR PLAN—HOUSE PAGE 58

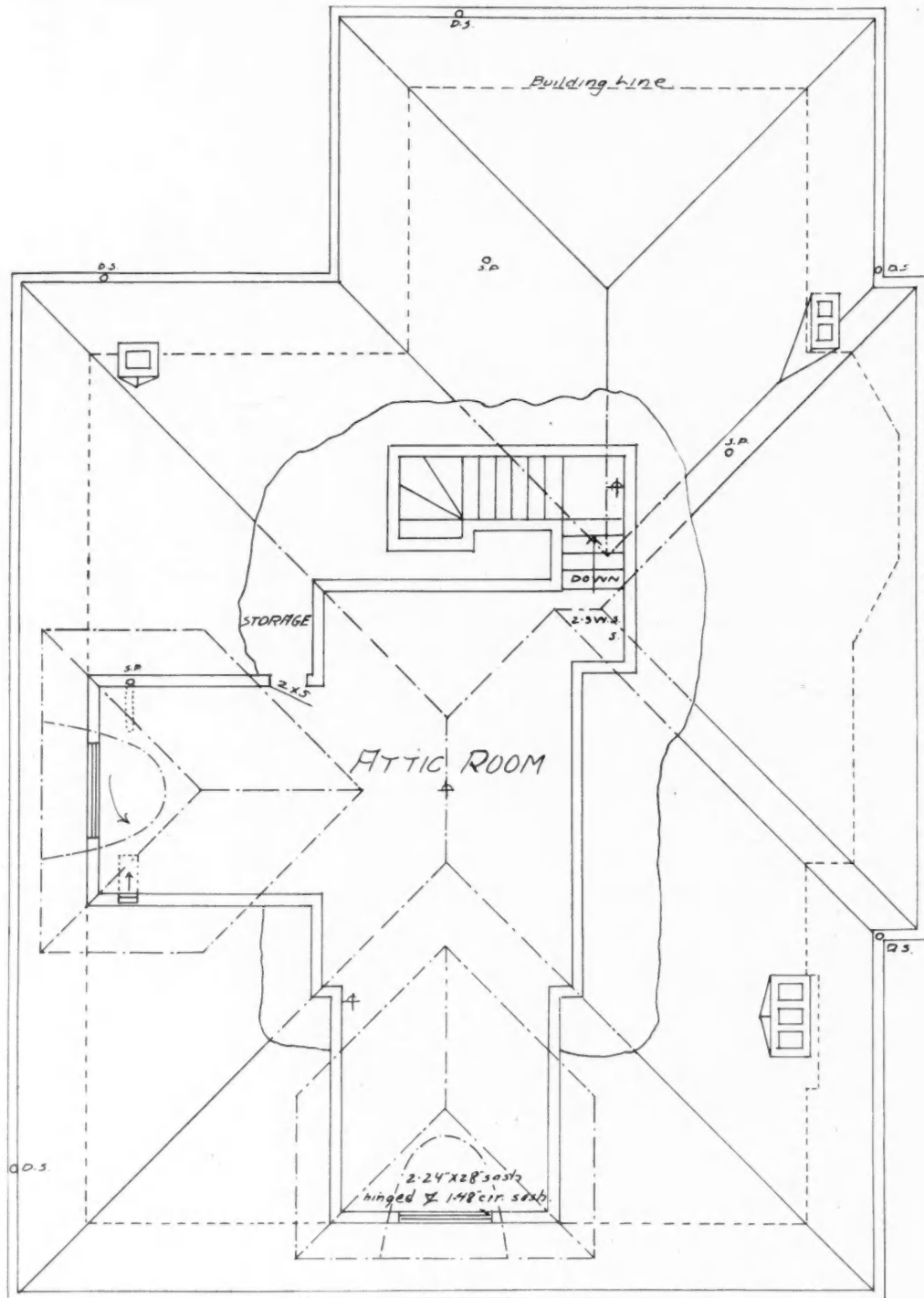
**Why Good Paint Sometimes Fails**

- First: Cheap, poor lumber under it.  
 Second: Moisture, sap, soot or grease under it.  
 Third: Non-drying pigments like ochre, metallic, etc., used in priming.  
 Fourth: Non-drying oils, or oily, fatty, non-drying

given surface. Two thin coats of paint will not wear well.

Seventh: Not allowing enough time to dry between coats.

Eighth: Excess of oil in under coats, especially the middle one in three-coat work.



ROOF AND ATTIC PLAN—HOUSE, PAGE 58

paint used in priming.

Fifth: Because flowed on with a broad, thin, flat brush, instead of being rubbed out well with a good full round bristle brush.

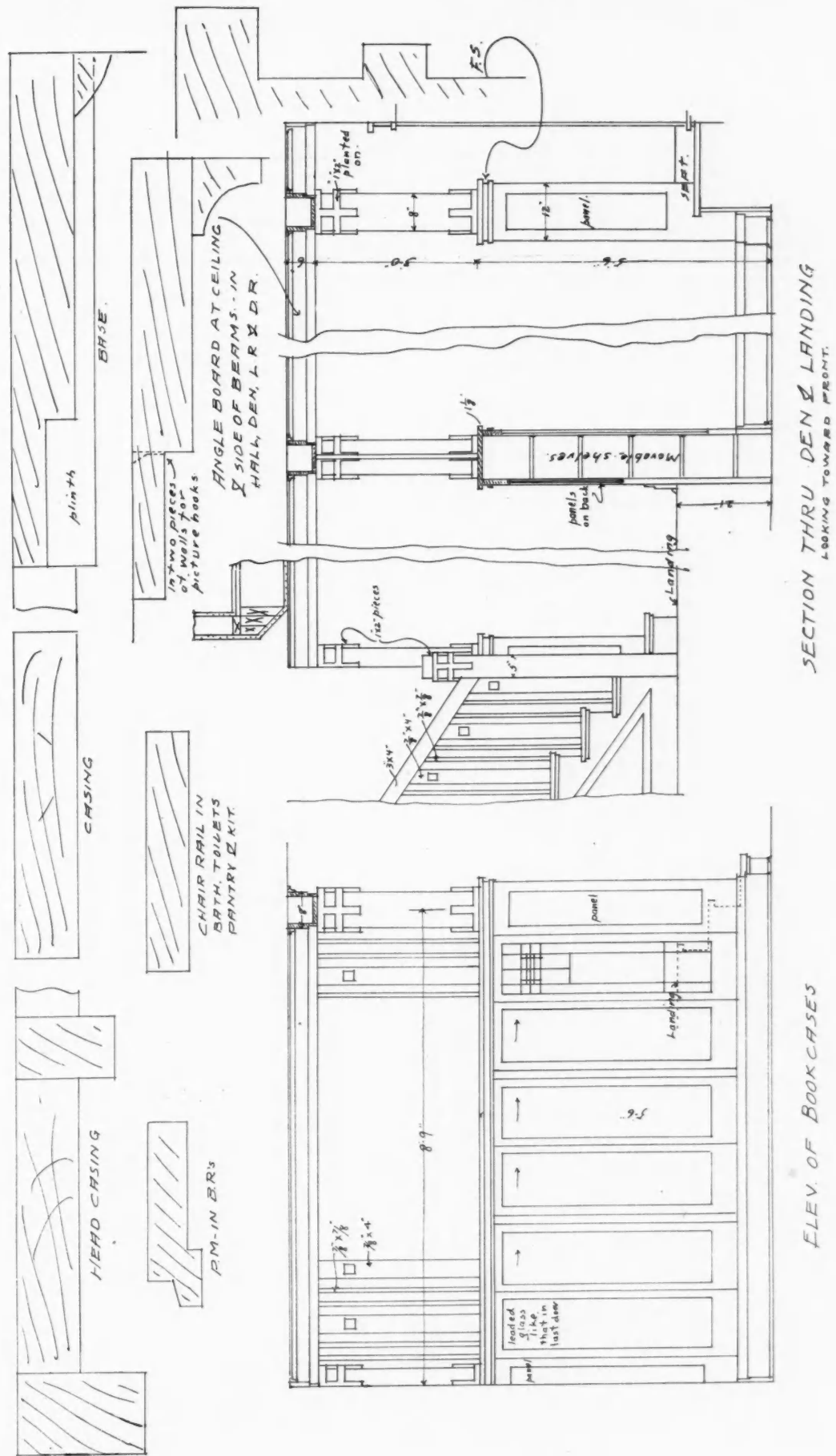
Sixth: Because of an insufficient quantity on a

Ninth: Carelessness or lack of judgment in methods of application.

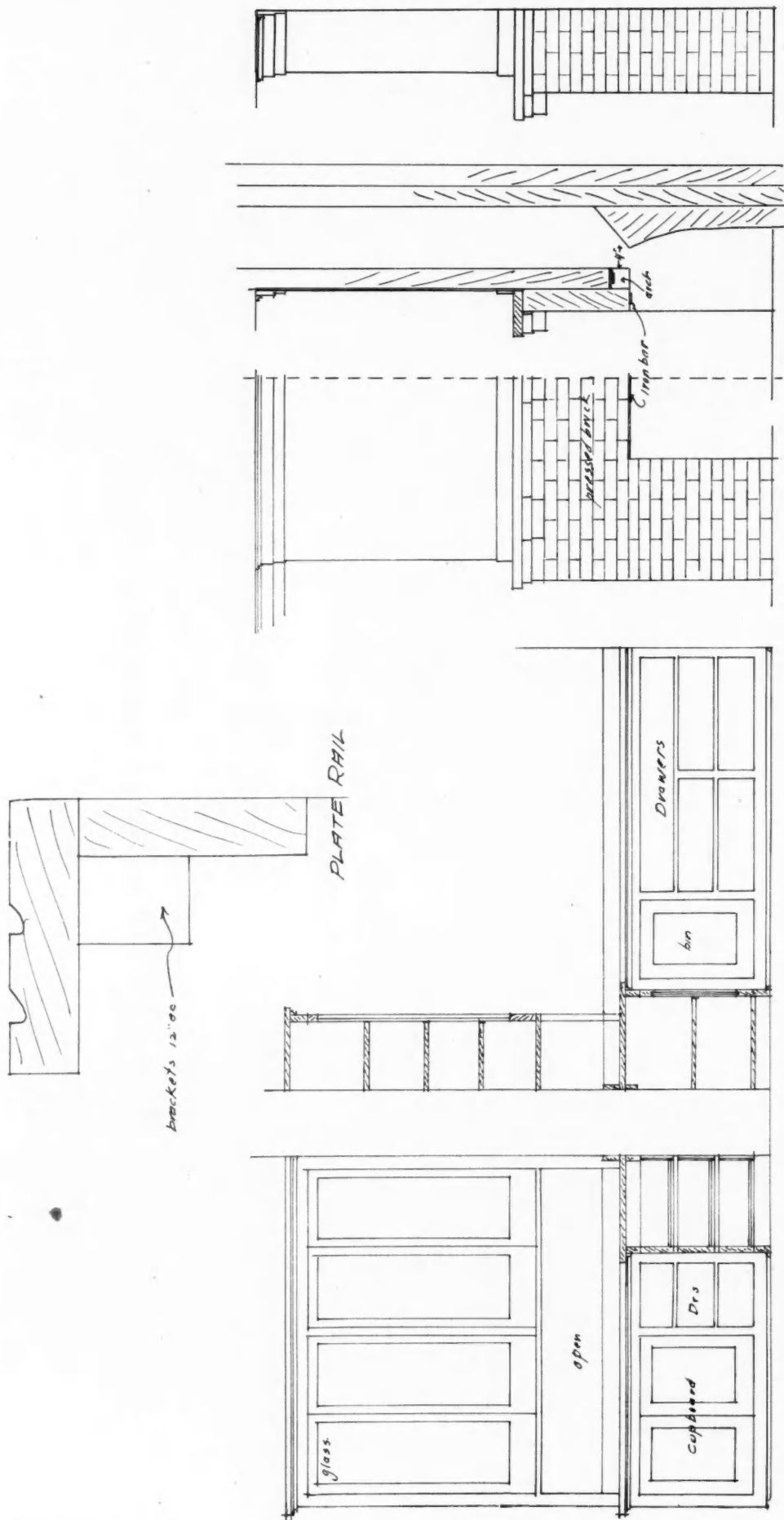
Tenth: Thinning too much with oil, turpentine, etc., to save labor and cost of material.

Eleventh: Damp plastering when paint is applied.



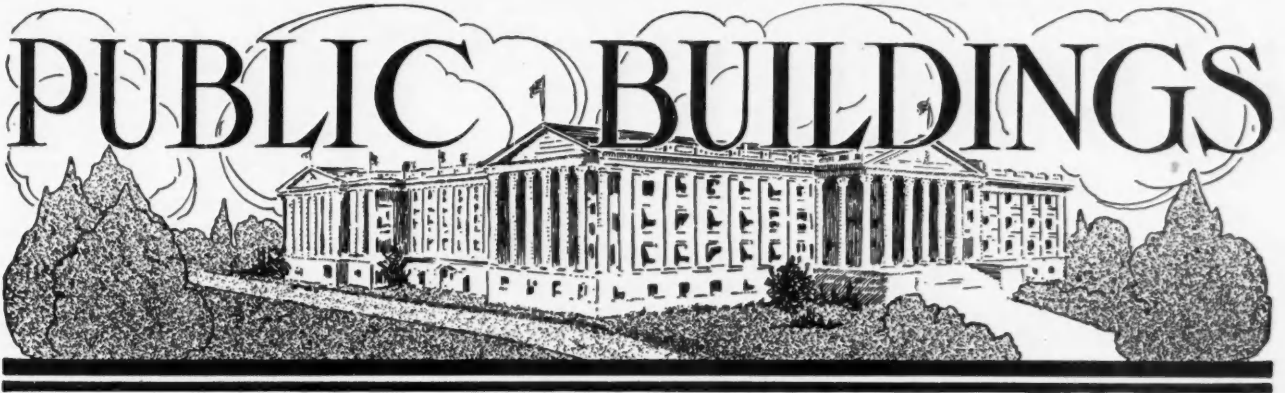


DETAILS OF INTERIOR FINISH—HOUSE, PAGE 58



ELEV. & SECT. OF L.R. MANTEL

ELEV. & SECT. OF PANTRY CUPBOARD



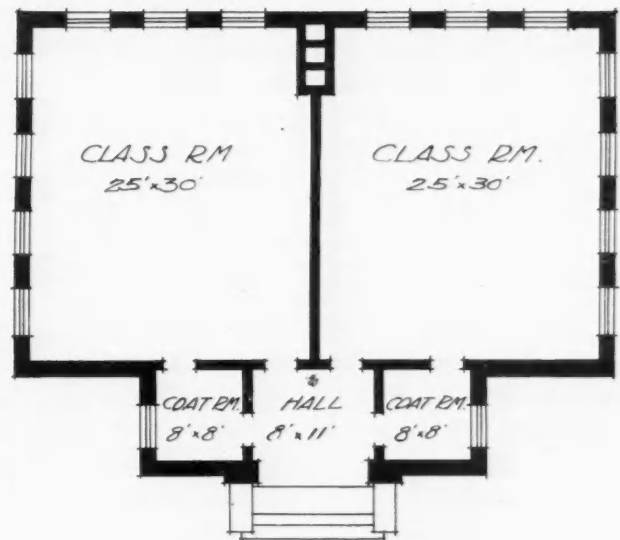
## A Substantial Country School

WELL BUILT TWO ROOM BUILDING FOR COUNTRY OR VILLAGE SCHOOL SHOWING FLOOR PLANS AND RENDERED PERSPECTIVE

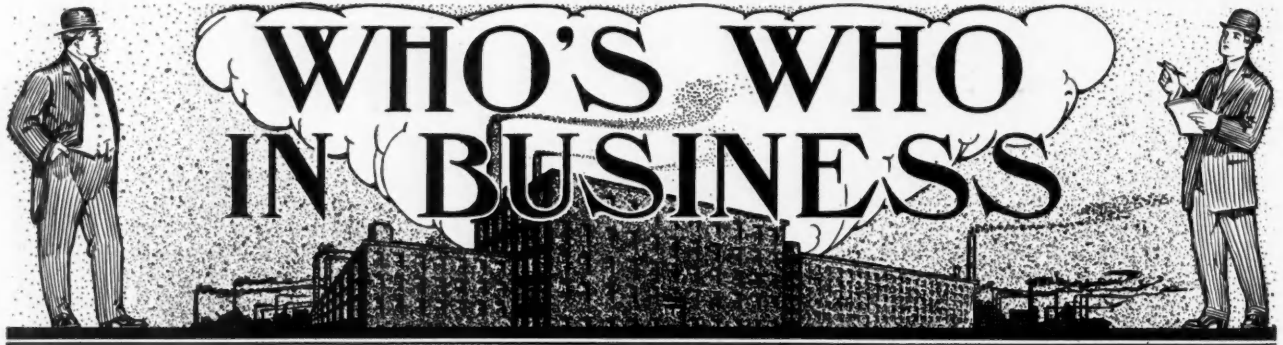
ANOTHER two-room county school building of attractive appearance and thorough enough in construction to be a permanent rather than the very temporary investment that most rural school buildings are, is presented herewith.

Standard frame construction is used with an exterior veneer of brick. The space above the windows, under the eaves, and in the gable front is covered with cement plaster. The roof is dark green slate.

The building is without basement, the rooms being heated and ventilated by means of two small warm air furnaces, especially designed for the purpose, one in each room. They are so arranged that the foul air in the class-room is automatically drawn up the flue, while fresh air is taken in from outdoors to be warmed.



Well built Rural School Building of Brick Veneer and Cement Plaster, G. W. Ashby, Chicago, Architect



## Elton A. Smith—President H. B. Smith Mach. Co.

**W**E WANT to introduce this month an old friend, Capt. Elton A. Smith—"Smith of Smithville," president of the H. B. Smith Machine Company, and the presiding genius of that institution. Who in the wood-working world does not know of Smithville—that model New Jersey village, the home of prosperity and contentment, the site of one of the greatest wood-working machinery industries in the country? Quiet and obscure, with most delightful surroundings, it stands as an enduring and picturesque monument to the ability and industry of its founder, Captain Smith's father, H. B. Smith.

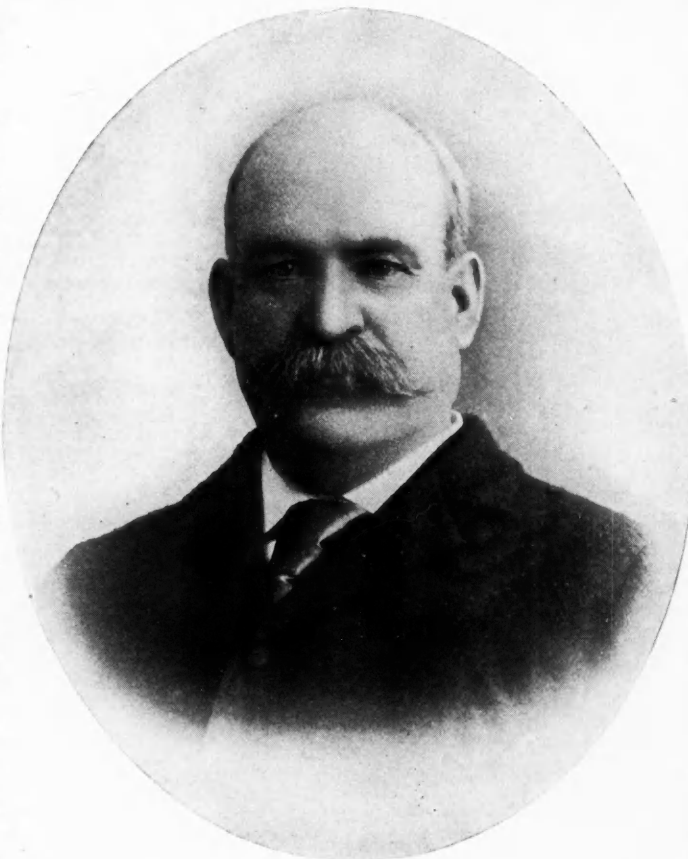
Captain Smith, who is just past the meridian of life, was born at Woodstock, Vt. As a boy it is recorded that the prosaic life of the shop had no charms for him, and at the age of 16, while on a visit to his father's woodworking machinery plant, he deliberately pulled up stakes and ran away. He shipped as a sailor on a schooner lying in the Delaware, only a few miles from Smithville, which was south bound on a coasting trip. The sea possessed a boundless fascination for him, and his advancement was rapid. In a very short time he was made mate of a vessel and soon afterward captain. The lessons in discipline here required, left their stamp upon his character, and have contributed largely to the success that has always followed his commercial enterprises. He eventually drifted to the port of Savannah, Ga., where he entered the stevedore business. He augmented this work with the lighterage business, and in

these two undertakings laid the foundation of a large fortune, which had reached such generous proportions, even before the death of his father, that he had retired from active business life.

After the death of his father, H. B. Smith, and the settlement of the large estate, the captain acquired a controlling interest in the stock of the H. B. Smith Machine Company. With characteristic modesty he selected William S. Kelley, who had been brought up with the institution, as its president, acting as vice-president himself, and it was not until some years later, when he had the affairs of the, to him, new trade reasonably well in hand, that he became president of the company.

There is a long and strange story about Smithville. Its founder, H. B. Smith, was born in Bridgewater, Vt., in 1816. He was a cabinet maker, his first pursuit being turning bed posts and chair stock by hand. This business enterprise was a failure, but he

finally paid dollar for dollar on the indebtedness incurred. His natural inclination to develop himself by mechanical training in harmony with his tastes led to his inventing many new devices for working wood, and he eventually spent nearly all his time at this work. His first product was a machine for mortising stationary blinds. Blind makers did not take kindly to the invention, contending that it took too much labor out of the hands of the working men. Mr. Smith then went to Boston and commenced the manufacture of blinds himself. Soon after, he began pro-



ELTON A. SMITH

ducing doors and sash by mechanical processes, in the meantime having invented mortising, tenoning and moulding machines. He was the first individual to employ iron frames for wood-working machines, cast in one piece. In a moderate way these undertakings were successful.

At the age of 31 Mr. Smith located in Lowell, Mass. By that time his machines had achieved sufficient prestige to cause considerable demand, which afforded him a constantly increasing business. They were then being built in the various shops in that city, but as he was very particular about material and workmanship, especially the fitting of working parts, he soon started a machine shop of his own, where he continued their manufacture with success until 1865, when he decided that a larger shop and a more central location were necessary.

As a boy, the water-wheel was Mr. Smith's toy, and in seeking a new site, he evidently kept water power in mind, for he visited only places where it was obtainable. Eventually he selected Shreveville, N. J., at which place were located the old thread mills formerly occupied by Shreve Brothers. He bought the Shreve Brothers' plant, and the water power and farms thereabout, starting in to establish practically an altruistic community, which should be devoted not only to the manufacture of wood-working machinery, but to the higher purpose of providing comfortable and happy homes for working men who should grow up with his business. He builded better than he knew, for today in the great Smithville shops may be found working side by side, fathers, sons and grandsons.

The old thread mills were rebuilt and new structures of very substantial character were erected. During his entire lifetime the founder of Smithville never ceased building. A characteristic feature of his structures is that every one is put together in the most substantial manner possible. If a 12-inch wall were deemed strong enough to withstand the strain upon it, he would have it made 3 feet in thickness, supplementing it with cast iron door and window frames. His floors he invariably made of great ribbed plates of cast iron. In many respects the Smith works, which undoubtedly will stand to the end of time, resemble a fortification more than a group of factory buildings.

As before noted, the great operation at Smithville, which has been in existence at this point for forty years, is unique in the steadfastness and loyalty of its employees. Scores of men employed there in foundry, at lathe and bench, have grown gray-headed in the service. Their sons are there beside them, also their grandsons. It is a community of craftsmen who strive to do their best in building tools that shall be suitable for the finest kind of wood-working.

The founder of the company died in November, 1887, and the continuance of the enterprise eventually devolved upon his son, Capt. Elton A. Smith. The inventive genius of the father has given place to the more energetic and progressive methods of the son,

who since that time has devoted his life and his fortune very largely to the improvement of the manufacturing facilities of the institution, not only keeping up the high standard of excellence, but bringing out new and improved ideas in construction as the demand required.

Captain Smith is essentially a self-made man, and he is proud to be thus known. The fact that he was the son of a rich man has never in the slightest degree been a detriment to his ambition or to his success as a business man. Since he became the ruling spirit of the H. B. Smith Machine Company, his energy has been infused into every department of the work. He immediately adopted the most advanced and progressive methods of manufacture, added to his force of experienced inventors and draughtsmen, increased his sales force, established branch stores and agencies, and by the very strength of his vigorous character forced a monumental success out of the enterprise.

Personally Elton A. Smith is a big, bluff man, who greets you with a hearty grasp of the hand that is unmistakably sincere, and you are at once taken into his confidence. Five minutes' contact with him leads you to believe that you have known him half your life. He is the personification of good nature, is loyal to his friends, generous to a fault, extremely hospitable, and from first to last is a man thoroughly worth while. It is with no ordinary degree of pleasure that we have the privilege of presenting the portrait and this brief sketch of Captain Smith.



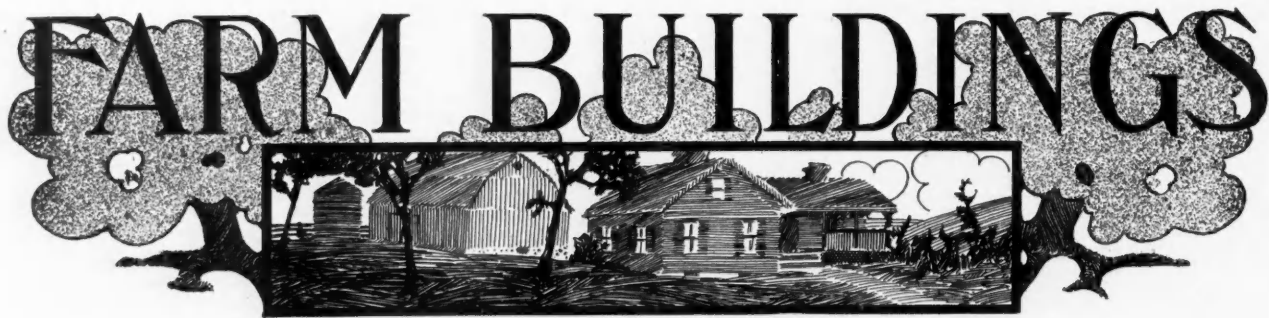
#### Silver Plating Without Battery

Dissolve eight silver quarters (money) or silver of equivalent amount in two ounces of nitric acid (strong), and to this add four ounces of common salt dissolved in as little water as possible. A heavy precipitate is silver chloride. Decant the liquid, add more salt solution to see if all the silver has been taken out. Wash the silver chloride precipitate with water and then dissolve it in a solution composed of two ounces potassium cyanide and three ounces sodium hyposulphite in six ounces of water. Filter the solution, if necessary and make up to two quarts with pure rain water. Hang the articles to be plated in the solution suspended by a strip of lead or immerse the articles and boil them for ten to twenty minutes, according to the thickness of the plating desired. The articles to be plated must be free from grease, fat and dirt. By this method we get durable and handsome silver plating on watch chains, rings, medals, watches, ornaments and German silver articles.



#### Larch

"Larch" is used to designate "western larch," or tamarack, which is chiefly produced in western Montana, northern Idaho, and eastern Washington. The term is sometimes applied locally to the noble fir, and to lodgepole pine on the Pacific coast.



## Plans for Model Dairy Barn

RECOMMENDED DESIGN FOR BARN FOR TWENTY DAIRY COWS—BEST ARRANGEMENT FOR CONVENIENCE  
—DETAILS OF HUMANE AND SANITARY STANCHIONS

THE great demand for information relating to the planning and construction of dairy building has led the Dairy Division of the U. S. Department of Agriculture to start a line of investigation for the purpose of developing the basic principles of such work. In order to make their designs thoroughly practical, these studies were

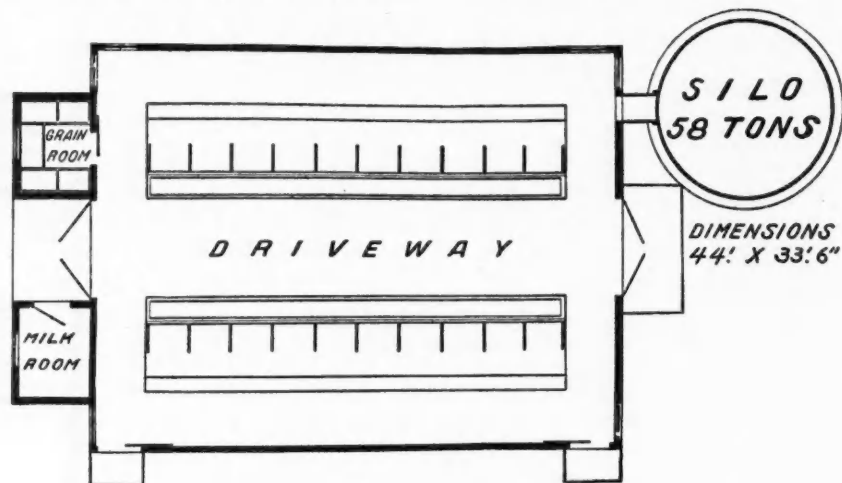
extended to the planning and actual supervision of construction of a number of dairy buildings in different sections of the country.

One of these, thus planned and constructed, is the dairy barn and silo for 20 milch cows, the plans of which are presented herewith.

It is a simple, gable roof barn, 44 feet long by 33

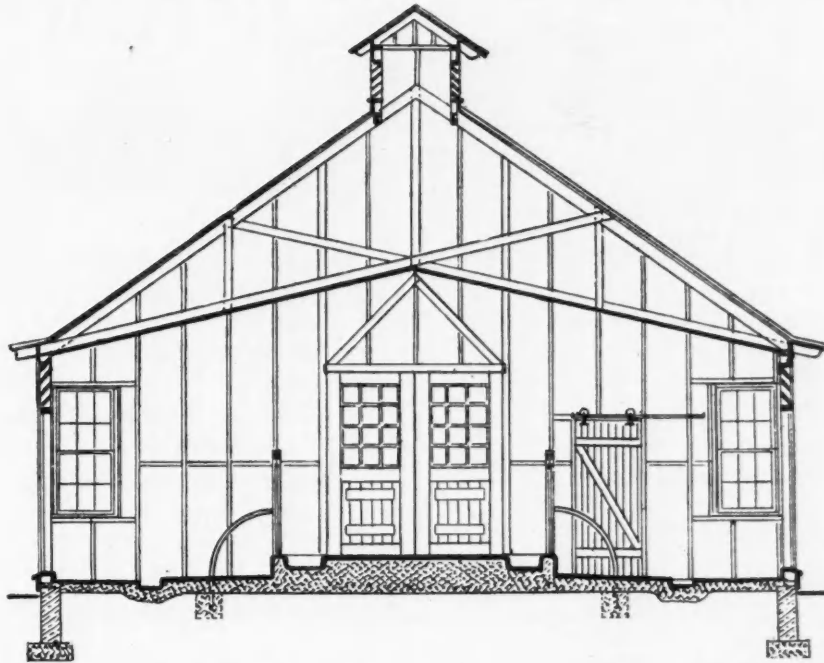


FRONT ELEVATION—MODEL DAIRY BARN



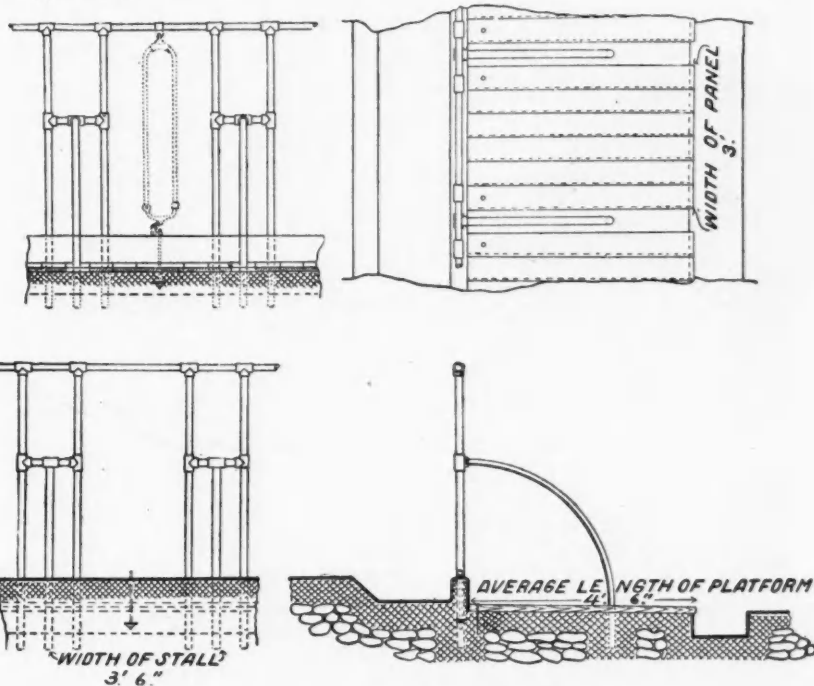
MAIN FLOOR PLAN

feet 6 inches wide. The arrangement is the simplest possible, with a broad driveway through the center of the stable and the row of stanchions on either side of average size. The stalls are provided with a



CROSS SECTION SHOWING FRAMING & FLOOR CONSTRUCTION

side. Dry fodder is stored above and a silo of 58 tons capacity is located conveniently at one end. In a small one-story, lean-to addition at the other end is a milk room and a grain room. The advantages of this will be appreciated by those who find the uncovered cement too cold for the best comfort of the cows

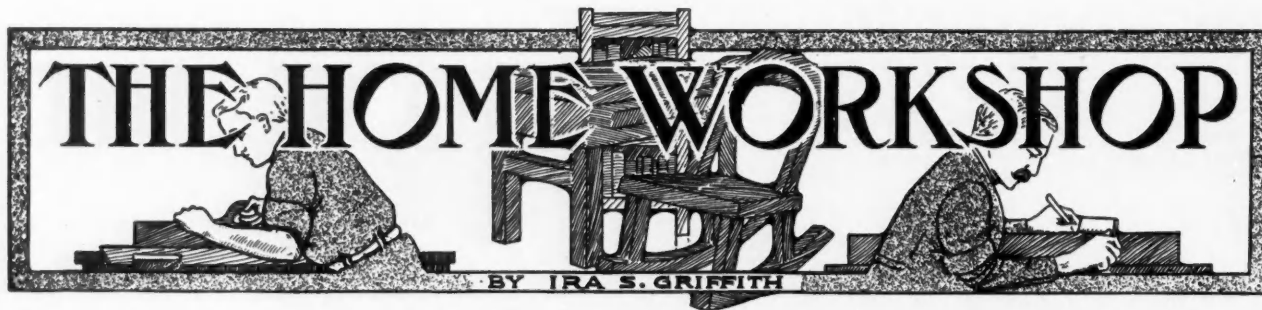


DETAILS OF STALLS

The cross section shows the system of roof framing. The lower chords of the scissors truss are used as ceiling joists on which smooth sheathing is nailed, making a sanitary ceiling.

The detail shows a sanitary and humane stall con-

struction with iron-pipe fittings, and chain hanging stanchions. The dimensions are suitable for cows of average size. The stalls are provided with a movable wooden floor. The advantages of this will be appreciated by those who find the uncovered cement too cold for the best comfort of the cows during the northern winters. The wooden platform is kept in place by two iron pins set in the cement floor near the front corners of the stall in such a way that the floor panel is easily removed for cleaning.



## Two Good Handicraft Pieces

COMPLETE DETAILED INSTRUCTIONS, WITH WORKING DRAWINGS, SHOWING HOW TO MAKE AN ELECTRIC DROP LIGHT AND A SMALL SIDE TABLE

**A** VERY simple piece of work is offered this month in the electric table light with art shade. The side table, too, intended to serve as a reading table is of simple construction. These two pieces may be made of either red or white oak. If made of red oak they will look best if finished in some dark finish. If of white oak the wood should be ordered quarter-sawn. The following stock bill is made out with the pieces specified exact in thickness and width, unless marked S-2-S, surfaced on two sides only; in which case an extra quarter of an inch has been added to the width for squaring up.

For the light stand there will be needed:

Base, 1 piece,  $1\frac{3}{4}$  by 8 by 8 inches, S-2-S.

Top, 1 piece,  $1\frac{1}{8}$  by  $3\frac{1}{4}$  by  $3\frac{1}{2}$  inches, S-2-S.

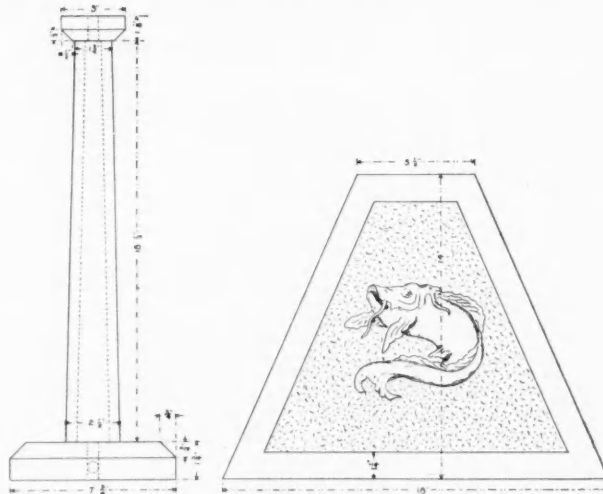
Upright, 2 pieces,  $\frac{5}{8}$  by  $1\frac{1}{2}$  by 19 inches, S-2-S.

Upright, 2 pieces,  $\frac{5}{8}$  by  $2\frac{3}{4}$  by 19 inches, S-2-S.

Begin work by squaring up the base and top pieces

to the sizes indicated in the drawing. Before laying out the bevels—or at least before cutting them it will be best to make the upright and lay out from its ends the locations on the base and top pieces.

The upright is to be made by planing up the four pieces of  $\frac{5}{8}$ -inch stock and gluing them together, using good hot glue and plenty of clamps. After the glue has hardened, square up the ends of the upright and fit it to the base and top, using glue and screws, the



ELECTRIC TABLE LIGHT WITH ART SHADE

bevels having been planed on both base and top. Bore the holes for the wire as indicated on the drawing.

### Bog Oak Finish

The following finish will be appropriate for both light stand and table. Apply one coat of bog oak water stain and allow it time to dry, after which sand the raised grain off, using fine sandpaper, No. 00. Apply a second coat of stain but weaken it by the addition of an equal volume of water. This second coat of stain is to produce more marked relief. Sand this lightly and then put on a very thin coat of shellac. Sand this shellac lightly when it has hardened and apply a coat of black paste filler. Clean off the filler according to the directions which will be found on the can, being careful to clean out all corners and crevices. A coat of orange shellac should follow the light sandpapering of the filler when that has had time to harden. On the shellac put two or three coats of some good



Electric Table Light with Art Shade of Sheet Copper



quality rubbing varnish. The first coats should be rubbed with hair cloth or curled hair and the last with pumice stone and crude oil or raw linseed oil. This produces what is known as an egg shell gloss. The effect is dark in general tone, the filled being black and the high lights showing through in shades of yellowish green. It is known as bog oak.

Shades can be purchased ready to fasten to the stand. They may be of wood frame with art glass panels or they may be of metal. A metal shade such as is shown in the photograph is easily made. Secure a piece of 22-gauge sheet copper. Make a paper pattern with an outline of the dimensions shown on the drawing, putting in whatever is desired in the way of a decorative design. With a piece of carbon paper trace this outline and design upon the metal. Two ways may be used to lay on the design. By placing the edge of the second side on that of the first, etc., only one joint will need to be fastened. This method is rather wasteful of material, however. A second way would be to invert the pattern at each placing, separate the sides after they have been traced and make a fastening at each corner. This fastening may be done by soldering, by placing an ornamental strip of copper or brass down the corner, riveting it to the sides at regular intervals, or it may be done by making one of the sides enough larger than the other to admit of having "lugs" which may be concealed, to which the other side may be riveted.

To work out the design, place the metal—before the parts are fastened—upon a board, and with an awl or a nail, punch holes in the background as shown in the drawing and along the outlines of the panel and the decorative figure.

There are various ways of treating the copper, but the easiest way to obtain a satisfactory finish is just to allow the copper to age itself naturally. We give the following solution for coloring copper green, however, for the one who wishes to try something else: 1 ounce sal ammoniac, 3 ounces cream tartar, 6 ounces common salt, 12 ounces hot water, 2 ounces copper nitrate. Sprinkle the solution over the metal and dry it over a hot flame.

#### How to Make the Small Side Table

For the small side table there will be needed the following pieces:

##### STOCK BILL FOR SMALL SIDE TABLE

Top, 1 piece, 27 by 37½ inches, S-4-S.

Legs, 4 pieces, 2¾ by 2¾ by 30¾ inches, S-4-S.

Side rails, 2 pieces, 7/8 by 5 by 31½ inches, S-4-S.

End rails, 2 pieces, 7/8 by 5 by 21½ inches, S-4-S.

Drawer front, 1 piece, 7/8 by 3 by 19 inches, S-4-S.

Drawer back, 1 piece, ¾ by 3 by 18½ inches, S-2-S, yellow poplar.

Drawer bottom, 1 piece, ¾ by 17½ by 18½ inches, S-2-S, yellow poplar.

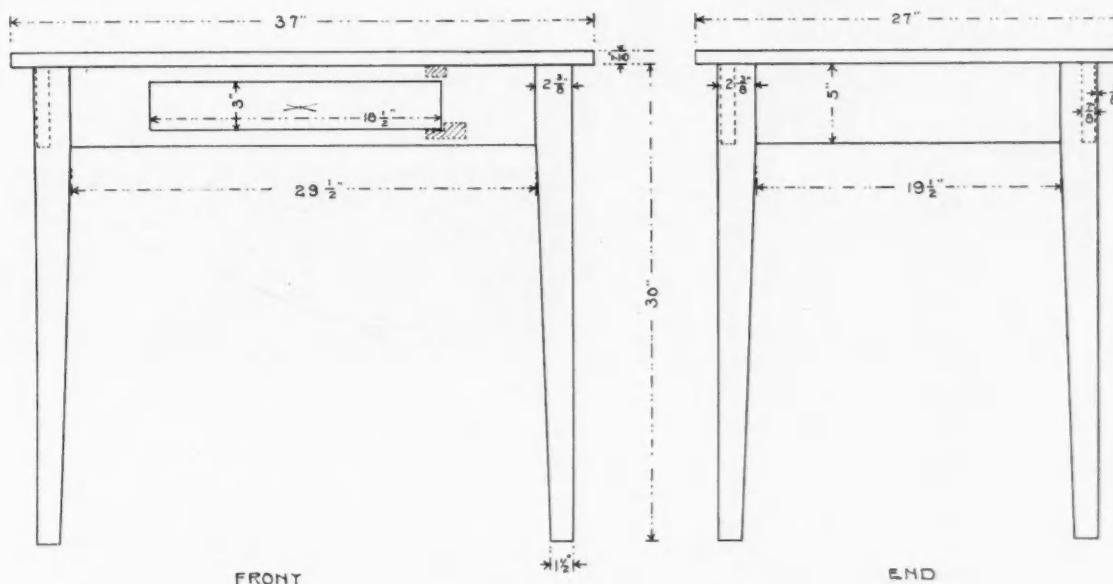
Drawer sides, 2 pieces, ¾ by 3¼ by 17½ inches, S-4-S, yellow poplar.

Drawer supports, 2 pieces, 1 by 2½ by 21 inches, S-4-S.

Drawer guides, 2 pieces, 7/8 by 1 by 21 inches, S-4-S.

The work may be begun by shaping the legs as specified in the drawing. They are to be sloped on the inside surfaces, the face surfaces, only. After this has been done the mortises may be laid out and cut. Use knife and try-square in doing this, marking the sides of the mortises by means of the marking gauge.

With the mortises in the posts cut, the tenons on the ends of the rails should be laid out and cut. Since these rails are to have their outer faces extend within



FRONT

END

SMALL SIDE TABLE

The supports for the shade may be made of copper or of iron and black japanned. The wiring is a simple matter. Fixtures suitable can be bought at most any electrical shop.

¼ of an inch of the outer surfaces of the posts, it will be well to so plan the location of the mortises that the tenons may be shouldered on one side only—the outside, and on one edge—the lower edge. This will

allow the mortises to be kept farther away from the outer surface of the post and thus lessen the danger of their splitting out when the tenons are inserted. A good size for these tenons would be  $\frac{3}{8}$  or  $\frac{1}{2}$  inch thick with a  $\frac{3}{4}$  or 1 inch shoulder on the top edge.

These parts may be thoroughly scraped and sand-papered and put together, using good hot glue. Put glue on the sides of the tenons and also on the sides of the mortise, using a small brush or a stick to do so. Often, when glue is put on the tenon only, if the tenon fits snugly, the glue will be pushed ahead into the bottom of the mortise, thus making a weak joint. In putting on the cabinet clamps test to ascertain whether or not the rails form square corners. This can be done by taking a stick and measuring the two diagonals. If one diagonal is longer than the other, put on a clamp diagonally or cut a stick and place it diagonally in the frame until both diagonals measure the same.

While the glue on the tenons is drying, the top may be squared to size and the drawer made.



Small Side Table

The front of the drawer should be made of oak to match the rest of the table. The back, sides and bottom, however, may be made of some soft wood such as yellow poplar.

Groove the drawer front, the sides, and join the sides to the front by means of the blind dovetail.

The drawing shows the manner of shaping and placing the drawer supports and guides. The supports are to be rabbeted so as to act as guides as well as supports.

There are several ways of fastening the top of the table to the frame. An examination of any of the tables you may have access to will show you how it can be done, should you be uninformed.

+

### Another Fool Question

Cohen—Vy don't you reduce der price of dose all wool suits?

Levy—Vat! Vos you crazy! Vid cotton so high!



THE only difference between a rut and a grave is that one is wider and deeper than the other.

### A High-water Mark

Mrs. Robinson—And were you up the Rhine?

Mrs. De Jones (just returned from a Continental trip)—I should think so; right up to the very top. What a splendid view there is from the summit!

### Mary Never Gave Up

"It was rather hard to lose your daughter, eh?" remarked the guest after the wedding.

"O, no," replied the bride's father. "It did seem hard at one time, but Mary finally landed this fellow just as we were losing all hope."

### They Were Glad

John Smith had worked for the firm forty-odd years, and decided to quit. The firm, in consideration of his long and faithful service, arranged to give him a monetary recognition. The superintendent of the shop, a German and an extra-good mechanic, was asked to present it. He was advised to use a little sentiment in making the presentation speech, and this is the way he did it:

"John, you haff work for the firm over forty years?"

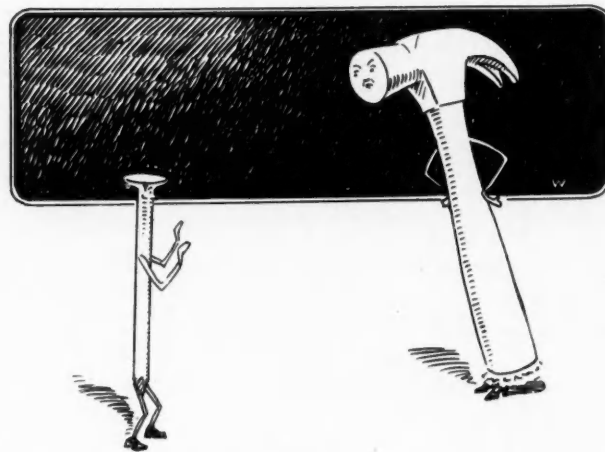
"Yes."

"You are going to quit?"

"Yes."

"Vell, they are so glad of it that they have asked me to hand you this hundred dollars."

### Do You Get the Point?



A nail that had a flat head,  
Was joined to a hammer who said:

"You'll have to keep straight  
And not get in late;

For a knocker, you'll find, you have wed."

# CORRESPONDENCE



## How About Terrazzo Floors?

To the Editor: Chicago, Ill.  
 Who has had practical success in laying terrazzo floors? I have heard that this is a very fine flooring for vestibules, bath rooms, barber shops and such, but that it is very hard to lay so as not to crack. If any of the brothers are experts along this line I would like to hear from them through the paper. What foundation is required for the terrazzo coat; of what is it composed and in what proportions? How should it be laid on and polished for a good durable job? What about the cost and general desirability of this kind of a floor as compared with tile mosaic

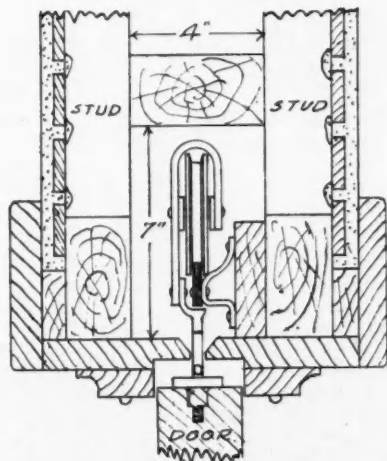
C. E. PAUL.

## Arrangement for Sliding Door

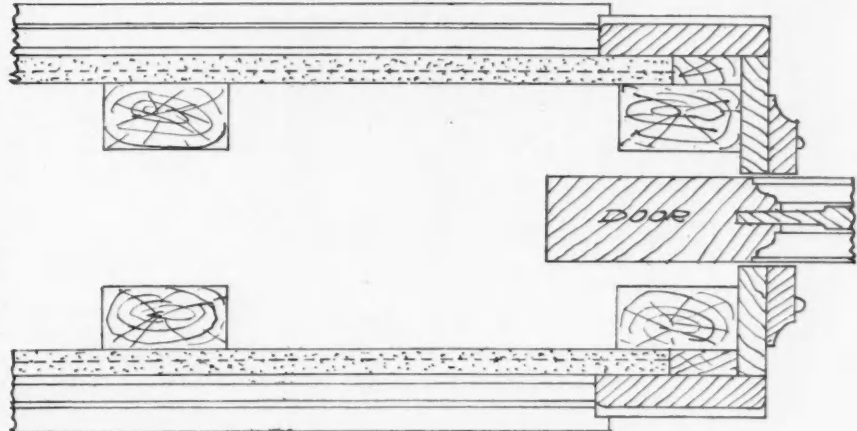
To the Editor: Floyd, Va.  
 Being a subscriber of the AMERICAN CARPENTER AND BUILDER, I would like for you to answer a question for me. I would like for you to show a diagram of a sliding door, a detail of the partition studding, and the hanger in place.

H. L. REED.

Answer: The accompanying sketch is a vertical section



VERTICAL SECTION AT HEAD SHOWING DOOR HANGER AND RAIL



PLAN SECTION AT SIDE CASING SHOWING SPACE FOR DOOR TO SLIDE

at the door head and also a plan section through side casing. There are various patented door hangers and tracks on the market; in general they are arranged as here shown.

EDITOR.

## Location of Cess Pool

To the Editor: Vail, Iowa.  
 Would like to know how far a cess pool must be from a well to keep from spoiling the water?

Is there any way to make a cement floor waterproof, that is, so it will not become damp from the ground underneath?

H. C. GRONEMEYER.

Answer: Good engineering practice has decided that a cess pool should not be located within 30 feet of any well or

water supply, and that a cess pool which is built with a sand or gravel bottom so that liquids filter directly into the earth, should not be located within 300 feet of any well or water supply. We should not consider the location of the well which you describe in your letter to be safe, and would advise analysis of the water from same before using for household purposes. If the soil is sandy or loose, a common scheme, which is used with success in many cases, is to turn a considerable amount of ordinary kerosene into the cess pool and note within a few days whether any indications of kerosene are noticed on the surface of the water from the well after it has stood for a short time in an open glass, or pail. Do not think this method an absolute test for the purity of the water, as other conditions may be present which will prevent the carrying of the coal oil, whereas impurities and disease germs might be carried in harmful quantities. EDITOR.

## Points on Brick Veneering

To the Editor: Fontanet, Ind.  
 I will try to give an answer to Fred Gayton's letter in the May number, concerning brick veneering. In answer to his

first question, I say no, don't fill in the space between bricks and boards solid; it would not be as healthy, and it would not be as warm and it would not be as dry as with an air space. There should be an air space of at least one inch; and care should be taken that all the mortar is cut clean on the inside so that it does not touch the boards in any place. Then any water that gets through the bricks will run down the brickwork, for there is apt to be some moisture get through and if the space is not clear, it will get to the boards and so cause a damp place. Also there should be a space below the sheathing deep enough to hold all the mortar that drops down between the boards and the brickwork. This could be provided for by starting the veneer one or two courses below the level of the studding.

In regard to putting the mortar on the brick, we call it

buttering the bricks; the idea is to get a thin mortar-joint.

It is not necessary to butter the bricks to get a thin joint. If the mortar is fairly rich and the brick hard, or, if soft bricks are kept fairly damp, the bricks can be bedded down to a tight joint; and then there is no danger of the water lodging between the bricks as there is with buttered joints. There are various kinds of wall ties used. I have used narrow strips of galvanized iron, and nailed one end to the sheathing; also short lengths of hoop iron, and also galvanized wire, one end bent to lie in the mortar joint and the other end bent so it will not pull over a nail head. No doubt some of the advertisers in metal and wire would be glad to furnish information about wall ties.

W. H. HAMBLETT.

### High Value Put on "Cyclo"

To the Editor: Carrollton, O.

I am sending you a picture of a house that I was foreman on. Three of us got it ready for the plasterer in nine days. We drive our own slate and build our own stairs instead of



having to call in regular slaters and stair builders.

I think the Radford "Cyclopedia of Construction" is the most complete work I ever saw. I would not take \$100 for it if I could not get another one.

RILEY LUCAS.

### Laying Shingles

To the Editor: Ft. Supton, Colo.

I noticed an article in your publication several months ago concerning the best way to lay shingles and whether or not to leave a small space between them.

A while-ago I helped to roof a large house and the shingles on hand were very dry, having been exposed to a drying wind and hot sun, and for three months at least there had been no rainfall. Fearing they would buckle when it rained if put on in this condition we put each bundle in a half barrel of water for several minutes and they absorbed the water fast. This only partially expanded them, but we laid them up tight, and a week or so later we had a heavy fall of snow, and nearly all of the shingles were buckled. Some of the wide ones were raised 3 inches in the middle and that roof surely looked bad. In another week's time they had not only all receded to their proper places but had begun to show cracks between them. These were cedar shingles and I believe this expansion was due to the great extremes of dryness and moisture. The

next rain they did not buckle so much, probably because there was not as much moisture.

Now they are covered with a preservative and are again apart. In this vicinity it is customary to leave a space of from  $\frac{1}{8}$  to  $\frac{1}{4}$  of an inch between them according to width to allow for expansion.

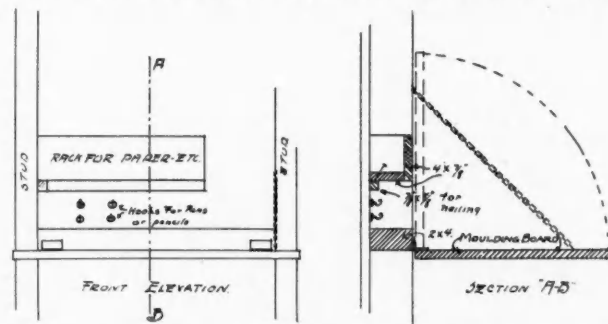
Before coming to Colorado I resided in Ohio where we always laid them up close together, but I never noticed a buckled roof.

Drawing my conclusions in this matter I will say that from my experience the question of whether or not to leave a space between them and if so, how much, should be decided entirely by the degree of dryness which the shingles have obtained.

THOMAS BRUMENSCHENKEL.

### Writing Desk for Summer Cottage

To the Editor: Muskogee, Okla.  
Your Summer Cottage article last month brings to mind a



handy little desk that I built last year in our cottage. The accompanying sketch shows the arrangement. It is a great convenience and can be put in easily especially where the wall is unceiled. A 2 by 4 nailed in between the studding forms the foundation and an ordinary moulding board hinged to it is held in the proper position by a small chain. Racks for paper, envelopes, etc., can be easily arranged.

W. B. ASHBY.

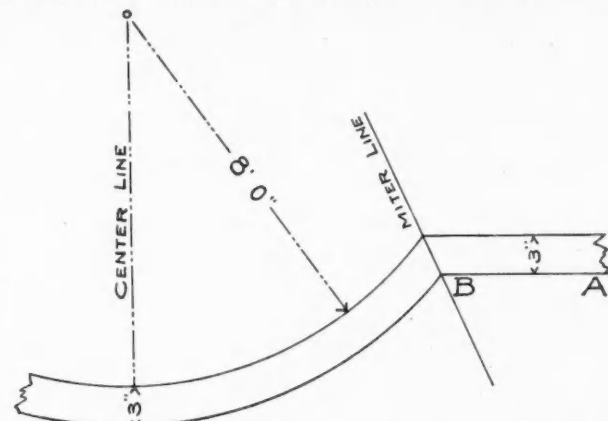
### Miter for Circular Bays

To the Editor: Mendocino, Cal.

Here is a little problem that bothers me; the only way I can do it is by the try-and-fit process. It is this: take a circular bay window of 7 or 8 feet radius and starting at A with a crown mould, and as the radius mould has been gotten out on a shaper, what figures on the square should I use to get the miter cut at B on the circular crown mold?

P. MAXWELL.

Answer: There is no way, so far as we know, of readily getting at the miter with the steel square without first laying



off the angle full size and finding the bisecting line between the two pieces as shown, which we have added to Mr. Max-

well's drawing. Then the steel square can be applied to these angles, noting the bisecting figures; then place the square on the moulds at like figures.

A. W. Woods.

### House Moving Trucks

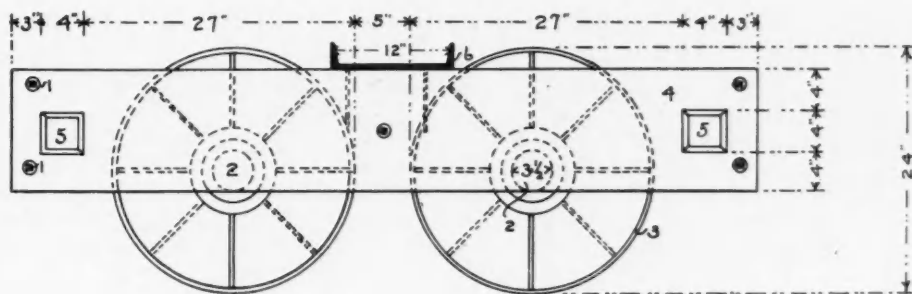
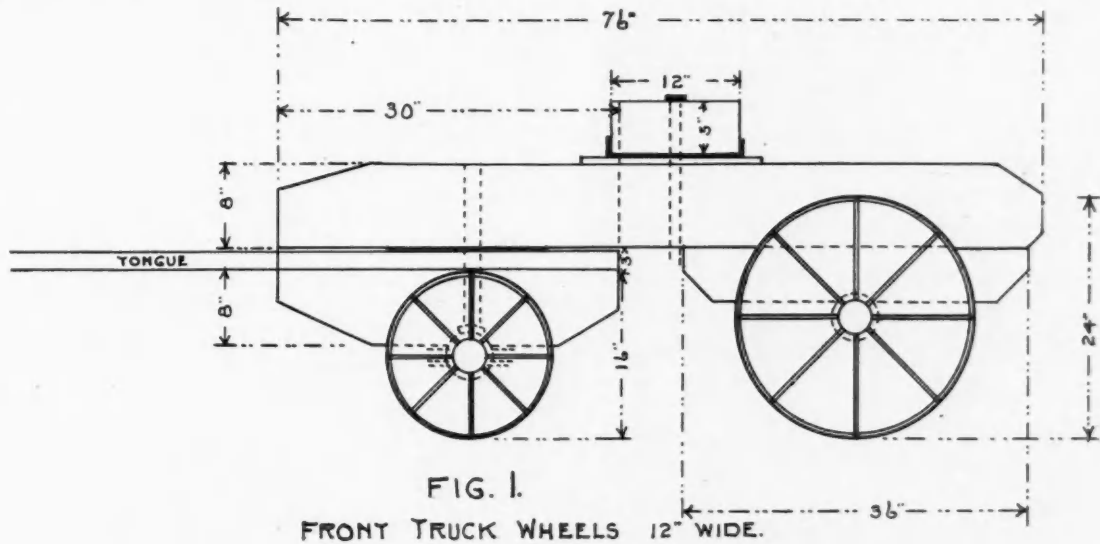
To the Editor: University Place, Neb.  
In the February number of THE AMERICAN CARPENTER AND BUILDER, Mr. W. W. Glew wishes some points on house

use our carrying timbers in a V-shape using only three trucks which will carry the house by cross timbering without breaking the plastering.

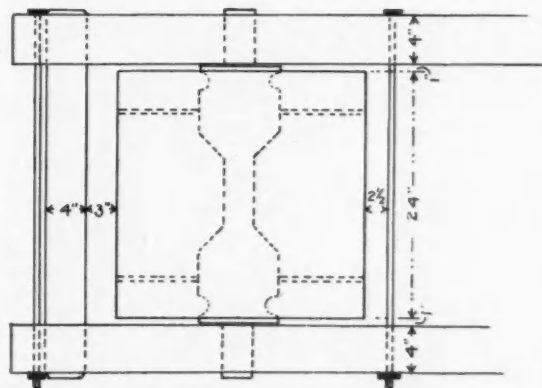
I have moved houses for a good many years on these trucks, from ¼ mile to 18 miles, pulling direct and making frequently in a day, 5 and 6 miles. These steel wheels can be had from the Electric Wheel Company, Quincy, Ill., and they will make to your order any sort of wheel wanted.

Any further questions will be answered cheerfully.

A. H. THOMPSON.



- 1- ¾" RODS - 36" LONG.
- 2- 3½" STEEL AXLES - 36" LONG.
- 3- ½" x 24" STEEL TIRES.
- 4- 4" x 12" SIDE RAILS
- 5- 4" x 12" END RAILS
- 6- 12" CHANNEL 25#.



moving trucks. I herewith send a sketch of trucks used in this part of the country.

Fig. 1 shows the construction of the front truck of four wheels; front wheels cut under same as a platform spring wagon and can be turned in a short space.

Fig. 2 shows construction of back or rear truck consisting of two wheels in a wood frame but would be better to use steel for the frames.

Fig. 3 shows construction of frames for rear trucks. We

### To Exchange Ideas on Barn Framing

To the Editor:

Napoleon, Ohio.

Enclosed find photo of barn I have built this spring. It is 40 feet wide and 65 feet long with 22½-foot posts; sills 4 by 9; post beams and wall plates 9 by 9; purline plates and posts 8 by 8; two rows of brace girts around barn 7 by 7;



nauling girts 4 by 5; storm braces 2 by 8, doubled and spiked on inside of girts; purline braces 4 by 4 with 4-foot run on post and 6-foot run on plate. Every stick is mortised and pinned, except the 3-foot run braces.

The barn is to have a straight roof, 11 inches rise per foot run. Rafters are 2 by 6, set 18 inches on centers; roof strips are 1½ by 3 inches laid 7½ inches on centers. The roof is to be covered with 9 by 18 inch quarry slate.

I am sending the photo just to exchange ideas with the brother carpenters and would like to see more of them do the same.

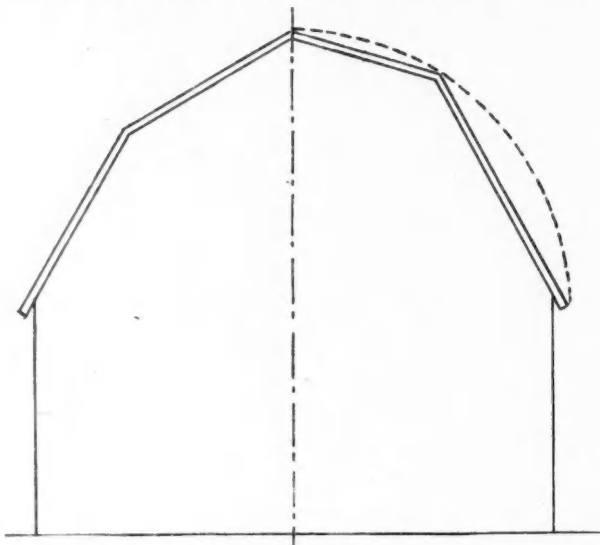
EDW. M. BURGEL.

### To Proportion Parts of a Gambrel Roof

To the Editor:

Lake Odessa, Mich.

As I have two 40 by 60 foot barns to build, would like to know if there is any general rule for laying out a gambrel roof. I have framed one roof first pitch, 12 inch run, 18 inch rise; second pitch, 7 inch run, 12 inch rise; but it looks rather flat and leaves the center span rather too wide. Please



advise through your valuable paper what you think would be a good proportion for a gambrel roof.

H. S. KNAPP.

Answer: The accompanying drawing shows a very handy method for proportioning the two parts of a gambrel roof so that the general effect will be good. That part of the figure to the right of the center line shows a roof design according

to this principle while the part of the drawing to the left shows the roof described in your letter. It has been found that any gambrel roof drawn within a half circle makes a good appearance. The base line at the eaves and joining ridge of the two pitches should touch the circle, and the ridge should be also on the circumference at the 90 degree mark.

EDITOR.

### A Mason Talks on Chimney Building

To the Editor:

Greencastle, Pa.

I have often been amazed as I look upon modern homes and their architectural designs, especially in regard to the chimneys. How often have I been called in to remedy or devise some way by which the owner or occupant of the home might receive the comforts due him. I have been called to see homes beautifully and artistically designed, but bleak and cold as a sepulchre, due to the fact that the most essential feature had been neglected. The chimney is put off to the most insignificant place possible, the more obscure the better, instead of first building the chimney and then the home around it!

And right here let me say that much depends on the mason, also on the contractor, for he must furnish the proper material. So many contractors employ the cheapest as well as the most inexperienced man to do the work, instead of putting on the most careful and painstaking mechanic possible. We often hear people say, "I am surprised to hear that such and such a house has taken fire from a defective flue, for such and such a contractor built it." Too often the contractor is a carpenter and has not the experienced, practical knowledge so essential to good chimney construction. After having been called in to examine and test for defective and leaky flues, I am amazed that so few buildings burn!

I was called in one day to inspect a fireplace chimney just completed. It looked like a sieve, the sunlight looking in at almost every vertical joint; yet was told by the owner that the insurance agent accepted the building at a low rate. I have often wondered why fire insurance companies do not insist on having all chimney flues in buildings thoroughly inspected and tested before taking the risk on any building. Would it not be a wiser plan for them to employ at their own expense some competent man to inspect and test all chimneys at a salary of say \$5,000 a year and save a \$100,000 loss in unsuccessful chimney construction?

There are so many things to be considered; the first is the amount of work expected of the chimney, capacity, air currents and position on the building, as well as surrounding buildings or obstructions. No chimney should have a smaller opening than 9 by 9 inches, or 81 square inches. The area should not be decreased as we advance toward the upper or outer air, but rather increased, for as we advance from the fire the gases cool and move more slowly and heavily. No woodwork should come nearer than 2 inches of the flue or chimney; not even the floors. They should be plastered and the flooring fitted to that.

In building a chimney I do not allow any plastering (or pargetting) on the inside, as this is a fruitful source of trouble. The gases loosen the mortar from the bricks, often taking with them both horizontal and vertical joints, causing leaky flues or chimneys. I invariably require all joints filled flush, full, and the inside kept as clean of mortar as possible. This is one of the secrets of successful chimney construction.

Then again, chimneys are often built for a specific purpose. After a while the building as well as ownership changes; the chimney is then often required to do a work quite different from that for which it was originally intended, and sometimes attended with disastrous results. I was called in to see a flue constructed in a frame building. It was built against the weather boarding, pargetted; intended for stoves on the upper floors. The furnace men persuaded the owner to allow them to change to it for their furnace pipe. They dug a

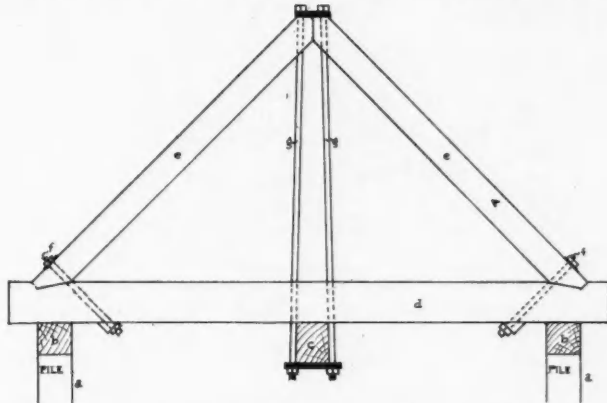
hole in the foundation wall to make connection, resulting in a badly burned building almost as soon as completed. These are only a few of the troubles I have met with in my experience; am meeting new ones almost every day.

In some localities there is an inclination to build flues too small—4 by 9 and 4 by 12 inches—and expect them to do the work of a 9 by 12 or 9 by 14 inch flue. A safe guide is to have one-fifth the area of grate surface equal the area of the flue, but never less than 9 by 9 inches, and I have often seen these sooted shut so that they became a menace to safety.

A. J. LOHR.

**A Small Bridge**

To the Editor: Fossom, Minn.  
Piles or posts "a" should be long enough to drive solid, and use three, four or five for each side, according to width of bridge. Four is the usual number, unless bridge is very



high, when five may become necessary, because ends have to be planked up or backed by other materials, and poles and brush soon rot. After piles are set, level off and cut to height; then place the 6 by 8 inch sills, "b" (or whatever size is used), on top of piles, fasten with 5/8 or 3/4 drive bolts, one in each post. Frame stringers, "d," and truss pieces, "e e," and bore holes for rods, "g g." The size of "d" depends on span of bridge; "e e" are usually 6 by 6 inches, cut about like rafters. I think half pitch is as good as any. The carrying lintel, "c," is 6 by 8 inches or heavier and is hung underneath by rods, "g g," which are usually 1-inch for small bridges over creeks. Rods may be made with solid square heads or threaded both ends, using nuts for heads. They are bored through centers of braces, "e e," at upper ends, onto which is fitted a steel plate, usually made of old plowshares, etc. (in country shops). At the bottom, the rods "g g" run, one outside, the other inside of stringer "d" with a heavy iron yoke set cornerwise. If the beams, "d," are 6 by 10, then the joist should be 10-inch.

I would improve upon bridge building one way, that is, most bridges here are a trifle hollow, holding the water longer, even though planks are laid apart somewhat. I think that bridges should be crowned along center of driveway, so that water would shed to both sides. How best to do this I am not sure, but at ends of bridge, the two or three middle piles could be cut a little longer than the outside ones. In center of bridge it may be more difficult, because by laying a strip on top of beam, would cause it to rot sooner, unless beam was covered with galvanized iron to keep the water out. Side railing can be put on, if desired.

A. O. STIEN.

**Wants to Know about Sun Dials**

To the Editor: Syracuse, N. Y.  
Will you publish in the AMERICAN CARPENTER AND BUILDER a drawing or diagram of a sun dial? How should it be placed?

HOWARD T. YATES.

**Some Questions**

To the Editor: Stuart, Ia.  
Here are a few questions I would like to have answered through the correspondence department.

What is the rule to govern the height of a door knob from the floor? Also, height of bottom hinge and distance from the top of door of top hinge? What is the modern rule governing the width of base in a room? What is the best method of determining the width and depth in soil, of wall and pier footings; height and size of posts, and size of girders?

W. T. MARSHALL.

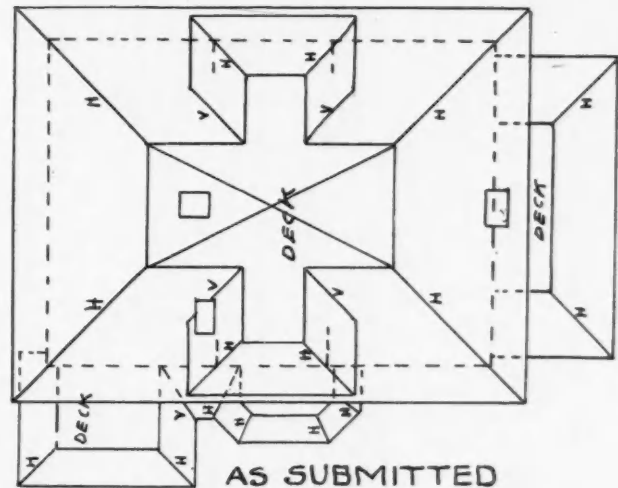
**Something Different**

To the Editor: Kalispell, Mont.  
Will you please give me a chance in your valuable paper. I have taken it since its first year I believe, but have never had the courage to call on you before.

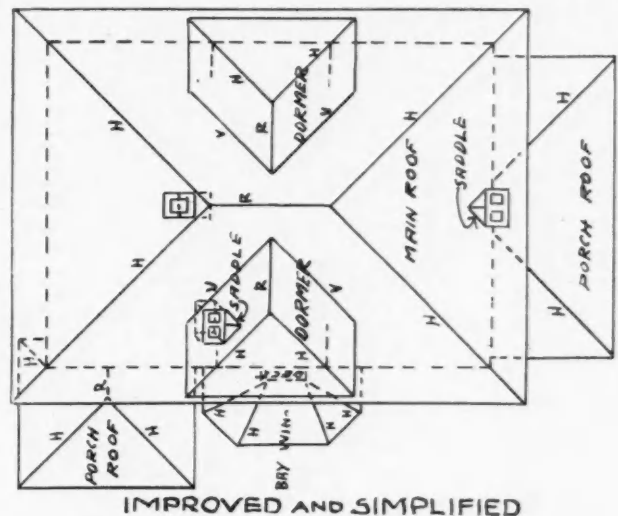
I enclose you a roof plan that I think is doubtful. In part I do not think it can be framed in a mechanical manner.

WM. CARDER.

Answer: You are right, and to call such a roof as this



"doubtful," is certainly expressing it very mildly! This is one of those abortive attempts at designing where "something different" is wanted. The result is altogether bad from point of



looks, the construction is complicated and the cost increased, and no useful purpose—so far as we can see—is served.

Why not plan this roof along the simple, graceful and economical lines of the dormered hip as indicated in the sketch.

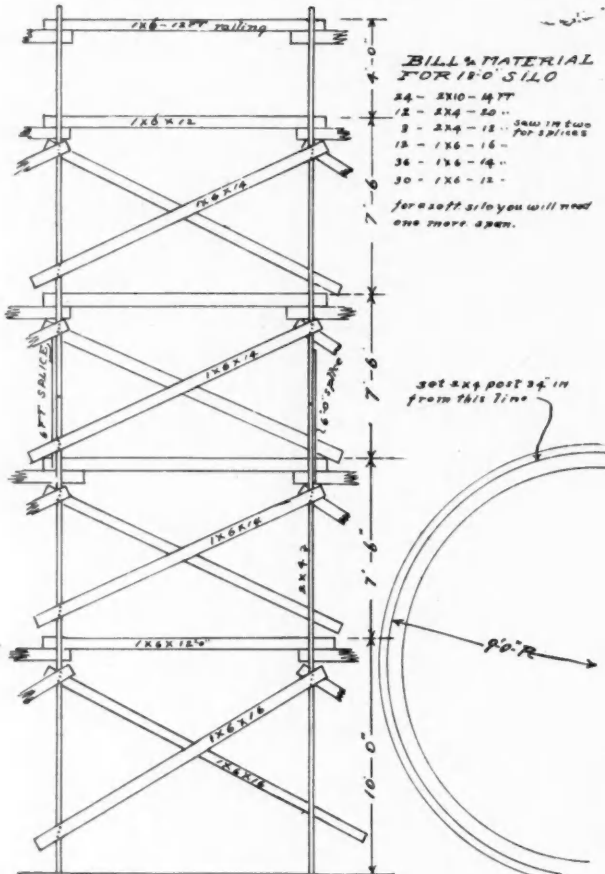
EDITOR.

### Scaffolding for Silo

To the Editor:

Pingree Grove, Ill.

As silo time is coming I am sending you a sketch of silo scaffolding for stave silo with bill of material for same. This is the lightest and strongest of any that I have ever used. It is made of 2 by 4 posts with 1 by 6 inch braces and 2 by 10's, 14 feet long for run planks. The 1 by 6's are nailed to the posts with rod nails, three in each end, leaving the heads projecting a little so that they may be more easily drawn when taking down the scaffolding. Notice that one span of



braces goes inside or next to silo and one outside; while all the boards for plank go inside; also that one board goes under the other and the brace under that. This gives 8 nails to hold up the plank.

The posts should be set 34 inches from the outside of silo which will give plenty of working room. Twenty-foot studding may seem a little long for posts but often on account of unevenness of the ground, they will be found none too long. The posts should rest on solid bearing, because if one settles it will pull the scaffold out of plumb. Drive a stake on center from which to strike radius and use some of the timbers for the upper braces to hold the scaffold in place till the first round or lower section is up; then the scaffold will hold itself. The lower braces are 16 feet and those about 14 feet. Measure up 10 feet from the top of the foundation for the cross pieces so as to keep the run boards level. I used this form of scaffold last year for 28 silos, using the same material for all of them.

SHELDON LOGAN.

### Wants a Screen Wire Stretcher

To the Editor:

Halifax, Nova Scotia.

Have just received my journal for May, and notice on the first page of interesting subjects, "Beware of the Flies." The papers here are calling the public's attention to the matter by printing the following remark in several of their columns: "Swat the Fly;" "Screen Every Door and Window in the

House." Well I have had quite a few doors and window frames to screen of late and would like to know if some reader will give an idea and means of stretching the screen wire over the frame while tacking or putting strips into the groove for that purpose. I think it will be of great value to many, not only to those concerned in the building and wood-working trades alone, but to every amateur and householder that comes across it

A. E. FASSETT.

### An Odd Roof Problem

To the Editor:

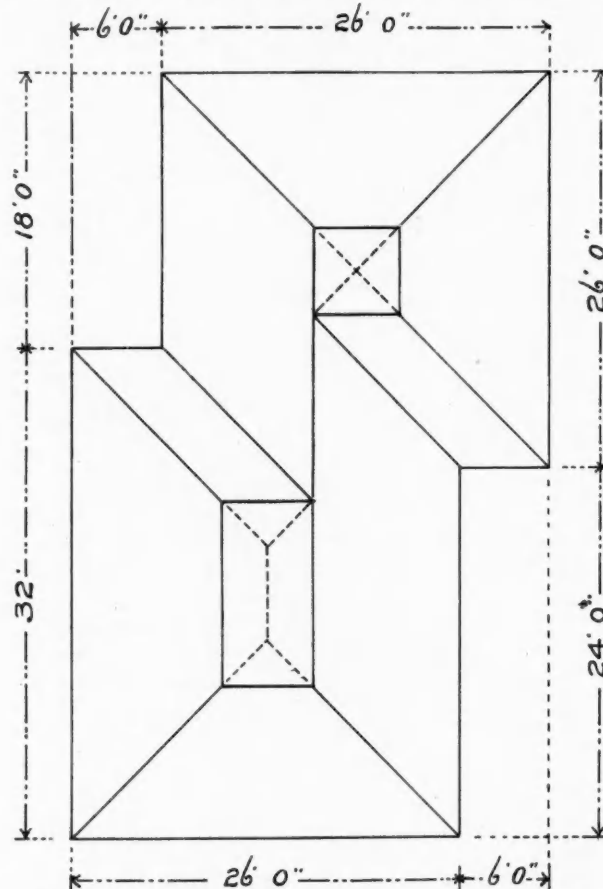
Whiting, Iowa.

Enclosed you will find the plan of a house that we are remodeling at this place and for which I would like to have you plan a hip roof for me. I have been taking the AMERICAN CARPENTER AND BUILDER for the past three years and the Cement World from the first issue. I have found them a great help to me. I cannot begin to tell on these little sheets of paper but I can tell you this: that I will continue to take them as long as I can scrape up the price. Your more than satisfied subscriber.

H. W. POLLY.

Answer: The roof in question is not so difficult as it is odd in shape, as will be seen by the accompanying plan. No builder with an artistic sense would plan a new building this shape to go on the regulation city lot; certainly not where space is unlimited. In remodeling jobs "freaks" are often encountered and have to be handled the best one can.

If framed with equal pitch and without decks, there would be two square peaks resembling somewhat the Bactrian



camel's humps, and we might add, with appearance about as graceful. The best way to handle this problem is to cut off these "humps" on a level with the intersecting ridge between them, thus forming decks as shown in the plan. The deck covering should lap over the roof, showing the same as the saddle board of the connecting ridge. This will tend to conceal the decks and thereby in a measure, tend to tone down the oddity of the shape.

EDITOR.



### Wants Method for Brightening up Marble

To the Editor:

Corpus Christi, Tex.

Will you kindly publish at least two good, reliable formulae for cleaning and re-polishing marble (tomb stones and monuments)? Do any of the brothers know how this is done?

I am highly pleased with our magazine. There's nothing like it. I have all the numbers from first to last. I refer to them often. Success to you.

W. D. MCBRYDE.

### It Wouldn't Do in Kansas

To the Editor:

Agra, Kan.

M. L. Parsons, Jerome, Idaho, asks in May number whether it is good policy in framing outside door openings where the exit is onto a porch, to leave the sill out, making the floor even, with simply a threshold under the door.

That might do in Idaho where there is no wind, and less rain; but here in Kansas, where most every rain is accompanied with a high wind, it would take a gasoline engine and a rotary pump to keep the occupants from drowning after the threshold had become cut out a little from use!

As I am a charter member to the AMERICAN CARPENTER AND BUILDER, and have not registered a kick as yet, I thought it about my turn; but I am going to kick the editor and not a brother "Chip"! It is in regard to the details of a china closet last month asked for by Bro. A. Stephens, Corning, Iowa. The sides and back should not be lathed and plastered. The sides should be paneled and the back should have paneled doors so as to have access from either room. I have built a good many of that style and have not had a complaint.

W. H. WILSON.

### As a Westerner Sees It

To the Editor:

State College, Pa.

Perhaps when a woodworker moves from one part of the country to another the first difference that strikes him is the difference in the woodwork of the houses from which he has moved and the houses to which he moves—not only differences in the kind and quality of wood used in the average, middle-class house, but the differences in the design of trim and mouldings and the manner in which they are finished.

For instance, in similar houses of similar-sized towns, one located in Pennsylvania and the other in Oklahoma, the kind and treatment of the finish are surprisingly different.

In the middle west yellow pine is the common finish lumber, though not excluding altogether birch, oak, cypress and white pine. This pine was not only finished natural but was often stained to give various effects, with wood dyes or oil stains.

In this part of the east, on the other hand, with a possibility of two or three notable exceptions all interior trim is ash, and what isn't ash is grained to imitate it. Now ash can be finished by an expert finisher to be a thing of beauty and not an eyesore. It can be given any one of a dozen different tones that appeal to the artistic eye. But when it is invariably finished with graining and varnish to that unsightly yellow color it becomes an eyesore indeed.

Fir doors and all woodwork that is not ash are mopped over with burnt umber to approximately the same color and painted with a coat of graining varnish, and there you are. The care and technique of the expert finisher seem to be lacking and the artistic possibilities of brown ash totally ignored.

Then also, there is a difference in form as well as wood. In the west a square-edge door or window casing is almost unknown. In this section of the east anything other than square-edged is almost unknown. In the west baseblocks are universal and also regular head casing with cap and mould is always used. Here the casing runs from the floor to a square head casing. No base blocks, no mould, no cap. The patterns of base are very similar in both places. These same differences in form extend through all classes of houses, from

the cheapest to the best. In the west, round-edge and *o. g.* stops predominate. In the east, neither is common, square-edged and corner-beaded being the most common. No observable difference between the windows of the two sections.

In the west, the cross-panel doors are the most common; in the east, 4-panel doors are nearly universal. The front doors in this part of the country (Pennsylvania) are much larger than corresponding doors in the west, 3 foot 6 inch by 7 foot 2 inch door being very common, while our western neighbors rarely have anything larger than a 3 by 7 foot door.

Taken as a whole, from the dozens of houses under my immediate notice in both western and eastern towns, the eastern householders seem to be much more tolerant of defects in the material and workmanship, it being nothing at all uncommon to see one or two balusters in a stairs with glaring defects, or a newel with great unsightly nail holes carelessly filled with putty so as to be conspicuous instead of the reverse.

The trouble is that people do not seem as a whole to appreciate the possibilities of ash as an artistic hardwood, and then they are careless or ignorant of the fact that every defect in the raw wood is only accentuated by careless treatment from the finisher. Much of this hardwood finish is not even machine sanded, let alone receiving the careful hand finishing so essential to perfect work.

HOMER CLOUKEY.

### Repairing Cracked Stucco

To the Editor:

Mangansville, Md.

I built a stucco house this summer which was somewhat a new piece of work to me as well as to the plasterer; and the consequence was we have a wall full of cracks. It is a frame building sheathed, furred with 1-inch lath every 9 inches, then covered with expanded metal lath. First coat plaster, sand 3 parts, lime  $2\frac{1}{4}$  parts, cement  $\frac{3}{4}$  parts with a good quantity of hair. Second coat, 1 part ground sand and 1 part cement. The sides to the sun are cracked badly. The other sides scarcely any. Now I would like to know if I can give this house another coat of a cement mixture that will close the cracks and that will give me a uniform color.

Would a cement wash suffice, or should it be a scum coat of cement plaster? Please state how mixed and how colored. I want nearly white with the stone (blue) tint in it.

H. B. WEBER.

Answer: From the fact that the trouble developed almost exclusively on the sunny sides of the building it is evident that either greenness of the lumber or else improper, hasty drying of the cement plaster—or perhaps both—may be assigned as the cause. Cement plaster work should be protected with wet burlap for at least a week after being put on, so that it may set and season uniformly. The trouble may be partly due also to the quality of mixture in the plaster. We believe more cement and less lime should have been used.

We hardly know how to advise you with any great degree of reliability as to a method of repairing such a wall. It is one of the hardest propositions which the plasterer has to face. We suggest the following as being as good as any of which we know:

Clean wall thoroughly, removing any loose material, give wash coat of neat cement and then a coat of 1 cement to 2 clean sand, with a little lime paste mixed with same. Brush over surface thoroughly after troweling to remove tension in cement. Better wait until near summer to do this work so that the house may have gone back to its original condition again after the effects of winter and spring weather.

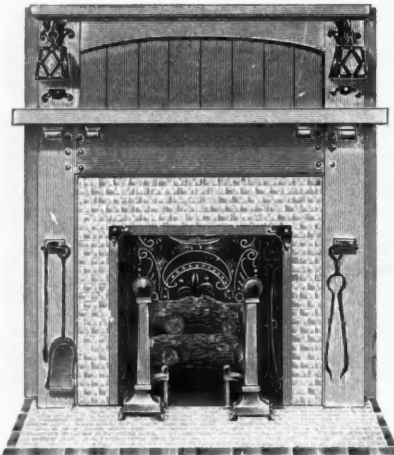
The matter of coloring this wall to match other parts of the structure will be difficult. If color of wall now up is lighter than the cement mortar would be, it may be necessary to paint wall, after dried thoroughly, with a special cement paint, or tint it with some of the prepared tints which are used for such purposes. The whole job might be given a wash coat afterwards to even up the color.

EDITOR.



### Progressive Ideas in Mantels and Fire-places

A very attractive catalogue has recently been issued by Moormann & Otten of Cincinnati, in which is shown a very artistic collection of new ideas in mantels and fireplaces. A special unique feature of this catalogue is a three-colored sheet illustrating photographic reproductions of the exact grain and colors of six different woods and finishes. This is certainly a work of art, and enables the prospective buyer to make an intelligent selection of mantels in the different woods and finishes. While this firm is principally in the wood mantel business, having started manufacturing twenty years ago, they are also extensive dealers in tile mantels, and do tile work of all kinds. Their catalogue, containing almost one hundred



illustrations, can be had free, if you contemplate building, or to contractors and builders by writing direct to the firm.

### A Good Thing to Know

The editor occasionally follows his own advice—and reads the advertising pages. In looking over those in the present number he ran onto something good—a good thing to know; how to test a hardwood floor for smoothness. Look on page 5.

### Stop-Look-Listen

A little book is being sent out by the Willis Manufacturing Company of Galesburg, Ill., that every reader of the AMERICAN CARPENTER AND BUILDER should own. It costs nothing and is of interest to you all—every one of you.

It treats of ventilators and skylights, in detail, showing all the different sizes and styles of each. Mr. Willis has been making ventilators and skylights for over twenty years, and each succeeding year has added to his knowledge. This book shows a ventilator with a skylight in the top, and by installing this two birds are killed with one stone—so to speak.

Send for this little book today. It cost you not a penny, and will benefit you very much. Address Willis Manufacturing Company, Galesburg, Ill., and it will be sent by return mail.



## Ventilation Control

for Show Windows

### Found Only in the Improved No. 30 Ventilation & Drainage Sash of the Kawneer System

of Store Fronts

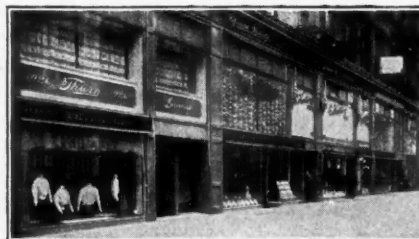
**A**SIDE from the question of Architectural design, material used, method of grip on glass and durability, the one point of supreme importance in store front construction is the principle of ventilation and drainage and its efficiency.

To have an **all-metal air-tight sash**—one that consumes less than  $\frac{1}{2}$ " of your show window space—only an inch of the glass area and which at will can be made to ventilate and drain successfully is something never before produced.

The **introduction of our new sash** which by means of a simple slide regulates the ventilation of the show window, **marks the greatest advancement in store front and show window construction** since the origin of the Kawneer System. By simply pushing a slide, a full and effective current of air is admitted—creating a perfect circulation next to inner surface of glass—thus eliminating all possibility of frost or sweat accumulating on the windows during sudden changes in temperature or under extreme climatic conditions.

Corner and division bars are small and unobstructive yet strong and durable. Jam, sill, transom bar and bulkhead mouldings can be supplied in a variety of standard or special shapes—thereby offering unlimited opportunity for adapting same to your own originality of design. Copper, brass, aluminum and bronze metals of the highest quality are employed in the manufacture of all Kawneer products—thus ensuring a highly attractive, serviceable and satisfactory store front.

Descriptive booklet No. 2 fully illustrates and explains. Ask for it to-day.



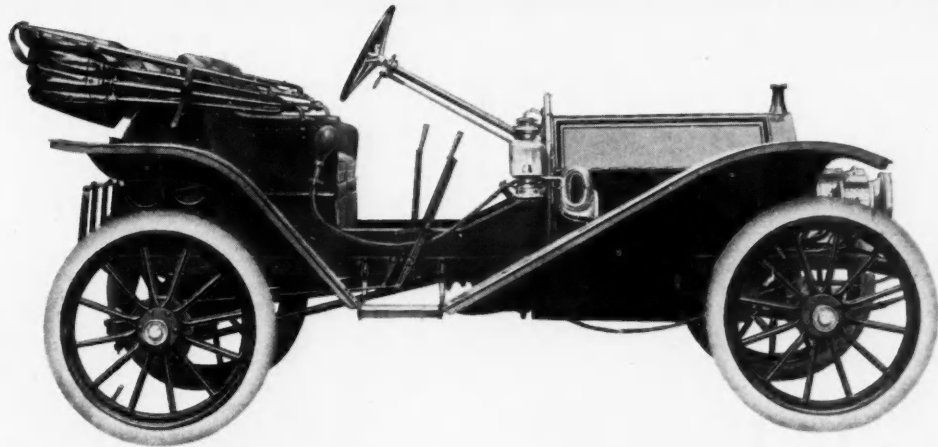
### KAWNEER MFG. CO., HOME OFFICE NILES, MICHIGAN

BRANCH OFFICES: Chicago New York Philadelphia Kansas City St. Louis Milwaukee  
 Detroit Cincinnati Pittsburg Indianapolis Lincoln, Neb. San Francisco Spokane  
 Minneapolis Sioux City, Ia. Denver Atlanta  
 Vancouver, B. C. Seattle Des Moines, Ia.

SEE DETAILS IN SWEET'S INDEX

426 to 437 Fifth Avenue, New York City

# Twelve months of meteoric progress



4 cylinders  
20 H. P.  
Sliding gears  
Bosch magneto

## *Hupmobile*

**\$750** (F.O.B.)  
Detroit  
including three oil  
lamps, horns and tools.

Hundreds of people were undoubtedly impressed a year ago by the mere smartness of the Hupmobile—its beauty, its generous size, the obvious strength of its construction, the clean-cut appearance of the power plant, the very evident use of the best materials.

It took very little motor judgment or experience to see that \$750 had never bought such value before.

But in the year that has elapsed since the Hupmobile made its bow, this first judgment has been supplemented and confirmed by a series of performances which are remarkable.

The Hupmobile, in contests of speed and endurance, has repeatedly shown itself to be the peer of cars of twice its power and even four and five times its price.

Early in the year it won cups and perfect scores, for instance, in the Baltimore and Detroit reliability and endurance runs.

It carried off the palm in the Buffalo fuel economy contest.

At San Francisco it made the fastest time and a perfect score in the 200-mile annual mud plug.

In its class it won the six-hour race at Brighton Beach, and on the Los Angeles motordrome turned the mile in 58 seconds.

Crossing the desert in the Phoenix-Los Angeles race, the Hupmobile took its place among the larger competing cars.

It climbed to 9,000-foot elevations in the Colorado mountains; topped the peaks of the Adirondacks; it was the first car ever to negotiate Georgia's famous Stone Mountain, under its own power, and the second to ascend Mount Greylock, Massachusetts.

In the dead of winter—through the season's deepest snows and severest cold—three Hupmobiles were driven from Detroit to New York; while in the West a tour, under conditions equally severe, was made for 800 miles from North Dakota into Canada.

The Hupmobile is today without an equal in its class, as it was the day the first Hupmobile left the factory at Detroit.

It is prized alike by the man who owns but one car—the Hupmobile—and the man whose private garage houses the costliest types of American and foreign manufacture.

It has made possible the joys of motoring to hundreds who, of necessity, awaited the coming of such a car as the Hupmobile.

Your ideals of motor car construction may be high, but you will find them realized in the Hupmobile.

If you have the engineer's love for fine machinery—the expert's admiration for skillful workmanship—you will take your hat off to the Hupmobile.

It remains the most remarkable car the industry has produced. The Hupmobile is relied upon exclusively by many busy men to transport them from place to place in the least time and with the least trouble—a use to which it is particularly adapted day in and day out because of its simplicity and rugged build.

## HUPP MOTOR CAR COMPANY

*Licensed under Selden Patent*

Desk 32. DETROIT, MICH.

### For Warmer and Dryer Building

We have often had occasion to remark in these columns that the art of building is showing great improvements along all lines. Not only have the owners come to realize, very generally, that the very best of materials and construction is the cheapest in the long run, but the contractors and builders themselves, in the interests of their clients, are insisting on using the best materials—with which they know they can produce a thoroughly satisfactory



Trade Mark Registered 1910.

and lasting piece of work. One of the latest innovations and improvements is along the line of insulating sheathing, or building paper. All practical builders know that a liberal use of insulating sheathing goes further toward real comfort and satisfaction in a building than perhaps any other one factor, certainly of the same cost. At a very small expense good quality building paper can be put on underneath all siding, whether it is shingles, clapboards or cement plaster, between all floors and very often as a part of the roof construction; thus making the building warm, dry and clean, the extra expense being made up many times in the decreased coal bills and increased comfort and satisfaction.

Along this line we take pleasure in calling the attention of the readers of the AMERICAN CARPENTER AND BUILDER to Oiled Lion Brand insulated sheathing. This is an oiled building paper which has been perfected, after a long course of experiment and study, by the Rosenberg Paper Company of Chicago, and is now being put out by them to the contractors and builders direct. The Rosenberg Paper Company want every carpenter and building contractor, who desires to build up a reputation for satisfactory and thorough work, to examine this new and improved, this oiled building paper. Send direct to them at once for free samples.

The claim is made for Oiled Lion Brand that it is absolutely water-tight, dust and vermin proof. Shingles will not rot, nor tin rust when laid over this building paper, and by its use houses can be made dryer, warmer and cleaner than by any other means, yet at no greater cost than for the ordinary low grade papers now in use.

Elaborate, practical tests have been made of this oiled building paper, proving conclusively that it is moisture-proof and that any wood laid over it will not rot. The oil which is incorporated in this building paper is entirely free from odor and the claim is made for it that it will never evaporate even under the most trying conditions of exposure.

All readers of the AMERICAN CARPENTER AND BUILDER will do well to write at once to the Rosenberg Paper Company, Chicago, Ill., asking for free samples of Oiled Lion Brand insulating sheathing, and for full particulars concerning prices, shipping, etc.

### New York and Chicago Cement Shows Announced

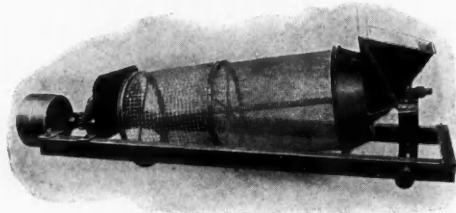
Official announcement has just been received from the Cement Products Exhibition Company, 115 Adams street, Chicago, regarding the New York and Chicago cement shows. The eastern event will be held in the Madison Square Garden, New York City, December 14-20, 1910, and the Chicago show will be held as usual, in the Coliseum, Chicago. The dates of the latter event will be from February 17-23, 1911, inclusive. All contracts of importance in connection with the

shows have already been placed, and the intervening months will be spent in perfecting the details.

The result of the ballot taken to ascertain the feeling in regard to the New York show is also announced. This enterprise is unanimously endorsed and somewhat more than 80 per cent of the exhibitors at the recent Chicago show have signified their intention of exhibiting at New York. The interest manifested by eastern manufacturers, who have not hitherto exhibited, is already apparent, the number of inquiries for space at the New York show, being such as to hasten completion of the "general prospectus" of the New York and Chicago cement shows, which is at present in preparation. This prospectus will contain full information regarding both events, together with diagrams showing space available at the Madison Square Garden and at the Coliseum, and the rules and regulations by which exhibitors will be governed, and application forms.

### Cheaper and Better Sand-Screening

There is possibly more time lost handling by the old method the sand which goes into the construction of an ordinary house than in anything else. The Cement Tile Machinery Company of Waterloo, Iowa, are manufacturing a sand-screen device that will affect a saving of its own cost in time alone in a very little while. In the first place, it screens the sand



thoroughly and with great rapidity; it is tireless and is always ready to do its work. It makes no difference whether the sand is damp or wet, the result is the same. A machine of this sort is greatly needed and this machine fills a want that has been long felt. A card addressed to the Cement Tile Machinery Company, Waterloo, Iowa, will bring you their illustrated circular.

### Diamond Velvet Castors — Revolutionize Castor Industry and Open Field for Tremendous Profits to Agents

Every reader of the AMERICAN CARPENTER AND BUILDER knows what an abomination the ordinary castor is. It sticks in the socket, skids instead of rolls, drops out when furniture is lifted, scratches and mars expensive hardwood floors, rugs, carpets, etc. It squeaks and groans when moved and is, generally speaking, a household nuisance. It is as common in expensive furniture as in the cheapest, because until Diamond Velvet castors were invented there was no good castors made.

Diamond Velvet castors have completely changed the situation. The rollers are made of vulcanized raw cotton, and cannot mar the finest floors. Two thousand pounds can be rolled across a highly polished floor without leaving a mark. They will not skid, cannot drop out; they roll noiselessly, will not squeak, need no oiling. The heaviest furniture will move with a slight push when equipped with Diamond Velvet castors. Furniture manufacturers are adopting them in place of the old kind. Wherever they are known and sold, people buy eagerly. Many re-castor their entire house. The field for agents is unlimited. Many are making large sums. The company are especially desirous of appointing agents among carpenters, as they understand castors and furniture and have the necessary tools to put them on. They assure big money to all who will act as agents, giving either all or part time to the work. Write to the Diamond Velvet Castor Company, 50 North Mill street, Grand Rapids, Mich., for full particulars.

# Universal Intercommunication



Universal service as typified by the Bell System today is the result of thirty years of unceasing endeavor.

The equipment for this service includes ten million miles of wire, more than twenty-five thousand miles of underground conduit, buildings enough to house a city of people, thousands of switchboards with millions of tiny electric lights and billions of miles of fine copper threads—*over five million telephones in daily use.*

This great development has been made possible only by sound financing and proper provision for maintenance and reconstruction; while fair profits and substantial security have won the confidence of conservative investors. Especially when considered with the fact that the value of Bell properties exceeds the outstanding capital.

The Bell System was so wisely planned and soundly constructed that it has kept pace with the constantly increasing demands of a Nation.

*Twenty million connections made daily  
show the usefulness of the Bell Service*

**AMERICAN TELEPHONE AND TELEGRAPH COMPANY  
AND ASSOCIATED COMPANIES**

*One Policy*

*One System*

*Universal Service*

### Bishopric Wall Board and Sheathing

Just a little over a century ago, the combination of laths and mortar became one of the accepted essentials of building. That revolution in structural methods early in the eighteenth century was no more notable than the one wrought by Bishopric wall board. This twentieth century invention does away with all the dust, dirt, dampness, disintegration and other faults of plaster walls and ceilings.



Illustration Shows the Construction of Bishopric Wall Board

Bishopric wall board is fast winning recognition among builders and contractors as a substitute for lath and plaster. Today it is in use in buildings of all classes from the Atlantic to the Pacific coast.

It is made of the kiln-dried dressed laths, imbedded in hot asphalt mastic (99 per cent pure) at a pressure of 500 pounds to the square inch. It is surfaced with heavy sized cardboard and cut at the factory into sheets (laths and asphalt mastic combined) 4 by 4 feet in size and  $\frac{3}{8}$  inch thick—all of uniform size and thickness. These sheets are ready to be nailed at once to studding—also ready for immediate decoration.

Asphalt mastic, referred to above, is toughened asphalt. To produce it, amorphous carbonate of lime, a waste product of the best sugar refinery, is combined with pure asphalt, producing a homogeneous mixture, known as asphalt mastic.

Asphalt mastic is proof against moisture, heat,



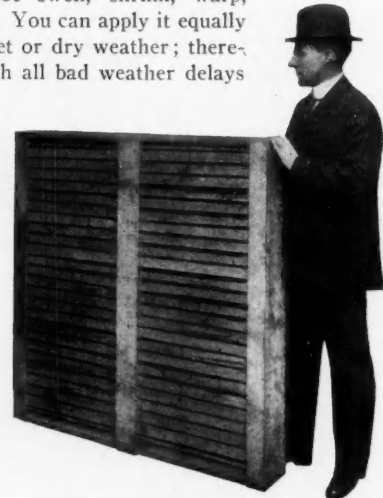
Showing application of Bishopric Wall Board to studding as a substitute for lath and plaster. Finished surface exposed, ready for decorations.

Asphalt mastic is unaffected by climatic conditions or

changes in the weather. Its advantage, therefore, over lime plaster for wall and ceiling purposes at once becomes apparent.

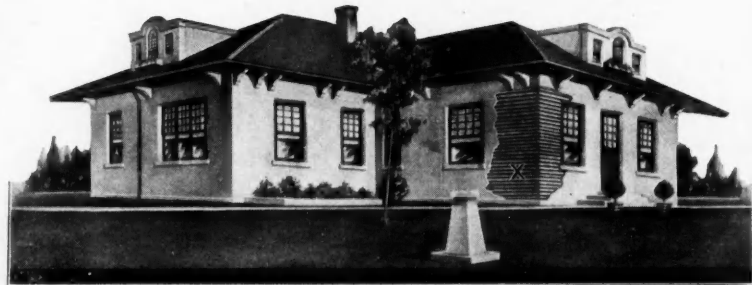
You don't have to wait for "good building weather" when you use Bishopric wall board as a substitute for lath and plaster. It is delivered to you dry, is applied dry and keeps dry for all time. It is positively proof against moisture. Therefore, it will not swell, shrink, warp, crack, flake or blister. You can apply it equally well in cold or hot, wet or dry weather; therefore, it does away with all bad weather delays in building.

Because Bishopric wall board does not absorb moisture, it



Bishopric Wall Board and Bishopric Sheathing are Shipped in Crates like this.

stands to reason it will not swell. And because it won't swell it won't shrink. That's why loose and crumbling plaster, and the unsightly, ragged, ever-lengthening and widening cracks common in plaster walls and ceilings are not to be found in houses finished with it. Asphalt mastic is



Bungalow with Bishopric Sheathing and Cement Plaster

cold, wind or air, sound, vermin, acid and fire. The many advantages which arise must be apparent, therefore, when asphalt mastic is used with laths in the construction of Bishopric wall board and sheathing, also when used with wooden felt in construction of Bishopric ready roofing.

The laths which are inseparably imbedded in asphalt mastic make the best kind of a binder. With the laths thus imbedded, there is no danger of the wall board warping or getting twisted out of shape. Furthermore, the laths make it possible to nail the wall board securely to the studding.

Asphalt mastic is unaffected by climatic conditions or

not only proof against moisture—it is a non-conductor of heat and cold. It is also proof against air, sound and vermin. Insect life in the walls is impossible. No bugs can either enter or live between its walls. Rats and mice sharpen their teeth on common plaster, but Bishopric wall board homes escape these nuisances. The reason is obvious. Chewing through the asphalt mastic is impossible, as the tendency of the composition is to gum the teeth of the gnawing pests, and they quit the job for something easier.

Bishopric wall board is suitable for costly dwellings—modest cottages—bungalows—flats—pleasure and health resort buildings—office and factory buildings—new partitions in old buildings, finishing attics, back porches, laundries, cellar ceilings or any other building involving the health and comfort of man.

### Bishopric Sheathing

Bishopric sheathing is made of the very same materials used in Bishopric wall board. It is made in precisely the same way, the only difference being in the finish, which is not necessarily so smooth as that of bishopric wall board, and therefore costs less. So far as practical service is concerned, it is equal to bishopric wall board, there being but a slight difference in appearance.

Bishopric sheathing is cheaper than lumber. Being free from knot holes, cracks and rough spots, it makes a more



**Enormous Direct Demand on Dealers from Seventy-five Million Readers in this Biggest Irwin Advertising Campaign of All**  
**—If You Are Ready To Supply Buyers in Your Locality**

**A** GAIN we come to you, to tell you of our continued largest and most costly Advertising Campaigns ever carried on to create a general public demand for a wood-working tool of any kind.

You, the Irwin Auger Bit Dealer, have had profitable reasons, during the past several seasons, for welcoming these announcements.

Irwin Auger Bit Advertising Campaigns continue, year after year, to create "The Irwin Habit" and send big trade to Irwin Dealers.

We realize that Dealers everywhere in this country have co-operated with us in carrying representative stocks of the Irwin Auger Bits—have anticipated the demand—have forwarded their orders in advance, appreciating our great advertising co-operative plan of referring individual inquiries and the written requests of thousands and thousands of buyers to them.

You can now again confidently order representative stocks of Irwin Bits based upon the certain results of our continued Advertising Campaigns.

Every dealer who is prepared, or who will now quickly prepare himself to meet the demand, can count upon our co-operation direct with him between our factory and the public at large, in closing sales of Irwin Auger Bits, the average volume of which has been larger during the past two years than that of any other bits made today.

**Read Over this Large List of Magazines and Newspapers Carrying the Irwin Auger Bit Advertising—Read by Over Seventy-five Million Readers Every Month**

Saturday Evening Post	Hardware Dealers Magazine
Technical World	The National Builder
Uncle Remus Home Magazine	American Carpenter & Builder
Collier's Weekly	Iron Age—Hardware

**ILLUSTRATED SUNDAY MAGAZINES**  
 (Published in Fifteen Cities)

Pittsburg Gazette Times	Omaha News
Detroit News Tribune	Worcester Telegram
Columbus Dispatch	Buffalo Times
Providence Times	Denver Republican
Louisville Courier-Journal	Rochester Democrat and Chronicle
Cleveland Leader	St. Paul Pioneer Press
Milwaukee Sentinel	New Orleans Picayune
Cincinnati Commercial Tribune	

**S**EVERAL years' advertising experience on the Irwin Auger Bit through the most expert advice and with most careful consideration, both for our dealers' interests and the interests of our factory, have demonstrated that the above list of representative magazines and newspaper publications will bring from day to day and week to week and month to month, throughout the year, the greatest trade into the stores of our dealers of any list of publications that could be used.

Nothing succeeds like success—and we may say, without fear of contradiction, that the Irwin Auger Bit Company today stands in the unique position as the only Auger Bit manufacturers in the world who have created a big trade through advertising for their dealers.

Irwin Bits are maintained the standard for

**ASSOCIATED SUNDAY MAGAZINES**  
 (Published in Ten Cities)

Boston Post	Rocky Mountain News
Minneapolis Journal	Washington Star
New York Tribune	Denver Times
Philadelphia Press	Chicago Record-Herald
St. Louis Republic	Pittsburg Post

**AMERICAN SUNDAY MAGAZINES**  
 (Published in Five Cities)

New York.....American	Boston.....American
Chicago.....Examiner	San Francisco.....Examiner
	Los Angeles.....Examiner

highest quality, and it would mean business suicide for us not to keep them so.

We prevent substitution both in your interest and in the interest of our factory by placing our stamp "Irwin" on every Irwin Auger Bit—Reg. U. S. Pat. Off.

We do this—

To protect the consumer in buying the best.

To protect dealers and jobbers in selling the best.

To protect the Irwin Auger Bit Company in producing the best.

All profit by taking advantage of this advertising which we create, and we invite you, the dealer, to co-operate with us by immediately placing yourself in the position to fill the demand which we shall send to you as a result of our advertising campaign.

**THE IRWIN AUGER BIT CO.** Largest in the World **WILMINGTON, OHIO**  
 STATION F-18

(Orders all filled through jobbers. Look over your stock and send in your orders at once.)

solid and even surface than lumber. It is nailed to studding in half the time required for lumber, which means an additional saving in labor. Then again, its use does away with the expense of building paper, both in purchase price and in cost of labor in applying it.

Bishropic sheathing is said to be the ideal material for cement exterior or stucco work as well as frame buildings. The cement firmly adheres to the laths and asphalt mastic, making a solid, smooth exterior. The spaces between that part of laths not imbedded in asphalt mastic form an excellent key for firmly holding the cement. For factory or residence, this form of concrete or stucco construction is the cheapest and best known.

A free book description of Bishropic wall board and Bishropic sheathing, as well as a free sample, will be sent you if you write the Mastic Wall Board & Roofing Manufacturing Company, 24 West Third street, Cincinnati, Ohio, mentioning the AMERICAN CARPENTER AND BUILDER.

### Which Concrete Mixer?

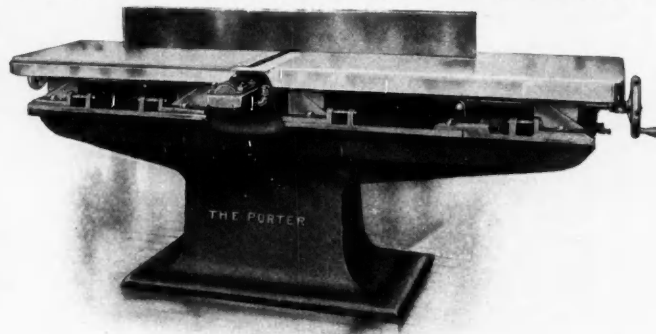
So much has been said about mixers, and so many are advertised, that it undoubtedly puzzles the average purchaser to know which one he should buy. A mixer must have efficiency, must it not? And the price cuts a figure too, with the average man. Every up-to-date concrete worker, certainly should have a concrete mixer, as it means dollars and cents to him in the amount of labor he can save. More than that he has a much larger field before him to get the maximum profits out of the business. But do not buy a mixer with your eyes shut. You will regret it if you do. These mixers are not so intricate but that the average man can understand them, and know what features they should possess. The Raber and Lang Mfg. Co., Kendallville, Ind., urge all concrete men to read the description of the "Crescent" Continuous Concrete Mixer, and then—think! Just think! Think of—efficiency, adaptability, durability, size for your business, how much money you can make, and save in a year by having a good mixer, what opportunities it will open to you for increased business, and last, but not least—think of price.

The Raber and Lang Mfg. Co. are anxious to let the "Crescent" Mixer prove that it will save you money, no matter in what branch of the business you are engaged, and lastly, that it is easily within your reach—in price. They want to have the opportunity of making good everything they say about the "Crescent" Mixer. They are now distributing a very complete and interesting catalog on this Mixer proposition which every cement worker should have. Write for it.

### "The Porter" Hand Jointer or Buzz Planer

The accompanying cut illustrates the hand jointer and buzz planer manufactured by the C. O. Porter Machinery Company, Grand Rapids, Mich. It is especially adapted for contractors and for carpenters' shop work. The claim is made

for it that it is the best jointer on the market, without exception for this purpose. Strong, rigid and durable, it has an independent table adjustment. The tables have steel lips and are ground. It will be observed that the cutter head is of the patented round safety cylinder type. Has a pattern draft

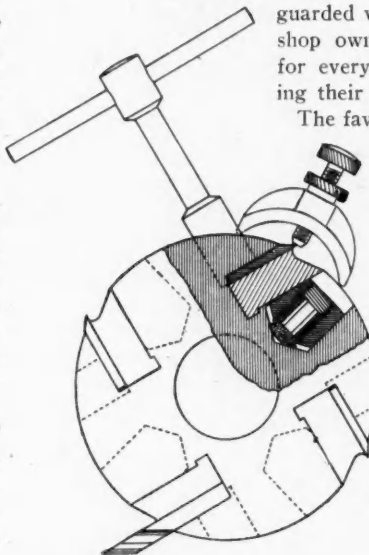


attachment for planing on a bevel. Bearings are large and long and supported by the side walls of the new shaving draft, a new and distinctive feature. The bearings are self oiling. Cylinder pulley is grooved for letting out air.

This machine is made in seven sizes, viz.: 5-inch, 8-inch, 12-inch, 16-inch, 20-inch, 24-inch and 30-inch width. Those of our readers who are interested in new equipment of this kind should write the C. O. Porter Machine Company for full information and prices.

### Better Protection for Jointer Operators

So many expensive damage suits result from improperly guarded wood-working machines that shop owners are constantly looking for every efficient means of protecting their workmen.



The favor with which protective devices are received, indicates that mill and factory owners are very anxious to guard the safety of their machine operators. The modern factory owner takes pride in providing every possible protection to his employees, because he realizes that law suits must be paid for out of the profits of the business.

Many wood-workers, of the older school, would have more fingers today had the jointers on

## \$50 to \$150 a Week to Carpenters

**NO MORE DRUDGERY--LONG HOURS--POOR PAY--THAT'S ALL GONE. READ ON IT'S GREAT**

What are you earning? \$2-\$3-\$5 a day. All right. We'll double, triple, yes, quadruple, that for you with short hours-easy work. You've been longing for opportunity-felt you were built for better things. Here you are. Wonderful opportunity. It beckons-calls-urges-implores you. Every home needs-wants-been looking for years for **Diamond Velvet Castor**. Common castors are worthless trash; you know it. You've had experience with them. They mar, scratch, scrape, ruin expensive polished floors, rugs, carpets. They stick, fall out, run hard, skid, rust, squeak, break-are unsightly. **Diamond Velvet Castors** carry 2000 pounds weight across polished floor without a mark. Noiseless-can't squeak-need no oiling-can't fall out-never stick. Heaviest furniture moves with slight push. Only perfect castors. Thousands sold. **Women delighted-Buy eagerly.** Henry Smithson, Sioux City, Iowa, says: **Sold 60 sets one day. Profit \$30.** Edward Winn, Mich., "Took order for 27 sets in one home. Profit \$16.20." You are a carpenter; you can sell castors-put them on better than anyone else. Think of the field! Carpentry 600,000,000 worthless castors in use. All should be exchanged for **Diamond Velvet Castors**. Thousands upon thousands can be sold in homes, stores, offices, factories, hospitals, public buildings, etc. Sell man at office-take order for house at same time. Put on in three minutes. Enormous profits. It's great-fine. Never such a chance to make money-gain independence. Good territory open. Write postal today-now-this minute. Don't wait. This is the greatest chance of your life. **Hurry.**

**DIAMOND VELVET CASTOR COMPANY, 50 N. Mill St., Grand Rapids, Mich.**

### READ THESE LETTERS OF PRAISE THEY SHOW HOW PEOPLE WANT THEM

Bismark, N. D., March 25, 1910.

Gentlemen:—I received the castors and they are the finest thing I ever saw. Had no trouble in adjusting them.

MRS. JOHN P. DUNN.

Wolfe City, Texas, Jan. 31, 1910.

Gentlemen:—Some few weeks ago, I ordered from you one set of **Diamond Velvet Castors** and since using them like them so much that I want "two other sets." So please find enclosed \$1.50 for which send me at once two more sets of two inch castors. Thanking you in advance, I am,

MRS. J. RILEY GREEN.



# BISHOPRIC WALL BOARD

## Cheaper and Better Than Lath and Plaster

YOU DON'T HAVE TO WAIT for good building weather when you use Bishopric Wall Board. This substitute for lath and plaster is made of kiln-dried, dressed lath, 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 with 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.**



# JOHNSON'S

## Money Makers

# FREE

**Just Mail Coupon or Postal for Three Big Samples and Book.**

**L**ET 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. 6.

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.**

**W**E 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. 6, 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. 6.

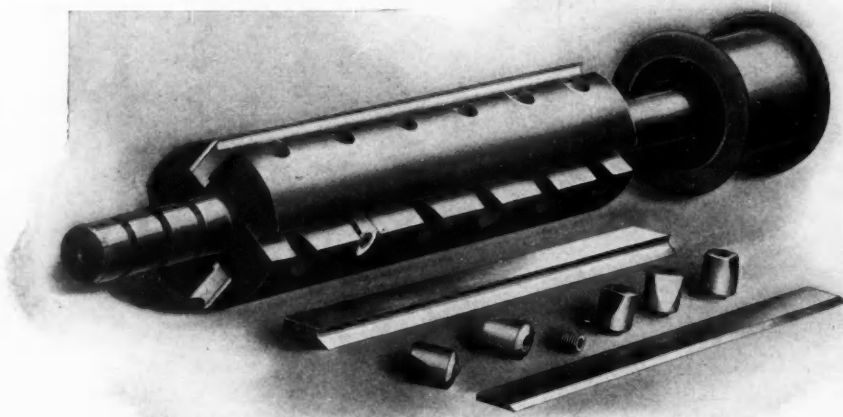
PLEASE USE THIS COUPON—CUT ON DOTTED LINE

Name.....

Address.....

which they worked been provided with the modern round safety head. One of the most serviceable devices of this kind that has yet been placed on the market is shown in connection with this article. The construction of the head

ing cutters, but with this one, special throat pieces are furnished, so that moulding cutters or special knives of any kind may be used. The head is manufactured by the Crescent Machine Company, No. 224 Main street, Leetonia, Ohio, and they will be glad to give you additional information.



is such that the knives are securely wedged in place and the centrifugal force only tends to hold them all the tighter. The knives are made of high speed steel, so that jointers equipped with this head are more efficient and will turn out greater quantities of accurate work with less attention to the knives. The knives have a bearing the full length, and are gripped tightly the full width to the very cutting edge. A very convenient and effective means is provided for adjusting the knives. On most round heads it is not possible to use mould-

Exercise is essential to health, and health is life itself. The brisk ride to the office with the lungs pumping deep their supply of oxygen gives the man a start, a poise, worth gold dollars. The afternoon spin on the boulevard will make roses deepen in cheeks that need no rouge or powder. The dancing eyes and "awful" appetite of the boy or girl, testify to the health-making exercise on the bicycle.

And the exercise, the change, and attendant benefit is practical. The bicycle knows no stubborn moments, it is al-

### A Most Beneficial Pastime

Once a person learns to ride a bicycle, the interest in this exhilarating pastime never wanes. Bicycles have held a high place in popular favor and while the introduction and use of the automobile has created a great enthusiasm along the motoring line, the steady, genuine liking for bicycling continues. Bicycling appeals to the average person in three powerful, vital ways:

1. It affords exercise.
2. It provides a change.
3. It is practical.

## J-M Asbestos Roofing is the only Smooth-Surfaced Ready Roofing Permitted

Statistics gathered by the National Board of Fire Underwriters show that the fire loss in the United States during the ten years ending in 1907 averaged \$203,000,000 a year. Statistics further show that over half of these annual fire losses were the result of flames being communicated from another building by burning sparks, embers, etc., landing on an inflammable roof.

### In SAN FRANCISCO, CAL.

where the authorities are using every precaution to prevent a possible recurrence of the terrible fire loss of 1906, J-M ASBESTOS ROOFING is the only smooth-surfaced ready roofing permitted within the city fire limits.

### In JACKSONVILLE, FLA.

where the building laws regarding fireproof materials are severe since their \$10,000,000 fire in 1901, J-M ASBESTOS ROOFING is included among metal, slate and other fireproof roofings which can be used.

### In MINNEAPOLIS, MINN.

after an official test, during which the flame of a blow torch failed to ignite wood covered with J-M ASBESTOS ROOFING after a ten minute exposure, the city council amended their city building ordinances to include this roofing.

### In ATLANTA, GA.

the Building Committee has pronounced J-M ASBESTOS ROOFING equal to metal, tile and slate for resisting fire.

When, after thorough investigation and careful tests, such cities as the above pronounce J-M ASBESTOS ROOFING absolutely fireproof, *isn't it a pretty safe guide for you to follow?* J-M ASBESTOS ROOFING is ABSOLUTELY fireproof because it is made entirely of minerals—Asbestos and J-M Trinidad Lake Asphalt.

Write nearest branch for Samples and Booklet—or simply write your name and address on the margin of this advertisement and mail it to us

## H. W. JOHNS-MANVILLE CO.

Manufacturers of Asbestos and Magnesia Products

**ASBESTOS**

Asbestos Roofings, Packings, Electrical Supplies, Etc.

Baltimore  
Boston  
Buffalo  
Chicago

Cleveland  
Dallas  
Detroit  
Kansas City

London  
Los Angeles  
Milwaukee  
Minneapolis

New Orleans  
New York  
Philadelphia  
Pittsburg

San Francisco  
Seattle  
St. Louis

(1057)

For Canada—THE H. W. JOHNS-MANVILLE CO., Limited

Toronto, Ont.,

Montreal, Que.,

Winnipeg, Man.,

Vancouver, B. C.



In this test the flame of a powerful blow torch was placed within two inches of J-M Asbestos Roofing. At the end of fifty minutes the roofing was not burned or injured, being only slightly blackened with smoke.





**By  
Far the  
Strongest  
Gripping Brace  
You Have Ever Had**

The greatest improvement ever made in brace construction is the ball-bearing chuck.

It can be tightened with the bare hand to a firmer grip than you can get with a vise on any other brace. It can be released so easily that the weakest wrist can do it.

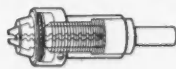
The only brace made with this patented chuck is the top-notch of our large line of braces and other guaranteed carpenters' tools, the

**P. S. & W. SAMSON BRACE**

Tenpenny nails held by this brace have been bored through solid oak. Five sixteenths-inch rods with one end in a vise, have been twisted to the breaking point.

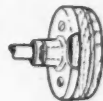
Beside the wonderful ball-bearing chuck, the Samson has a steel clad head with dust-proof ball-bearings—not a cast iron head nor a flat plate, but a steel cap completely surrounding the head to the height of  $\frac{1}{8}$  of an inch.

The Ball-Bearing Chuck



The Alligator Jaw is still another asset of the Samson Brace. It parallels itself to fit the shape of any drill shank. Will hold round, square, or tapered shank drills with a grip that never slips.

The Steel Clad Head



THE MARK OF THE MAKER is on every P. S. & W. Guaranteed Tool. It represents 90 years' experience and ability, backed by the highest quality. Look for that trade mark on every tool you buy.

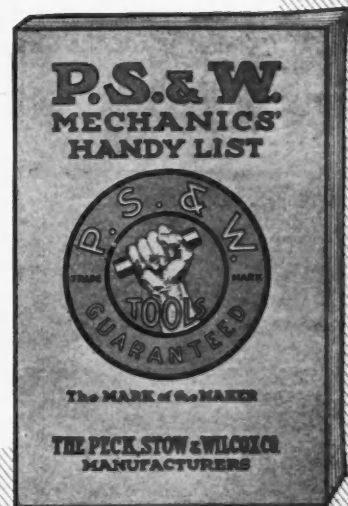
Sold by all leading dealers.

WRITE US FOR OUR FREE BOOK-LET. Our 160 page Mechanics' Handy List contains many pages of valuable information, and a complete catalog of over 200 tools for Carpenters, Machinists, Electricians and Tinsmiths. Sent free at your request.

**The Peck, Stow & Wilcox Co.**

MANUF'RS of the Largest Line of Mechanics' Hand Tools Offered by Any Maker

Established 1819—Five Large Factories  
Address Correspondence to 22 Murray Street, N. Y. City



ways ready for the work. Its original cost is within reach of all, and its use entails no expense. There is no unnatural tension of the nerves, no mania of recklessness, no incurrence of debts hopeless in payment, nothing but pure, sane, practical enjoyment.

And as there are three reasons, so the enjoyment of it all is the sum total of the reasons. One is happy with his bicycle because every moment is one of health, interest and contentment.

A good bicycle is necessary to a thorough appreciation of the sport, and local dealers throughout this country are finding that the machine manufactured by the well-known Mead Cycle Company of Chicago, meets with the highest favor. Their bicycle is sold at a moderate price and under reasonable terms. It is the finest expression of the industry at the present time, and a machine so high in the estimation of the manufacturers that they gladly send one on trial. The 1910 catalogue of the Mead Cycle Company has been issued, and will be sent to any address upon request to their Chicago office. Address Mead Cycle Company, Dept. B-122, Chicago, Ill.

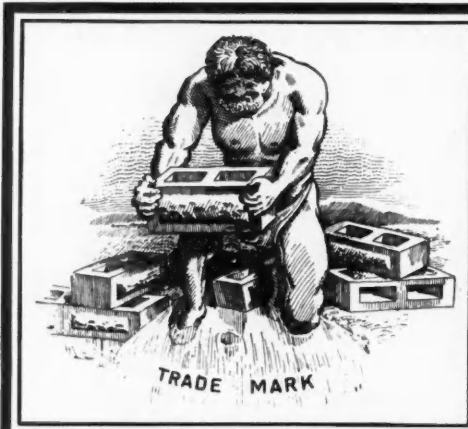
**"Acme" Floor Scrapers**

In these days of progressiveness, new inventions are being daily introduced in order to lighten the burdens of mankind as well as to increase the efficiency of the work to be performed. In the builder's line much has been accomplished to lessen labor and reduce operating expenses by the installation of machinery and up-to-date equipment, but the problem of floor scraping has been a difficult one to solve. Many devices have been placed on the market that were heralded to overcome the burdensome task of hand scraping, but in almost every case their success has only been a partial one. Believing that a floor scraper could be constructed that would do the work and do it perfectly, the inventor of the "Acme,"

who is an expert mechanic with many years of practical knowledge as an asset, did, after months of experimenting, perfect a scraper that will, it is claimed, scrape a floor, no matter what kind of wood it consists of, better than can be done by hand and in one quarter of the time. Ease of operation is the most essential feature of any machine, and this factor is one of the strong points in the makeup of the Acme Floor Scraper. Its action is entirely automatic. There is no lifting to be done, the operator simply stands in an upright position, pulls the machine towards him and scraping is accomplished. It brings floor scraping down to a simple push and pull affair. No scraper can accomplish good work unless the blade is in proper condition, and realizing the difficulty encountered by a person who is not a mechanic to place the proper edge on a blade, the inventor also perfected a device which will enable any person to properly sharpen a blade in a very few minutes. The Acme Blade Sharpener is an absolute necessity to a man operating a floor scraper and who is not a skilled mechanic. Another attachment that adds to the completeness of the outfit is the Acme Sander and by its use a smooth and finished surface can be readily attained. Mr. Miotke makes it his boast that all the material used in the construction of the Acme machines is the best the market produces and the workmanship is of the highest standard. The Acme machines have been tested under all conditions and in every conceivable manner, and in no way have they been found defective. They are fully guaranteed in every respect. For further information, address Jos. Miotke, 247 Lake Street, Milwaukee, Wis.

**New Woodworking Catalog**

We have received a very interesting catalog from the Chicago Machinery Exchange illustrating their line of woodworking machinery, adapted especially to the needs of builders and



**WATERPROOF      TIMEPROOF      DANGERPROOF**

**HERCULES WATERPROOFING & STRENGTHENING**

Liquid Powder or Paste      **COMPOUND**      No Experience Required to Mix

Absolutely Waterproofs and Strengthens Cement even in as lean a mixture as one, to three.

We invite the closest investigation.

Write for "A Treatise on Waterproofing Methods," sent free upon request.

**Hercules Waterproof Cement Co.**

Research Laboratories and Mills      General Offices and Salesrooms  
LA SALLE, N. Y.      255 Washington St., BUFFALO, N. Y.

**A CORPS OF COMPETENT CONCRETE ENGINEERS**

Kahn System Engineers are located in nearly every city in the United States. They are men of broad training, experienced in solving the most difficult building problems. These men are at your service without charge, to supplement the knowledge of your architect. Back of them is Kahn System—with its many facilities and great record in reinforced concrete construction. Write today for the Kahn System Engineers in your city.



**HY-RIB**

is one of the

**KAHN SYSTEM**  
products

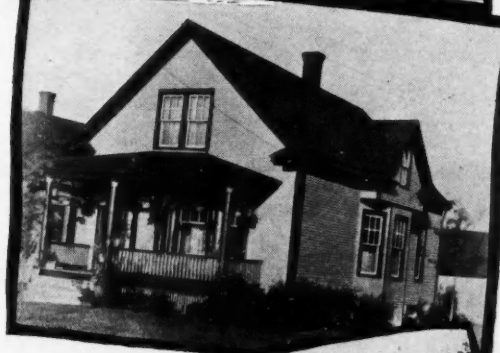
A Steel Sheathing extensively used for roofs, sidings, floors, partitions, ceilings, furring, etc., in buildings of all kinds. Your own men or local contractor can apply it. Simply set up Hy-Rib sheets, apply cement mortar, and the slab is complete. No centering or studs required. Write us before you build. Hy-Rib catalog free.

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# \$5000 Plan Book Free!

## To builders, carpenters, contractors!



This is the greatest book of its kind that ever came off the press. It contains designs for city and country residences, cottages and bungalows, all the very latest types—the cream of the architectural world's most approved styles.

The great Gordon-Van Tine Plan Book is the accepted authority on architecture. It contains the best ideas of famous architects, who have prepared this wonderful book for us at a tremendous expense. It represents a cost of \$5,000.

The book is simple and practical. It has been compiled so as to enable our customers to build with the utmost economy, yet secure for themselves artistic, well-laid-out homes at the highest possible degree of convenience and comfort.

### What Our "Book of Plans" Contains

Our Plan Book contains 56 designs—accurately drawn by skilled architects. There are 39 plans for residences and 17 for farm buildings, including Barns for all kinds of stock, Granaries, Poultry Houses, Hog Houses, Duck Houses, Ice Houses, Corn Cribs, etc. The plans show the exterior view, floor plans, size of rooms, etc.

Every one of these plans is practical, having been proved by actual construction, which saves you the expense and worry of costly mistakes.

When you build from these plans you are entitled to receive the wholesale prices on the material, which we supply you direct from our immense plants and save you from a third to a half on the usual cost. We can save you from \$100 to \$300 on every car of lumber you buy, and will give you bright, new lumber just from the mill.

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Write at once, enclosing 10c to cover postage and packing, and this great \$5,000 book will be on its way to you by return mail. No builder or contractor can afford to be without it. Don't think of building till you see it.

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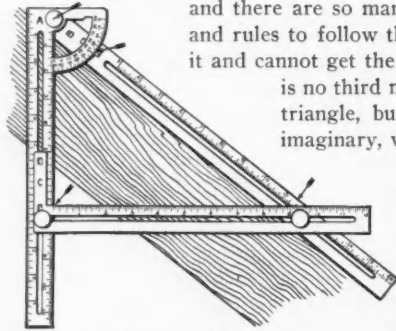
carpenter contractors. Very clear illustrations and complete descriptions of each machine are shown.

The Chicago Machinery Exchange, 7-11 N. Canal St., Chicago Ill., will be pleased to mail this catalog to all interested parties.

**Its Simplifies Framing Problems**

Many volumes have been written on the steel square, but still it is a mystery to thousands of its users, and will continue to be, as it is not made so it can be adjusted to any position, and there are so many figures to remember and rules to follow that the majority forget it and cannot get the desired results. There is no third member to complete the triangle, but the third member is imaginary, which fact confuses the ordinary user of the common steel square.

A great many architects today are drawing their plans and specifications in degrees, and the ABC protractor square, which is being put on the market by the Crookston Tool Company of Crookston, Minn., is said to be overcoming all of the defects of the common square, removing the difficulties in roof and stairway work as well as in all circular and degree work. By the use of this valuable tool all work is said to be made as plain as ABC. It is very simple and easy to use and the degree circle in connection with the adjustable triangle makes it a tool that should be in the hands of every carpenter in the country. It gives lengths, bevels at both ends and degrees all at the same time, and it takes no figuring to use it. Just set the ABC pro-



tractor square at the dimensions given and it gives you what you want, bevels as well as lengths.

For instance, if you want to get bevels and length of rafters for a house 20 feet wide and 44-degree roof, just set member C to member A at 10 (one-half width of building) and set member B at 44 degrees, with member A and member B will give you the length of your rafter, to be 13 feet and 11 inches; member C will give you the upper cut and member A the lower cut of your rafter, and member C at the same time will show you that the rise of your roof in this case is 9 feet and 8 inches. These results you get from the ABC protractor square in less time than it takes to write it, and to get hip and jack rafters is just as easy.

The illustrated directions which the manufacturers put out with each tool makes roof, stairway and circular work so plain with the ABC protractor square that a boy who can read is able to use it.

The Crookston Tool Company will be pleased to furnish all information regarding this square, which they sell on a guarantee that it will do the work they claim for it.

**There is No Exercise to Equal Cycling**

Among all the sports or forms of exercise, which have found any degree of favor with Americans, cycling is most ideally suited to American needs and American temperament.

It satisfies our passion for being "on the go" in a sane, health-building manner. There is no nervous tension to cycling, such as attends the swift ride on the speeding motorcycle, or in the whizzing auto.

Gliding along on a light-running wheel, one forgets he has nerves, or muscles. Instead of a rush of air in the face that renders breathing a difficult task, it seems second nature, when wheeling, to drink in long sweet, soul-refreshing breaths of

**EVERY BUILDER**

should know what a good roofing GAL-VA-NITE really is. We want you to get samples and details and to be fully ac-

quainted with the roofing facts shown in our book—"The Inside Of An Outside Proposition."

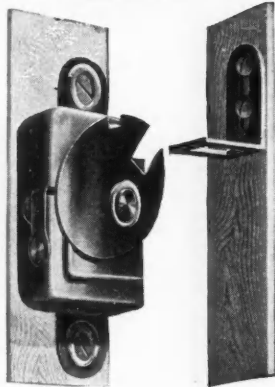
**In order that you may become thoroughly familiar with the advantages of GAL-VA-NITE ROOFING we want you to let us send you our CONTRACTOR'S ESTIMATE BOOK FREE**

The busiest builders use GAL-VA-NITE—the triple asphalt-coated, mica-plated ROOFING. It gives satisfaction every time—in any climate—on any kind of a building. Needs no paint—first cost—last cost.

Let us send you samples and our celluloid covered estimate book—something every builder needs. Address Dep't Z.

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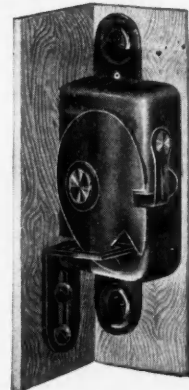
**The No. 21 Watrous Screen Door Catch**

**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.

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Magazine Section  
THIRD PART

## THE PHILADELPHIA RECORD

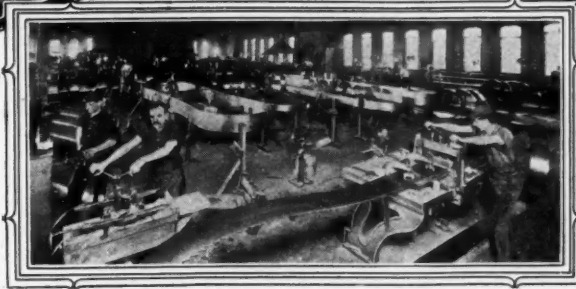
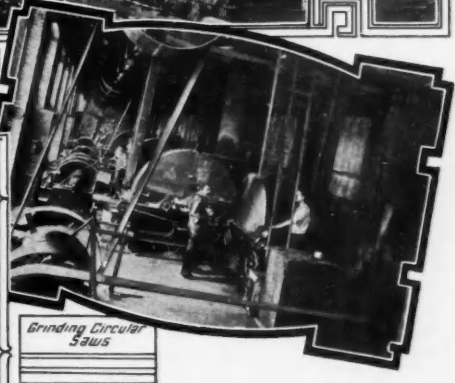
What an Insurgent Is  
SEE PAGE 2

PHILADELPHIA, SUNDAY MORNING, FEBRUARY 6, 1910

## WORLD'S BEST SAWS ARE MADE HERE

Rolling Large Circular  
Saw PlatesHoning, Tothing and Filing  
Circular SawsGeneral View of the  
Disston Saw Works

Pouring Crucible Steel

Stacking  
Hand Saw BladesBrazing and Filing  
Band SawsGrinding Circular  
Saws

## The Tribute of a Great Newspaper

In the rapid whirl of events which have world wide interest and significance, it is seldom that the management of a great metropolitan newspaper is profoundly impressed by the methods and achievements of any individual enterprise.

But on February 6 last, the Philadelphia Record, one of the foremost journals of the nation, employed an entire page to illustrate and describe the Disston Saw Works; to tell the deeply interesting story of its founder and his successors, of their purposes, their ideals and their accomplishments.

Here are some of the editorial statements that were made:

"There are various reasons for the growth of this Philadelphia industry from nothing to the greatest of its kind in the world. One is that it has kept ahead of all others in the processes and inventions for sawmaking.

"In the beginning, Henry Disston made saws to live. Later, when wealth came, he lived to make saws. He studied his art—for it is an art—as a painter studies colors. And he produced a masterpiece.

"He was the great improver and developer who placed Philadelphia made saws in their present position at the head of the markets of the world for quality, finish and cor-

rectness of pattern—a position which his successors so ably maintain."

Disston saws, files and tools give longer and more efficient service than any other implements of similar character manufactured.

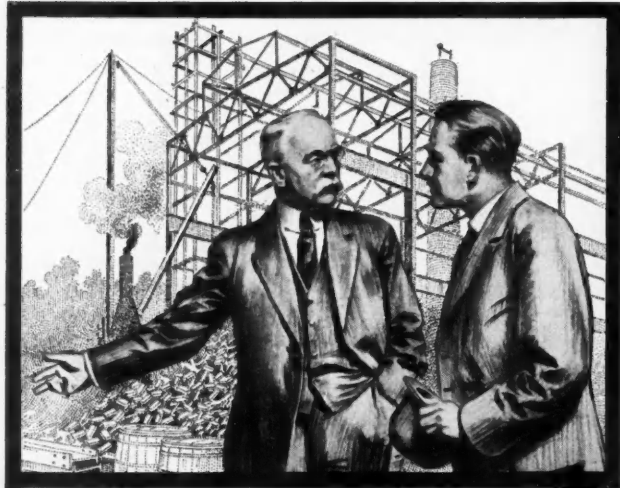
Business association with an organization which occupies so high a place in the commercial and manufacturing world; an organization which expends so much time and effort to serve the interests of its patrons, is an asset for every merchant and mill owner who handles or uses saws, files, or tools.

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

**Henry Disston & Sons,**  
(INCORPORATED)

Keystone Saw, Tool, Steel and File Work  
PHILADELPHIA, PA.,  
U. S. A.





## “Here’s the Job— NOW PRODUCE”!

“The last man at this job was a fine chap, but he couldn’t ‘make good,’ so we had to let him go. As I said before, the position calls for a **TRAINED** man. Now it’s **‘UP TO YOU.’**”

Suppose it were up to you—could you “make good?” Don’t you know perfectly well that your failure to get ahead is owing not to lack of brains—but to lack of training? What is the great difference between you and the fellow able to “produce” as a foreman or superintendent or manager? Training—that’s all. A thousand jobs await the man able to “produce.” Employers want him—are always eager to secure his services. The world has no patience with drones—no pity for failures; it says to every man, “get ready to ‘produce.’”

Every month there are received at the I. C. S. upwards of 300 voluntary letters from men that spare-time study has qualified to “produce.” Those letters prove conclusively that there is a way for every man—for you—to get ready to “produce.” The I. C. S. will give to you the same training that has qualified tens of thousands to rise to higher and better paid positions. The I. C. S. can help you. Are you willing to help yourself?

“To find out all about how you can learn to “produce,” mark and mail the coupon. Doing so will cost you only postage and will place you under absolutely no obligation.

**Send the Coupon NOW!**

### International Correspondence Schools Box 910, SCRANTON, PA.

Please explain, without further obligation on my part, how I can qualify for a larger salary and advancement to the position before which I have marked X.

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nature’s ozone. “Get out your bicycle and get the fresh air” has been many a physician’s advice to the patient seeking relief from nervous strain, stomach disorder, or a long list of kindred ailments. That, too, is our advice to our readers.

An hour or two a-wheel each day, will make a new person of you—will help the lungs carry away impurities from the blood, will clear the brain, quiet the nerves and bring the restful sleep of health.

If you have a bicycle, use it. If you haven’t one, you will be surprised to learn how fine a wheel can be bought for a very few dollars from the Mead Cycle Company, Chicago. They are glad to send their catalogue to interested persons. Address Dept. B-122.

### The Many Uses of Beaver Board

The rapid growth during recent years of the use of this material and the many ways in which it can be applied to purposes of building and remodeling, have roused general

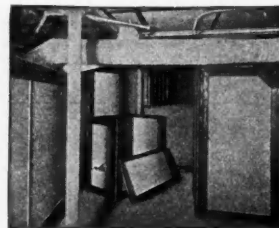


interest in the advantages claimed for it by its manufacturers. Our readers will no doubt be interested to learn how Beaver Board is made and how it can be used.

Beaver Board is manufactured by The Beaver Company, of Buffalo, N. Y., who state that it is made entirely of selected woods reduced to fibrous form and pressed into panels of uniform thickness. Although this is but a scant three-sixteenths of an inch, the panels are very stiff, tough and strong. Beaver Board is designed to take the place of lath, plaster and wall-paper for the walls and ceilings of new and remodeled buildings of every type whatsoever. Among the many advantages claimed for it are the following:



It resists the passage of heat and cold so that it tends to make a house warmer in winter and cooler in summer. It also has high resistance to sound, which of course is an advantage in private houses as well as in office buildings, factories, clubs, bowling alleys and other places where it is often desirable to shut off noises from adjacent rooms. The makers also claim that it will not crack, chip or deteriorate with age; that it resists fire and stands shocks, strains and vibrations which would bring plastered walls and ceilings down in ruins. They have published some very interesting testimonials in support of these claims, notably the use of Beaver Board by the United States Government at Fort Banks, Mass., where it successfully withstood the concussions caused by firing large disappearing guns, although plastered walls had been severely dam-





**T**HE New Rambler has many little features of safety and convenience which are most appreciated by the experienced owner. Both brakes may be adjusted by raising the hinged aluminum floor and turning two winged thumb nuts. The safety spark-retarder protects you from a back kick of the starting crank. A convenient gasoline lock prevents the unauthorized use of your car. In these features and in the Rambler door lock, adjustable steering column, and handy spark-plug connection, you find evidence of careful attention to details—the mark of quality. Besides every Rambler has the Off-set Crank-Shaft, Straight-Line Drive, Thirty-Six Inch Wheels and Spare Wheel feature.

Rambler automobiles \$1,800 to \$3,750

**Thomas B. Jeffery & Company**  
 Main Office and Factory: Kenosha, Wisconsin  
 Branches: Chicago, Milwaukee, Boston, Cleveland and San Francisco



There  
is the Reason  
Why

## SIMONDS SAWS ARE THE BEST

**T**HE steel, and the teeth formed from the steel are vital things about a Hand Saw. All the cutting of a saw is done at the points of the teeth, therefore a saw should be made of material that will hold the tooth points, or, in other words, hold its cutting edge. Simonds Saws are Made of Simonds Steel and as a result are superior to other saws. This high grade saw steel will hold a point through hard and continuous service. Buy Simonds Saws if you want the best. You will get the best steel, the best hanging saw, the best value for the money.

When you need saws of any kind let us know and we will send you a free copy of an interesting booklet, "Simonds Carpenter Guide," also the name of Hardware Dealers near you handling our saws.

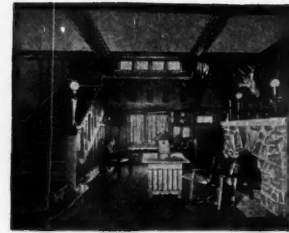


Look for this trade mark etched every saw.

**SIMONDS MFG. CO.**  
Fitchburg, Mass.

Chicago San Francisco Seattle  
New York Portland Montreal  
New Orleans London, Eng.

aged thereby. Another interesting evidence of this quality was given by an explosion in Buffalo, where a bridge was dynamited by strikers. Every wall and ceiling in an adjacent building was demolished, with the exception of one room finished in Beaver Board, although this was one of the nearest rooms in the building to the point of explosion. An even more important and interesting characteristic of Beaver Board is its adaptability to various conditions. The Beaver Company state that it is not only serviceable in point of artistic merit, durability and economy for the wall and ceilings of entire new and remodeled buildings, but that it has developed a surprising number of special uses. This is largely because it is so easily handled and put up, and so economical in cost. The panels are nailed directly to the studding of new rooms, or can be put on directly over the lath and plaster of old ones. The accompanying illustrations show clearly how Beaver Board can be used, and also the artistic treatment it makes possible. The seams are covered with decorative strips of wood and thus admit a general plan of panel and frieze design of infinite variety. Fine effects can also be obtained by the use of beamed ceilings, wainscot and dado, and other well-known architectural devices. As the panels can be cut and put up by any good workman or even by the owner himself, if a mechanic is not available, it becomes an easy matter to transform or remodel any individual room.



Thus attic and cellar space can be readily transformed into comfortable and serviceable rooms. An old out-building can be made useful for children's play-room, gymnasium, workshop, billiard-room, etc. Summer cottages can be quickly and economically given an artistic interior finish, and at the same time be protected against the heat of summer and the frosty nights and mornings of the early fall.

Besides these more general uses of Beaver Board, many useful and decorative household articles can be made of it, such as fire screens, three-panel screen, taborets, waste baskets, shelves, book racks, cabinets, fireless cookers, etc. The Beaver Company, Buffalo, N. Y., have published a little book in which they describe in detail many such uses for their product.

The decoration of Beaver Board offers a wide scope for the ingenuity and artistic taste of the user. The panels have a pebbled surface well adapted to treatment in flat oil paint. Many beautiful designs can be worked out by the employment of stencils, tinting or hand painting. In fact, so wide is the adaptability of this material that the makers claim it is only limited by the needs and ingenuity of the individual user.

### Fire-proof Construction and Its Advantages

Probably no subject in the building world is so important, or has been given so much thought and study, as that of fire-proof construction.

It is no longer a question among owners of how cheap can a building be erected, but how much fire prevention can be had.

Builders and owners everywhere—in both the United States and



# Transom Operation Perfected

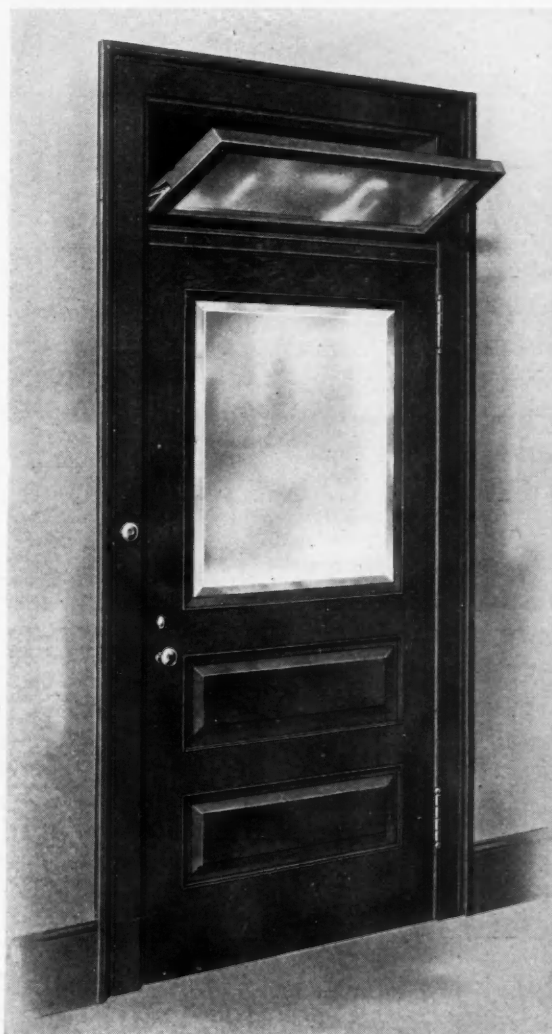
The many faults of appearance and operation characterizing the old style transom rods, so objectionable to everyone are overcome in the

## "RICHMOND" Concealed Transom Lift

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Simply turn the knob on door trim and transom opens or shuts to the required angle and is held steady there until the knob is again turned. No locks, hinges or catches are required.

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In the "RICHMOND" Concealed Transom Lift all parts as implied by the name are concealed, excepting only the knob. The fixture is completely assembled before leaving our factory. Booklet descriptive of the operation and installation of this fixture will be mailed upon application to

**THE McCRUM-HOWELL CO.**

**MANUFACTURERS**

**Park Avenue and 41st Street**

**NEW YORK CITY**

# CARBORUNDUM SHARPENING STONES



Carpenter's Round Combination Stone—No. 107—At your dealers, or by mail prepaid, \$1.00

Any Carpenter will recognize at once the advantages of the Round Sharpening Stone—

The old style oblong stone wears down in the middle—Only about two inches square of the surface is used—

With the round Carborundum Stone the entire surface is used and the rotary motion so necessary to a keen even edge is possible.

Carborundum is the greatest sharpening agent ever discovered.

It is intensely hard and very sharp—It cuts very fast and puts a smooth lasting edge on a tool in half the time required with other stones.

This round stone is made especially for carpenters who have chisels, planer irons and similar tools to sharpen—It contains 12 square inches of surface, practically all of which is used in the sharpening operation.

One side is coarse for taking out nicks and bringing the tool to an edge, the other side fine, for giving the keen finished edge—

Carborundum Sharpening stones are sold by hardware dealers everywhere—Insist on getting Them—

Write for the Carborundum Booklet

**THE CARBORUNDUM CO.**  
NIAGARA FALLS, N. Y.

abroad—have awakened to the fact that the day of absolute fireproof construction has arrived, and that fireproof buildings are, in the long run, the cheapest.

Statistics show that our annual fire loss, and the sum expended for fire protection, amount approximately to the cost of building the Panama canal.

This is a most startling fact, and has brought business men to recognize the folly of instituting elaborate means for extinguishing fires and burdening themselves with great sums for insurance, instead of erecting their buildings so that it will be absolutely impossible for a serious fire to occur.

The growth in favor of such buildings is appreciated when one considers that a large per cent of the large buildings being erected today are fireproof.

This enormous growth has been prompted, not only by the many advantages of fireproof construction, but as well because of the rapidly increasing cost of lumber. It is estimated that for some forms of construction, there is but little extra initial cost involved in putting up fireproof structures. This proves that from an investment point of view the fireproof building is really the most economical.

The remarkable development of reinforced concrete construction is well seen in Kahn system—a reinforcement adequately designed to take up the shearing strains, and which has made it possible to produce beams, girders, stringers, and other members subject to bending stresses, whose strength can be accurately determined. During the development of reinforced concrete members, a very satisfactory form of walling, for filling in the broad open surface, represented by the wall spaces, floors and roofing, has been produced.

The illustration herewith shows what is known as the Hy-Rib method of steel sheathing, which consists of a special steel lath made stiff by rigid, high ribs, both the ribs and lath being made of the same sheet of steel.

The ribs give such rigidity to the lath that when used in walls and partitions, no studs will be necessary. When used as reinforcement for floor and roof, no wood centering or false work are required. If these Hy-Rib sheets are used as partitions, it is only necessary to provide a fastening at the floor and ceiling; the sheets are then set in place and the plaster applied to both sides. Where Hy-Rib is used for floors and roofs, supports are provided about 5 feet apart, and the sheets laid over them with the lath face downward. The work is finally finished by putting the concrete on the upper sides of the sheet.

Sufficient concrete flows through to give a clinch on the steel, and leaves a rough surface on the underside, providing a suitable key for the plaster applied on the ceiling below.

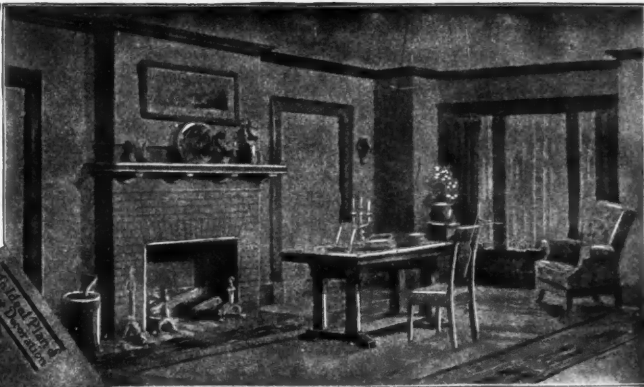
By use of such method any size building can be made unburnable, undecayable, sanitary, and a great saving effected in repairs and painting. This saving, together with that of insurance, and the reduction in depreciation charges, the assurance against interruption of business by fire, make fireproof buildings the most desirable.

The Kahn system of reinforced concrete, as well as its various adjuncts, such as Kahn Trussed Bars, Hy-Rib, Rib-lath, etc., are controlled by the Trussed Concrete Steel Company, Detroit. They publish many useful catalogues, describing their system, materials and application, which will be mailed free of charge to those interested.

## The Square with Hardened Corners

The Nicholls Manufacturing Company have added to their already up-to-date factory a hardening plant (which employs a secret process) for hardening the corners of carpenters' squares.

The Nicholls Manufacturing Company feel themselves very fortunate in securing this secret from the inventor (which has cost them no small amount) as the process has proved an



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*This Portfolio* will help you in your interior work by furnishing a complete scheme of home decoration.

*Fill In and Mail the Coupon Today—Don't Delay*

Be sure and mail the coupon today, before the edition is exhausted. This beautiful Portfolio shows 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. It will save you time in planning your work and by following the suggestions and ideas given in this portfolio you will be sure that they are absolutely up to date, as it is just off the press and contains the very latest designs and decorations. Each design has been thoroughly tested and worked out by our Decorative Department.

## SHERWIN-WILLIAMS PAINTS AND VARNISHES

not only mean a finish for every purpose, but several finishes for the same purpose, varying according to the quality of the work to be done. If you have a high grade piece of work to undertake either on the exterior of the building or on walls, ceilings, floors or woodwork, we can give you just the proper finishes. The same also applies in the case of medium grade and low priced interior decorating.

### Let Us Solve Your Problems for You

If you are at a loss just how to finish the particular work which you have on hand, fill in the coupon at the bottom of this advertisement. This coupon designates three classes of finishing materials, high grade, medium grade and low priced for floors, woodwork, walls and ceilings and exteriors.

*Put a check against the surfaces which you want to finish and the grade of work specified, and sign your name. We will send you complete specifications covering just the proper finishes for these particular surfaces corresponding to the grade of work indicated. Of course this places you under no obligation whatever; we simply wish to demonstrate our ability to be of assistance.*



### THE SHERWIN-WILLIAMS Co.

PAINT AND VARNISH MAKERS

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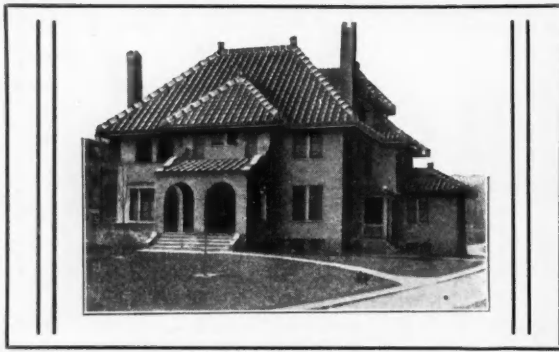
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**AN EDWARDS METAL SPANISH TILE ROOF**

**COSTS NO MORE THAN A GOOD TIN ROOF**

Artistic and Ornamental in appearance and is positively guaranteed to be Fire, Lightning, Rain, Storm and Wind proof.

Its extreme lightness (about one-eighth that of slate), durability and moderate cost commend it to those wishing something out of the ordinary in roofing.

Manufactured from best quality Worcester Grade Terne Plate, furnished painted or galvanized (galvanized after being formed) size 10 x 14 inches.

*Descriptive Booklet sent free on request*

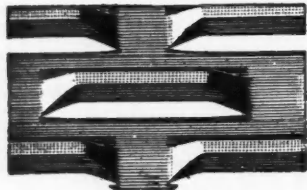
**The Edwards Manufacturing Co.**

*"The Sheet Metal Folks"*

401-417 Eggleston Ave.

Cincinnati, Ohio

**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.

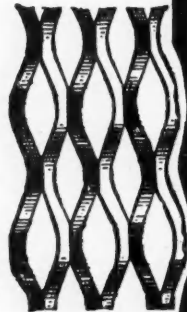
**NO PICKLED LATH**

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.

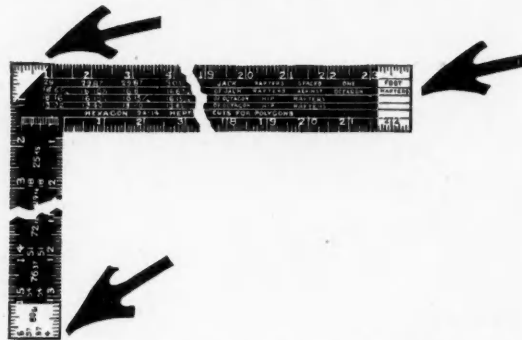
Samples and prices mailed upon request.

**Sykes Metal Lath & Roofing Co.**  
NILES, OHIO



absolute success. The hardened corner has been a long-felt want of the carpenter; and, as necessity is the mother of invention, the result was finally attained.

The Nicholls Manufacturing Company claim that theirs is the only square manufactured which contains a complete roof framing rule which gives side cuts of jack rafters, hip and valley rafters and length of same, as well as lengths and cuts



necessary to a roof of any kind, size or shape. These figures are stamped plainly on body of square with no character marks used, which eliminates the necessity of a carpenter trusting to his memory.

All squares manufactured by the Nicholls Manufacturing Company, both framing and standard, are in one piece (the tongue is not welded on body). The squares are cut from sheet steel with a heavy machine designed especially for this purpose and said to be the only one of its kind in use. The steel itself is of the best quality, being made and rolled for this express purpose.

**Substitution**

The smartest repartee does not always come from the side of the clerk, as is shown by this incident related by Harold Skinner in the *Bohemian*:

"Good morning, madam," volunteered the cheery salesman. "Good morning," echoed the pleasant looking matron. "Have you something choice in real Irish lace?"

"Well-er-no; but here is something just as good at 75c a yard."

"Just as good?" doubtfully.

"Yes, indeed. In fact," confided he, "superior to the real article. How much do you wish, please?"

"Just a yard," with suspicious slowness. "Here's your money."

"But, madam," in confusion, "you have made a mistake. This isn't money."

"No?" agreeably.

"Why, no. It's a matinee ticket."

"So it is. But it represents seventy-five cents, and while it isn't actual money, it's just as good."

And the salesman collapsed.

**A New Portable Trench Pump**

A practical compact portable trench pump generating its own power is the C. H. & E. portable trench pump illustrated herewith.

The nature of the apparatus is such that it can readily be taken from job to job. This outfit is built for use of contractors, builders, railroads, ship and barge owners or on public works where it is necessary to raise large quantities of water or to handle water containing mud, sand, grit, gravel, grain or chips, sewage or any liquid that will flow.

The engine is a strong 3-horsepower, water-hopper cooled, and runs between 400 to 450 revolutions per minute, which exerts a pull or lift of 1,000 pounds on the lever at each stroke.

The wrist pin on gear wheel can be changed to either one of the four different strokes, and the revolutions of the engine



## ASBESTOS "CENTURY" SHINGLES

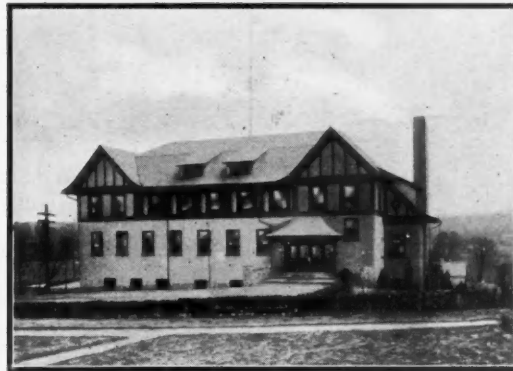
*"The Roof that Outlives the Building"*

Your client's first thought is his roof. Probably he has had more than one bitter experience with a roof that developed an unexpected leak. He has been forced to pay out good money for constant repairs, painting and incidental damages.

Nothing pleases him better than to know that his roof is storm-proof—fire-proof—time-proof.

Asbestos "Century" Shingles are absolutely indestructible. Made of hydraulic cement, reinforced with asbestos fibers. Compacted by tremendous pressure.

**The KEASBEY & MATTISON COMPANY, Factors, Ambler, Pennsylvania**



Asbestos "Century" Shingle Roof—White Marsh Valley Country Club, Chestnut Hill, Pa.: J. Owens, Philadelphia, Contractor.

They cannot rot, rust, crack, split or blister.

They literally outlive the building without repairing or painting. The first cost is the final cost.

You can get Asbestos "Century" Shingles in shapes and sizes to fit any architectural scheme. Three colors, Newport Gray (silver gray), Slate (blue black) and Indian Red. Ask your Roofer for new quotations. Write for Booklet "Everlasting 1910"

## Good Roof Protection



32 POUNDS COATING

## ROOFING TIN

*"The Terne which turns the elements"*

makes the roof of service and satisfaction. Careful builders concede that a good terne plate is the best roofing material obtainable. MF is the original Old Style—carefully manufactured, high in quality and noted for good and lasting service wherever applied. The weight of coating—32 pounds—is stamped on every sheet.

# American Sheet and Tin Plate Company

**General Offices: Frick Building, Pittsburgh, Pa.**

DISTRICT SALES OFFICES:

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh Portland San Francisco St. Louis



**There's Money for You in Steel Ceiling Work**

And you can easily handle it. Our construction is planned to simplify erection and reduce number of pieces to handle, thus saving time, labor and expense. Any good mechanic with the aid of our working drawings can easily do the work and secure a neat, snug-fitting, workmanlike job. We help you by preparing free suggestion drawings and estimates. Send sketch and dimensions of room or rooms to be covered and we will submit suggestions and quote exact prices on the material delivered at your depot.

**Berger's "CLASSIK"**

is the most complete line of artistic Steel Ceilings in existence AND OUR CATALOGUE PROVES IT. Write for it TODAY. Ask for No. D-55.

**THE BERGER MFG. CO., Canton, O.**  
 New York Philadelphia Boston Chicago  
 Atlanta Minneapolis San Francisco St. Louis



Many ready roofings are made of flimsy, light-weight paper, scantily coated, which last only a year or two.

Granite Roofing does not belong in that class.

Good materials and plenty of them are used in making it.

There is nothing flimsy or fragile about Granite Roofing. It has a heavy sea-grit surface, which takes the place of the usual coat of paint, and wears indefinitely.

Other roofings require coating with some special compound every year or two, but Granite Roofing never requires any coating. After the roof is laid, it will take care of itself.

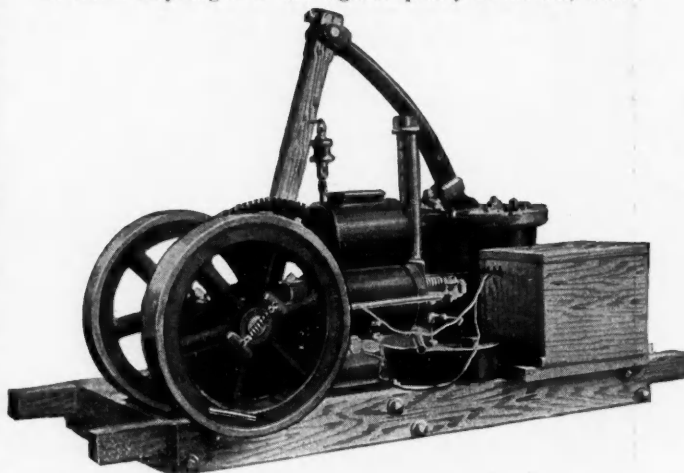
A Free Sample will be sent "for the asking." You will be astonished to see how heavy, firm and durable a ready roofing can be made.

**EASTERN GRANITE ROOFING CO.**  
 19 Battery Place, NEW YORK.  
 CHICAGO ST. LOUIS

can be regulated to run the pump from 30 to 50 strokes per minute.

The pump is of up-to-date design, strong and simple in construction.

It has a diaphragm of the highest quality of rubber, which



can be readily replaced when worn.

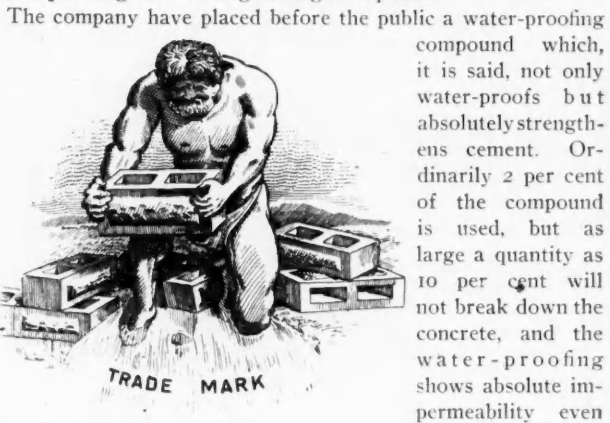
The outfit can be supplied either with bottom or side suction as desired, 3 inches in either case, and can be used with either pipe or suction hose.

The capacity of this outfit is from between 3,000 to 3,500 gallons per hour.

The C. H. & E. Manufacturing Company, located at 309 Mineral street, Milwaukee, Wis., manufacture this portable trench pump, as well as their portable saw rig and portable hoist.

**Hercules Waterproofing and Strengthening Compound**

The Hercules Waterproof Cement Company, of Buffalo, N. Y., have equipped one of the finest mills in northern New York with a complete installation of the most modern and efficient machinery for the manufacture of their Hercules water-proofing and strengthening compound.



The company have placed before the public a water-proofing compound which, it is said, not only water-proofs but absolutely strengthens cement. Ordinarily 2 per cent of the compound is used, but as large a quantity as 10 per cent will not break down the concrete, and the water-proofing shows absolute impermeability even

in as lean a mixture as 1:3.

The advantage of such a compound to the users of cement is incalculable, especially since it does not require an expert to mix. The large sale and the requests for agencies demonstrate the quick acceptance of a good article by the cement users in general.

The Hercules Waterproof Cement Company will gladly send free to all users of cement a copy of their "Treatise on Water-proofing," and place at their disposal the services of their experts and laboratories on all questions of water-proofing.

The general sales-rooms and office are located at 259 Washington street, Buffalo, N. Y.

## ACME WOVEN WOOD LATH

Is the Acme of Perfection For Home Builders.  
The U. S. Government uses it—Why don't you?  
Our booklet tells the tale—Its free upon request.

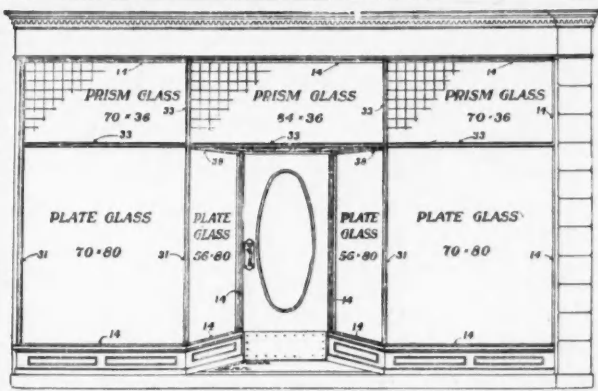
**Acme Woven Wood Lath Co.**  
Suite 1015, New Bank of Commerce Building  
ST. LOUIS, MO.  
U. S. A.



### 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.**



### Lasting Store Fronts

The Petz System affords the most permanent form of store front construction. It is also the most beautiful, and the form that requires the least space and gives the most light. Quickness and ease of installation are other features of the Petz System.

It is recommended by insurance companies, specified by hundreds of the best architects, and should be insisted upon by careful builders.

We have a booklet, "Modern Store Front Construction," that you should have. Write for it today.

**DETROIT SHOW CASE CO., Sole Makers**  
491 West Fort St. DETROIT, MICH.



# Amatite

## ROOFING

**A Frank Statement**

**H**OW many manufacturers of ready roofing will tell you frankly how their goods are made?

Mighty few.

They will talk about "secret formulas," "special waterproofing compounds," etc.—*all nonsense*.

They don't tell you what the goods are made of because they don't dare.

From the start we have never hesitated to tell the buying public just what Amatite is made of and just what it will do.

**How Amatite is Made**

Amatite is made of two layers of *Coal Tar Pitch—the greatest waterproofing material known*.

Alternating with these two layers of pitch are two layers of coal-tar-saturated felt to give it tensile strength.

On top of these four layers is a *real mineral surface*—five layers of protection.

The mineral surface is permanent, fireproof, and *absolutely requires no painting*.

**It Needs No Painting**

Roofings that require *painting* are a worry and an expense. Every year or two the owner has to give them a coating with some special compound, or he is pretty sure to have a leaky roof.

**Something Back of It**

Remember, in this connection, that Amatite is made by the *largest manufacturers of roofing materials* in the world, and that when you buy this roofing there is something behind it. We know we are offering the best and the most economical ready roofing on the market.

For sample booklet and prices address our nearest office.

**Barrett Manufacturing Company**

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

# UNION

## METAL COLUMNS

**Most Durable Columns for Porches and Pergolas**

**M**ADE in all required sizes from the smallest up to 40 inches in diameter and as high as 35 feet, following Classic designs.

They support far more weight than the best wood columns of same diameter, last much longer, cost no more.

**Splitting, Warping and Rotting Impossible**

Made with fluted and tapered steel shafts and best gray cast iron bases and capitals. Broadly protected by patents allowed and pending.

In use on homes of every type and size from mansion to cottage, with absolute satisfaction to every owner.

Every Carpenter in the Country—should send for catalog and prices.

**The Union Metal Mfg. Co.**  
530 Clifton St., Canton, O.



### New Spiral Plug Cutter



A glance at the larger of the accompanying illustrations will readily show the superior advantage and practical construction of this tool in cutting plugs. It is the new No. 600 Spiral plug cutter of the Forest City Bit and Tool Company, Rockford, Ill.

This plug cutter is made with several spiral cutters, milled out so as to make four or more separate cutting knives. These knives being independent of the inside circular knife, it is impossible for any chips to get between the plug and the circular knife, as the outside cutters are made with sufficient room to carry away all chips. Therefore an easy and perfect cutting tool, free from choking and binding is insured.

This tool can be used in cutting several plugs into a board, which when sawed or ripped, removes these plugs in one operation, and makes all same length. If very thin plugs are wanted, they can be cut through the board as there is an opening provided on the side, where these plugs can readily be removed.

This plug cutter is also made with a large diameter shank and a hole through the shank so the plugs can be removed through same.

This cutter is made in all sizes and will cut plugs in any kind of wood, such as poplar, oak, hard maple and mahogany, and can be used in any boring machine. It is used to the best advantage in the manufacturing of chairs, tables and furniture, and in all work where plugs are used for the purpose of plugging up holes where screws are countersunk.

This plug cutter is made with the regular standard shank, 2 1/4 inches long by 1/2 inch diameter, and the plug cutting barrel is 2 1/4 inches long, making same 4 1/2 inches over all.

For further information address Forest City Bit and Tool Company, Rockford, Ill.



### Contractors Enthusiastic

The Richards Manufacturing Co, Aurora, Ill., are offering the Steel Folding Scaffold Bracket, as shown in the accompanying illustration and for which great claims are made. It is said that the carpenters and contractors who are now using

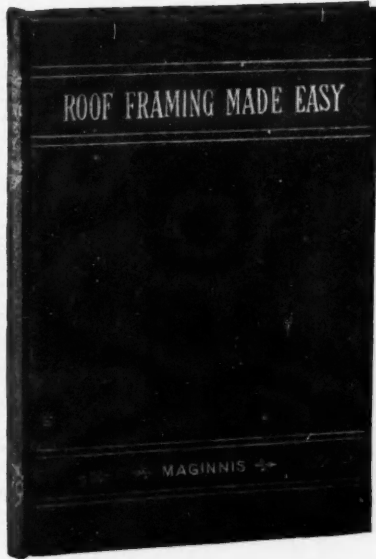
### The Folding Scaffold Brackets



These brackets are easily placed in position or removed. Require very little space for storage or for transportation and are perfectly safe. If you are interested in frame buildings you cannot afford to be without them. Will pay for themselves in a short time. We guarantee them to give satisfaction.

Write for prices and further information

**MANI MANUFACTURING CO.**  
R. R. No. 3, Box 112 PEORIA, ILL.



DON'T CUT AND TRY, BUT LAY OUT YOUR WORK ACCURATELY BY UP-TO-DATE METHODS DESCRIBED IN

# Roof Framing Made Easy

A NEW BOOK EXPLAINING AN EASILY UNDERSTOOD SYSTEM OF LAYING OUT AND FRAMING ROOFS USED IN MODERN BUILDING CONSTRUCTION

**By Owen B. Maginnis** *Inspector of Buildings of the City of New York.*

Author of "HOW TO MEASURE WOODWORK FOR BUILDINGS," "BRICKLAYING," etc.

ILLUSTRATED BY 100 CLEAR ENGRAVINGS  
164 LARGE PAGES, HANDSOMELY BOUND  
SENT TO ANY ADDRESS POSTPAID ON RECEIPT OF **Price \$1.00**

**T**HE carpenter or builder who will study the methods described in this book will realize the constructive value of every piece of timber which enters into a framed roof and will understand how to lay out every piece of timber used without wasting valuable time and material on cutting and trying.

The language used is that of the practical workman—scientific phrases and confusing terms have been avoided where possible—and everything has been made so plain that anyone who will faithfully study the book will understand it from beginning to end.

Any intelligent mechanic will be able to save at least ten times the cost of this book in time and material during the first few weeks that he has it in use.

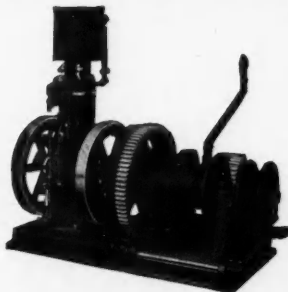
**T**HE following synopsis of the contents will give a faint idea of the character and scope of this book:  
The Principle of the Roof and General Directions; Laying Out and Framing a Simple Roof; Hip and Valley Roofs; Roofs of Irregular Plan; Square Pyramidal Roofs; Pentagonal Roof; Hexagonal Pyramidal Roofs; Conical Roofs; Conical Roof Intersected by a Pitched Roof; Octagonal Roofs; Framing an Octagonal Roof of Gothic Section; Octagonal Molded Roof; Octagonal Roof with Circular Dome; High-Pitched or Church Roof; Mansard Roof; Hemispherical Domes; To Frame a Circular Elliptic Dome; Elliptic Dome with an Elliptic Plan; Circular Molded Roof; Gothic Square Roof of 4 Center Section; Trussed Roof of Moderate Span on the Balloon Principle; To Frame a Roof of Unequal Heights of Pitches and Plates; Hip and Valley Roof of Unequal Pitch; To Frame a Roof of Unequal Lengths of Rafters; Roof with Pitched Ridges; Round-House Roof; Framing Cantilever Roofs; Roof with an Elliptic Plan and Straight Ridge; Church Roof Construction; Bow Truss; Studio Roofs; How to Build a Circular Framed Tower with a Molded Roof; Miscellaneous Details and Suggestions.

SEND FOR OUR CATALOGUE OF BOOKS ON BUILDING

**INDUSTRIAL BOOK CO., 178 Fulton Street, NEW YORK**

**DUMB WAITERS AND HAND ELEVATORS**  
OF THE MOST IMPROVED AUTOMATIC CONSTRUCTION  
INVALID LIFTS  
TRUNK, CARRIAGE, SIDEWALK AND FREIGHT ELEVATORS  
**SEDGWICK MACHINE WORKS**  
128 LIBERTY ST. NEW YORK  
CATALOGS AND ESTIMATES FURNISHED  
SEE SWEET'S INDEX

## EVERY CONTRACTOR AND BUILDER

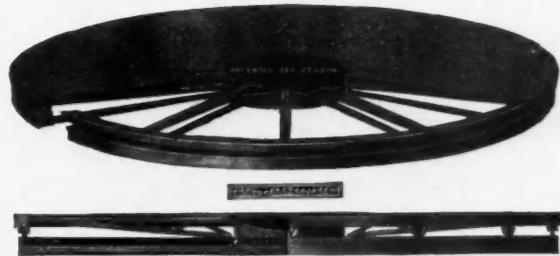


should know about our **Hoist** direct connected with **Gasoline Engine** for use with **Double Platform Material Elevators**. We furnish **Hoist and Elevator** complete ready to run. This outfit will elevate more building material at a less cost than by any other known method. Our Bulletin No. 5 will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

**BATES & EDMONDS MOTOR CO.** LANSING, MICHIGAN

## The UNIVERSAL Auto Turntable

Swings Easy as a Top, Under Heavy Load, Mr. Builder



The Strongest Ever Built. Fully Guaranteed Will Never Get Out of Order

### DIAMETER TABLE AND WEIGHTS

DIAMETER	WHEEL BASE	WEIGHT
12 ft.	119 in.	3000 lbs.
14 ft.	145 in.	3700 lbs.
16 ft.	171 in.	4200 lbs.
18 ft.	197 in.	5000 lbs.
20 ft.	223 in.	6000 lbs.

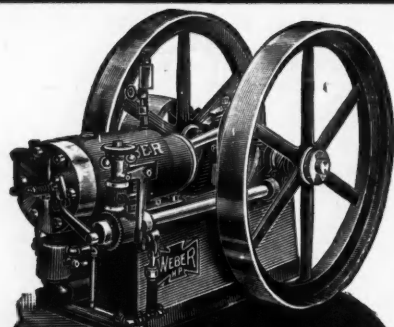
**A Pit Only 12 Inches Deep is Required**

Easily erected on upper floors with special timber work

The Table comes in knock-down shape, so that one man can handle each piece and set it up. There are no intricate parts—it is simple in construction. Nothing better made.

Illustrated Catalog Free. Send for Your Copy Today

**The Canton Fdry. & Machine Co.**  
610 E. Eighth St. CANTON, OHIO



## The Engine of Reliable Records

Getting the most engine for your money, Mr. Carpenter, does not mean buying the cheapest. It is securing an engine that will give reliable results year in, year out—speed must be steady and uniform—absolute interchangeability of parts assured—actual power must equal rating. Every requirement of the man who wants a simple, reliable, powerful engine is met by the

### Weber Gas or Gasoline Engine

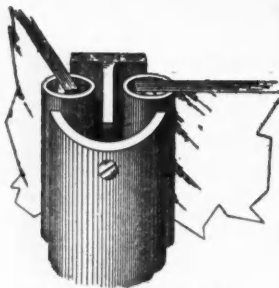
Some of its special features are—underground gasoline reservoir for main gasoline supply—gasoline pump, pumping supply to engine; surplus returning to reservoir—electric igniter—heavy and rigid construction (see cut)—a perfect control governor by which the operator can change speed instantly—all parts easy of access and guaranteed interchangeable.

Sold Under Our Absolute Guarantee

*It will pay you to find out just how much a Weber Engine will increase the capacity of your shop and at an actual saving of cost in operation. Write us today for our new illustrated catalog and allow us to send a list of the inexpensive time saving, labor saving shop machinery you can operate with a Weber.*

Sheffield Gas Power Co.  
127 Winchester Place Kansas City, Mo.

Let it Furnish Power for You



## The Universal Sash Bar

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

Standard Store Front Construction of the World

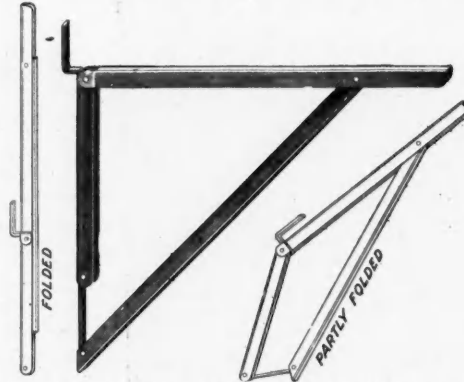
Glass set from the outside

Write for latest catalogue

Voltz Manufacturing Co.

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

these brackets are enthusiastic about them. They are safe, strong, convenient and durable. Can be folded compactly without loosening or removing bolts or pins; the picture

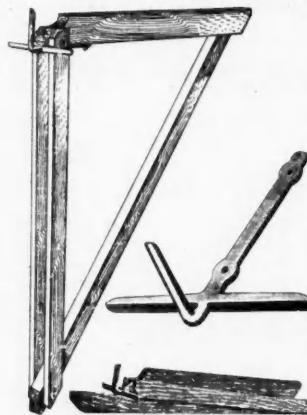


shows how this is done. Convenient for handling, requires small storage space. It is claimed that this is the strongest bracket made and the most easily applied. These brackets cost no more than wood brackets and will last a life time, saving their cost on any job requiring two dozen or more brackets.

Write the Richards Mfg. Co., Aurora, Ill., today for complete information; ask also for their "Architects' Edition" Catalog which is just out and is well worth having.

### A New Scaffold Bracket

The Bracket Hook Co. of Rockford, Ill., are offering a new and improved folding scaffold bracket for which great claims are made. The accompanying cut shows the arrangement, both the complete bracket and the hook, which is the key to the success of this scaffold bracket.



The Bracket Hook Co. are urging all carpenters and builders to stop wasting valuable time and money in lugging around the unworkmanlike brackets they have been using these twenty years—use something that is neat, strong and will save any man's time.

"It does not amount to much," you say. No, not on one job, but on a season's work from \$10 to \$100 is something which is guaranteed can be saved by using these patent hooks. Shrewd contractors always post themselves on the best and most practical way of doing their work, the way that will take least time to do a job. By using these hooks, it is claimed,

### The Acme Pipe Has All the Qualities of a Fine Cigar and Smokes Like One

- (1) Note the top part of this pipe is made of Vienna Meerschaum with a Flat bottom and Vertical walls. The tobacco can't Pack in the Acme bowl.
- (2) Note the series of holes in this bowl all angling to a center hole at the bottom. This construction insures the Free Circulation of Air through all parts of the tobacco—A Cool, Sweet Smoke is the Result.
- (3) No moisture or saliva can get into the tobacco bowl—that's Guaranteed. It smokes absolutely clean and dry.
- (4) The Meerschaum bowl screws into the lower briar bowl. Note the Saliva and Nicotine Wells in the briar part.



If you are a pipe lover send \$1.00 for an Acme. Your satisfaction is our guarantee. Cut this Ad out, wrap a dollar bill in it and send your order to-day. You'll never know what pipe perfection is till you try an Acme.  
Single Pipe, \$1.00  
Lots of Six, \$5.00  
If any one who buys an Acme ever has a particle of trouble with it, or is in the least not satisfied, we ask you to let us know. Your Satisfaction is Our Success. Our guarantee of satisfaction stands behind every pipe we sell.

ACME PIPE CO., Station M., Cincinnati, Ohio

No. 1



**Fire Proof**

**STANDARD—Lock Joint—METAL SHINGLES**  
Ornamental, Easily Applied Guaranteed Weather Proof

**CANTON MANUFACTURING CO.**

*We can save you money on*  
Cornice, Skylights,  
Ventilators,  
Metal Ceilings,  
Roofings, Sidings,  
Eave Trough,  
Conductor Pipe

ABSOLUTELY STORM PROOF

No. 2  
Catalogue FREE

No. 3



1320 E. 2d Street  
CANTON OHIO



**Wood Carvings for Interior Finish**

Our beautiful Catalogue No. 21 will be sent upon receipt of 15 cents in stamps. Our product is of the highest grade, and too large to list here.

Write today

**Waddell Mfg. Co.**  
Corner of Taylor and Coldbrook Streets,  
Grand Rapids, Michigan



**Practical Art Metal Ceilings**

Quickly and easily applied. We are the only manufacturers who cut the heads in the dies after casting. Result—Square and accurate plates—which will save you time and labor in cost of erection.

Send for Catalogue No. 2 which shows 200 new and original designs.

Manufactured by  
**Wm. Foster & Son Co., Inc.**  
Springfield Illinois

Also manufacturers of Radiator Shields, Fire Proof Window Frames and Sash, Gal. Iron Fronts, Hip Shingles, Cornice, Skylights

Let Us Tell You How The  
**IDEAL Concrete Machine**

**Will Help You To Do Better Work and Make More Money**

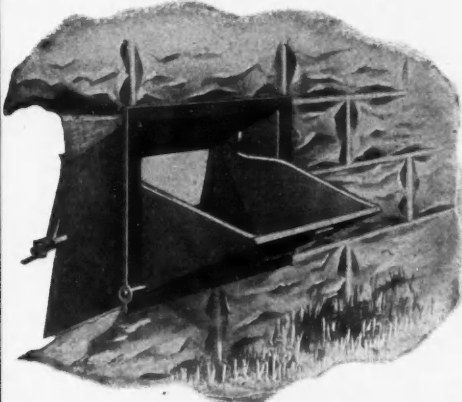


**W**E have just published our new catalog and descriptive literature about Ideal Concrete Machinery, Ideal Blocks, and the Concrete Construction of today. This elaborate book is worth more than money to you. It tells you how to enter an absolutely profitable line of work, because it explains the details of concrete block manufacture; and also tells how to select a satisfactory machine. It is not advertising literature, but rather a genuine attempt to arouse people to a knowledge of how really wonderful this hollow concrete block manufacture is.

Concrete block construction is coming to be recognized as the present day method in all classes of building, and *you cannot afford* to neglect this opportunity of learning all that is possible about the business, though you may not care to start in such work yourself, immediately.

Send for this book today—it is valuable

**IDEAL CONCRETE MACHINERY CO.**  
London, Ontario 416 N. Emerick St., South Bend, Ind.



**Roenius Wood and Coal Chutes**

**A NECESSITY TO EVERY MODERN HOME  
NO MORE DAMAGED CASINGS OR SASH**

Roenius Chutes are equally desirable for houses of low or high cost.

Nearly 20,000 in Use

Safe from outside tampering or entrance and weather-proof. Are easily opened and locked.

Write for Catalog

**Grand Rapids Foundry Co.**  
High Street - Grand Rapids, Wis.

## Trinidad Lake Asphalt

has no equal as a waterproofer. After we have used it for thirty years, everybody is learning its value for every waterproofing purpose.

# Genasco Ready Roofing

is made of genuine Trinidad Lake asphalt.

There is no roofing substitute for Genasco—none will last so long.

### The Kant-leak Kleet

keeps seams waterproof without cement. Supplied in Genasco rolls, when specified.

Ask your dealer for Genasco. Mineral or smooth surface. Look for the hemisphere trade-mark.

Write for the Good Roof Guide Book and samples.

### 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



# GLIDDEN'S GREEN LABEL VARNISHES

## VELVET WHITE ENAMEL

(Egg Shell Finish)

This is a pure white enamel of the very highest quality. It dries with an egg shell gloss producing a natural rubbed effect without the necessity of rubbing. Is waterproof and not affected by washing or changes in temperature. Can be successfully used on new or old woodwork.

Price \$5.00 per gallon; quarts \$1.35 each



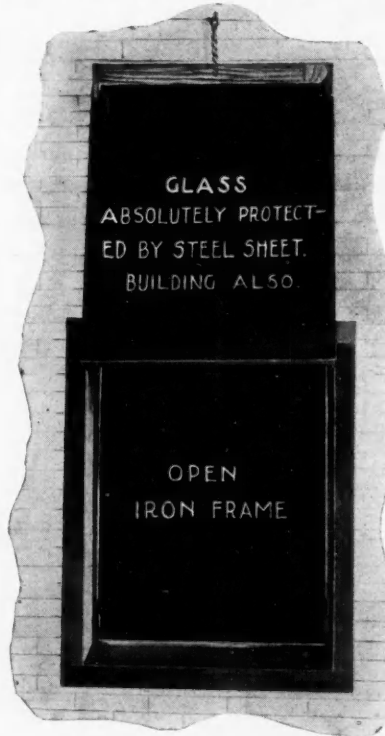
For sale by paint dealers everywhere. If not at yours, we will send by express prepaid on receipt of price.

Full Descriptive Price List on Application  
**THE GLIDDEN VARNISH CO.**  
 Makers of High Grade Varnishes for all purposes  
 Glidden Building  
 CLEVELAND, O.

you can scaffold a whole side of a job while you are getting your old brackets ready. Send for a few and try them. If not satisfactory send them back and get your money returned. Or write for complete information to the Rockford Hook Co., Rockford, Ill.

### "Protex-Lite" Coal Window

The Holland Furnace Company, Holland, Mich., ask the readers of the AMERICAN CARPENTER AND BUILDER to investigate the merits of their improved coal window, "The Window Chute" or "Protex-Lite" coal window.



This means wall and house protection when used as a coal chute and a light basement when closed. It locks automatically from outside by pushing steel sheet (which protects the glass when open) over locking lugs provided on lower sides of the wall frame.

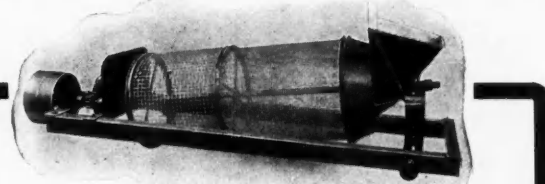
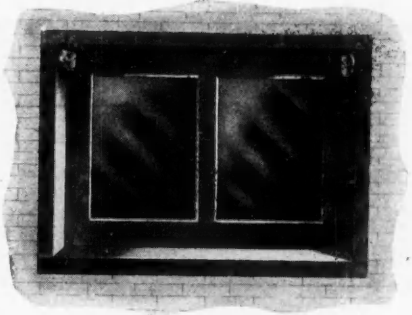
Note the recess feature of window. It conforms with basement lines.

The "Protex-Lite" lasts a lifetime and costs only a little more than a wooden frame and sash.

There are ten special advantages of

"The Window Chute" that the Holland Furnace Company want considered:

One, not only a chute, but useful every day for light; two, saves the cost of a frame and sash; three, no hinges on the outside, looks like and is a window; four, easiest chute on the market for the



## REVOLVING SAND SCREENS

If you have sand or gravel to screen or grade you should know more about the S. & S. Revolving Screens. Write us giving an idea of your requirements and we will gladly send literature, prices, etc.

**THE CEMENT TILE MACHINERY COMPANY**  
 2482 Rath Street. :: WATERLOO, IOWA.



**800**



**Size**

**The Crescent  
SASH FASTENER.**

**The Best Sash Lock Made.**     **Strong, Symmetrical and finely finished**

Made in 5 sizes, and all builders' hardware finishes.

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

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BOUGHT, SOLD AND REPAIRED

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### THE HONEYWELL SYSTEM

It is not only the cheapest system to install, but by far the most slightly, efficient, responsive and economical system on the market. It contains one-third less water and heats one-third quicker, with a resultant saving in fuel. The water circulates from the boiler to the radiators from *three to five times faster* than in the old style system, hence quick results from firing with a minimum loss of heat in transmission. No large, unsightly piping through the rooms with this simple system. Owing to the very rapid circulation of the water  $\frac{3}{4}$ " pipes are amply large to supply any sized radiator on the upper floors.

*Every Radiator* heats perfectly with the water at a temperature as low as 85 degrees, which can be increased to a temperature of *240 degrees without boiling* inside of a *few minutes*, giving the system the efficiency of steam at 10 lbs. pressure to meet extremely cold weather, while retaining all the valuable features of the mild temperatures of hot water.



### 34,000 SYSTEMS IN USE

Endorsed and Sold by the Leading Manufacturers of Heating Materials.

Free engineering advice given the trade on all installations. Failure absolutely guaranteed against.

If you have an unsatisfactory job of hot water heating, we can cure it at a very small cost and without remodeling.

Write us for full information regarding this eminently successful system that is revolutionizing hot water heating.



## Honeywell Heating Specialty Company

Plant and General Offices

**WABASH**

**INDIANA**



# Yellow Pine Floors

**Southern Yellow Pine  
Edge Grain Flooring**

Meets all the requirements of Hard-wood Floors

**Hardness  
Durability  
Economy  
Splendid Appearance**

**Won't Buckle, Curl or Sliver**

Manufactured in narrow widths and long lengths, which makes it easy to lay, entails small amount of waste and avoids frequent joinings.

**Standard Widths 3½" and 2½"  
Standard Lengths 5' to 20'**

Edge Grain Flooring is *bright, clean, non-absorbent, sanitary*, susceptible to *high-class finish*, and easily kept in *perfect condition*.

Strong and durable as oak or maple, but,—

**COSTS LESS**

Specify

**Southern Yellow Pine  
Edge Grain Flooring**

for durable, and high-class floors.

You are running no risk—it passed the experimental stage thirty years ago.

Always for sale by first-class lumber dealers.

Copy of Standard Grading Rules and Classification furnished on application.

**Yellow Pine Manufacturers  
Association**

Suite 707 Wright Bldg. : St. Louis, Mo.

mason or carpenter to set—no slanting top or bottom; five, will not rust out, and is strong enough to support the wall above it without buckling; six, locks automatically from the outside by merely closing it; seven, can be opened only from the inside; eight, no climbing over a dirty coal pile to lock or unlock; nine, no bolts, hooks, or clips to get out of order; ten, the only legitimate combination hopper coal chute and window.

## Carved and Ornamental Work

We have received Catalog No. 21 from the Waddell Mfg. Co., Grand Rapids, Mich., and a really exceptional catalog it is. In it we find illustrated the many lines of manufactured



wood ornamentation and carving made by this company. In the Foreword we find the following:

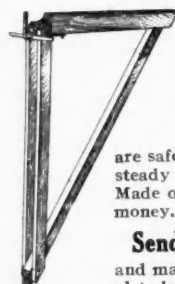
"Should you fail to find anything suitable for your purpose in the catalog, write us giving size of space and for what purpose wanted and we will submit a special design with cost of same. By taking advantage of this plan, you will get something ornamental to suit the place you wish to ornament. We employ a number of skilled designers and we feel confident that we can furnish to the trade up-to-date work.

"Our Embossed Mouldings are superior to anything in the market. The trade knows our machine carving so well that we fully guarantee everything we make to be superior in finish and made of the best kiln-dried wood that can be bought."

All readers of the American Carpenter and Builder should get into touch with the Waddell Mfg. Co., Grand Rapids, Mich., and investigate their line.

## Simonds Build New Steel Mill

The Simonds Manufacturing Company of Fitchburg, Chicago and Montreal, make announcement of the completion of plans for the erection of a new steel mill at Lockport, N. Y., that will at once double the capacity of their Chicago mill and before long increase the first Lockport output. The contracts



## Johnson's Patent Scaffold Bracket Hooks

are safe, strong, and easily put on the brackets. No unsteady or wiggling scaffolds where these hooks are used. Made of best malleable iron. Will save lots of time and money.

**Send \$1.00 for Four Sample Bracket Hooks**

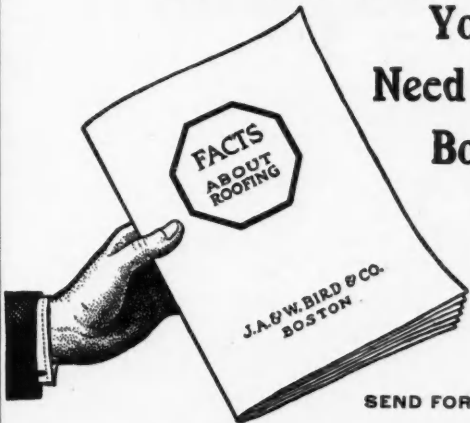
and make your own brackets; or we will make our complete brackets, with hooks, at a low price. Special prices for hooks or complete brackets in large numbers. Ask your dealer, or order direct. Circulars.

**Bracket Hook Company,  
123 N. Winnebago St. Rockford, Ill.**



**Carpenters, Builders,  
Contractors**

**You  
Need This  
Book**



**It's  
Free**

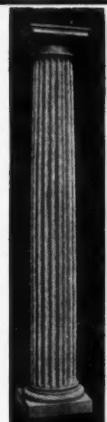
**SEND FOR A COPY**

We want you to read it. It is *worth* reading, and will give you valuable facts about roofing in general. The reason we publish it is to acquaint you with the name and merits of

## REX FLINTKOTE ROOFING

Rex Flintkote is the highest Quality sheet roofing in the world. It has *exclusive* advantages, possessed by no other. It has covered for years buildings of all classes all over the world, under every possible condition. You should at least know *why* it is rated as the *best*. Send for the Book.

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Sole Manufacturers of  
KOLL'S PATENT LOCK JOINT COLUMNS  
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The best columns for porches, pergolas or interior use.



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They Actually Save from One-third to One-half of the fuel

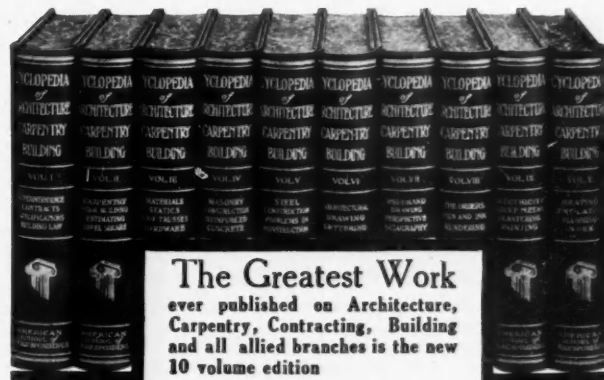
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Our furnaces are the only furnaces having a perfect ventilating system for every part of the house.

We ship our furnaces cut to fit. Any handy man can install them without the aid of a tinner.

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10 volume edition

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Ten massive volumes; 4,670, 7x10 inch pages; 3,000 full-page plates, detail drawings, plans, color plates and photos of buildings completed and in course of construction. Bound in half morocco leather and printed on special enameled paper in large, clear, readable type. Titles beautifully engraved and stamped in 23 carat gold.

No work so comprehensive, so authoritative, has ever before been placed on the market. This great work is a complete review of architecture, carpentry and building. Every problem likely to confront you in your daily work is solved and the solution placed before you in such a clear manner that you cannot fail to understand and profit by it.

If you have a building contract in hand, this Cyclopaedia will show the most economical and practical method of handling the work and purchase of materials. For the practical carpenter and student, its value as a Home Study instructor cannot be estimated.

Just examine the "Partial List of Contents" below and you will at once realize how broad is the scope of this work—how thoroughly it covers the building trades.

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For a short time we will include as a monthly supplement, for one year, the TECHNICAL WORLD MAGAZINE. This is a regular \$1.50 monthly, full of Twentieth Century Scientific facts, written in popular form. Also contains the latest discussions on timely topics in invention, discovery, industry, etc.

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EMPLOYER.....

Amer. Carp. and Bldr. 6-10

call for completion of the building and installation of machinery so that production will begin by October 1. The initial investment will be fully a quarter of a million dollars.

This announcement will be of direct interest to the hardware trade, lumbering, saw and planing mill operators, as well as hundreds of thousands of satisfied customers who have used and proven to themselves the absolutely sound warrant of the trademark sentiment of the Simonds people that "Simonds Saws are the Best," something equally proven for their knives, files and other products.

This preparation for a new plant that will, by its central location, serve as an economical distributing plant to the factories in the three cities first named, has been carried quietly forward, and the announcement comes as a distinct surprise to the trade and metal-working interests generally. That the existing manufacturing plants have been hard pressed for room—large as they are—has been appreciated by those who are in touch with the trade, but it was not perhaps so generally understood that the great Chicago steel mill was not able to keep pace with the shop demand for plates of the special Simonds steel that goes into all their varied products, and is responsible for the world-wide reputation of the Simonds goods.

In addition to the three plants and the new steel mill, the Simonds Manufacturing Company has branch houses at New York, Portland, Ore., Seattle, Wash., New Orleans, San Francisco, Vancouver, B. C., St. John, N. B., and London, England.

There were four determining factors in the choice of the Lockport location: the labor, power, land and water, the last two factors answering the purpose, the first of a site served by proper manufacturing and residential opportunities, and second a site offering suitable transportation facilities.

It is unnecessary to discuss the very evident advantages Lockport offers for such a plant. On the item of power, the electric service direct from Niagara Falls assured the flexible power the Company desires and its adaptability to the peculiar

needs of a steel plant make it still more attractive and available.

On the matter of land, there was acreage enough at hand for immediate purchase and use, with opportunity yet at hand for further enlargement in good time. On the transportation side, the plant will lie between the New York Central and Erie railroads and will have direct track connection with both, and a private siding a mile long for the company's special use. Furthermore, the Erie canal runs directly along the Simonds property, and delivery from its 1,000-ton barges meets another requirement of selection.

A half hour electric schedule connects the plant with all local points in Lockport as well as furnishing service to Niagara Falls and Buffalo; and the International railway will establish a special Simonds station. Incidentally, it is interesting to note that after the completion of the new Detroit tunnel, the Michigan Central through trains and the New York Central's Twentieth Century Limiteds will pass directly by the Simonds works.

There will be built at once fifty houses for the company's employees on the best lines that can be found for dwellings of the type desired, and the settlement will be brought up-to-date in point of perfectness of equipment and completeness, and every provision made for the health and pleasure of their employee-tenants. This is in line with the Simonds policy, so well-known, in its co-operating relations with its employees. It is proper to say, in a word, and right here, that at the Fitchburg plant the company maintains a clubroom, recreation-room, baths, "gym," and medical service for its many hundred hands. The company has also established a complete pension system for its employees in its several plants, office force and operatives both. These considerations determined the location of the new plant.

The first and original Simonds plant, to review the company history a bit, was organized 78 years ago in Fitchburg, Mass., then a little New England village, but possessing that skill of

**Ten Substantial Reasons Why You Should Purchase the CLIMAX Line of Furnaces, Stoves and Ranges—and no other.**

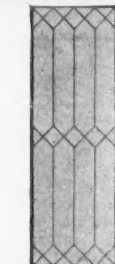
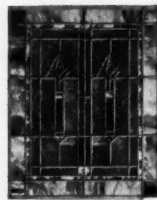
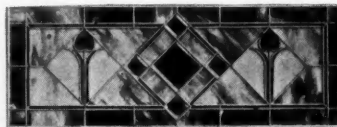


1. Because the line has been well and favorably known in every City, Village, and Cross-roads in the United States, for more than forty Years.
2. Because the line we sell directly, or indirectly, and have field Agencies to look after, and take care of our business, as well as that of our customers.
3. Because you get a Factory Guarantee on your whole outfit.
4. Because your heater is made by, and installed by practical men—ones WHO KNOW HOW TO DO IT.
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6. Because the furnaces are made by stove-plate Molders, of stove-plate material; all brand new, and not half old junk.
7. Because of improved principle of combustion, giving you over-draft, down-draft—any kind of draft.
8. Because equipped with large double feed doors—big enough to drive in pony and cart.
9. Because has a Cast Iron Smoke Pipe.
10. Because we sell all our heaters under the strongest guarantee, that we do the work—or no pay.—BEWARE OF TRAPS FOR THE UNWARY.

**THE TAPLIN, RICE-CLERKIN CO., MFRS., AKRON, OHIO**

The Only Stove and Furnace Folks

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You, Mr. Contractor, will find it will pay you to order your Ornamental Glass direct from the Manufacturer.

We make and sell more Decorative Glass for Residences, Churches, Schools, Public Buildings, Offices and buildings of all kinds, than any other manufacturer. We have the largest and most completely equipped factory in the United States for making glass for Front Doors, Transoms, Windows, China Closets, Sideboards, Bookcases, Bathrooms, Office and Bank Fixtures.

In door lights and transoms, we have thousands of patterns and can promptly duplicate any design wanted in

- Ground Chipped Embossed Enameled Etched Mirrors
- Mitered + Colored Art Glass Sand Blast Glass Signs

The cuts shown here are some of our popular standard patterns. Send us a trial order for one or more of these lights. 10 per cent discount on an order amounting to \$10.00.

See page 539, January number American Carpenter and Builder for additional patterns.

**RAWSON & EVANS CO.**  
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*What is the best material for roofing?*

Ask the best roofer you know:—  
Right off the reel he'll tell you heavily coated tin plate.  
He's right—so we use it.

### Cortright Metal Shingles

are merely the most advanced application of this roofing material which has always been acknowledged the most durable and dependable for the purpose.

Many people get an idea that **Cortright Metal Shingles** are new. Twenty-four years ago they were as new as they've ever been and then they were merely an improved application of an old material.

Every Cortright Metal Shingle is made of prime full weight tin such as I have here in my right hand. This sheet is stamped into a shingle like that in my left hand (or some of our other designs).

Then it is either painted or galvanized, completing the roofing, which lasts as long as the building itself.

There's more about this point in our two free books. Will you sign the attached coupon so we can send them?

*This is one of a series of Selling Talks published to help you make more profit through Cortright Metal Shingles.*

*NEXT MONTH'S TALK will be about The Design of Cortright Metal Shingles.*

Cortright Metal Roofing Company  
Philadelphia, Pa.

Gentlemen:—You may send me the two free books offered by you in the June issue of American Carpenter and Builder.

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## Mr. Block-Maker

Wet Process is Right.  
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### The Mogul Invincible Block Machine

COMBINES ALL THESE

## IT IS RIGHT


It is 48 inches long and will make three 16" or two 24" blocks at one operation. It makes sills, caps, copings, rails and steps, faster and better than a special sill machine. It has every adjustment that any other machine has and many that no other machine has.

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

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LADDERS

Noiseless Cushion Tire

artisanship that has made New England famous throughout the world, and which still keeps her in the forefront of the procession in spite of all the stupendous competition the middle states and middle west have developed.

The Fitchburg plant grew and prospered, and less than a decade ago a wonderful new plant was erected, and the old ones discarded. The new plant has since been enlarged, and is already feeling the strain of the demand upon it.

The Chicago plant, the steel mill, was erected that the proper business advantage might be taken of labor, coal, markets, etc., and the Montreal plant was added a few years ago to serve the demands for the Simonds products in the Canadian lumbering operations, and in other directions. But, vast as this equipment all is, it has not been enough, and the Lockport plant is planned on lines to meet immediate demands and to provide for a long future growth.

**Sheet Metal Goods**

Messenger & Parks Mfg. Co., Aurora, Ill., are distributing to the trade a very serviceable catalog of their sheet metal goods, prices revised to April 10th, 1910. This catalog shows their line of eaves trough, conductor pipe, roof and box gutters, ridge rolls, finials, terminals, ornamental hip shingles, cut offs, Acorn ventilators, Acme ridge tile, steel ceilings, etc., cornices and skylights. Full line of galvanized and black sheets, tin plates, furnace fittings and registers, also furnace piping and steel ceilings.

**Rambler Plant Enlarged**

Plans just made public by Charles T. Jeffery, head of Thomas B. Jeffery & Co., provide for several large additions to the Rambler factory, which now occupies a large portion of the western section of the city of Kenosha.

Ground has already been broken for three of these additions. The most important building to be erected will be a new power plant, by which 1,500 horsepower will be added to the present boiler capacity and the present engine capacity will be increased by 1,000 horsepower.

**A Dead Shot on Livers**

"I hear, doctor, that my friend Brown, whom you have been treating so long for liver trouble, has died of stomach trouble," said one of the physician's patients.

"Don't you believe all you hear," replied the doctor. "When I treat a man for liver trouble, he dies of liver trouble."

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YOUR VACATION TRIP

**A**LL the important ports on the Great Lakes are reached regularly by the excellent service of the D. & C. Lake Lines. The ten large steamers of the fleet are of modern steel construction and have all the qualities of speed, safety and comfort.

The D. & C. Lake Lines operate daily service between Detroit and Cleveland, and Detroit and Buffalo, four trips per week between Toledo, Detroit, Mackinac and way ports, and two trips per week between Detroit, Bay City, Saginaw and way ports.

About June 25 a special steamer will leave Cleveland twice a week direct for Mackinac, stopping only at Detroit every trip and Goderich, Ont., every other trip.

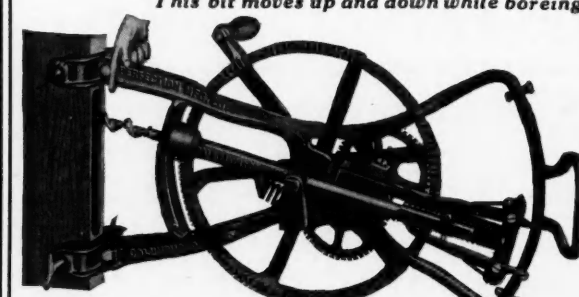
Send two-cent stamp for illustrated pamphlet and Great Lakes map.

Rail Tickets available on steamers.  
 Address L. G. LEWIS, G. P. A., Detroit, Mich.  
 P. H. McMILLAN, Pres.      A. A. SCHANTZ, Gen. Mgr.

Detroit & Cleveland Nav. Co.

The Perfection Mortiser

This bit moves up and down while boring

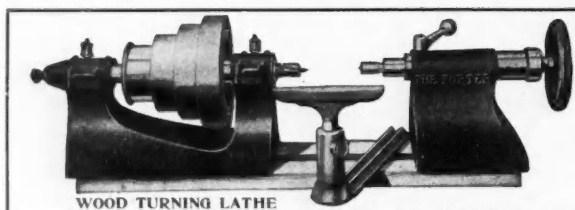


This machine can be adjusted with a screw driver to make **any** size openings from a round hole to a 6 1/4 inch mortise. Makes all size mortises perfect, **without the use of brace or chisel**, will not split or mar any kind of wood. The only machine of its kind in the world. Worth its weight in gold to the twentieth century Carpenter and Contractor. Automatic and ball bearing. Made of malleable, light, strong and durable. Any size bits furnished.    ::    ::    ::    ::

Manufactured by

PERFECTION MFG. CO.

COLUMBUS,    ..    ..    ..    OHIO.



**"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.**

# GRILLES



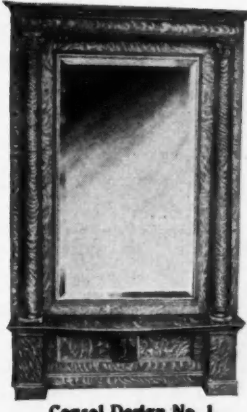
## COLUMNS AND CONSOLS

In quality and price  
our work is not surpassed.

You will make no  
mistake in writing us be-  
fore ordering elsewhere.

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



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By establishing a reputation for laying hardwood floors. You can do this through the use of our thin hardwood flooring, as we devoted twenty years of study to this question, and our experience with all other hardwood floors showed us their weak points.

Our flooring is so uniformly made that on completion it looks like a solid sheet of hardwood, showing no nails, and usually requiring but a little sandpapering to prepare it for finish.

There is a big demand for hardwood floors right in your own community. You should take advantage of this demand and reap the profits. You can do this with our perfect flooring.

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entitled "Profitable Opportunities to Carpenters" which tells you all about our flooring, its easy laying features, and gives valuable information on finishing and other subjects.

Women all recognize the superior merits and advantages of hardwood flooring in cleanliness, economy, beauty and sanitation. Our flooring is cheaper than carpets or rugs and much more beautiful.

Send for our booklet today and inform yourself on this profitable subject so that you can investigate conditions in your locality.

Use only "Cincinnati" hardwood flooring and the result will always be a perfect floor. It is absolutely guaranteed.

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CINCINNATI

Name.....  
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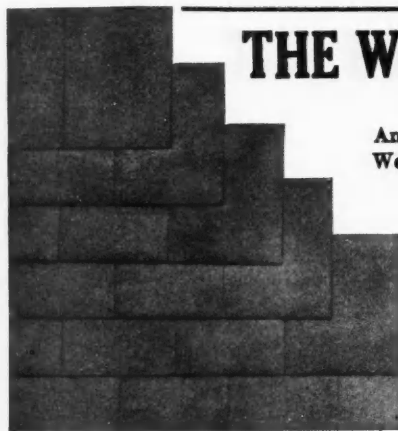
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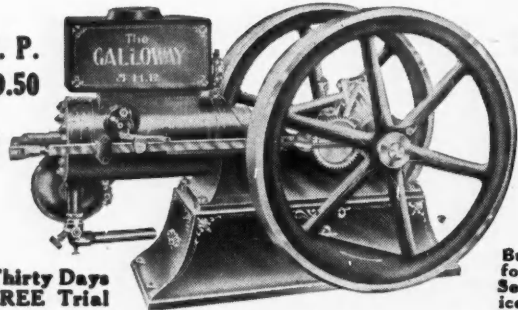
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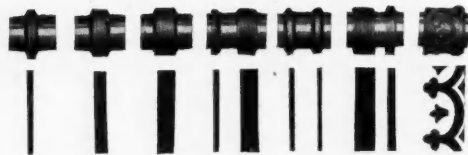
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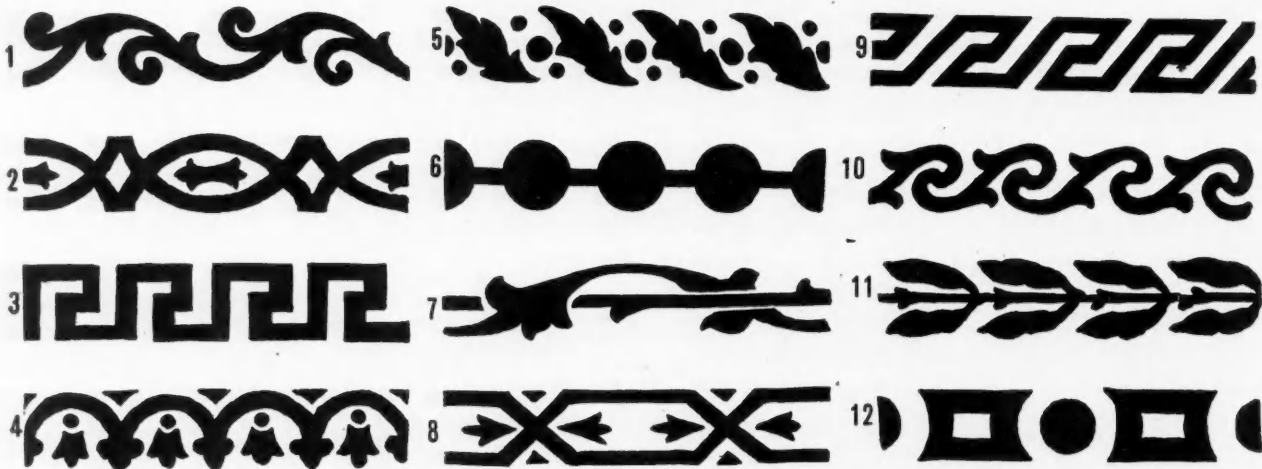
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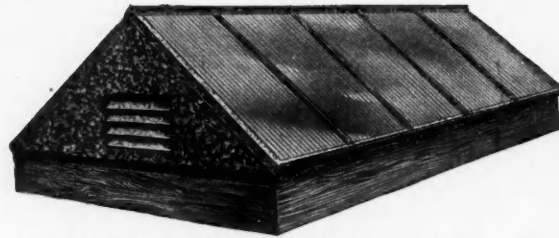


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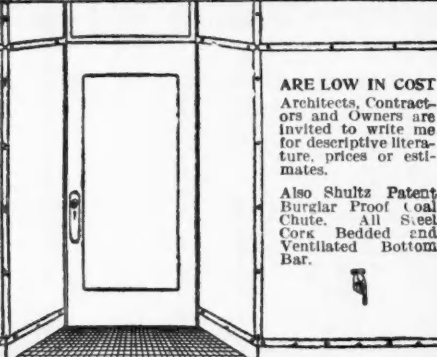
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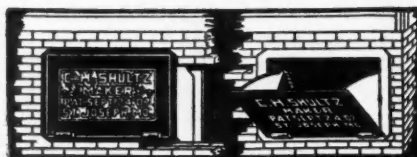


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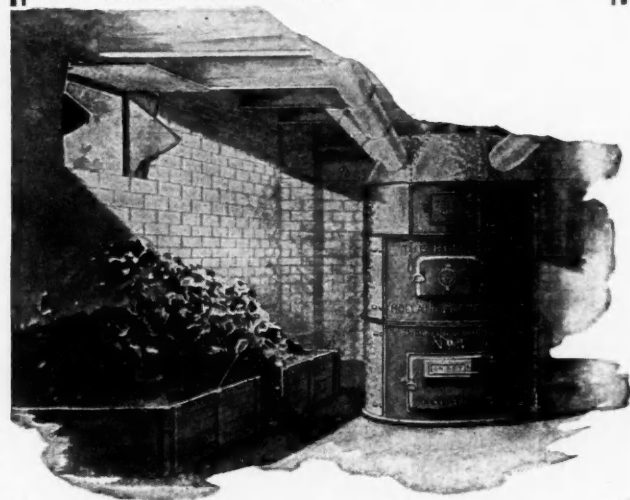


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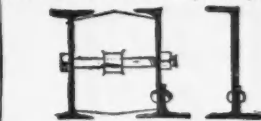
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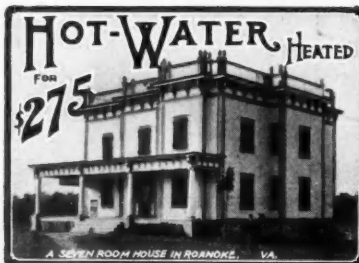
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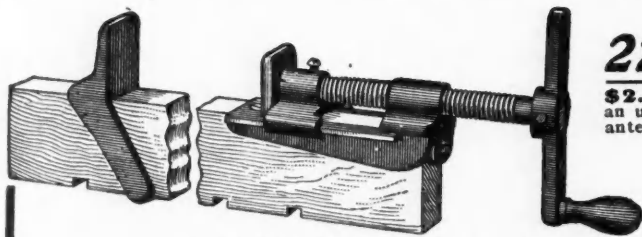
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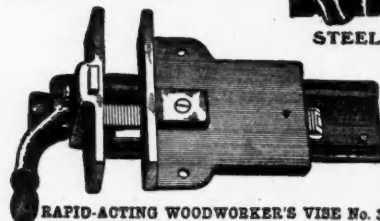


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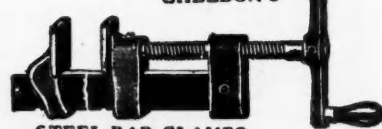
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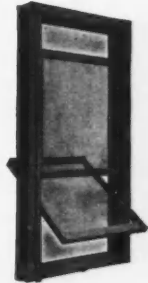
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*Mullins Fireproof Windows* are manufactured under supervision of *Underwriters' Laboratories, Inc.*, according to the latest specifications of the *National Board of Fire Underwriters*, and every window is inspected, approved and labeled with their official label.

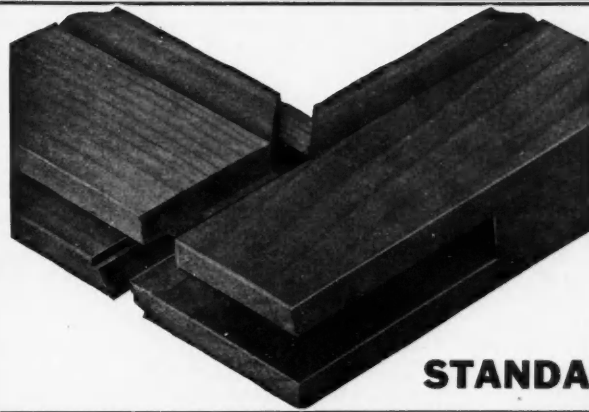
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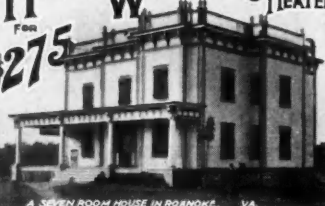
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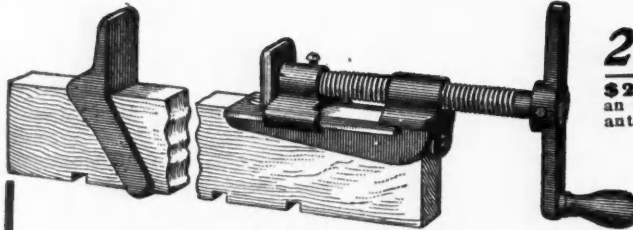
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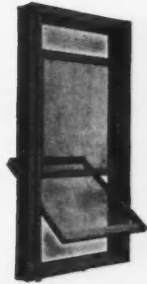
This handsome metal tile roofing is used on many of the finest buildings in the United States. It is beyond question the most attractive and satisfactory roofing made.

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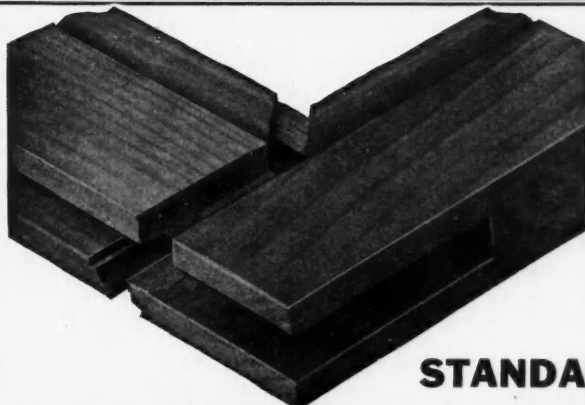
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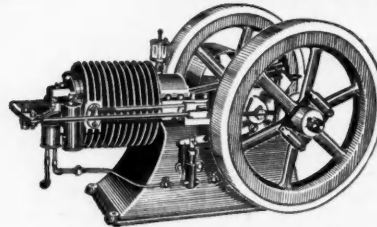
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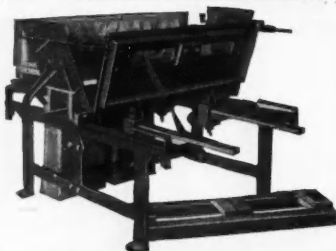
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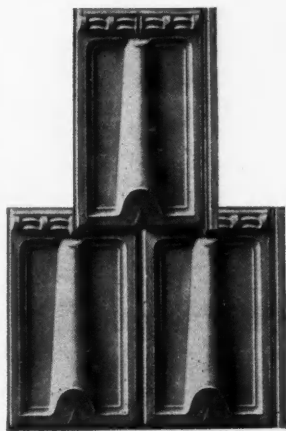
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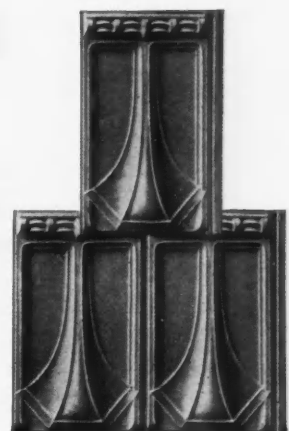
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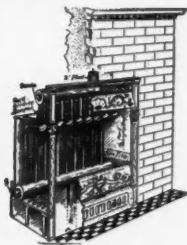
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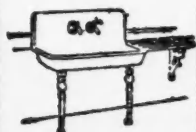
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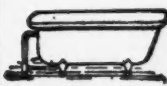
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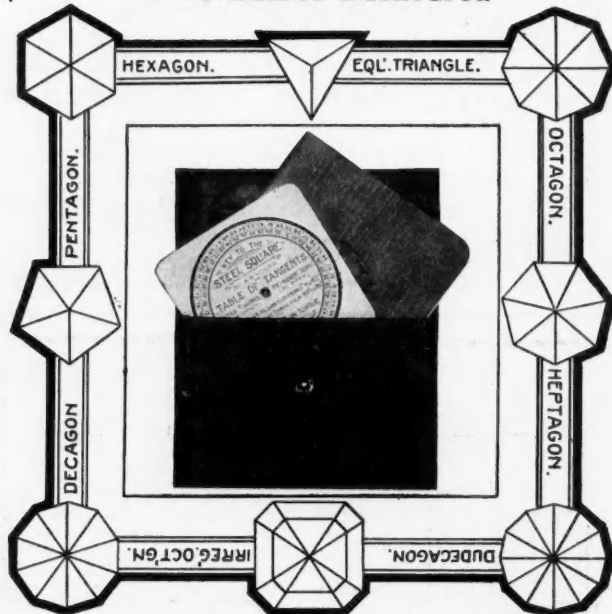
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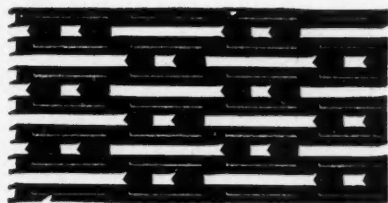
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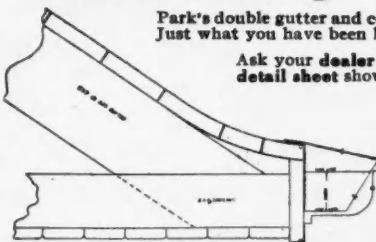
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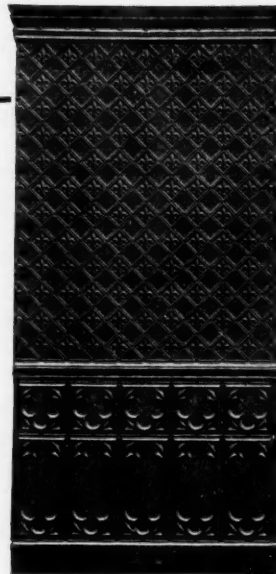
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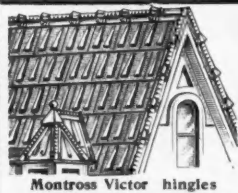
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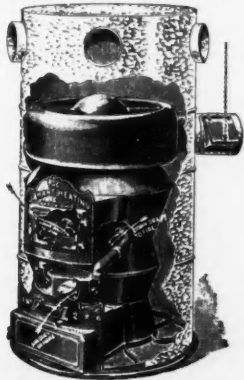


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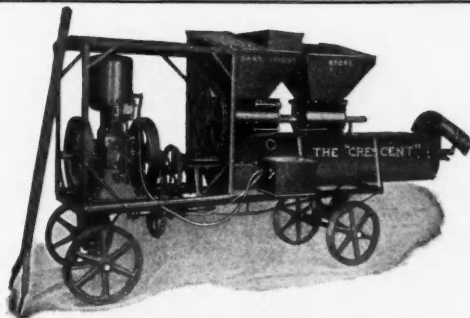
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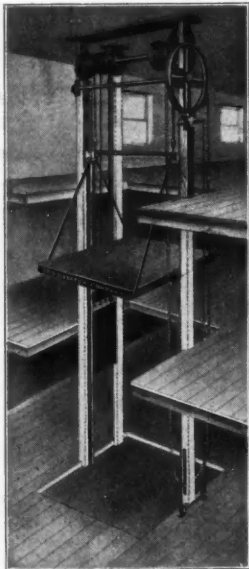
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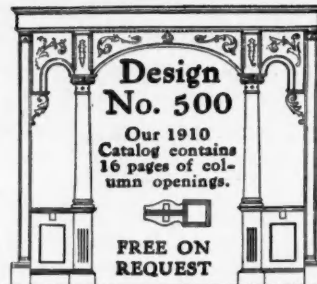
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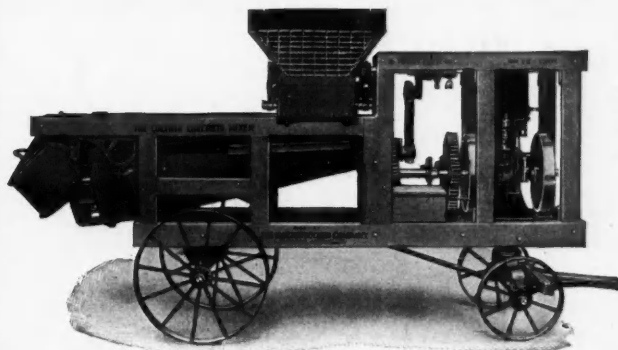


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**THE SOMERS** uses the "wettest" mix of any block machine on the market

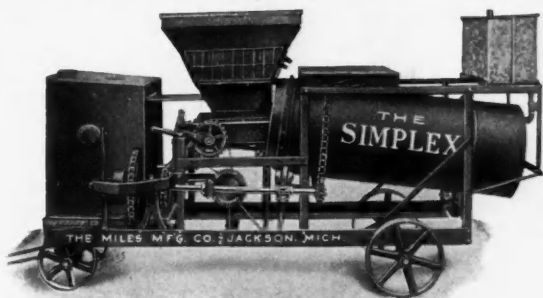
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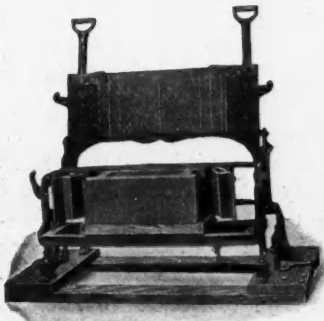
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offers to ambitious men everywhere an unusual opportunity for building up a profitable money making business.

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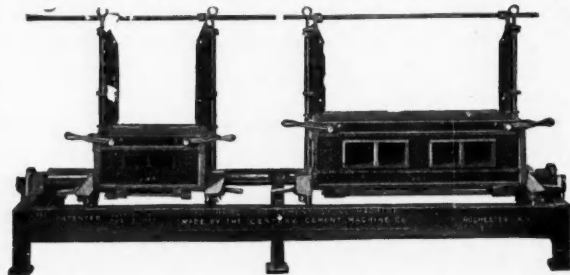
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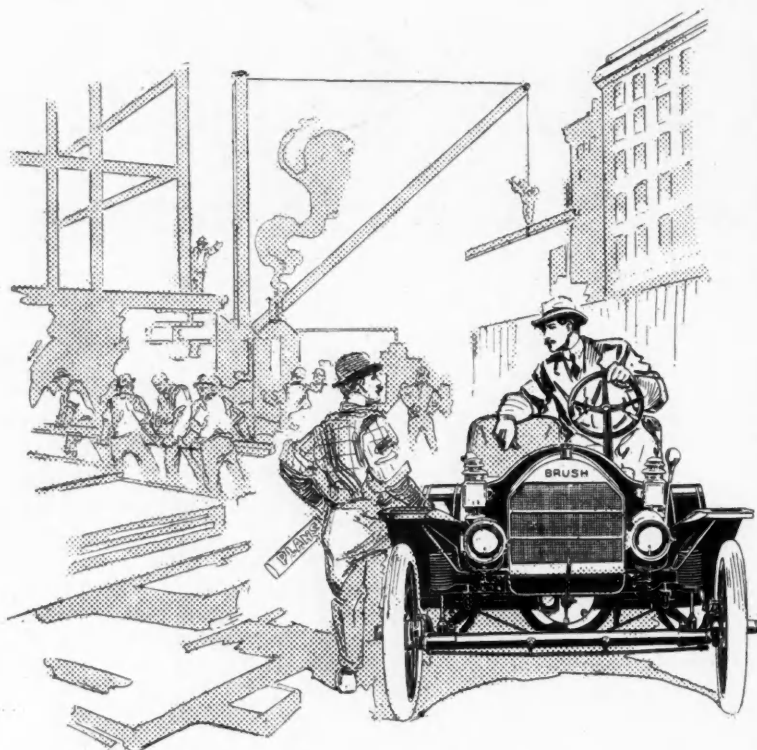
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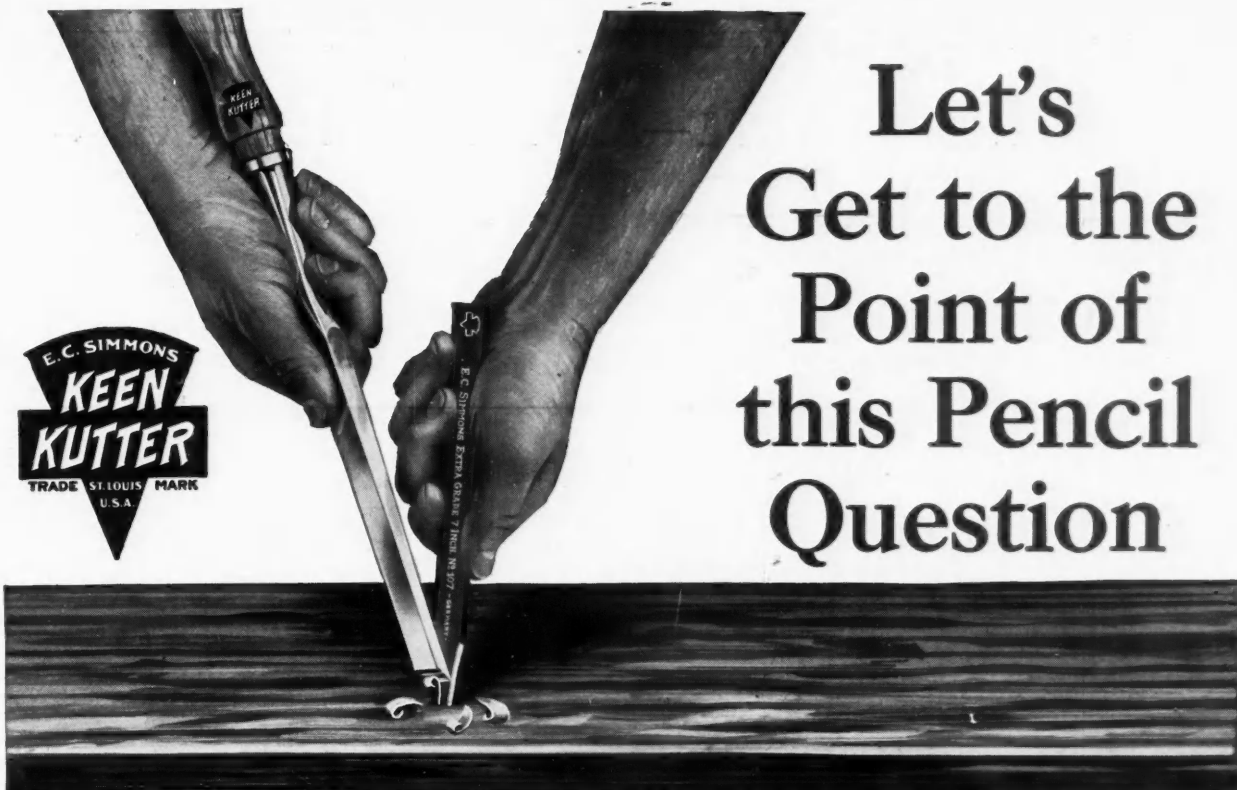
**The BRUSH knows no class, recognizes no competition. It is being used by men who make less than \$1,000 a year, by men whose annual income is more than \$25,000 a year, and by companies whose yearly profits are more than \$1,000,000. It is truly EVERYMAN'S CAR.**

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Licensed under Selden Patent



# Let's Get to the Point of this Pencil Question

A carpenter pencil is a tool—as much so as a chisel or a hammer—and it should be selected with the same care. A carpenter pencil that will make easily-seen marks on any wood—rough or smooth, hard or soft—wet or dry—that will hold its point under these conditions—that will not split in halves or break in two—that kind of a pencil certainly is a good tool. It's the kind you should use and can get from most dealers if you call for

## **E. C. S. Carpenter Pencils**

These pencils are built for the work, just like our famous line of Keen Kutter Tools. The lead is of finest quality, entirely free from hard spots and specially processed to give extreme toughness. An actual test proved that one of these pencils could be driven through  $\frac{1}{2}$  inch of soft wood without injuring point or pencil. The wood used is straight grain cedar, entirely free from knots or soft spots.

To introduce these high quality pencils to carpenters and builders we will send one free 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.

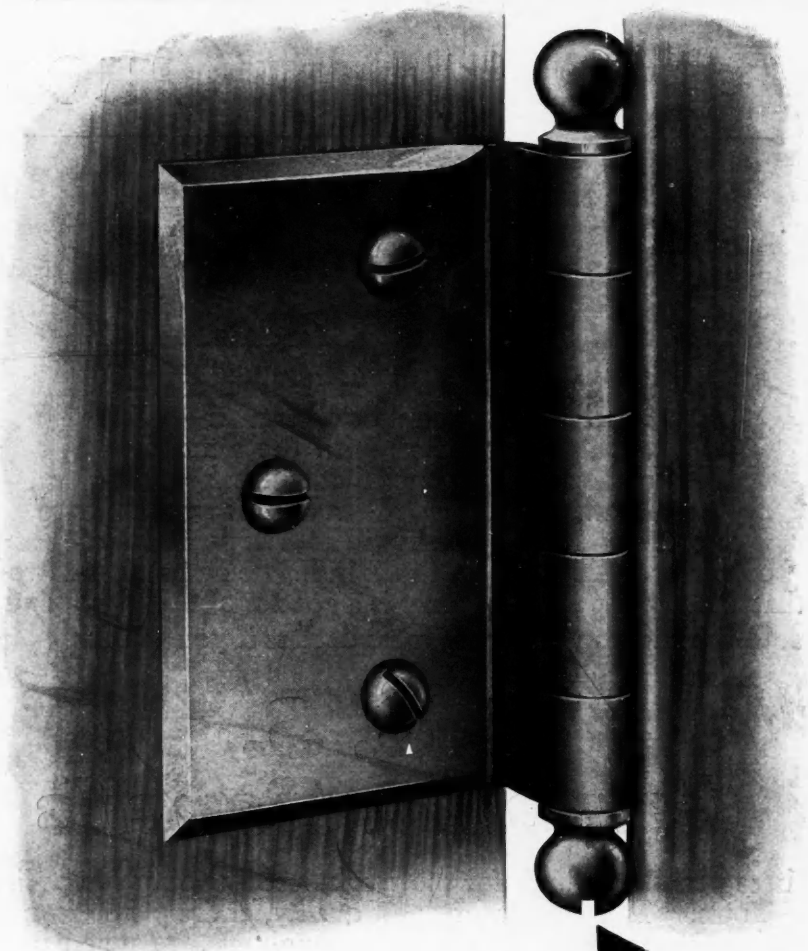
Dear Sirs:  
Please send me  
FREE, Charges Prepaid—  
1 E. C. Simmons Carpenter  
Pencil, as per your offer, with  
the understanding that I am under  
no obligation to buy.

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_

JUN 2 1910

WE INITIATE—NEVER IMITATE

# A Good Tip



Design No. 450 B

SEE THE SLOT

## An Exclusive "National" Feature

The Tip is threaded and screws into the Butt. It is also slotted for a screw driver, making it easy to remove the Tip and affords ready access to the Pin. The slot also indicates instantly which is the bottom of the Butt. Send dealer's name and get booklet "Ornamental Ideas."

**NATIONAL MFG. CO., Sterling, Illinois**