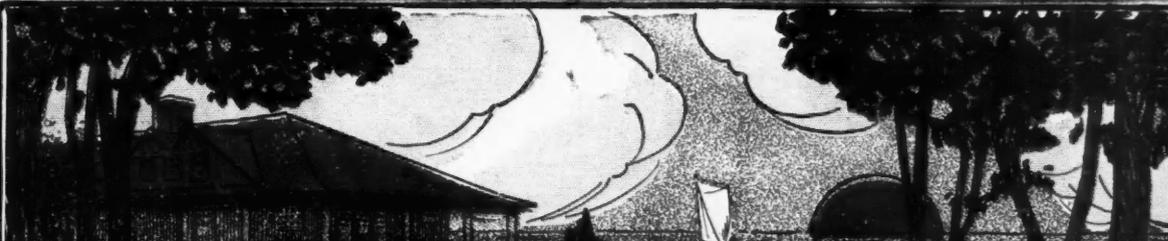


# AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER



SUMMER COTTAGES  
THEIR CONSTRUCTION AND  
DESIGN

A landscape illustration showing a summer cottage with a gabled roof and a chimney, situated on a hillside overlooking a body of water. There are trees and a small boat on the water. The scene is framed by a decorative border.

# THE "DUTRO" Sash and Door Holder



**A Practical Tool for Practical Men**

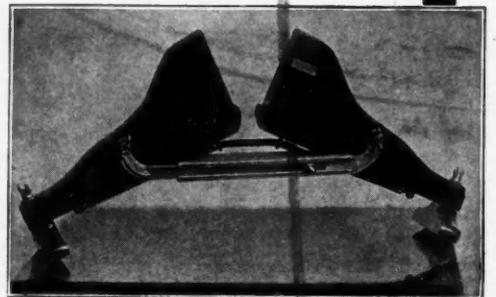
**Will Not Slip, Easily Adjusted,  
Always Ready, Fits Any Tool  
Chest, Will Hold Any Sash  
or Door in a Perfectly  
Rigid Upright  
Position**

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

## No More Broken Glass

Will save its cost in fitting and hanging 25 doors and sash

in the prevention of broken glass alone, to say nothing of the added convenience and pleasure of having a perfect tool always at hand to fit your doors and sash.



If your hardware dealer cannot supply you, send us

**\$3.00**

and we will deliver one prepaid.

Read our Guarantee.

**Wherever, Whenever <sup>You</sup> Want It <sup>It's</sup> There**

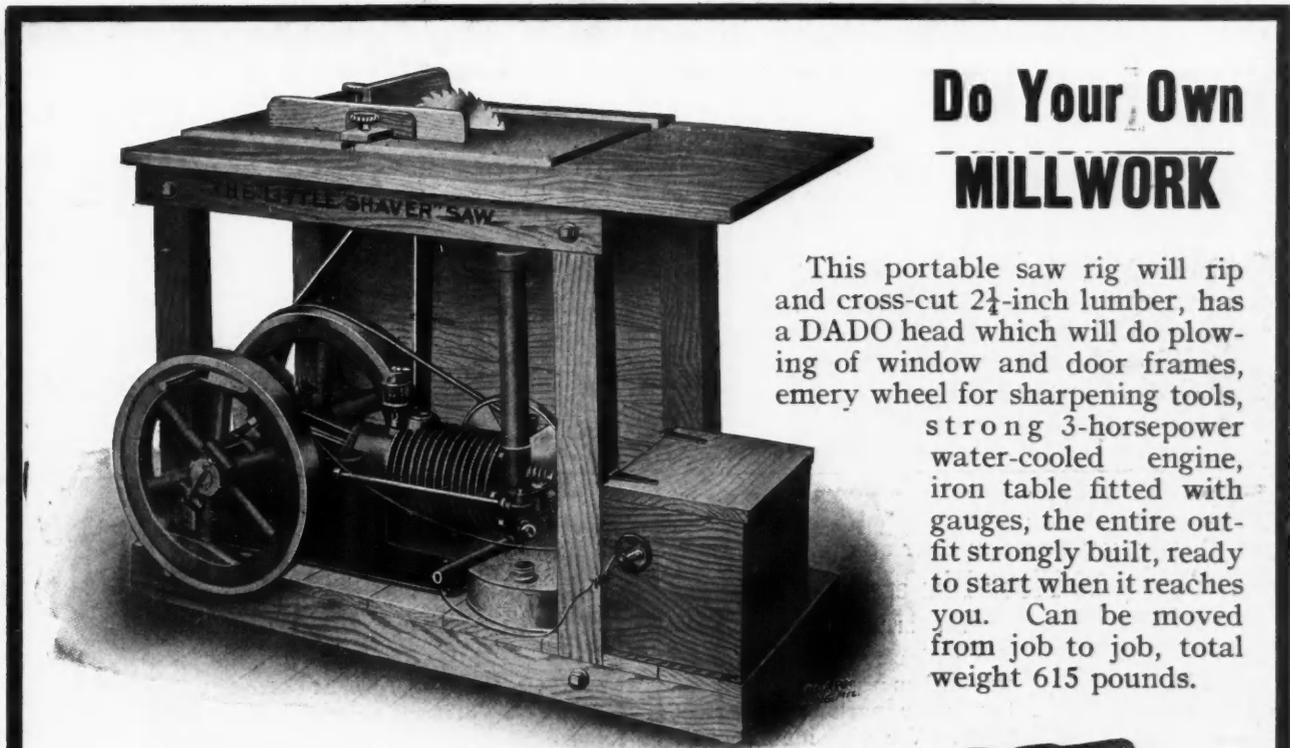
### OUR GUARANTEE

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

**DUTRO MANUFACTURING CO.**

331-333 S. Main St.,

MASON CITY, IOWA



## Do Your Own MILLWORK

This portable saw rig will rip and cross-cut 2¼-inch lumber, has a DADO head which will do plowing of window and door frames, emery wheel for sharpening tools, strong 3-horsepower water-cooled engine, iron table fitted with gauges, the entire outfit strongly built, ready to start when it reaches you. Can be moved from job to job, total weight 615 pounds.

## THE "Little Shaver" Floor Scraper

has all the weight on the blade and not on the handle, as in other scrapers. Nothing but a large hand scraper. A boy can do the scraping. Simplest and most satisfactory machine to work on the market.



### WRITE US

for folder and prices on these two time and money savers.

**Do it today**

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



## The American Floor Surfacing Machine

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

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

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

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

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

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

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

Manufactured by

**The American Floor Surfacing Machine Company**  
TOLEDO, OHIO



## A NEW MACHINE

THAT WILL NOT ONLY DO THE WORK OF

10 Floor Planers and Scrapers

But will do it more perfectly

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

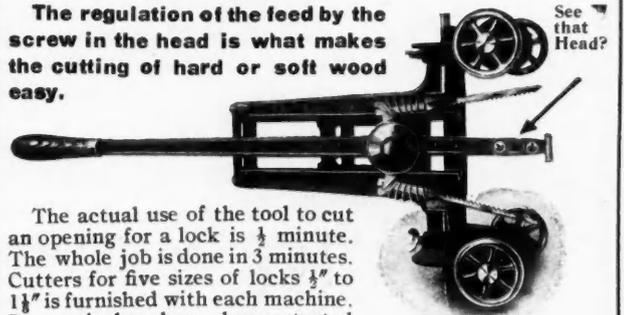
### Floor Sanding and Polishing Machine Co.

Driven by Electricity. Automatic Throughout. Ask for Booklet "F." 628 Race Street PHILADELPHIA, PA.

## Miller's Lock Mortiser

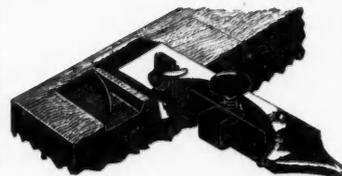
IS SCIENTIFIC

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 1/2 minute. The whole job is done in 3 minutes. Cutters for five sizes of locks 1/2" to 1 1/8" 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.

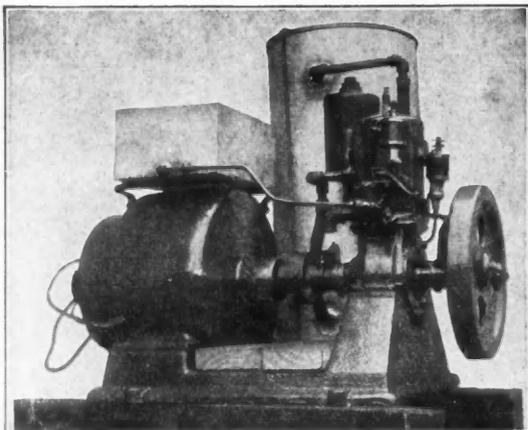
Main Office: CINCINNATI, OHIO.



## Carpenters and Shinglers Attention! Bogart's Shingling Gauge

This gauge is made of the best grade of No. 14 cold rolled sheet steel. It insures more rapid work, does not slip sideways or work loose. It clamps snugly to the blade, and cannot get lost. It is adjustable from 3 to 5 1/2 inches. It fills a long-felt want; every carpenter and shingler should have one. No more boring holes or marring your hatchet. Sent prepaid on receipt of price to any address in the United States or Canada. Price 15c. Address,

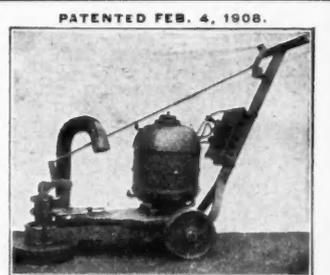
Frank A. Bogart, 126 Alma Avenue SAN FRANCISCO, U. S. A.



## "THE WORLD'S BEST FLOOR FINISHING MACHINE"

IT PLANES—GRINDS—SANDPAPERS—OILS—POLISHES.

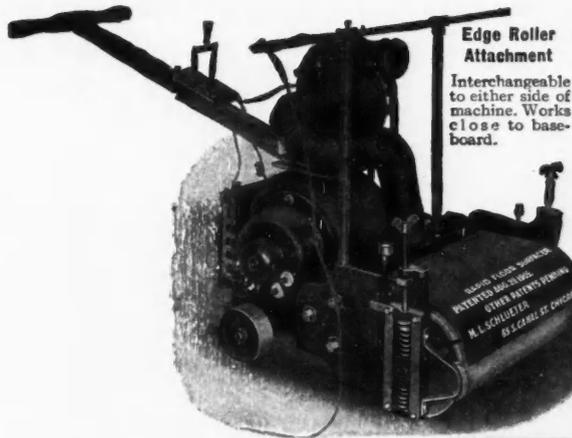
Valuable Perpetual County Rights For Sale by JOHN M. CROOK Dept. A. C. B. Austin, Chicago, U. S. A.



PATENTED FEB. 4, 1908.

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

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



Edge Roller Attachment  
Interchangeable to either side of machine. Works close to base-board.

## Perfect Results Easily Obtained Schlüeter Rapid Floor Surfacer

Built on the only correct principle. Guaranteed to be **THE BEST** machine with which to produce an even, smooth surface on any kind of 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 SCHLÜETER** will remove all joints or warped edges, and leave the floor perfectly smooth. Will remove shellac, varnish, oil, wax, lime stains or the "muck" from skate wheels in a most satisfactory manner.

**WE SELL MACHINE OR SURFACE YOUR FLOOR**

**EASY TO OPERATE. NO DUST.** Over 500 contractors are now using our Machines. Made in two sizes. We will surface your floor. Mail us size of floor, new or old, and kind of electric power. **In eight hours will sandpaper 4,000 to 5,000 sq. ft. once over.** Write for new prices, catalogue and our **FREE TRIAL** proposition.

**Sandpaper the Only Perfect Way**

The **SCHLÜETER RAPID FLOOR SURFACER** is so constructed that a roller, to which a sheet of sandpaper is quickly adjusted, is brought in contact with the floor surface while revolving at a speed of **600 revolutions a minute.** It is guaranteed to do the work cheaper and smoother than any other machine or method. This machine will surface from one to two thousand square feet in eight hours. Cost of sandpaper and electric power from \$1.00 to \$2.00 per day

**FREE** Illustrated booklet containing full information sent free to contractors.

**M. L. SCHLÜETER** 28 S. Canal St. CHICAGO



**Fox Floor Scraper No. 1**

A Perfect Machine for Perfect Work.

## Remember—THE FOX PAYS FOR ITSELF

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

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

(Write us for Catalogue.)



Fox Cabinet Scraper



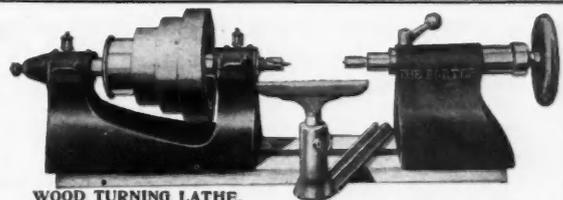
**FOX MFG CO.**

Milwaukee, Wis.

### "THE PORTER" Wood Turning Lathes

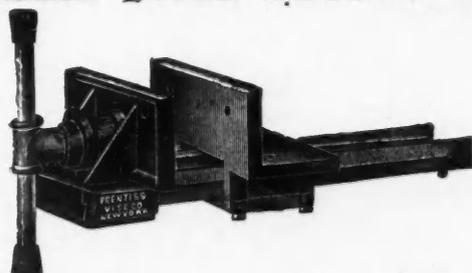
for wood turners and pattern makers. Furnished complete with countershaft, rests, steps, bolts, center and face plate. A high grade machine at a reasonable price. We also make Hand Jointers, Shapers, Swing Cut-off Saws, Pony Planers and Post Boring Machines. - - Better get our Catalog.

**C. O. Porter Machinery Co., Grand Rapids, Mich.**



WOOD TURNING LATHE.

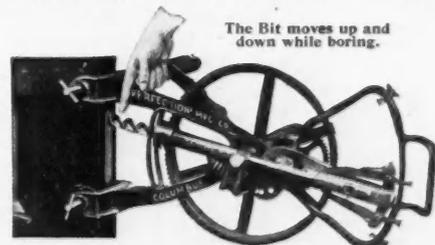
### BLAKE QUICK ACTING VISE



For Cabinet Makers and Wood Workers. Simplest—Strongest—Cheapest—Best

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

### PERFECTION DOOR LOCK MORTISER



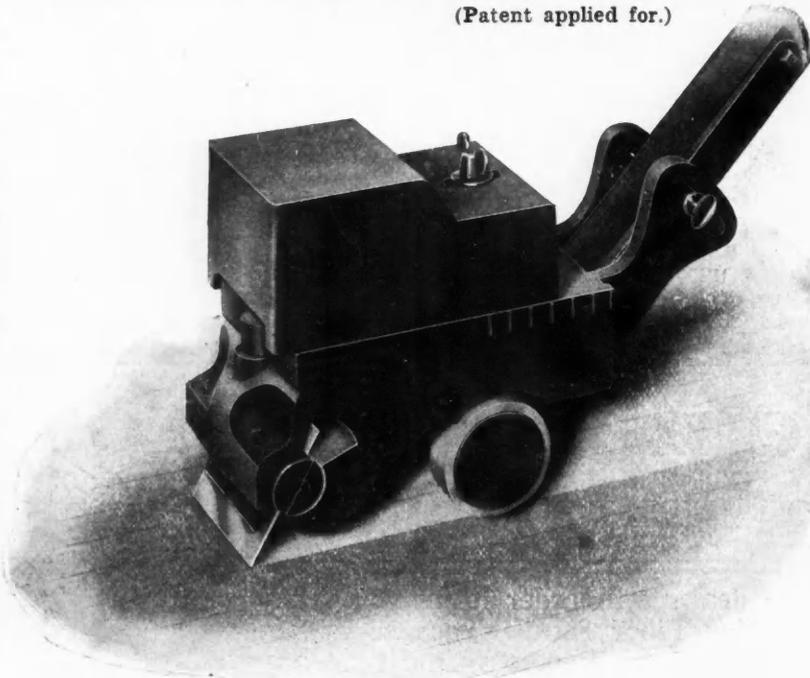
The Bit moves up and down while boring.

Weight 12 lbs., unbreakable malleable iron, automatic, ball-bearing Carpenters and builders cannot afford to be without it. 11-16 inch bit with each machine; any size furnished. Set the cam for any size mortise wanted, clamp on door, turn crank until finished.

Price of machine can be saved on 50 doors.  
**PERFECTION MFG. CO.,** 48 W. Patterson Ave., Columbus, O.  
Rehm Hardware Co., 354 Blue Island Ave., Chicago, Ill.  
Lee-Laumer Lumber Co., Birmingham, Ala.

# The Adjustable Floor Scraper

(Patent applied for.)



## Distinctive Features

Adjustment of Handle to height of operator.

Adjustment of Blade to any vertical or lateral degree.

Adjustment of Weight over Blade anywhere from 15 to 50 lbs.

Adjusted Weight over Blade permanent; not governed by pressure upon the handle, insuring a uniform cut, absolutely free from "chattering."

Any workman can do, with ease, more and better work than with any other mechanical scraper, and several times what can be done by hand.

Let us tell you  
more about it.

**LONG DISTANCE TELEPHONE MFG. CO., SOUTH BEND, IND.**

# ACKERMANN'S "MAKE GOOD" OFFER

**"More Work, Easier Work, Better Work than any Other Floor Scraper Made or the Entire Outfit is Free"**

You run no risk in ordering Ackermann's Rapid Floor Scraper sent on Free Trial. You don't have to pay a dollar down, not even the express charges.

Besides this you receive free with the machine, a complete Ackermann Knife Sharpening Outfit which insures the successful use of the machine by even an amateur. This knife sharpener practically works automatically and will put an absolutely perfect edge on the knife blade in less than two minutes without removing the blade from the machine.

**Ackermann's New Knife Sharpener works perfectly on the blade of any floor scraper. It cures all "Knife Troubles."**

Real success in the use of any floor scraper depends largely upon the cutting edge maintained on the knife blade that actually does the work. No machine will do the work well unless the blade is kept constantly sharp. Up to the present time the average operator of any floor scraper made, has had much trouble in doing good work, quick, because sharpening the blades was very difficult.

Send for Booklet  
and Information.

## Great Free Trial Offer

We will ship you on free trial, prepaying all charges, both the Ackermann Rapid Floor Scraper and Ackermann's New Knife Sharpener. If they prove satisfactory, you purchase the machine, and the knife sharpening outfit is given you free. If not, return both at our expense. It costs you nothing to find out whether or not our claims are true. Write today.

**J. B. ACKERMANN CO.,** 100 Pearl Street  
GRAND RAPIDS, MICHIGAN

### SELLING AGENTS

Jos. Woodwell Co., Pittsburg, Pa.  
Tallmadge Hdw. Co., Columbus, O.  
John F. Baker, Dayton, O.  
Crane & Bliss Hdw. Co., Newark, O.  
Raymer Hdw. Co., St. Paul, Minn.  
N. W. Parquet Floor Co., Minneapolis, Minn.  
C. A. Baeuerlein Hdw. Co., Winona, Minn.  
Saginaw Hdw. Co., Saginaw, Mich.  
Stambaugh-Thompson Co., Youngstown, O.  
Kelley Hdw. Co., Duluth, Minn.  
Pinnell-Engler Lumber Co., Franklin, Ind.  
W. F. Miller & Son, Barberton, O.  
Holt Lumber Co., Oconto, Wis.  
Warner Hdw. Co., Minneapolis, Minn.  
Morley Bros., Saginaw, Mich.  
Clements & Smith, Minneapolis, Minn.  
Driscoll Bros. & Co., Ithaca, N. Y.

Machine in  
position, ready  
to Sharpen  
Blade

Arrows  
point to the  
Knife Sharpen-  
ing outfit which  
fits compactly  
into machine,  
out of the way.  
Knife sharpener  
sold separately if  
desired. Price, \$5.00.

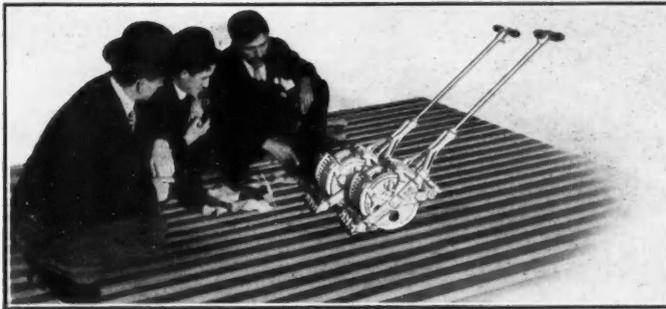
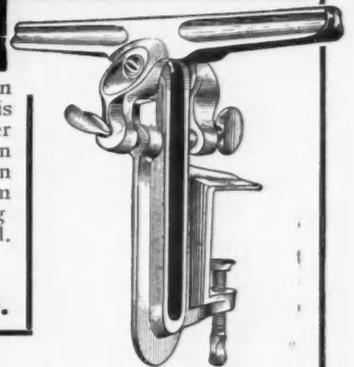


# The Adjustable Blade-Holder of the Weber Double-Acting Floor Scraper

If I could only have you here in our factory for a moment, and show you, as I showed the men in the illustration below, how the Blade Holder of the Weber Double-Acting Floor Scraper is adjustable to suit the needs of any floor or wood, I could convince you that it is the only scraper on earth. The Weber Adjustable Blade Holder can be set at any angle and with it you can scrape any and every different kind of a wooden floor laid—right up to the baseboard or in the corners. Write for my 1909 price list of my ten different priced machines weighing from 78 to 135 pounds; also ask me for my booklet containing valuable pointers on floor scraping and I'll tell you how you can get one of my floor scrapers direct from my factory on Free Trial.

**JOHN F. WEBER, President**

**Weber Manufacturing Co., 670 71st Avenue, West Allis, Wis.**



### Weber Folding Saw-Filing Vise

The strongest made. When folded takes up no more room than a hammer. Jaws are soundless. Grip is positively firm and rigid. If your dealer doesn't have it, send for one direct. **Price, \$1.20.** Particulars on request.



### Weber Cabinet Scraper and Sandpaperer

Most ingenious and practical article of its kind made. Adjustable handle, can be set at any angle. Weight 22 oz. **Price, \$1.50.** From your dealer or direct. Circular on request.

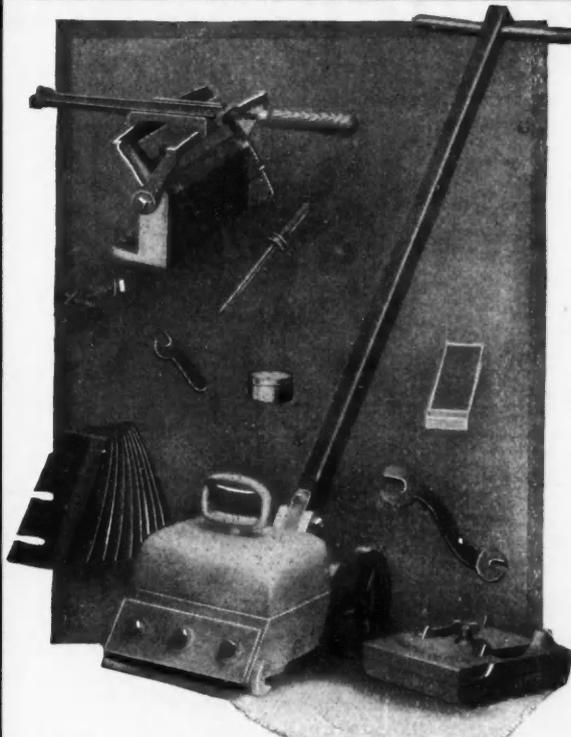
## Try It Free

then you will know just what the ACME FLOOR SCRAPING OUTFIT will do for you.

I don't ask you to buy a machine that you probably have never seen or worked with, so here is my offer:

I will send the ACME FLOOR SCRAPER, ACME BLADE SHARPENER and SANDER to you on ONE WEEK'S FREE TRIAL. You can then work with the machines as much as you please, and if they do not meet with your approval, simply send them back.

It is up to you to accept. Will you?



The Acme Floor Scraping Outfit consists of the Floor Scraper, Blade Sharpener, Sander, One Dozen Blades, File, Gauge, Oil Stone, Two Wrenches, Two Bolts, Burnisher and Box of Tallow

**Booklet and further information will be sent on request**

**JOS. MIOTKE, 247 Lake Street, MILWAUKEE, WIS.**

## The Crescent Variety Wood Worker Will Save Money for Any Contractor Who Buys Mill Work

On this one machine you can do anything that can be done on a Jointer, Saw Table, Borer, Pole Rounder and Shaper. It also carries an emery wheel for keeping your tools in shape.



With a Crescent Band Saw this machine makes a splendid outfit for any carpenter shop, and the price is well within the reach of any active carpenter.



Crescent Variety Wood Worker, showing Jointer and Borer

Send for circular and catalog describing Band Saws, Saw Tables, Jointers, Shapers, Borers, Swing Saws, Disk Grinders, Planers, Planer and Matcher, Band Saw Blades.

**THE CRESCENT MACHINE CO.**  
224 Main St.  
LEETONIA, OHIO, U. S. A.



Crescent Variety Wood Worker, showing Jointer and Saw Table

## The Floor Scraper

**THAT'S ABSOLUTELY PERFECT**

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

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

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

**Star Scraper Co. - Elkhart, Ind.**

**Five Days Free Trial**

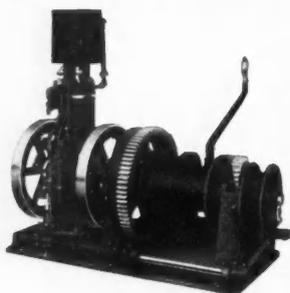
As a duty to yourselves you are asked to test this machine before you spend a cent on floor scrapers. A postal stating you will use the star for five days brings one to your door. We want you to be the judge of the best floor scraper. We want you to be thoroughly convinced of Star superiority.

**We pay the Freight**

Particular literature on request



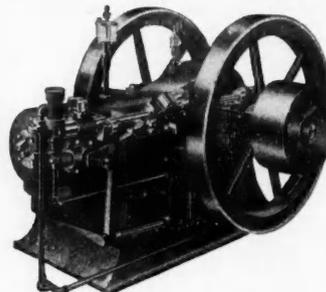
### EVERY CONTRACTOR AND BUILDER



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

**BATES & EDMONDS MOTOR CO.** LANSING, MICHIGAN

### THE FOSS GASOLINE ENGINE DIRECT TO YOU



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

Write for Price List and Catalogue.

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

# "Little Giant" Floor Scraper

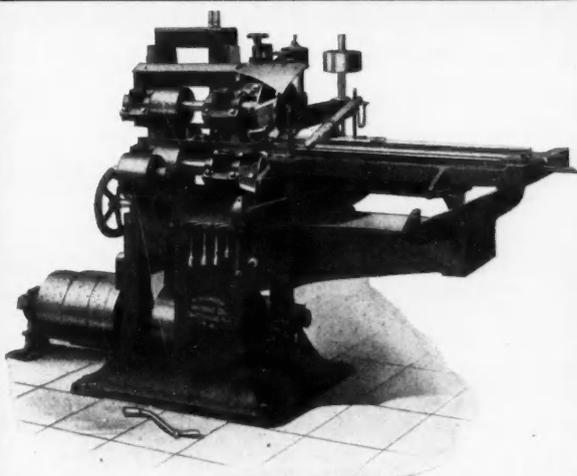
Sent on Free Trial  
20,000 "Little Giants" are in use

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

## Special Terms

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

CATALOG AND FURTHER DETAILS ON REQUEST  
**HURLEY MACHINE COMPANY,**  
155 South Jefferson Street, CHICAGO  
71 First Street, SAN FRANCISCO  
1010 Flatiron Bldg., NEW YORK

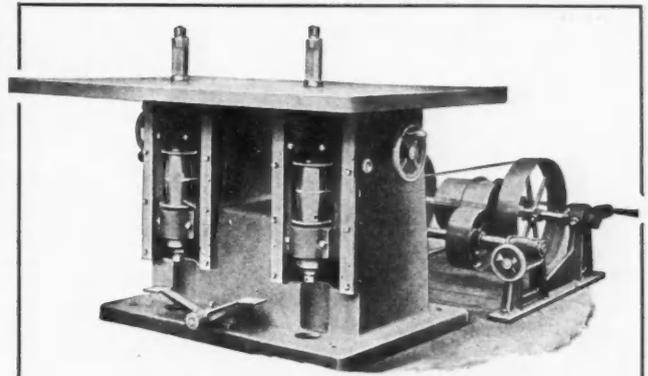


No. 225 C. E. Tenoner

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

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

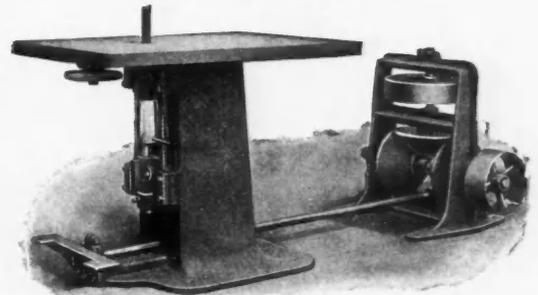
NEW YORK CHICAGO ATLANTA MEMPHIS



## GOOD SHAPERS

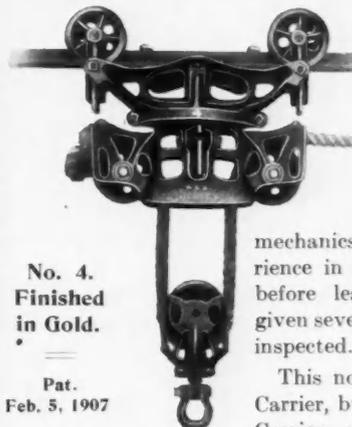
YOU never heard of a Cordesman-Rechtin shaper failing to produce good work and lots of it. You never heard of them giving any sort of trouble during the past fifty years. The reason is plain—they are BUILT RIGHT from the ground up—the spindles revolve at lightning speed, yet there is not the slightest vibration.

Good work and a large quantity of it must result.  
**The Cordesman-Rechtin Co., Cincinnati, O.**  
Chicago Office, 2714 W. Lake St.



## W&B "DIAMOND" W&B

### The Brand to Demand



No. 4.  
Finished  
in Gold.

Pat.  
Feb. 5, 1907

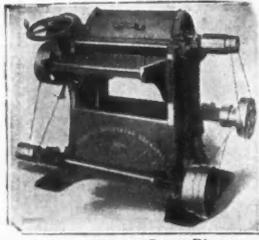
"Diamond" Hay Carriers are built for service — are easy to operate and are absolutely positive in action.

They are built of selected material by mechanics having years of experience in this line of work, and before leaving our factory are given severe tests and are carefully inspected. This not only insures a perfect Carrier, but also a perfect working Carrier, and one that will stay right after it goes in the barn.

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

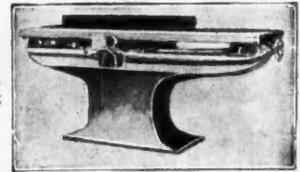
Write for Catalogue No. 70, giving complete description, and other useful information.

**THE WHITMAN & BARNES MFG. CO.**  
120th Street, CHICAGO, ILL.



Chicago No. 35 Pony Planer

# Machines for Contractors



Chicago Hand Jointer  
8, 12 and 16 in.

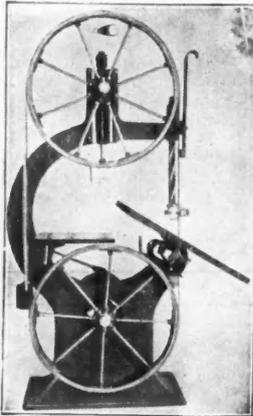
Every carpenter and builder can afford to invest in one, or more, of these machines. From our stock of 500 new and rebuilt machines contractors can obtain sufficient machinery to make them independent of local mills and their attendant delays and high charges.

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

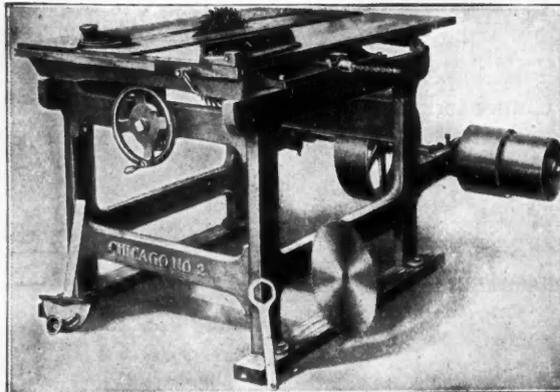
Prices are lower than you think. Send today for our monthly list of rebuilt machines (free to carpenters and builders).

## Chicago Machinery Exchange

7-11 No. Canal Street, CHICAGO



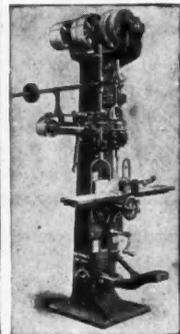
Chicago No. 1 Band Saw  
27, 32 and 36 in.



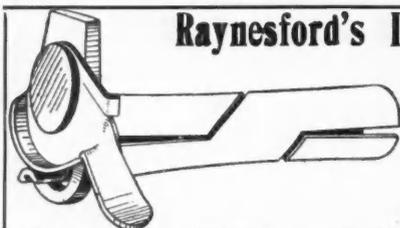
Chicago No. 2 Combination Saw Table  
An excellent machine for ripping, cutting-off, mitering, dadoing, etc.



Chicago No. 7  
Improved  
Swing Saw



New Hermance  
No. 1. Heavy  
Power Mortiser

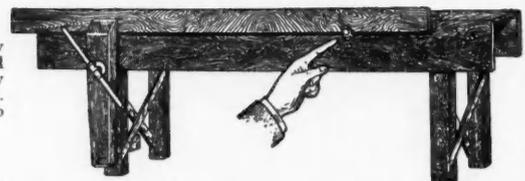


### Raynesford's Improved Bench Stop

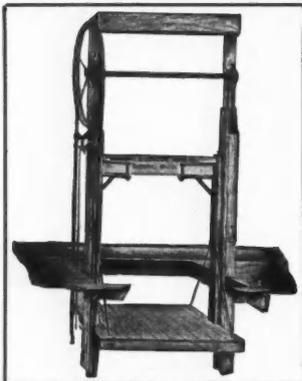
will hold any thickness of work equally well from  $\frac{1}{4}$  inch up to 2 inches and hold it firmly. Can be operated more quickly than the wooden plug you are used to. Does not stick out to get broken off, to hurt you, or tear your clothes.

Try one and be convinced.  
Write for circular or sent Post  
Paid for \$1.00.

RAYNESFORD & SONS, Ellis, Kan.



Raynesford's Improved Bench Stop at Work



### PERFECTION

# ELEVATORS

ARE  
"BEST BY EVERY TEST"

For PASSENGER or FREIGHT SERVICE in Factories, Stores and Dwelling Houses.

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. When writing, state your requirements.

Sidney Elevator & Mfg. Co., Sidney, O.

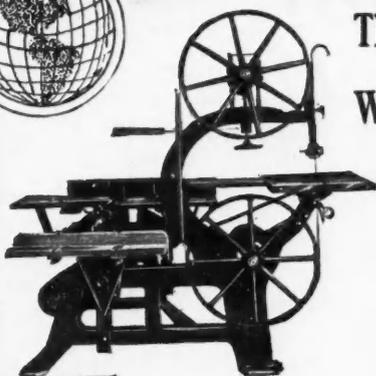


## THE WORLD'S FAMOUS LINE

—OF—

## WOOD WORKING MACHINERY





**Universal Wood Worker, fitted up with Band Saw, Mortising Attachment, Shaper and Jointer.**

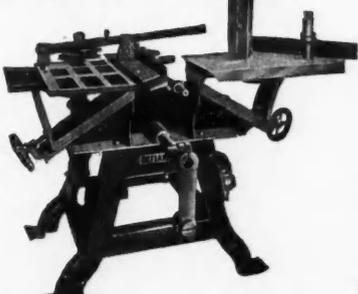
The four cuts which we show in this ad will give you a fair idea of the Famous Universal Wood Worker, with its different attachments for doing different kinds of work. With the standard machine you may do band sawing, boring, jointing, shaping and two-side molding without making any changes whatever. These different attachments are all driven by separate belts from the countershaft, and it is not necessary to have a skilled mechanic to operate it.

First of all, we give you five perfect machines in one; that means a big saving in equipment—five machines for the price of one and a big saving in space, having one machine instead of five.

Now we want to show you and tell you in detail just why the Famous Universal Wood Worker is such a wonder. We want to know where you stand in this machinery proposition. If you will write and get our catalogue B, it will explain it all with our very best prices.



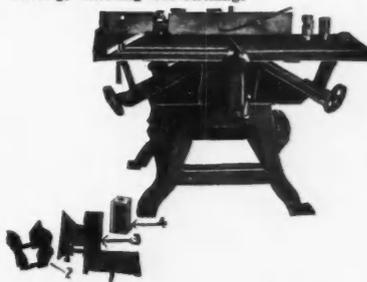
**Universal Wood Worker, equipped with our Planing Attachment, will plane up to 4 in. thick and 10 in. wide; also arranged for doing two side molding, matching and sticking.**



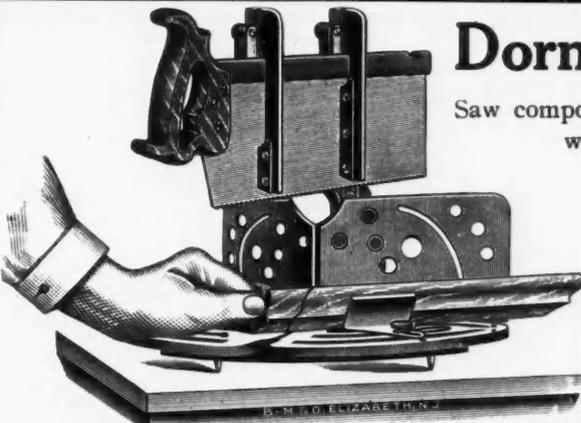
**Universal Wood Worker, fitted up with the Single End Tenoning Attachment, with traveling table and hold down lever.**

### SIDNEY TOOL CO.

**SIDNEY, OHIO**



**U. S. A. Universal Wood Worker, fitted up with Jointer, Shaper and Two Side Molder.**



## Dorn's Revolving Mitre Box

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

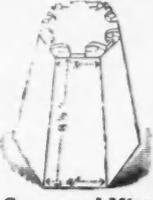
**SEND FOR BOOKLET**

**IT TELLS THE STORY**

MANUFACTURED BY

### Braunsdorf-Mueller Company

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



Co. 11 pound Mitre

**PUMPS, DOOR-HANGERS, STORE LADDERS**

The Pump That Pumps

**MYERS**

Glass Valve

**Myers Stayon Flexible Door Hangers**

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

**F. E. MYERS & BRO.**  
Ashland, Ohio.

Double-acting, Lift, Tank and Spray

**PUMPS**

Store Ladders, Etc.

**Hay Tools**

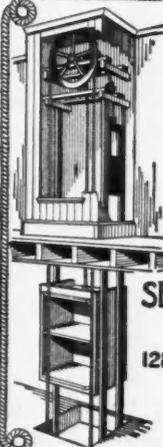
of all kinds

Write for circulars and prices.

Noiseless Cushion Tire

**LADDERS**





## DUMB WAITERS AND HAND ELEVATORS

OF THE MOST IMPROVED AUTOMATIC CONSTRUCTION

**INVALID LIFTS**

**TRUNK, CARRIAGE, SIDEWALK AND FREIGHT ELEVATORS**

**SEDGWICK MACHINE WORKS**

POUGHKEEPSIE, N. Y.

AND

128 LIBERTY ST. NEW YORK

CATALOGS AND ESTIMATES FURNISHED SEE SWEET'S INDEX

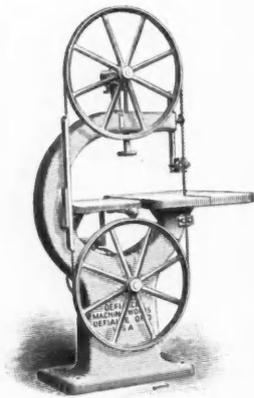
# "DEFIANCE" HIGH GRADE

## Wood-Working Machinery

Invented and Built By  
**The Defiance Machine Works**  
 Defiance, Ohio

**For Manufacturing General Wood-Work**

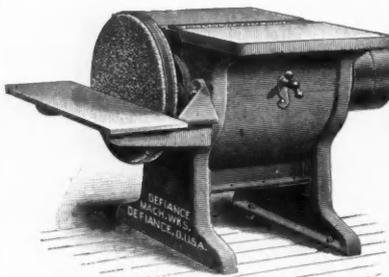
Also Special Machines for making Hubs, Spokes, Wheels, Wagons, Carriages, Automobiles, Rims, Shafts, Poles, Neck-Yokes, Singletrees, Hoops, Handles, Spools, Bobbins, Insulator Pins, Balusters, Table Legs and Wood Dishes.



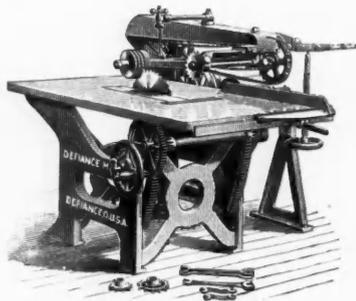
28" Band Saw



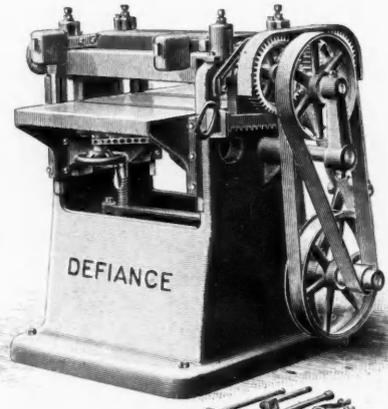
12" Hand Feed Planer with or without Boring Attachment



Drum and Disc Sander



No. 3 Power Feed Rip Saw



24" Single Surface Planer

**"OHIO" TOOLS** are the product of nearly a century of active experience and progress in the edge tool business. Carefully made from the best materials, treated by the most improved methods, they are **Economical Tools for the User.**

Every tool covered by a broad guarantee.  
 Write for Catalogue No. A.

**Ohio Tool Company, Columbus, Ohio**

OHIO TOOL COMPANY  
 COLUMBUS, O. U.S.A. REGISTERED

### THE AMERICAN Combined Level and Grade Finder

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

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

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

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

Address **Edward Helb, P. O. Box No. 55, Railroad, Pa.**

## PARKER VISES

MADE ESPECIALLY FOR WOOD WORKERS.

FOR SALE BY DEALERS

SEND FOR CATALOG

**CHAS. PARKER CO.**  
 MERIDEN, CONN.

## SELF-SETTING PLANE

See December number of this paper pages 261, 320 and 322 for facts. No plane like it. Inexperienced man can use it. A child can set it. It sets itself. **THE BEST ALWAYS THE CHEAPEST.**

None Cheap but the Best.  
 All Want the Best  
 Sent on 30 Days' Trial as per Circular, if Dealers do not keep it

STATIONARY VIEW—showing ADJUSTABLE IRON THROAT.

Works easier, better, quicker. Saves price every month used. Striking knot won't move bit. Five seconds sets it to 1-1000 of an inch. Cap and bit not screwed together. Both set when dropped into place. Cap stationary when bit moves up or down. Bit warranted to stand knots or anything else to user's satisfaction. *Try it costs nothing, if returned at our expense.* Should be in every kit, in every manual training school, in every home. Get one for your boy to help him to become a good "American mechanic." Don't force him to use the old style plane. He deserves the best. Get it for him if you don't want it for yourself, then return it if you want to. Circulars and a carpenter pencil free on receipt of addresses of ten or more plane users. Send for a plane now, and return it if you don't like it. Circulars and a carpenter pencil free on receipt of addresses of ten or more plane users, and the name of this paper.

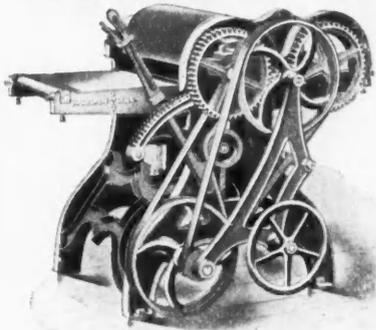
**GAGE TOOL CO., Vineland, N. J.**

# HAMILTON—OHIO—LINE WOOD-WORKING MACHINERY

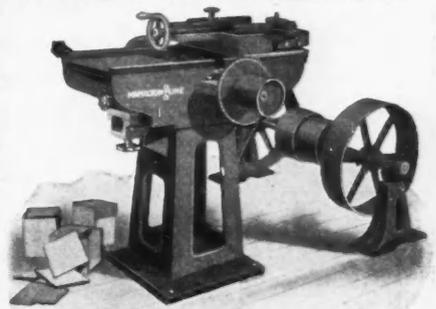
FOR

Contractors and Builders,  
Planing Mills, Sash, Door  
and Blind Factories, etc.

The BENTEL & MARGEDANT CO.  
HAMILTON, OHIO



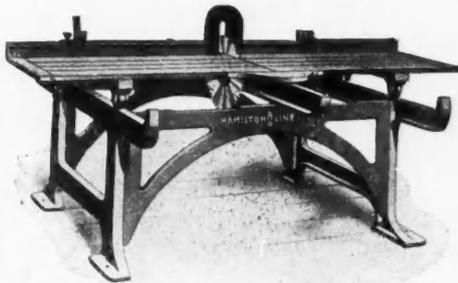
Hamilton 24-Inch Surfacer No. 42.



Hamilton Lock Corner Machine No. 39L.

Descriptive  
Circulars on  
Application

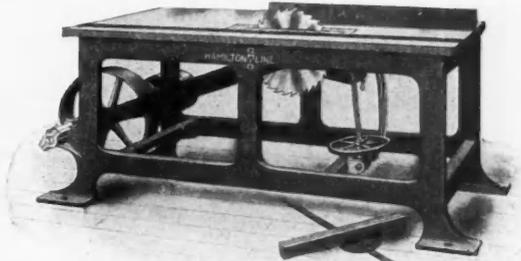
Mention American  
Carpenter and  
Builder



Hamilton Carriage Cut-off Saw No. 93.



Hamilton Scroll Saw  
No. 33L.



Hamilton Iron Frame Rip Saw No. 91.

## “Diamond” Mortiser

For Foot Power

Will mortise  $\frac{1}{8}$  to 1 inch wide, 3 inches deep or 6 inches deep by reversing the work and with our patent adjustable tenoning tool will cut tenons  $\frac{1}{8}$  to 1 inch wide. Has rigid iron column, powerful foot motion and accurate action. The table has horizontal, vertical and angle adjustments.

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

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

Send for catalog “A”

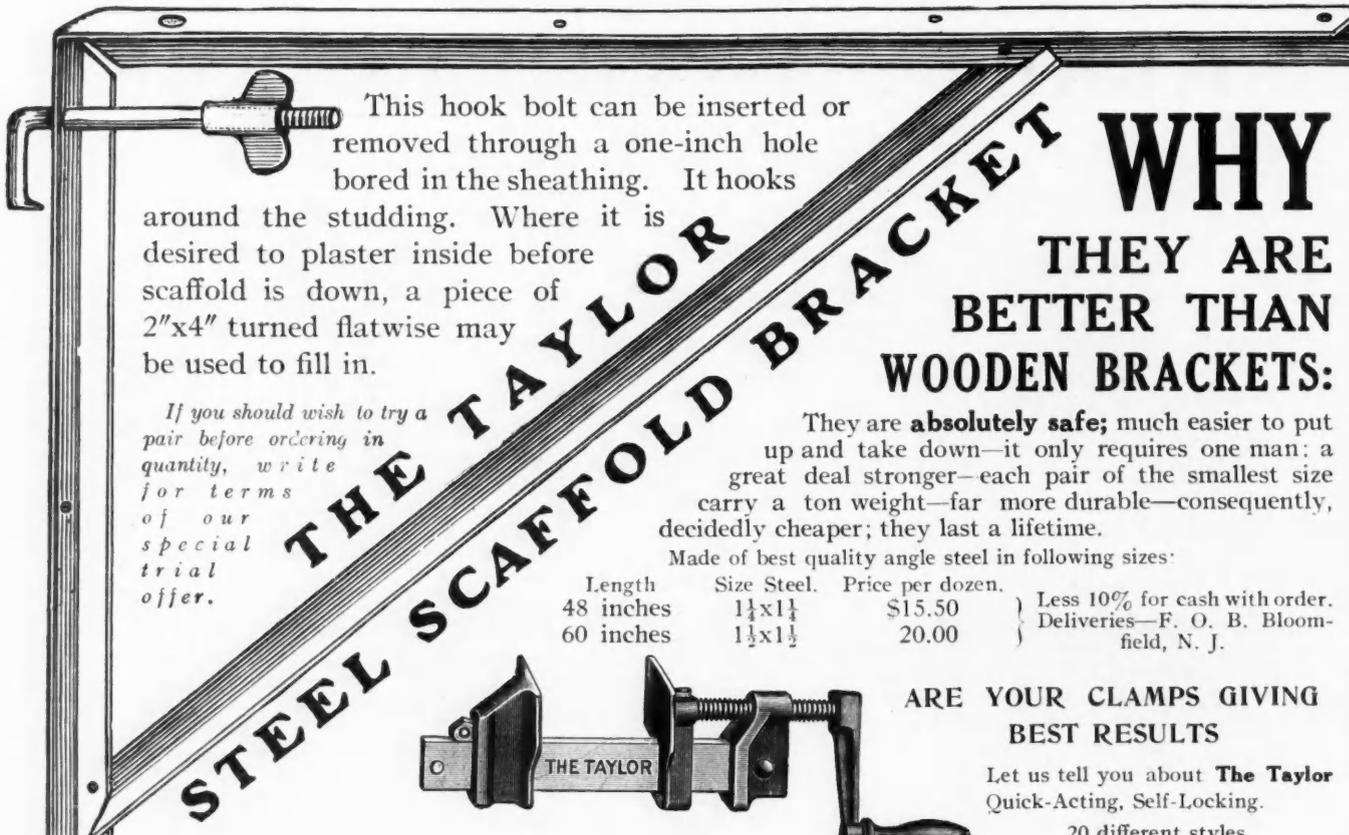
The Seneca Falls Mfg. Co.,

218 Water St.,

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

163





This hook bolt can be inserted or removed through a one-inch hole bored in the sheathing. It hooks around the studding. Where it is desired to plaster inside before scaffold is down, a piece of 2"x4" turned flatwise may be used to fill in.

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

**THE TAYLOR STEEL SCAFFOLD BRACKET**

**WHY THEY ARE BETTER THAN WOODEN BRACKETS:**

They are **absolutely safe**; much easier to put up and take down—it only requires one man; a great deal stronger—each pair of the smallest size carry a ton weight—far more durable—consequently, decidedly cheaper; they last a lifetime.

Made of best quality angle steel in following sizes:

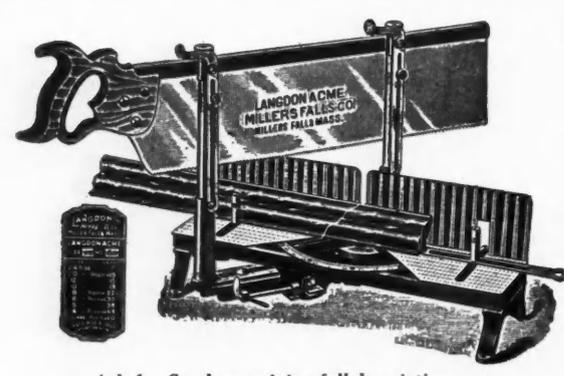
Length	Size Steel	Price per dozen
48 inches	1½x1¼	\$15.50
60 inches	1½x1½	20.00

Less 10% for cash with order. Deliveries—F. O. B. Bloomfield, N. J.

**ARE YOUR CLAMPS GIVING BEST RESULTS**

Let us tell you about **The Taylor Quick-Acting, Self-Locking** 20 different styles.

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

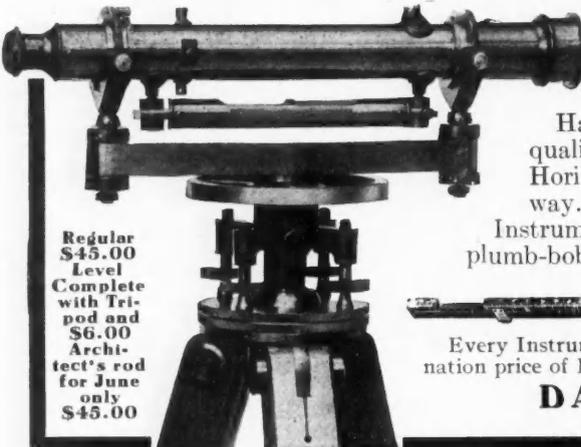


**ARE YOU INTERESTED IN MITRE BOXES?**

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

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

Ask for Catalogue giving full description.



**This Improved Level**  
especially designed for Builders, Contractors, etc.

Has a telescope 12" in length. Lenses of the best optical quality. Magnifying power 25 diameters. Object glass 1½". Horizontal circle 4½" in diameter, graduated from 0-90 each way.

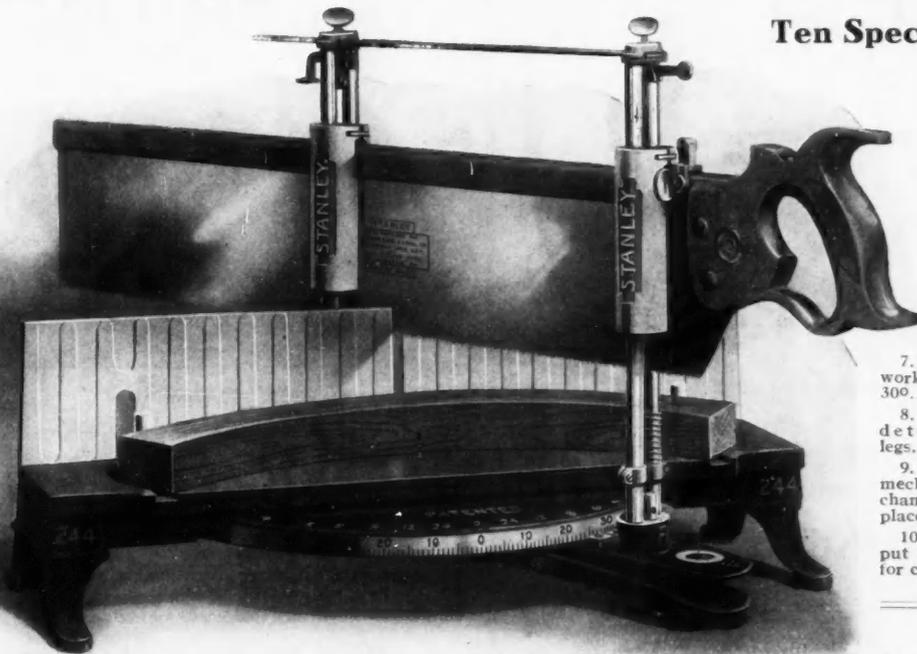
Instrument complete in a polished hard-wood box with strap, plumb-bob, sun-shade, adjusting pins and trivet.

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

Every Instrument guaranteed to be accurate in every respect. Special combination price of Level and Architect's Rod, \$45.00.

**DAVID WHITE COMPANY**  
419 East Water Street, MILWAUKEE, WIS.

# STANLEY MITRE BOXES



## Ten Special Features:

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

Send for our  
**Catalogue No. 34**

**STANLEY RULE AND LEVEL CO.**

**NEW BRITAIN,  
CONN., U. S. A.**

## PLUMBERS' SUPPLIES AT WHOLESALE



If you need anything in my line and wish to

**SAVE**

**20 to 40 Per Cent**

on every article, write for my free illustrated Catalog. Shipments promptly made from a very complete stock of guaranteed goods.

Small orders are as carefully handled as large ones.

**B. B. KAROL, 233 W. Harrison St., Chicago, Ill.**

## CUSTOM MADE FLY SCREENS

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

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

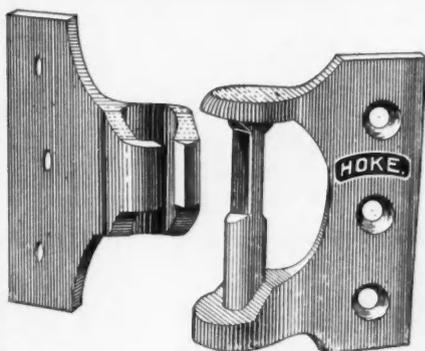
Intending purchasers may have free, by mail, samples of woods, finishes, wire cloth, and a copy of catalogue and price list. Agencies in nearly all large cities. Agents wanted in smaller cities.

Special terms to Contractors and Builders.

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

25 Years' Experience

3½ Acres of Floors



An Improvement on other hinges is seen in the

## Hoke Reversible Shutter Hinge

A hinge which is bound to meet with instant approval wherever shown. It can be used on either side of the window equally well.

It is easy to adjust, and shutters are easily hung, being guided to place by a bevelled slot. It prevents shutters from falling off, and keeps them from banging and slamming when open against the house.

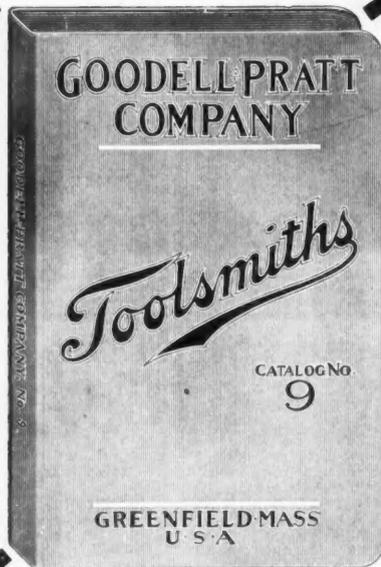
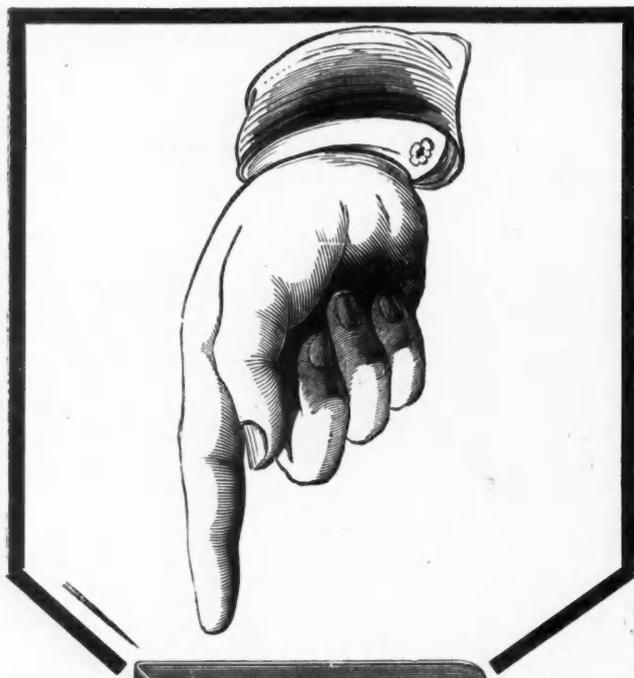
We want you to test this hinge—send for

**FREE SAMPLE**

inspect it carefully, and see if you don't agree with us that it will be a big seller for you. Send to-day

**HANOVER HINGE CO.,**

**HANOVER, PA.**



**NEW TOOL CATALOG**

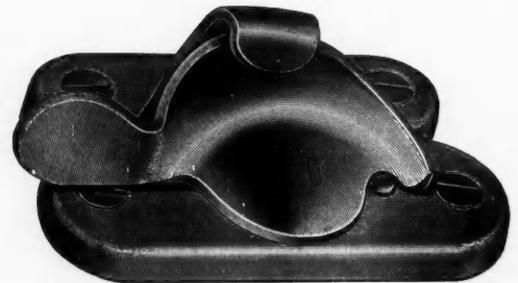
**C** This is the new edition of our catalog and shows many new tools. Everybody should get one whether they have the No. 8 or not. 272 pages.

**Goodell-Pratt Company**

*Toolsmiths*

Greenfield, Mass., U. S. A.

**MONITOR SASH LOCKS**



(PATENTED)

**NEVER BREAK**

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

If the upper sash drops, the Monitor "Never Break" Sash Lock will pick it up from a lower point than any other; adjust the sashes perfectly, prevent all vibration, and lock securely, so it can not be opened from the outside.

MADE IN TWO SIZES AND ALL FINISHES BY

**The Champion Safety Lock Co.**  
Geneva, Ohio

**GRAND RAPIDS**

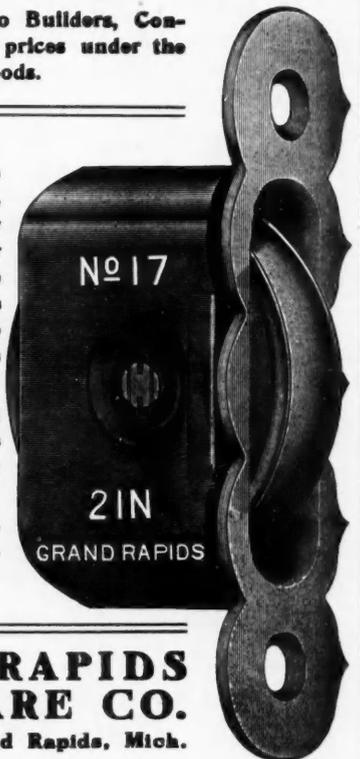
**All-Steel Sash Pulleys**

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

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

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

Direct from the makers to you. Inquiries welcome.



**GRAND RAPIDS HARDWARE CO.**

34 Pearl St., Grand Rapids, Mich.

## Releases itself as screw is driven home





## YOU Can Do This with your "YANKEE"



You can set and drive a Screw 20 inches beyond your reach with this Bit, besides using it for nearby awkward places where only one hand can be used. It takes a Screw quick as a wink, holds it firmly, yet releases itself as the Screw is driven home. A very valuable little attachment for your "YANKEE" SPIRAL SCREW DRIVER. Never in the way for ordinary work, but right at your fingers' ends when you need it—costs but a trifle. Our "YANKEE" TOOL BOOK tells all about this and 25 other reliable time and labor-saving Tools for all classes of mechanics. It's free to Carpenters who mention the "American Carpenter and Builder."

**Your Dealer sells "YANKEE" TOOLS**

**NORTH BROS. MFG. CO., Dept. A. Philadelphia, Pa.**

## PHOENIX INSIDE SLIDING BLINDS

WILKES BARRE, PA.

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

**Comfort!  
Economy!  
Convenience!**

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

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



## EXPANSION BOLTS



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

**STAR EXPANSION BOLT CO.**  
Cor. Cedar and Washington Sts. New York City

## 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.

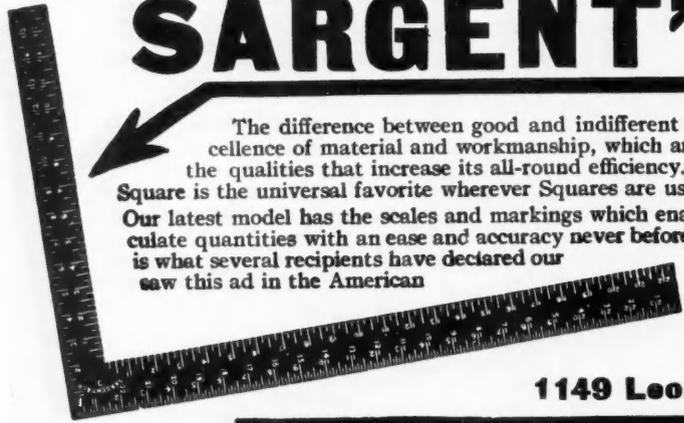
No trouble to handle, because it weighs only about two pounds. Can be used with gloves or mittens on and in any season.

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.**

# 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.

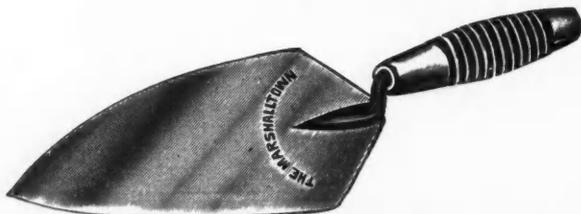
Our latest model has the scales and markings which enable the carpenter to lay out all kinds of work and to calculate quantities with an ease and accuracy never before thought possible. "A practical treatise on Steel Square" is what several recipients have declared our little publication. Copy free simply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

**Sargent & Company**  
New York

1149 Leonard Street

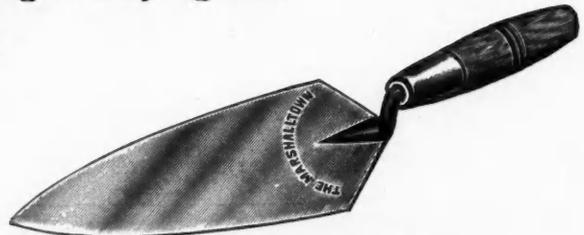
# The Best Ever

You Will Never Regret Buying One



**Wide Heel Brick Trowel**

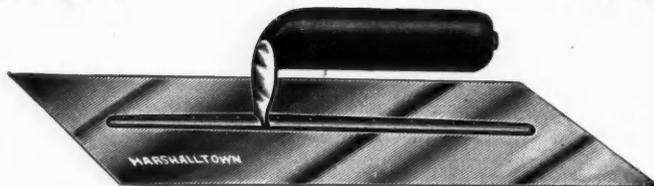
Made of Best Quality Crucible Trowel Steel.  
Leather Handle.



**Philadelphia Pattern**

Best Quality Crucible Trowel Steel.  
Wood Handle.

Send For  
Catalogue



Send An  
Order

**Genuine Marshalltown Trowel**

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

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

## Use a Transit or a Level and Save Money



"Sterling" Builders' Level.  
Price, \$50.00.

"Sterling" Builders' Transit.  
Price, \$90.00.

The best made and their cost can be saved in one season! Let us tell you about them and how you can save time and do better work by their use.

*Our Circulars and Instruction Book sent on request.*

**ISZARD-WARREN CO., Inc.**  
1122 Vine Street, Philadelphia, U. S. A.

## LUFKIN STEEL TAPES and RULES



ARE INDISPENSABLE FOR ACCURATE WORK

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

For Sale Everywhere.  
Send for Catalogue.



# Here is a Gimlet

Equal in quality and usefulness to any Brace Bit

HANDLE OF  
SELECTED  
COCOBOLO  
WOOD

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

Price Postpaid **15 cents** each

**H. H. MAYHEW COMPANY**

SHELburnE FALLS, MASS.



**GRILLES**

**COLUMNS AND**

**CONSOLS**

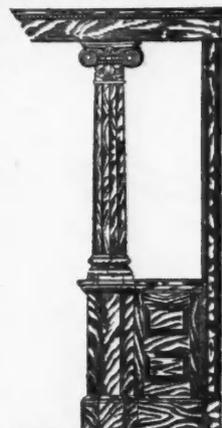
In quality and price our work is not surpassed.

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

Send for 48 Page Catalog No. 15

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

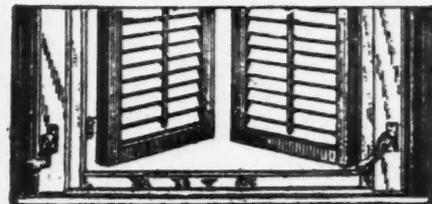
Illustration at right shows half-section of Column design No. 552.



**Northwestern Grille Works**

CHRISTENSON BROS., Props. 1452 Milwaukee Ave., Chicago

## MALLORY'S



**Standard  
Shutter  
Worker**

New and improved patterns and designs.

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

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

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

### The "AUTOMATIC" SASH HOLDER

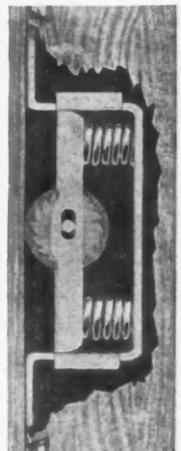
The "Automatic" Sash Holder is the new, modern, up-to-date device that dispenses with cumbersome sash weights, kinking cords or ribbons, useless weight pockets, misfit pulleys and reluctant balances, and saves all the time, labor and expense of fitting them in place.

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

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

**Automatic Sash Holder Company**

277 Broadway, New York City.





# "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.

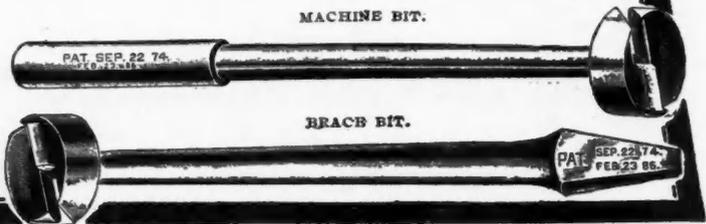
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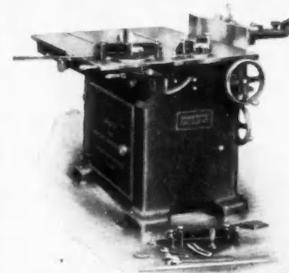
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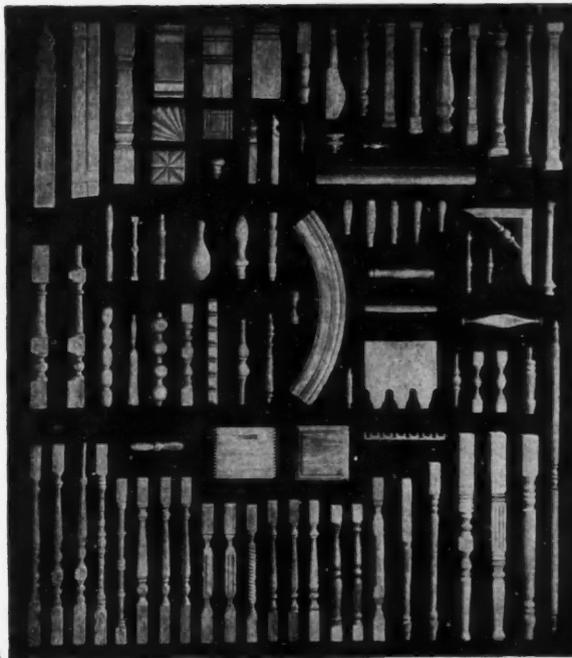


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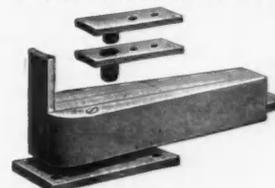
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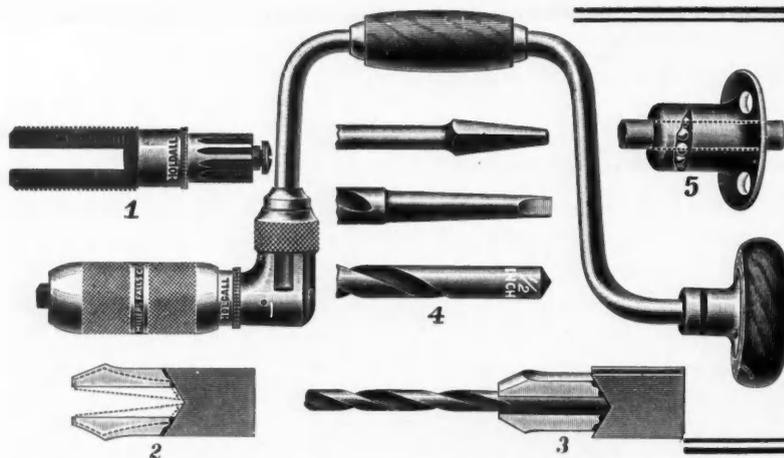
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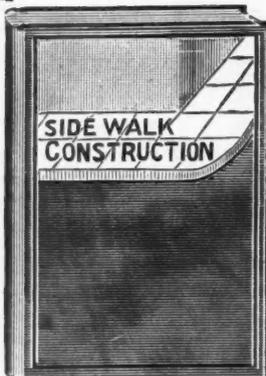
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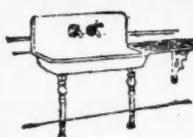
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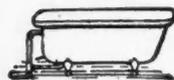
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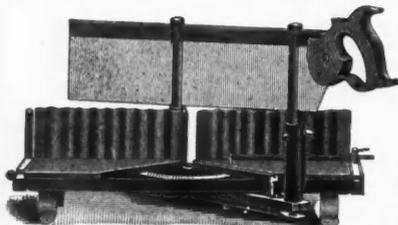
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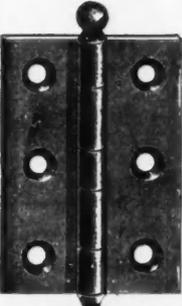


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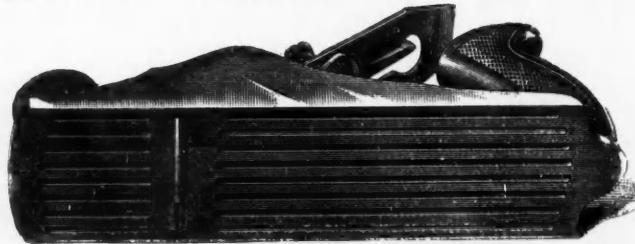
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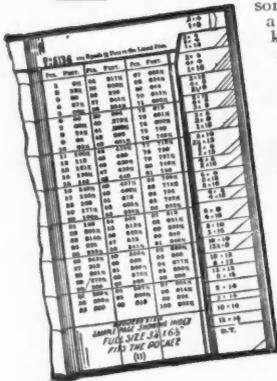
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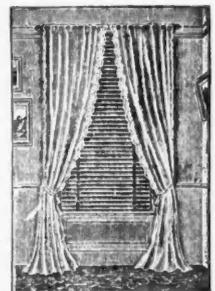
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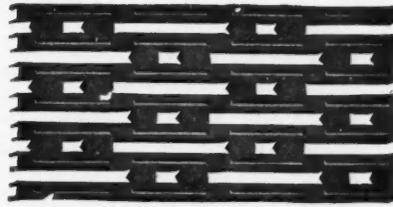
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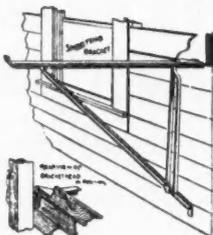
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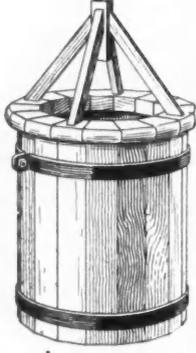
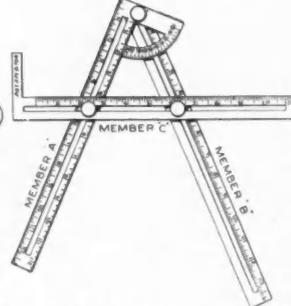
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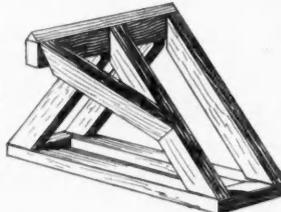
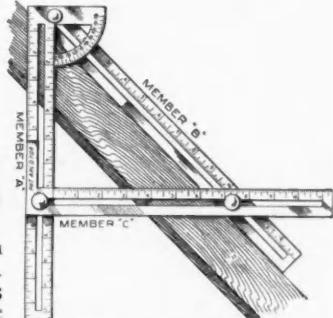
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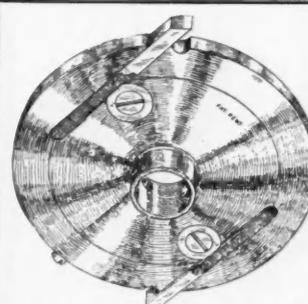
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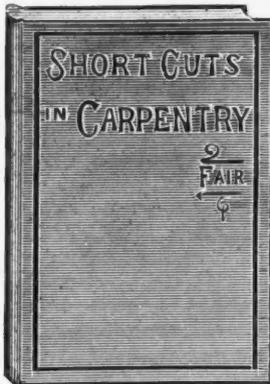
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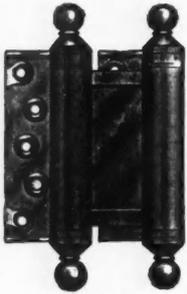
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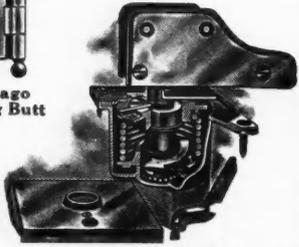
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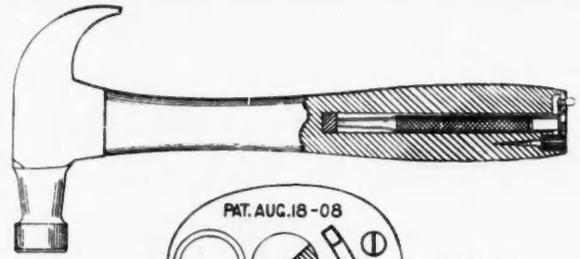




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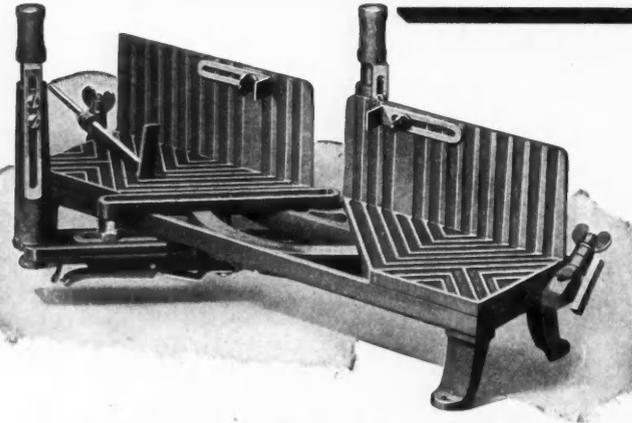


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# AMERICAN CARPENTER AND BUILDER

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## American Carpenter and Builder

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

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

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**E**VERY man who takes your measure does not make you a suit of clothes.



**I**F YOU must look into the future, for heaven's sake take a cheerful squint at it.



**“**W HEN driving one nail,” said the old carpenter, “think about how the next one should be driven.”

## A Word to Our Readers

**A** SHORT time ago this letter came to the editor's desk:

“How can I get next to your correspondence department? I am a new subscriber and there are a lot of things about building and carpentry construction I want to see explained. Your paper is all fine, but I like best the practical hints and suggestions from the experienced men. I for one would like to see more from them. I am a young workman but there are some kinks I have picked up which might help someone. How does the question and answer part of the paper work?”

This letter makes the editor glad. He wants to answer it right here, addressing every reader: Just send them in, brother! Let us have your questions and suggestions. That's what the correspondence department is for! You'll find it easy to “get next to.”



## Estimating Bad and Good

**W**HEN estimating on a job some builders simply look at the plans and say, “That job is worth so much,” while others sit down and go carefully over the plans and specifications, measure up and take a few notes of some of the things that will be required. The former, says one of our readers, are taking great risks, which do not pay, and the latter are adopting very unsatisfactory methods. Now, a builder would have to give his whole attention to reading off, measuring up and writing down everything required, even if it takes a longer time than anticipated.

The question is, can he afford the time to do it? Consider the value of the many hours and days contractors spend in taking off quantities, the neglect of other work, which requires all their attention, the doubtful chance of obtaining the contract, the sleepless nights spent in trying to come to a satisfactory conclusion in their efforts to figure out what it ought to be, and a hundred and one other worries which help to shorten this brief span of life.

Slipshod estimating and guess work has ruined many a good man. A builder is anxious to get the work and may have inside information that his efforts will

be fruitful, but even so, he is liable to overlook something or many things. His familiarity with a particular class of work makes him over-confident. He sends in his tender and it is accepted. Perhaps his was not the lowest, but he honestly believed that he gave a fair, reasonable offer to do the work with a marginal profit. When the work commences and as it advances he discovers that he overlooked the ceiling joists, or didn't reckon on the strapping, or some other items. If only one item be omitted, however small, he is that much the loser. "But," he may say, "what does it matter? I have allowed sufficient elsewhere to cover that." Thus he cuts a piece off the top of his pants to make them longer at the bottom.

Now, no man can figure on a job, no matter how small, without the careful consideration of all the details. It is a very important part of his business, be he carpenter, bricklayer, stonemason, plasterer, painter, or plumber. Any business identified with the building trades calls into play the best reasoning powers of a skillful man.

When a builder knows the exact quantity of material that will be required to complete a job he is able to fix his price. He knows what he can buy it for and, as an experienced man, knows how long it will take to work that material, how much for handling, transportation, cutting and waste, insurance, etc., with percentage of general working expenses and profit. Then, and then only, can he tell how much he will gain, and only a systematic method will enable him to do this, and place him in a position to do good work to the satisfaction of the owner, the architect and all concerned. He then impresses the architect with his sincerity and ability, increases his clientele, and improves his banking account, building up a reputation and obtaining a lasting advertisement which cannot be secured by any other means.

If a builder cannot devote the necessary time to do this himself he should employ someone who can. It will be money well invested. The cost is small in comparison and will repay itself many times over.

Many contractors keep a skilled man for this purpose. It pays to do so and pays well. With such a man, the contractor can sit down to a schedule of quantities thus prepared and price them item by item. The business becomes a pleasure to him. He knows the state of the market, his stock, his plant and his men. When priced, he hands the schedule to his man for extension, while he himself divides his time between superintending the various works on hand and getting new jobs, returning in time to put the finishing touches to his estimate and preparing his tender.



#### A Simple Little Palace

OUR peerless collection of poetry and near-poetry for the carpenter and builder would not be in anywise complete without the following from the *Bookman*, by Wallace Irwin:

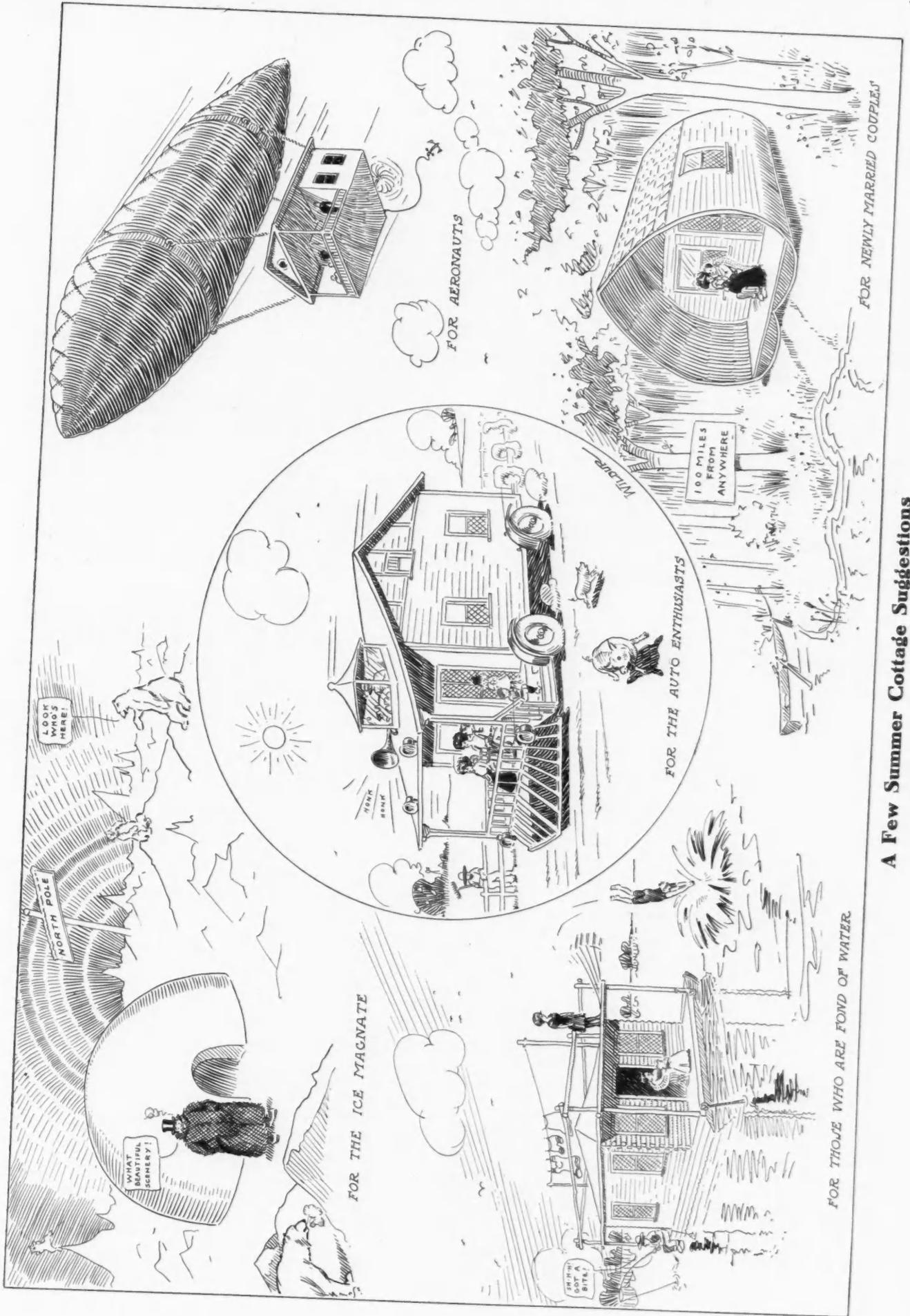
#### SENATOR COPPER'S HOUSE

Senator Copper of Tonopah Ditch  
Made a clean billion in minin' and sich,  
Hiked for New York where his money he blew  
Buildin' a palace on Fift' Avenoo.  
"How," sez the Senator, "can I look proudest?  
Build me a house that will holler the loudest—  
None o' yer slab-sided, plain mausoleums,  
Give me the treasures of art and museums;  
Build it new fangled,  
Scalloped and angled,  
Fine, like a weddin' cake garnished with pills;  
Gents, do your dooty—  
Trot out your beauty,  
Give me my money's worth—I'll pay the bills."

Forty-eight architects came to consult,  
Drawin' up plans for a splendid result;  
If the old Senator wanted to pay  
They'd give 'im Art with a capital A;  
Every style from the Greeks to the Hindoos,  
Dago front porches and Siamese windows,  
Japanese cupolas fightin' with Russian,  
Walls Senegambian, Turkish and Prussian;  
Pillars Ionic,  
Eaves Babylonian,  
Doors cut in scallops, resemblin' a shell;  
Roof was Egyptian,  
Gables caniptian,  
Whole grand effect when completed, wuz—hell.

When them there architects finished in style,  
Forty-nine sculptors waltzed into the pile,  
Swinging their chisels in circles and lines,  
Carvin' the stone work in fancy designs.  
Some favored animals—tigers and snakes;  
Some favored cookery—doughnuts and cakes,  
Till the whole mansion was crusted with ornaments,  
Cellar to garret with garden adornments,  
Lettuce and onions,  
Cupids and bunions,  
Fowls o' the air and fish o' the deep,  
Mermaids and dragons,  
Horses and wagons—  
Isn't no wonder the neighbors can't sleep.

Senator Copper, with pard'nable pride,  
Showed the grand house where he planned to abide;  
Full of emotion, he scarcely could speak;  
"Can't find its like in New York—it's uneeek.  
See the variety, size and alignment,  
Showin' the owner has wealth and refinement,  
Showin' he's one o' the tonier classes—  
Who can't help seein' my house when he passes?  
Windows that stare at you,  
Statoos that swear at you,  
Steeple and weather vanes pointin' aloof;  
Nothin' can beat it—  
Just to complete it,  
Guess I'll stick gold leaf all over the roof."



A Few Summer Cottage Suggestions

## Summer Cottages—Their Construction & Design

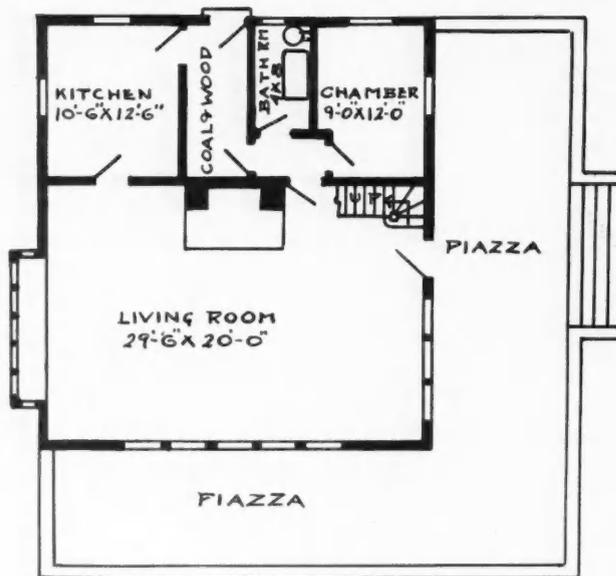
A NUMBER OF PRACTICAL DESIGNS OF ATTRACTIVE LITTLE SUMMER COTTAGES THAT CAN BE PUT UP AT SLIGHT EXPENSE—HOW TO BUILD THEM



Well-Built Summer Cottage at Danvers, Mass., Cost \$2,300

TO THE average city man with a growing family such houses as can usually be rented for the summer within commuting distance from the city, offer, even at a large expense, little change from the ordinary routine of the city home. The summer boarding-house with its accustomed inconveniences and lack of proper food, especially for children, is

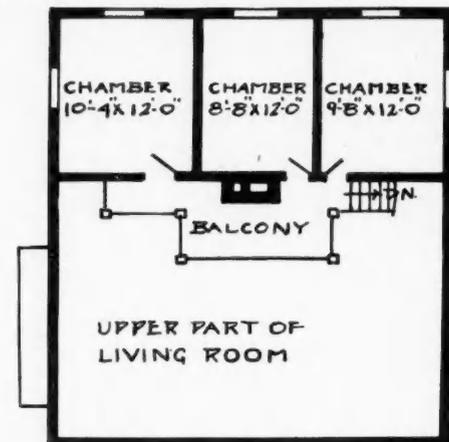
spent in one of these gives a change in the method as well as in the place of residence, with the necessary freedom for the children; and to the housewife, less work with simplicity of arrangement and a maximum of coolness. The many water fronts and small lakes within easy reach of many of our large cities offer the best locations for a summer home, and at prices



FIRST FLOOR PLAN

found to meet the requirements in an even less satisfactory manner.

To such a family the summer bungalow seems to offer the best solution of the problem. A vacation



SECOND FLOOR PLAN

which are usually within reach for the average man. The farther one goes away from the city the cheaper will be found, as a rule, the cost of construction.

In designing a house of this kind it is desirable, and in fact almost necessary, to have plenty of porch room, and at least one fireplace for use in cold evenings should be provided. A small cellar under the kitchen will be found a great convenience in keeping

provisions. If possible a bathroom should be incorporated in the plan. It is far more convenient and comfortable to have even the most inexpensive bath outfit than to always depend on the adjoining lake or stream. Even a cold-water shower is better than nothing; and its cost should not exceed \$25.

Some excellent examples of this type of summer cottages are shown herewith, the first one being the charming summer home of Mr. H. P. Benson in the little village of Danvers, Mass., designed by his brother, Mr. J. P. Benson, architect, of New York City. The exterior is of rough plaster of a soft gray color with green trim, and the shingles of the roof are stained red. Open porches on two sides are protected by awnings, and boxes of bright flowers line the rails. A big room, serving the purpose of both living and dining rooms and running to the roof occupies a large part of the house. A fireplace of red brick laid in white mortar is a prominent feature of the room. At the right a flight of stairs ascends to a gallery above the fireplace, from which access is had to three bedrooms on the second floor. No plaster is used on the inside, but the bedrooms are ceiled. The cost complete was \$2,300.

Of the many bungalows built for hot weather occupancy, the second is one of the most attractive de-



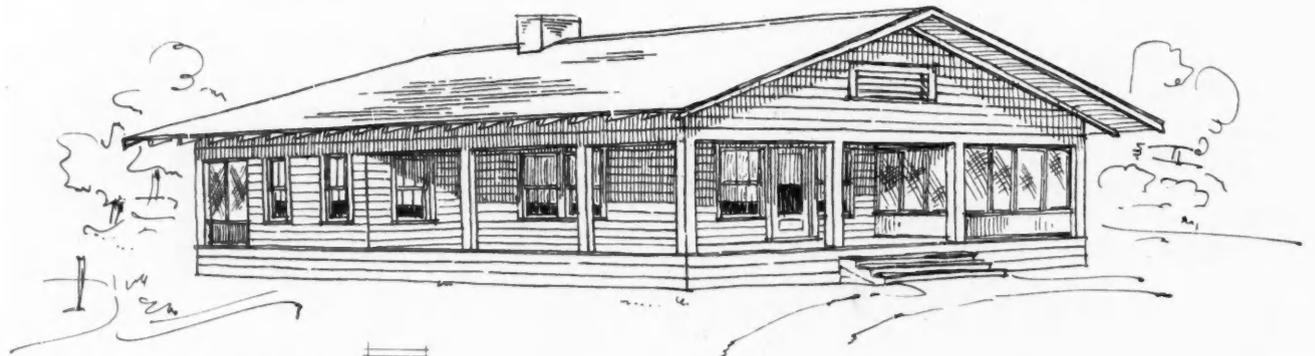
Fireplace and Balcony



A Favorite Type of Interior Construction.—Cottage at Danvers, Mass.

signs, small and compact and yet with abundant room for a moderate size family. The screened porch at the side for sleeping purposes is a novelty. The large

shown in No. 4. This house has all sleeping apartments on the second floor, an arrangement preferred by many people. The kitchen is to be used for a

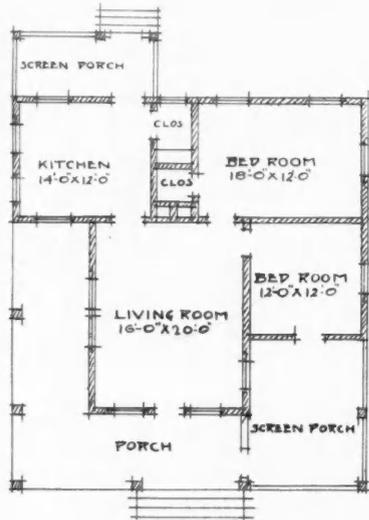


Cottage No. 2. Four Rooms. Cost \$800

number of windows in the kitchen should make the same exceedingly cool. The exterior is covered with rough boards laid like lapped siding and stained a rich brown. The cost under favorable conditions should not exceed \$800.

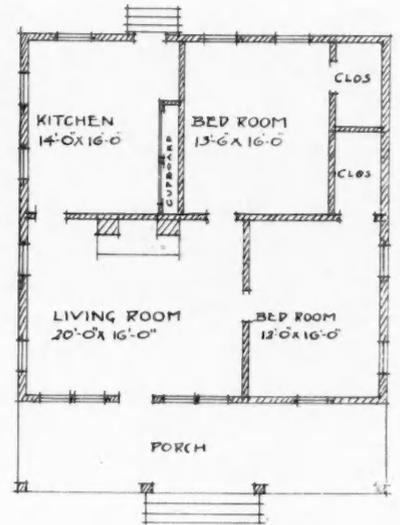
The design shown in No. 3 is also a gem of its kind. The simplicity of its construction makes it possible to obtain the maximum of space at minimum cost. The porch may be screened in if desired. The studs are dressed and exposed on the inside, and the frame is sheathed with matched flooring, surface side in, and then all covered with stained shingles. The cost is estimated to be \$650.

A 2-story design which should be built for \$900 is



dining-room also. The exterior is plastered and the creamy yellow tint of the walls blends beautifully with the green of the surrounding foliage. The shingled roof is left to weather finish.

Bungalow No. 5 has but one bedroom, but by the use of screens or curtains the living-room can be converted at night-time into two or more sleeping rooms. There is a saving of space by this arrangement by which one room serves two purposes, which makes quite an item when expense is to be considered. The exterior of this house is delightfully picturesque with its wide porches and low broad roof. The house is covered with 12-

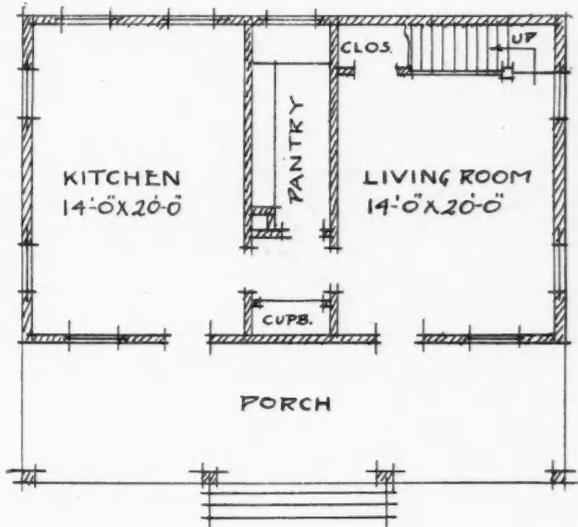


No. 3. An Economical Four-Room Cottage. Cost \$650

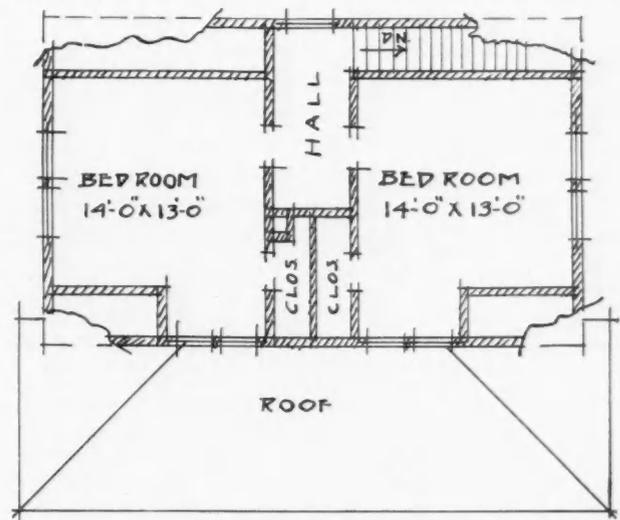
inch rough boards and battens placed vertically. \$800 or \$900 will build this house in most localities.

The last design shown is one arranged to accommodate the man who cannot afford over \$200 or \$300 for a summer abode. If the house is used principally

may be economies of detail that would not be practised in houses of a more permanent style; but this feature of building is so important that economies should not be pushed to the danger point, or anything left undone that would add to the health and safety



FIRST FLOOR PLAN



SECOND FLOOR PLAN



No. 4. Pretty Little Two-Story Cottage. Estimated Cost \$900

for eating and sleeping, the rest of the time spent out-of-doors, such a house as No. 6 meets the conditions admirably.

#### Location, Plumbing and Sanitation

The selection of the best location and site for a summer cottage is of even greater importance than for the ordinary country house. Conveniences are fewer and distances from assistance or supplies generally greater. The governing factor in constructing a cottage is usually economy.

There are many structural economies that can be introduced, but the plumbing and drainage problems are quite as important in dwellings of this type as in those of higher cost. It is true that even here there

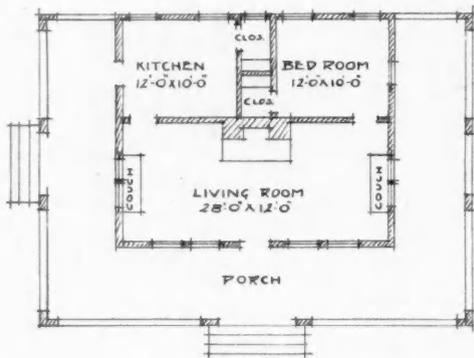
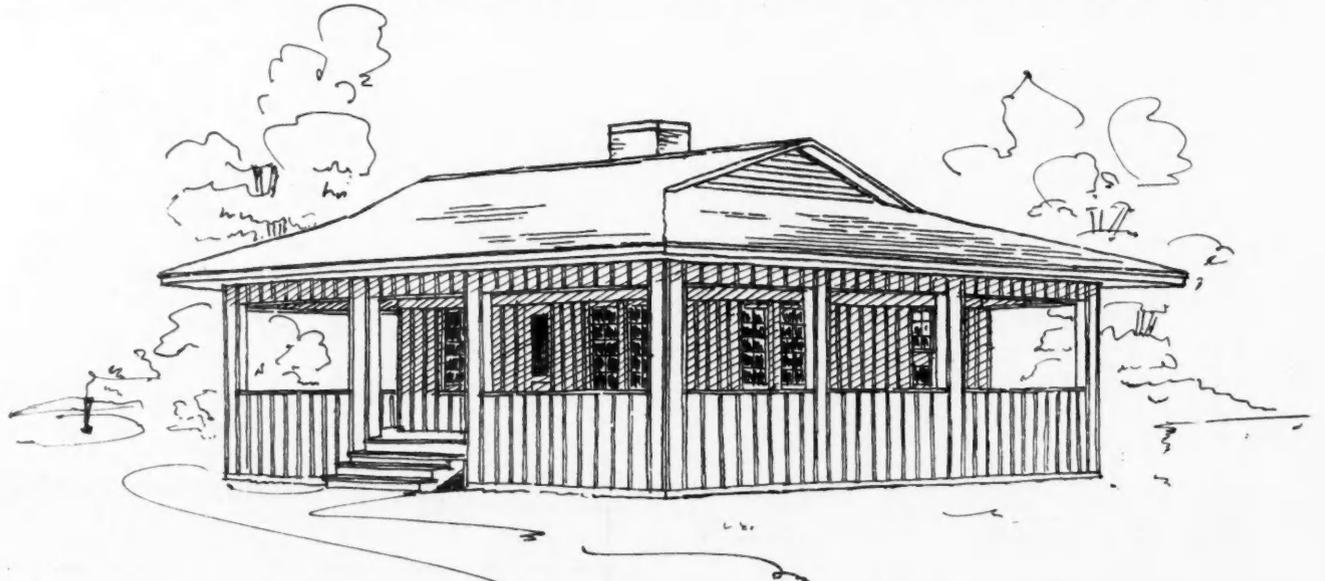
of the summer occupants. These matters are more important than design or cost of construction.

If possible the summer cottage should be placed near a stream or within easy reach of it. A good spring will in all probability be found near at hand, and nature supplies you with water free and plenty. Locate the building on sandy soil on account of better natural drainage. If you place it on rock, as you are tempted to do by the natural solidity of the foundations, stagnant water is very liable to lodge in pools under the house.

The plumbing and drainage ought to cost about one-quarter of the total outlay. Most resort cottages have no bathroom fixtures at all; the old-fashioned outhouse is used as a closet, the river or pond is bathed

in and the water piped to the kitchen. One bathroom, however, is of tremendous comfort to the establishment. Even the installation of merely a cold-water

in connection with it. Such a shower in connection with an earth closet in a separate little old-fashioned outhouse, is the best "cheap" combination for a small

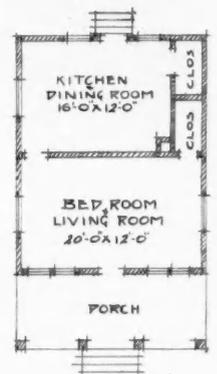
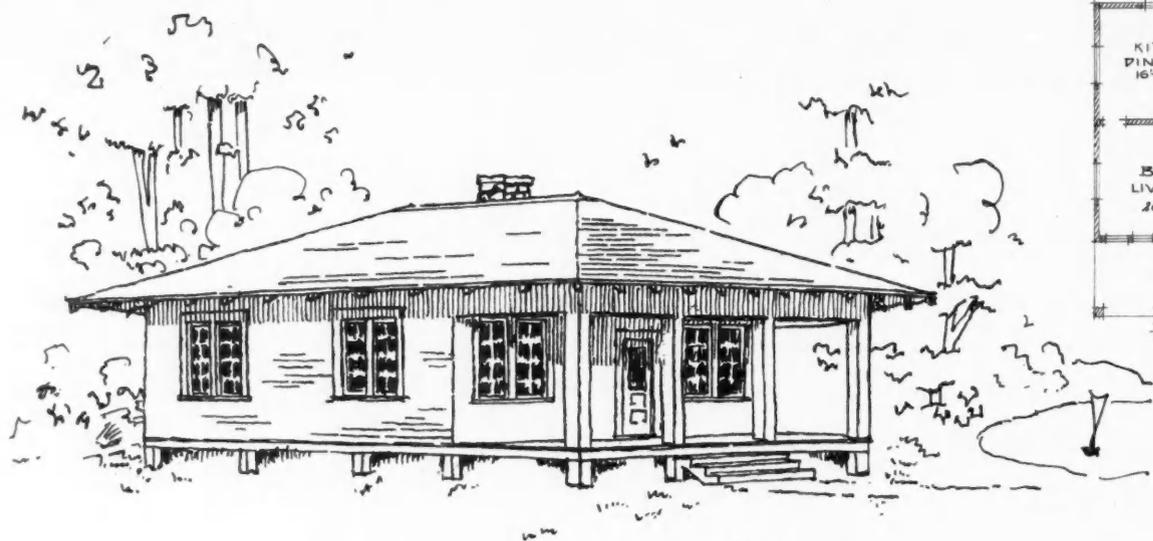


**No. 5. Delightful Hot-Weather Home. Cost \$850**

camp. Installing, however, a single bathroom in connection with the necessary kitchen fixtures is the most usually considered problem. A tub, a basin and a water-closet, with the necessary drainage connection, not including any sewage disposal system, will cost about two hundred dollars.

With the installation of this outfit some kind of a sewage disposal system becomes necessary. The cheapest and worst of all is where the sewage is led to a cesspool. In sandy soil this will for a time give satisfactory results, but it is apt to need frequent cleaning and to become a nuisance. It should at least be forty feet from the house, and on lower ground, and placed so that it will not contaminate streams.

shower makes a world of difference. It can be put in for about twenty-five dollars. This will consist of piping, valve, shower-head, lead, or, better, cement



**No. 6. Small, Snug and Cosy. Cost \$200 to \$300**

tray, and the drain pipe to the outside of the house. As nothing but comparatively clean water comes out of it, no special sewage disposal system is necessary

Systems of septic-tank disposal and for the reduction of kitchen waste by burning have been described in these columns and need not be repeated here.

## Boat Houses and How to Build Them

THE GROWING DEMAND FOR ATTRACTIVE BOAT HOUSES AT LAKE RESORTS—HOW THEY SHOULD BE CONSTRUCTED AND EQUIPPED—SOME APPROPRIATE DESIGNS

By George E. Walsh

**B**OAT house construction has undergone many changes and improvements in the last few years. This is due to the popularity of the motorboat which has extended from coast to coast and along our rivers and lakes from Florida to the Great Lakes. Probably fifty thousand motorboats for pleasure are in use today in this country, and a new fleet of twenty or more thousand is being added every year. These boats, ranging from the 14-foot runabout to 30 and 40 foot semi-speed boats, must have some sort of a house to protect them in winter and summer. The old sailboat could remain out in the open air in summer, and could be hauled up on land in win-

and which will add to instead of detract from the lake or river front view.

These boat houses range in style and size from the very simple ones costing a few hundred dollars up to more elaborate affairs requiring an investment of a thousand or two. They are made of nearly all kinds of building material—wood, stucco and concrete, and a few of sheet iron. It is quite evident to any builder that it is almost as cheap to design and build an attractive boat house that will always give pleasure to the owner as to erect a crude, ugly affair. The same amount of timber and other material are required, and it is only a question of designing and workmanship.

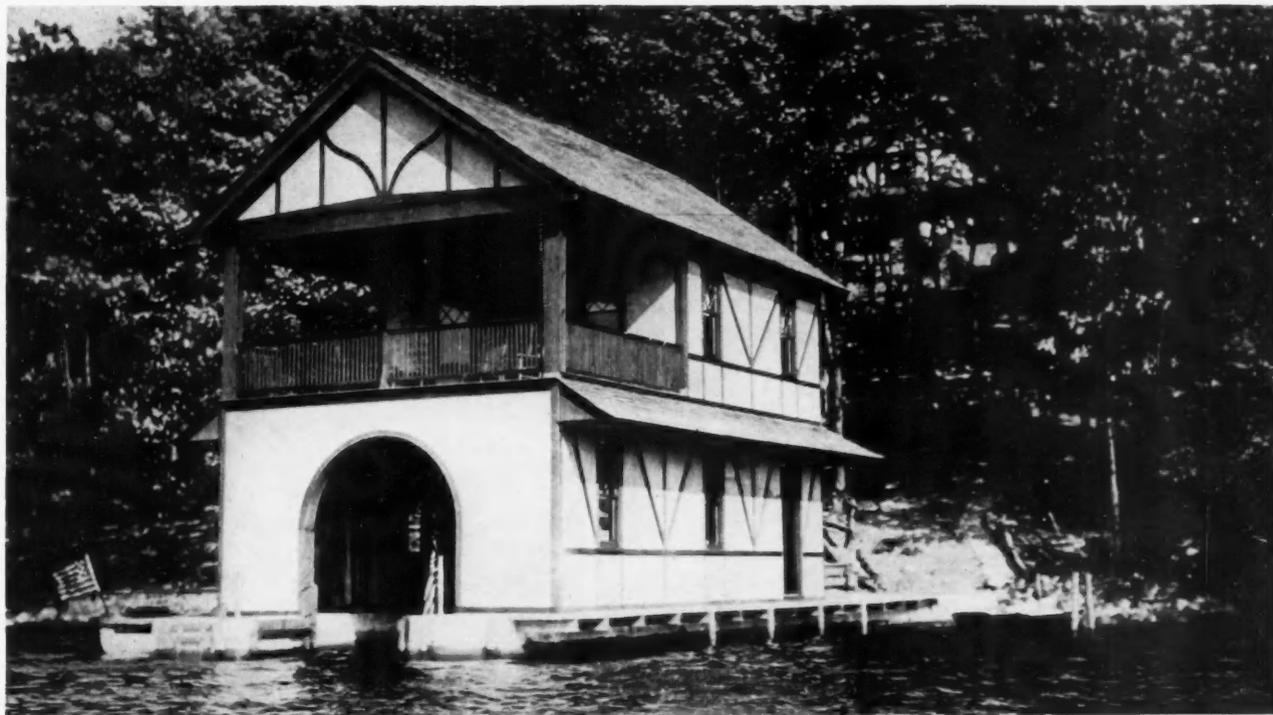


Fig. 1. A Stucco Boat House of Simple yet Pleasing Design

ter and covered by a canvas water-proof sheet; but the motorboat requires more protection on account of the engine, machinery and brass work. The exposure of the engine to the elements would mean its speedy deterioration and quick destruction.

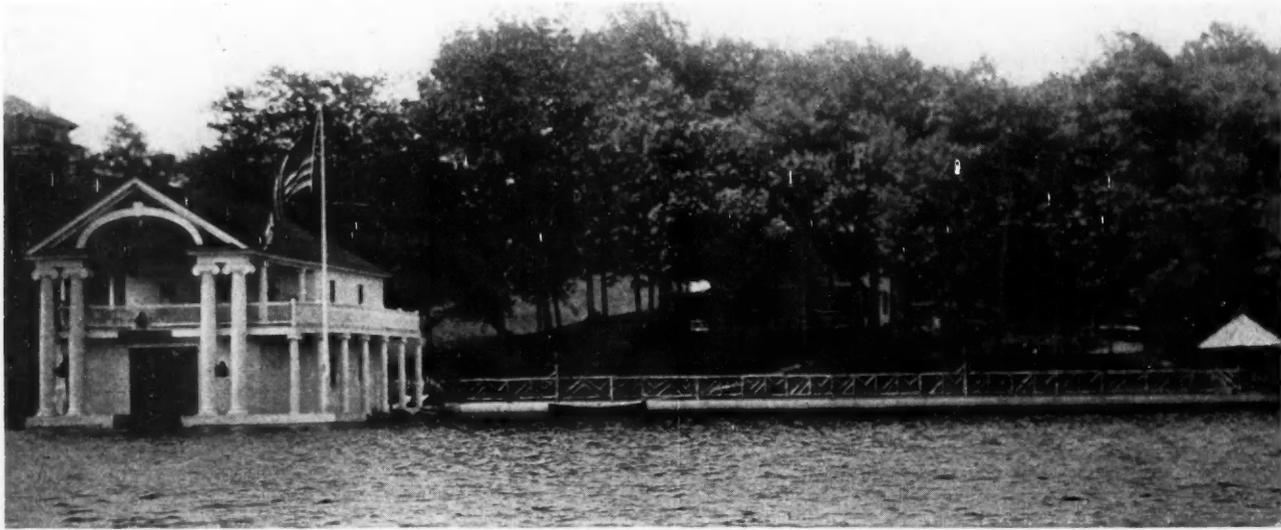
These are the conditions which have suddenly demanded the construction of more or less elaborate boat houses. On nearly every lake and river scores of boat houses are being erected annually. The first of these were very simple and crude affairs, cheap boxlike arrangements with four walls and a roof. Some were constructed of canvas, and others of second-hand lumber and logs. No attempt was made to produce any architectural effects. But today there is a demand for boat houses which will harmonize with the scenery and grounds of the living residence,

From the designs accompanying this article one may study a variety of boat houses, which have all the evidences of exterior harmony and beauty, and yet built with no great expenditure of money. The photographs are taken of boat houses which cost only a few hundred dollars, although a few were more expensive on account of their double purpose. Some have been designed with two stories, the upper one being used for living rooms or a private dance room, and with wide, extending piazzas.

In the first illustration we have a frame structure with the outside of stucco, a pretty and pleasing sight from the lake front. The first floor is given over entirely to accommodations for the motorboat, a landing dock and tool house. The upper floor has a sheltered piazza front and living rooms for the boat mechanic

and operator. The house is designed somewhat after the English half-timbered houses, and is a handsome structure without being extravagantly expensive. It is deep enough to accommodate a 27-foot motorboat,

boat houses save money by combining their living quarters with their boat accommodations, and this form is becoming quite popular in regions where the summer outing is of brief duration.



**Fig. 2. An Elaborate Boat House with Private Dance Hall in Second Story**

and broad enough to have an inside landing on either side. Overhead a chain tackle is suspended for lifting the boat entirely out of the water in winter.

The next illustration shows a beautiful Colonial effect carried out so sympathetically that it is a real water front ornament. There is an upper lounging piazza and a large room which can be used for dancing or for a smoking-room. The piazza runs around on two sides. The lower part has a protected landing outside and two landings inside with space for tools and a workshop. The space for the boats is large enough for two launches. Such a structure is rather expensive and elaborately finished off, and it shows the extent to which many boat owners will go in building boat houses. Some of these boat houses accommodate motorboats that cost several thousand dollars, and naturally the owners wish to provide good quarters for craft of this cost.

In the third illustration there is still another type of boat house. It is a combination summer residence and



**Fig. 3. A Combination Boat House and Residence**

boat house. The boat takes up only part of the lower half of the structure, while in back there is a living-room, dining-room and kitchen. Upstairs there are bedrooms and lounging rooms. The owners of such

We have an excellent type of small but artistic boat house in the next illustration, designed to harmonize with the house and garden which runs down to the very water's edge. The well-kept gardens and outside ornaments of the place would be spoiled by an ugly boat house, or for that matter by a large and pretentious boat house. The structure is of the same style of architecture as the residence, and is built mainly for accommodating a boat. The upper piazza or balcony is just large enough to accommodate a waiting party or for a rest on a moonlight night. The room back of the piazza on the upper floor is used for a sitting room on rainy days, and when provided with a stove it can be used in late autumn or early chilly spring days. The house is not expensively designed, but it is finished off inside and outside with as much care as a living house.

In the last picture two types of boat houses are shown which may give further ideas as to the wide variety of styles adopted. They are large enough to accommodate a large motorboat and several row boats. They are finished off with due regard to the surrounding scenery and the residences back of them. They prove of ornamental effect to the water front and not a disfigurement. This in fact is the chief essential. The owner of an expensive water front does not care to spoil it by erecting an ugly structure there, nor does he want his neighbor to spoil his view by any similar building. Water front restrictions regarding the style and cost of boat houses are now becoming almost as general on many parts of our lakes and rivers as those which apply to living houses.

The boat house is thus entering upon a career which attracts the attention of the architect and builder. In a great many instances the carpenter and builder could design and construct a pretty and effective boat house

without the aid of an architect, and in fact a great many are doing so. They are specializing in this line, and through study and experience attaining considerable reputation. The great danger in this work is that a builder will simply duplicate his work over and over again on the same water front. Now manifestly it is more essential that there should be variety of design in boat houses than in residences. The latter are invariably located a short distance from the water where concealing vines and trees obscure much of their architectural beauty or ugliness, but the boat house is perched right on and over the water. It can be seen for miles away in all directions, and it must either mar or make the view. Many a water front has been entirely ruined by small, ugly, cheap boat houses stretched along the edge. As witness of this one has but to take a sail of a few hours along many of our

a crib of heavy logs and sinking it with stones ranging in size from six inches to a foot in diameter. Another method is to build a wooden caisson and fill it with concrete, building the boat house on this foundation. Whatever method is followed the foundation must be of a permanent character and one that is not injured by waves or floating ice in winter. When there is tide water the boat house can be built on spiles or stones sunk into the sands or mud, and a channel dredged from low water to the boat house.

Securing a proper foundation is often the most expensive part of the whole undertaking, and when this is finished the rest is easy. An outside and inside platform or dock is built so that passengers can be landed on either. The inside platform runs the length of the boat house, and around the sides of the walls there should be accommodations for tools and boat



Fig. 4. Simple Boat House Built to Harmonize with Summer Cottage

lakes and rivers where little attempt has been made to study out the question.

Fortunately there is a growing tendency to remedy this evil. On the St. Lawrence river for instance, local laws have condemned the old boat houses, and many of them must be torn down and new ones be erected that will satisfy the aesthetic tastes of the residents. In such places the builder has the chance of showing what he can do. Let him secure as many designs and different types of boat houses as he can and study them, and in some way attempt to reproduce or modify them. There is one lake in the eastern part of the country which has upward of two hundred boat houses on its water front, and not any two are alike.

There are some mechanical difficulties encountered in building boat houses. The first important essential is to secure a good foundation out in the water. If the lake is deep this is commonly obtained by building

equipments. Lockers, cabinets and closets should be supplied, and if possible a workshop back. This workshop need not be large, but sufficient to accommodate a few hand and foot-power tools.

The cross-beams carrying the upper story should be unusually heavy and solid, for they must hold the chain or rope tackle used for hauling the boat out of water. The ordinary motorboat weighs from a thousand to two or three thousand pounds, and the beams must be strong enough to support that weight without bending any. After the boats are hauled up, they are supported by logs or planks laid across the inside landing. In this way the weight is supported partly by the chain and partly by the under beams. This is the common method of housing the motorboat for winter.

Entrance to the boathouse is both by land and water. The former is by an ordinary door leading to the inside landing. The latter is by a wide arch or square

entrance which in summer time when the boat is in commission need never be closed, but in the winter it must be provided with some sort of a door. Sheet

Develop out-of-the-way water power and transmit that power to the cities. Ride on an electric elevator. Listen to the telharmonium. Take an electric mes-



Fig. 5. Two Artistic Water Front Structures

iron rolling doors which drop down to the water's edge are used in some of the houses, and in others there is a simple wooden door that drops down. This door is of heavy oak and reinforced with lateral braces so that it offers plenty of protection from outside thieves. It works in grooves from the inside and is counterbalanced so that it can be easily opened or closed by touching a lever. Another form of door is like a double barn door that swings inward and locks with a padlock, but this is not so advantageous as the sliding door on account of the extra space required for the doors to swing inward through the arc of a half circle.

One can easily devise new methods and types of boat houses and modify and change those already built. A few little kinks and devices for improving their usefulness are always appreciated by owners. It is a field, taken altogether, that should be profitably worked by carpenters and builders located near lakes and rivers where motorboating is a popular summer recreation.



### The World Moves

Twenty-five years ago you could not telephone a friend. Ride on the trolley cars. Cool the rooms in hot weather with an electric fan. Turn on the common electric light. Send a wireless message to your relatives on shipboard. Set your watch by an electric clock. Purchase an electric automobile. Walk in safety in the city streets in the glare of arc lamps. Cook by electricity. Ride behind an electric locomotive. Do the family ironing out of doors without fire. Drive all machinery with motors. Live in a house without a chimney. Keep warm by electric heat.

sage or listen to an electric phonograph.—*The Office Digest.*



### Rustic Summer Cottage

On the shores of the Great Lakes, in the quiet woods, one may find little clusters of summer cottages. They are usually situated at the end of some cart path, grouped about a shady court. They have quite a foreign or scenic effect.

The accompanying illustration is from a group on Chikaming bay, Lake Michigan, south of St. Joseph.

The foundations are usually of logs cut on or near the site. This design has corner posts and plates, also



3-Room Rustic Summer Cottage on Lake Michigan

of rough timber. The remainder is finished with matched boards.

The plan has one room in front with a cook room and a bunk room back. A step ladder leads to the loft. Iron wood saplings make good rustic trimming.

# STEEL SQUARE

ALFRED W. WOODS

## Possibilities of the Steel Square

HOW TO USE THE STEEL SQUARE FOR SIMPLIFYING THE WORK OF LAYING OUT CIRCULAR AND ELLIPTICAL WORK FREQUENTLY ENCOUNTERED IN BUILDING

**T**AKING up the work where we left off last month, we will continue with the ellipse, showing how an opening for a round pipe in a pitched roof, or partition, may be found at any angle, as shown in Fig. 249. Here we have a 6-inch pipe, intersecting a  $\frac{3}{4}$  pitch. A line from 12 to 18 on the square represents the pitch. Now, with 12 as center and with a radius equal to one-half of the diameter of the pipe, draw a circle and square up from the tongue to the pitch, as shown at B C. Then A B represents one-half of the short diameter, and A C one-half of the long diameter.

There are several ways of finding the corresponding opening. Probably as good a way as any is by the method, as shown in Fig. 250, which is as follows:

Take a straight-edge and on it space off A B C. Now, draw a line equal to the long diameter, bisect it at right angles, and to these lines apply the straight-edge, as shown. Always keeping A and B on the lines and marking at C, which will describe the required opening. The steeper the pitch, the longer will be the required opening.

In Fig. 251 is shown the same formula as shown in Fig. 249, but with the one-third pitch and an 8-inch pipe.

In Fig. 252 is shown another method of obtaining the opening and is as follows:

Lay off the run, rise and pitch, and with one-half the diameter of the pipe as radius, with the pencil point resting at 12 and with the center on the run, draw a semi-circle. Divide the diameter into any number of spaces and from these points erect perpendiculars cutting the pitch line. From these intersections erect perpendiculars, laying them off equal in length to the corresponding lines from run to semi-circle. These lines should be drawn from both sides of the pitch line; by running an off-hand curve catching the ends of these lines the shape of the required opening will be given. We are aware that these illustrations (to the majority of woodworkers in general) may seem to be of but little value from a practical standpoint—something that never comes up in actual practice and therefore of little consequence. But that is where they are mistaken. Similar cases come up unexpectedly; and, having passed it by as a problem for the kid glove manual training mechanic, they fail

to recognize it for its true worth. For instance, we knew some workmen once had a maltese-cross shaped building to construct on which the roof was to be a half circle. They got along nicely until they came to the corresponding valley and then they were up against it good and hard. The common rafter reaching from plate to plate was simply a half circle and the foreman laid it off full size with a trammel; but when he came

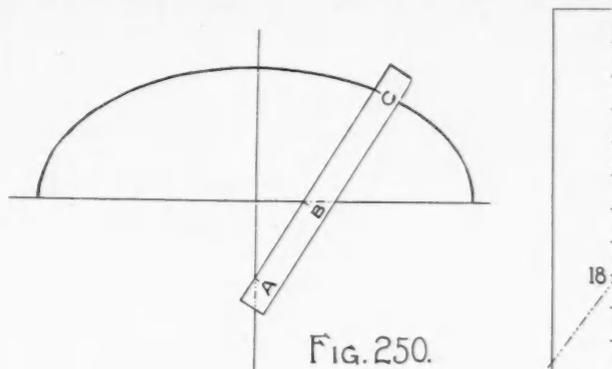


FIG. 250.

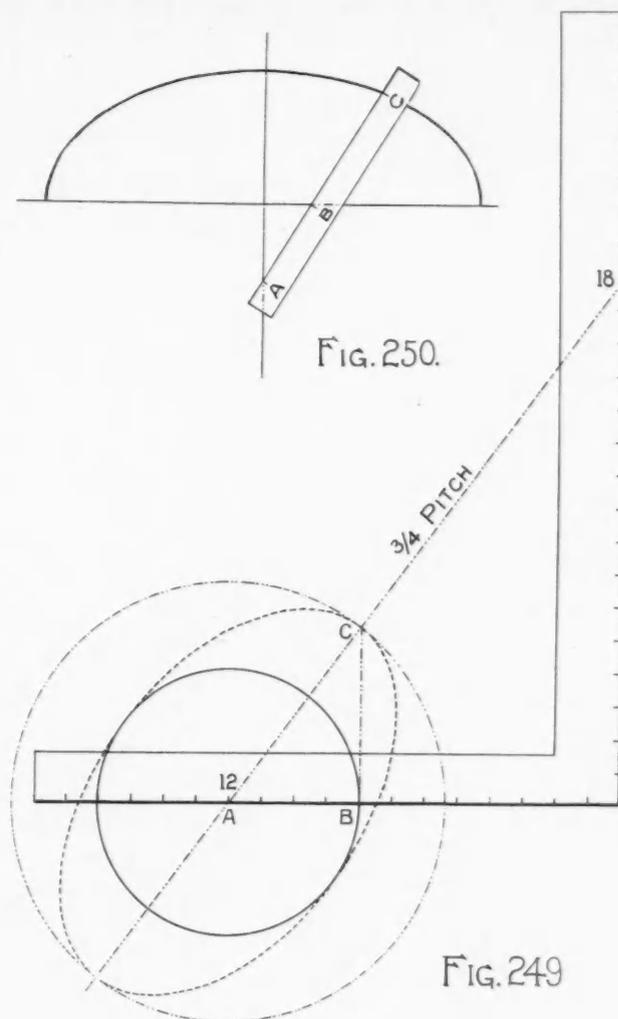


FIG. 249

to the valley, that was a different proposition and his trammel bar with a fixed center would not work and he did not know why. Now if he had given a little more thought to the problem like the stove pipe passing through a pitched roof, as before described, he

would at once have recognized it and applied it. In the case of the building in question, the roofs intersected each other at an angle of 45 degrees, and was precisely the same as the stove pipe passing through a one-half pitch roof; by applying the trammel bar, as shown in Fig. 250, the corresponding curve would have been obtained.

It might also have been obtained, as shown in Fig. 252, and still there are other ways, some of which we have before described in the course of these articles, but they all hinge on the same principle and to understand one thoroughly is to understand them all.

Now then, to make the problem of the maltese cir-

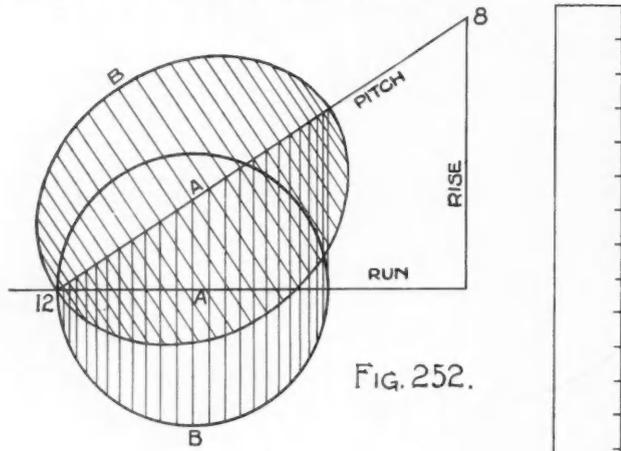


FIG. 252.

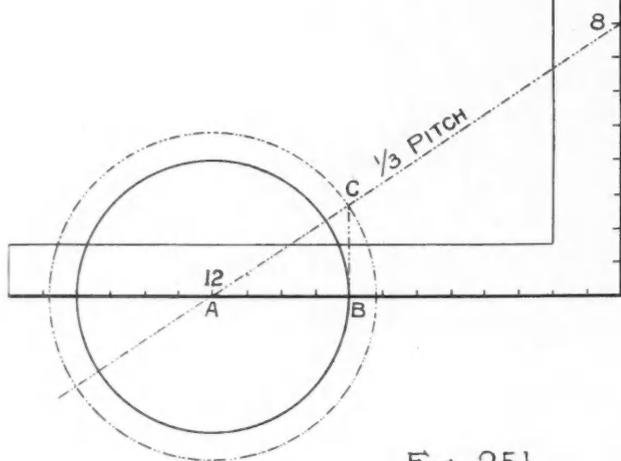


FIG. 251.

cular roof clear and bring it home to everyone, suppose we have a round timber whose diameter is the full width of the gables. Now split this timber in the middle, then put it in a miter box and cut square across; we find that the end of the timber is the shape of the common rafters. Now put it in the miter box again, and cut on the 45-degree angle and it will be found that the end of the timber this time will represent the true shape of the valley reaching diagonally across from one internal corner to the other. Therefore, when a carpenter is cutting up the small half-round mold, as he does in his daily work, making mitered corners at any angle, he is also solving larger problems, if he would just stop to think, such as the

problem of the circular vaulting roof just described.

To make this clearer, we will illustrate a little further, as shown in Fig. 253. In this figure are

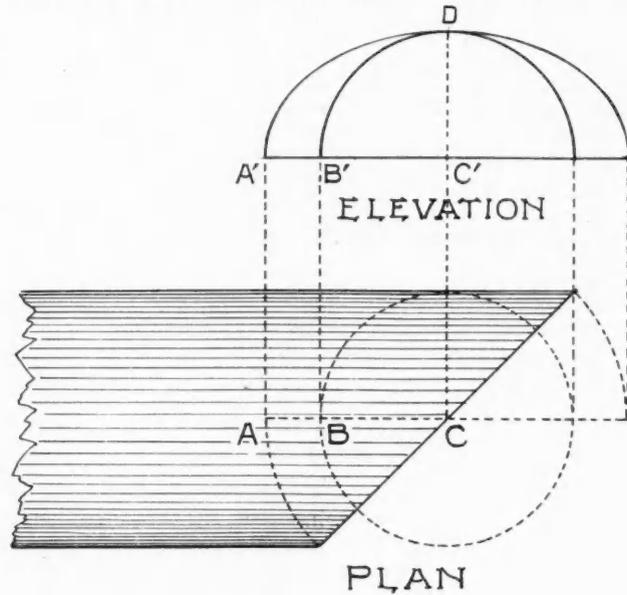


FIG. 253.

shown the plan and elevation of the half-round mold, which is just the same as the plan of the circular roof would appear. The miter representing the valley, B C in the plan represents the run of the common rafter

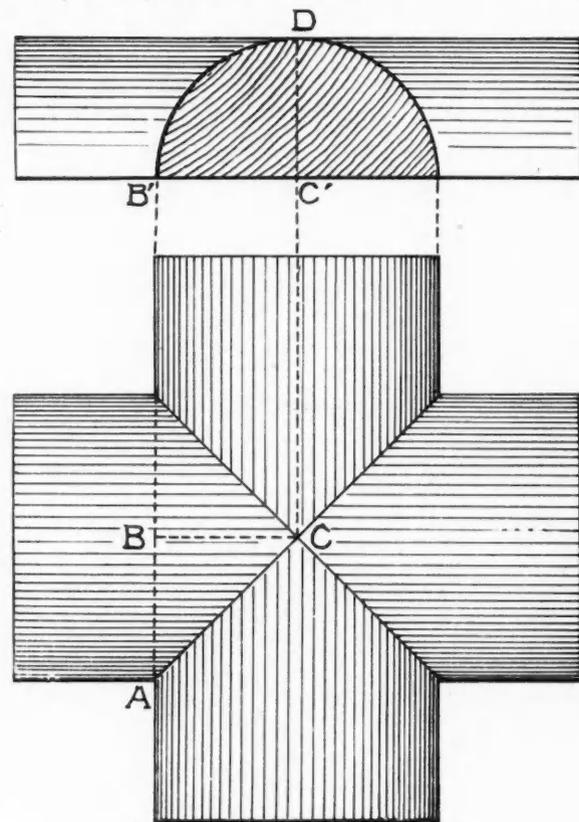


FIG. 254.

and A C the run of the valley. The rise in the semi-circle roof is necessarily the same as the run of the common rafter, but for convenience in describing, we

will designate it C D, as shown in the elevation. Then B D represents the shape of the common rafter. The valley rests in the same plane as the common rafter, but being at a different angle its shape must necessarily be different, as will be seen by referring to Fig. 254. This shows the mold cut at an angle of 45 degrees, which is the same position that the valley rests with that of the common rafter. Like letters, as shown in the previous illustration, are used in this to represent like parts. The elevation shows the corresponding shape that the valley must have to coincide with that of the common rafter. Thus, we have described the development of the valley in a miniature form, but for actual practice it must be to the full size and arrived at by some other method as before described.

Recently we were asked by a subscriber of this journal if there is any method by which the hip for a circular roof can be struck off with a beam pole. Our answer is, it can, but not directly, because the ellipse has a changeable radius; it is the same as cutting the cylinder or round stick on a diagonal instead of square across. In other words, if cut square, the end cut would be round, but if cut on an angle, it would show an elliptical shape as before described. As applied to the circular vaulting roof for a square building, the angle of the cut would be at 45 degrees from the square cut, which would show a true circle—one-fourth of which represents the curve for the common rafter. The octagon would be at  $22\frac{1}{2}$  degrees from the square cut, the hexagon at 30 degrees, etc. This shows that the development of the hip for any polygonal-shaped building may be found precisely in the same manner, shown in Fig. 254, since the formula applies to any angle.



### Building Operations in 1908

The total cost of the buildings erected in the principal cities of the United States in 1908 was \$546,467,390, according to Jefferson Middleton, of the United States Geological Survey, who has collected statistics on this subject in connection with his investigations of the clay-working industries. In 1907 the cost of buildings in these same cities reached a total of \$626,148,890. The decrease in cost in 1908 therefore amounts to \$79,681,500, or 12.73 per cent.

Of the permits issued or buildings erected 38.64 per cent were for buildings of fire-resisting materials, and 61.36 per cent for wooden buildings, corresponding closely to the percentages in 1907. The average cost of brick or fire-resisting buildings in 1908 was \$9,089 and of wooden buildings \$2,101.

Chicago reported the largest number of brick buildings—8,208, with an average value of \$6,818; Philadelphia the next largest number—6,778, with an average value of \$3,308. Brooklyn reported the third largest number of brick buildings and New York the seventh, though in cost of buildings of this class it is first. New York reported 1,884 brick buildings cost-

ing \$103,064,486, or nearly twice as much as Chicago's 8,208. The average cost of fire-resisting buildings in New York was \$54,705. No wooden buildings were erected in the borough of Manhattan, those reported for New York being in the Bronx. The largest number of permits for wooden buildings was issued in Seattle—7,777, the average cost of the buildings being about \$1,000. The next largest number of wooden buildings was reported by Los Angeles—4,679, costing on an average \$1,383. The greatest cost for wooden buildings was reported by San Francisco, the average cost being \$3,641. Chicago, which reported the largest number of brick buildings, was eighth in number of wooden buildings. Except for Reading, where none were erected, Philadelphia reported the smallest number of wooden buildings—45, with an average cost of \$1,482.



### A Short Cut

The board was 10 inches and a fraction in width, and the carpenter's apprentice with his ruler and a pencil was trying to divide it into three equal parts.

"Hang it," he said, impatiently, figuring away, getting bigger and bigger fractions, and still far from the accurate division that he sought. "Hang this business."

"Here's the way to do it," said the old carpenter.

And he took a foot rule and laid it across the 10-inch board obliquely, so that the oblique measurement just made 12 inches. Then he marked off three equal divisions, one at the 4-inch line the other at the 8.

"You will find that divides your board quite accurately," he said. "It is the easiest way for carpenters to make divisions. It works on any width or any number of desired divisions. To divide a  $9\frac{3}{4}$ -inch board in four parts, for instance, you'd make your ruler measure obliquely just 10 inches across the board, and then you'd mark off your divisions at  $2\frac{1}{2}$ , 5,  $7\frac{1}{2}$ . This is a handy thing to know. It saves a man many a quarter-hour of tedious ciphering."



### A Sanding Kink

For sanding the edges of irregular pieces, turn a stick of the proper size, nearly cylindrical but with a slight taper, about twelve or fourteen inches long. Don't make the taper more than  $\frac{1}{4}$  inch. Wrap a piece of sandpaper around the small end, allowing the edges to overlap half an inch or so and gluing them together. Be sure that the glue does not reach the wood, and secure with clamps bearing on a strip of wood laid over the joint. When the glue is thoroughly set, remove the clamps and slide the paper tube toward the larger end of the stick till it is tight enough so that it will not slip around when the work is pressed on it.

One may have several of these tubes glued up; so that, when one becomes worn, another can be slipped on without delay.

# PRACTICAL CARPENTRY

## Draw-Boring for Pins in Framing

A THOROUGH-GOING METHOD FOR TIGHTENING TIMBER FRAMING AND FOR MAKING JOINTS RIGID—  
STURDY OLD ENGLISH PRACTICE OF PRESENT VALUE

By T. B. Kidner

YOU had better draw-bore for the pins in those frames," said the writer recently to a carpenter who was carrying out a job under his supervision. "Draw-bore?" was the reply. "I am not sure that I understand what you mean by the term," and

Such a requirement is almost unheard-of today, but as the operation of draw-boring for a pin in framing is a very simple one, yet withal exceedingly useful and effective, a brief description of it may be of interest to some of the younger readers of this journal who may not have come across it in the daily practice of their trade.

Fig. 1 is an elevation and Fig. 2 a sectional view through a common mortise and tenon joint, with the holes for the pin "draw-bored." It will be seen that instead of the usual method of pinning; namely, to clamp the shoulders tight up and bore a hole right

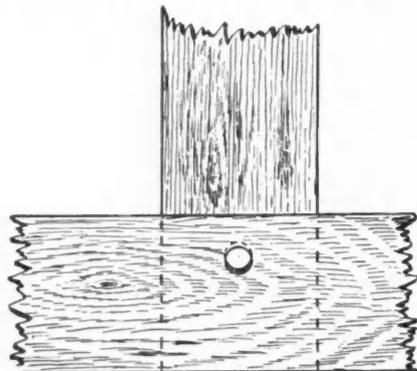


Fig. 1



Fig. 2

subsequent inquiry among some eight or ten men on the job elicited the interesting fact that only two of them had ever used this handy method for forcing up and holding tightly in place the shoulders of a mortise and tenon joint. It seems, indeed, that its use is dying out in many localities, although familiar enough to carpenters a generation ago, and a common feature of architects' specifications in days gone by.

The writer has before him as he pens these lines, a copy of a specification for the joinery work of a build-



Fig. 3

ing carried out some forty years ago, and in it there occurs the following clause: "All solid frames for basement doors and windows to be of 3 by 4 inch oak,



Fig. 4

rabbetted and beaded, and properly mortised and tenoned together. The joints to be well painted with red lead paint before being put together, and *securely pinned with draw-bored holes.*"

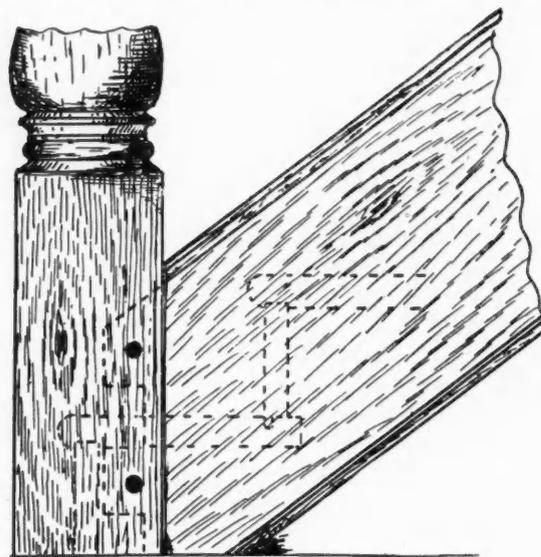


Fig. 5

through the mortised piece and the tenon at one operation, and then to insert a wooden pin, another method must be adopted. First, a hole is bored through the mortised piece before the tenon is inserted. The tenon is then entered and driven home and the position of the hole marked on it. The tenon is then withdrawn and a hole bored in it a *trifle nearer the shoulder* than the hole in the mortised piece. (See Fig. 2). The joint is then glued (or painted, if for outdoor work) and put together, after which a pin, well tapered at the point, is driven into the hole through the framing. The effect is, of course, to force the shoulders up very tight, making a joint that will effectually resist ordin-

ary shrinkage or change effecting the ordinary joint.

It is usual, however, and also advisable, in draw-boring to drive a steel pin through the hole before inserting the wooden pin. Steel draw-bore pins can still be purchased in many parts of the world, and are made in two forms, light and heavy. The lighter ones are for joinery work and somewhat resemble a butcher's steel. Fig. 3 is a sketch of one in the writer's collection, and is about 9 inches long in the blade. The latter is round and perfectly smooth and of tough tool steel, being about  $\frac{3}{16}$  inch in diameter at the point, increasing to about  $\frac{1}{2}$  inch nearer the

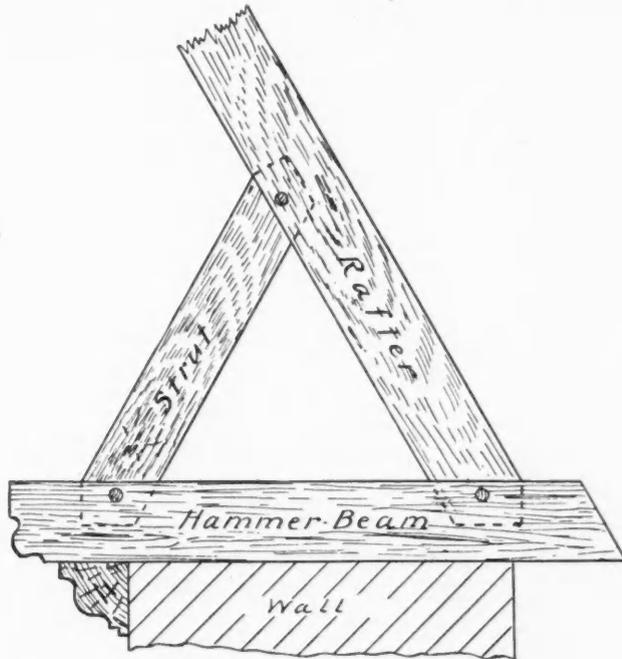


Fig. 6

handle. In use, it would be tapped in gently with a mallet, just "hand tight," and withdrawn after being loosened by a turn or two with the operator's hands, after which the wooden pin would be driven home.

For heavier framing, the steel draw-bore pins take the form shown in Fig. 4. These are driven in with a heavy hammer and withdrawn by blows from the same against the under side of the head *A*.

Draw-boring is particularly useful in certain positions where, from the shape of the framing, it is practically impossible to use an iron clamp to force the shoulders up. An example of this may be found in stair building as practiced in Great Britain, where the general custom is to frame stairs in the shop in flights, and to carry them thus to the job ready to place in position. The stair builder tenons the ends of the outer stringboards into the newel posts and draw-bores for pins through the tenons. When the flight is in position the newel post is drawn on, and the draw-bored holes insure a good fit when the pins are hammered home through the tenons. Fig. 5 shows the pins driven from the face of the newel post, which would be quite suitable for common painted work, but would not be allowable in a good hardwood job.

For the latter class of work, the pins are driven

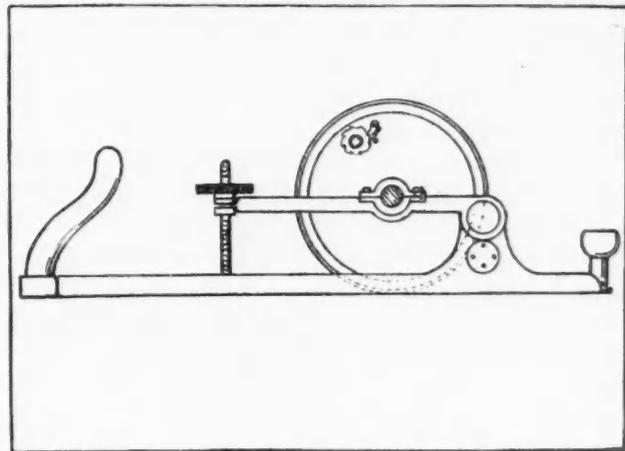
from the inside of the newel post and the holes are not bored right through to the outside. The pins are then usually hidden by the first riser, or if not, are not noticeable low down on the inside of the newel when the job is finished.

There are other positions in which draw-boring is very useful, notably in some of the oblique joints in open-timbered roofs, which are so much in favor again today. In imitation of the pins seen in some of the fine old open-timbered roofs of the middle ages, some architects like all joints in the modern roofs of that class to be pinned with stout wooden pins left standing out a little from the surface. The writer recently saw a fine church roof carried out with this detail, and draw-boring was used throughout with excellent results. Fig. 6 shows the foot of the rafters resting on a short "hammer-beam" on the wall, with an inclined brace or strut framed in the angle. It was practically impossible to clamp up such a piece of framing, but by draw-boring for the pins the three oblique shoulders were easily brought tight and a good job made of it without much trouble.



### A Sandpaper Plane

Not only carpenters, but everybody who has had his hands lacerated by using sandpaper in the old way will appreciate the importance of a Chicago man's ingenious invention, as shown in the cut. This is a sandpapering hand plane which operates as does an ordinary plane and by means of which rough surfaces may be made smooth with a maximum of efficiency and a minimum of energy and discomfort. The device consists of a body like that of an ordinary plane, but where the bit would be in the old-style tool



Sandpaper Plane for Hand Sanding

is a wheel covered with sandpaper. As the plane is pushed backward and forward it works both ways, taking down the rough spots and the fingers, gripping the handle, are safe from cuts and bruises, which are so often the result of sandpapering by hand. When the paper on the wheel becomes worn in one spot the wheel can be turned till a fresh spot is found, and so on until all the paper is used, when it can easily be replaced.



## Painting Cement Surfaces

THE PRINCIPLES INVOLVED—SEVERAL PRACTICAL AND SATISFACTORY PROCESSES DESCRIBED—THE VALUE AND USE OF SPECIAL CEMENT PAINTS

By Edward Hurst Brown

ONE of the problems that the painter has been compelled to meet, and which some of the brightest paint chemists in the country are endeavoring to help him to solve, is the painting of cement surfaces. The use of concrete construction and the advent of the cement block house has brought this question forward; and it is specially important because some method of water-proofing is necessary in order to prevent these cement houses from being damp. This question of painting cement was discussed at length at two recent conventions of master house painters and decorators—the Pennsylvania State Association convention, held at Reading in January, and the International Association convention, held at Baltimore in February of this year—and has also been the subject of investigation by the scientific section of the bureau of promotion and development of the Paint Manufacturers' Association at their research laboratories in Philadelphia.

### Why Cement Is Hard to Paint

Cement has been used for many years—for centuries in fact—in Europe, mostly in the form of a smooth coating or stucco, giving the effect of stonework to a rough brick wall, and these cement surfaces have been painted without any special difficulty. The reason for this is that in Europe people are usually more deliberate, and the man building such a house is content to wait for a year or two before painting it. This permits the carbonic acid gas in the air to unite with the free alkali in the cement, turning it to the neutral carbonate of lime, which process is materially aided by the exposure to the weather, rain and dampness during a long period of time. Moreover, the character of the cement used for these European stucco houses is usually different from that of the cement used in modern American concrete construction or for the making of cement blocks, and is not so destructive of the paint film.

But the American house builder would not be content to wait for natural agencies to neutralize the alkalis in the cement, but must have his building painted at once, so the painter needs must find some-

thing that will take the place of nature and render the cement harmless to the paint coating. If the cement is protected with a paint film, it is at the same time water-proofed, and no further water-proofing will be found necessary. The difficulty, however, is to make the paint hold.

All non-drying oils, such as lubricating oils, are more or less destructive to cement, which will slowly disintegrate if soaked with them. But linseed oil is a drying oil, uniting with the oxygen of the air to form a tough leather-like substance, and this paint film, clinging only to the surface, and having its entire character changed, so that it is no longer oily in its nature, is absolutely without any effect upon the cement surface.

### Muriatic Acid Process

A method of treating the cement that has been largely used is to wash the surface with a dilute solution of muriatic acid (also known as hydrochloric acid), the strength being not over 7 to 8 per cent. This is then washed thoroughly with clean water and allowed to dry. This cleans the surface and neutralizes the alkali, leaving the cement surface in proper condition to hold the paint. Although this process has been successfully used, it is nevertheless condemned by Percy H. Walker, chief chemist of the contracts laboratory of the Department of Agriculture, who says that the action of the muriatic acid varies somewhat with the nature of the cement, but where the cement contains some lime, as is usually the case, the effect of the muriatic wash would be to neutralize the lime by forming calcium chloride, which is easily soluble in water and would tend to wash away, leaving the surface more or less pitted. Moreover, if this calcium chloride were covered with the paint film, owing to its tendency to absorb or gather moisture, it would keep the paint damp underneath, causing the film either to disintegrate or to blister. An excess of acid in the wash would not only injure the cement but would injure the paint.

### Sulphuric Acid Process

Dilute sulphuric acid has also been recommended

and used. In this case the caustic lime in the cement is changed to calcium sulphate, or gypsum, which is insoluble in water, and has no effect on the paint coating. Of course, all excess of acid must be thoroughly washed off.

#### Zinc Sulphate Process

A method recommended by Charles P. Macnichol, a prominent painter of Washington, D. C., who has used it extensively on government and private work with uniformly successful results, is economical and has no injurious after effects on either the cement or the paint, and moreover requires no after washing. He coats the cement with a solution of zinc sulphate and water, mixed equal parts by weight, applying it with a bristle brush, and allowing from forty-eight to seventy-two hours to dry. This causes a chemical change in the caustic lime, changing it to calcium sulphate (gypsum), and when the surface has thoroughly dried there will be a certain amount of zinc oxide in the pores of the cement or upon the surface. This material, being one of the most important of the white paint pigments, naturally has no harmful effect upon any subsequent paint coats but is incorporated with them by brushing.

#### Carbonate of Ammonia Process

A well-known chemical engineer, Fred J. Bosse, suggests the application of a coating formed by dissolving 10 pounds of carbonate of ammonia in 45 gallons of water, brushing this once over the surface. The effect is to form insoluble calcium carbonate (identical in chemical composition with marble) on the surface of the cement, and to liberate ammonia gas, which is dissipated in the air, leaving a perfect surface for painting. Carbonate of ammonia, also called salts of hartshorn, is sold in the shape of hard white lumps, and will keep for any length of time in fairly tight bottles. Two applications of a weaker wash are recommended in preference to the one specified above; and where lime mortar has been used in the concrete, not less than three and possibly more applications are necessary. The writer is unable to say whether this suggestion has been followed in practice to any extent; but from a chemical point of view it is a satisfactory solution of the problem.

#### The "Soda Water" Process

Gustave W. Thompson, the chief chemist of the National Lead Company, has suggested that, as the object sought is to impregnate the surface with carbonic acid gas, in order to change the caustic lime into the harmless calcium carbonate, or carbonate of lime, the gas might be mixed with water and sprayed upon the surface. The ordinary syphon of carbonated water—the so-called soda water—would form a convenient method of spraying a small panel, while the tanks used for charging soda-water fountains might be attached to a paint atomizer or paint-spraying apparatus connected with a tank of water.

While this method might produce the desired result, it would be cumbersome and expensive, involving the use of the painting machine; while the method followed by Mr. Macnichol is practical and inexpensive.

#### Painting—Special Cement Paints

Once the surface has been treated there should be no more difficulty in making any good oil paint adhere to it than to brick. The first coat should naturally be somewhat more oily than usual, in order to counteract the absorbent nature of the cement, which is greater in machine-made cement blocks than it is in concrete that has been well-tamped.

Several manufacturers have recently put on the market special paints for use upon cement surfaces, and we are informed by reliable painters that some of them have been used with perfect satisfaction.

The most difficult problem is that of finding a protective coating which shall water-proof a concrete surface, without discoloring it or without taking from it its characteristic stonelike appearance. This is something which the architect naturally desires, because it is far more artistic than a painted surface. Stearic acid, applied hot, is said to have given satisfactory results in experiments which have been carried on by the scientific section of the Paint Manufacturers' Association, but the writer has seen no particulars published as to the method of application.



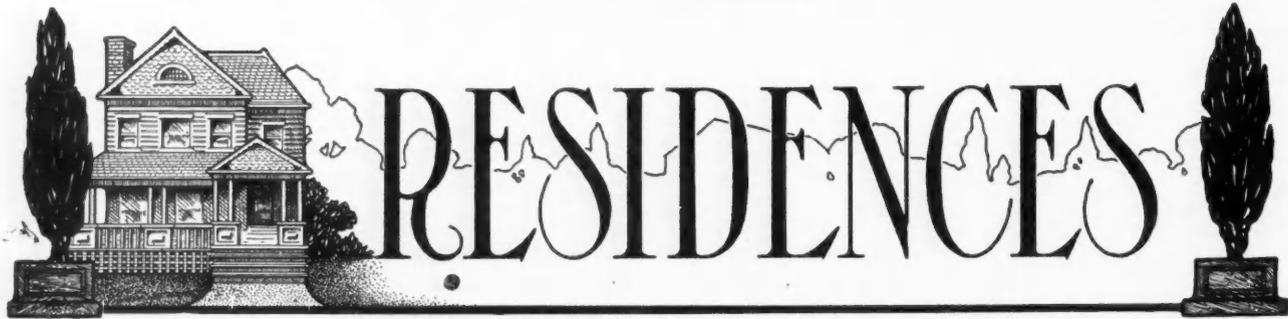
#### An Extraordinary Telephone Pole

One of the longest telephone poles is where the wires of the Pacific States Telephone Company cross the Chehalis river near Aberdeen, Wash. For some years past a pole 90 feet high was sufficient to keep the wires clear of river craft. But the increasing passage of larger steamers made a higher pole necessary and a new one 126 feet high was set up. This pole is a stick of Washington fir, 18 inches at the butt and 8 inches at the top, and weighs 6,000 pounds. The stick was cut at a point twelve miles distant and towed down the river, where it was erected by six men using a 12-horsepower hoisting engine. The *American Telephone Journal* says that for making attachment to the pole and moving it a 5/8-inch steel cable was employed, run through 10-inch steel blocks. The pole was set 12 feet in the ground and guyed with four steel stranded wires at the top, and also guyed about 40 feet from the top with four 5/16-inch stranded wire. The guys are fastened to dead men set in the ground to a depth of 8 feet. These dead men are of cedar 8 by 8 inches in section and 7 feet long.



#### Successful Ad!

Several weeks ago a Kansas editor advertised the fact that he had lost his umbrella and requested the finder to keep it. He now reports: "The finder has done so. It pays to advertise."



# RESIDENCES

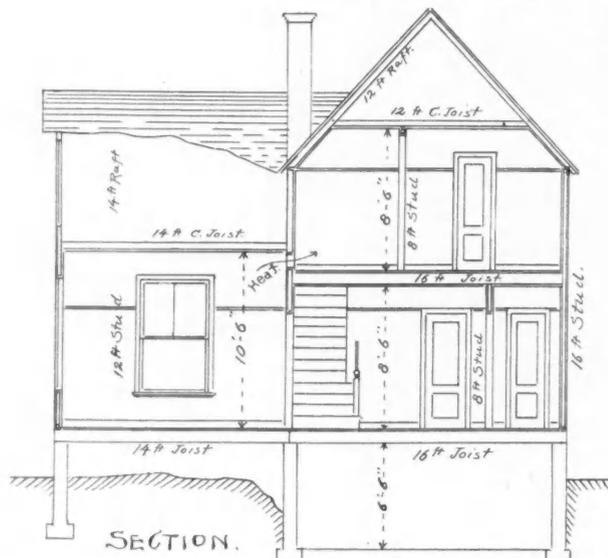
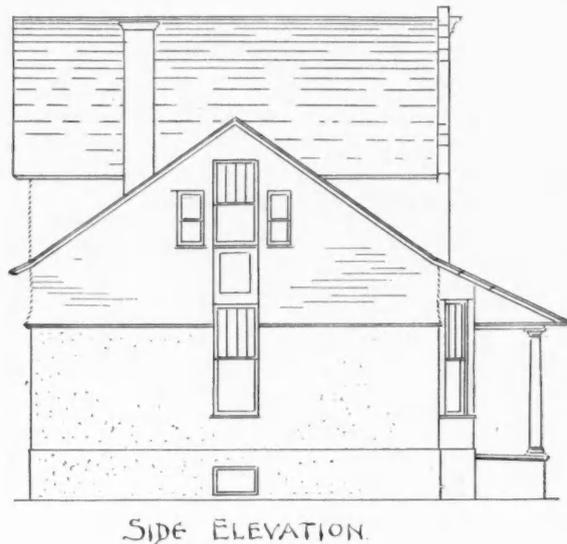
## Attractive Cottage and Bungalow Designs

PERSPECTIVES AND FLOOR PLANS OF SEVERAL VERY ATTRACTIVE BUNGALOWS AND COTTAGES SUITABLE FOR PERMANENT RESIDENCE OR FOR SUMMER USE

**A**NYTHING new or requiring special construction in a house usually increases the cost. This, however, is not the case with this story-and-a-half cottage. It is a 4-room house, designed by C. B.

ing small rooms suitably low. This not only makes the rooms easy to heat, but secures a short flight of stairs to the chamber floor.

It would be difficult, in the ordinary house plan, to



Schaefer, and has the facilities of seven rooms as ordinarily planned.

The special feature of the design is the large, high-ceilinged living-room with the stories of the remain-

build the ceiling of one part higher or lower than another part on the same floor. Here the difference in height is secured with greater economy of materials and labor.

Another difficulty overcome is in the external appearance. A house with different heights of main story would look badly mixed up if not carefully arranged. There has to be a difference in window heights as well as eaves that would make the building look like two entirely different houses put together by mistake. It will be seen, by reference to the perspective, how admirably the roof of the bungalow part embraces the 2-story portion by the roof extended over the porch.

An accurately drawn perspective is necessary in determining the proportions of a building. The perspective herewith was laid out before the elevations were finished and a harmoniously pleasing exterior made a certainty.

The house is further assisted by the landscape gardening, which a perspective drawing enables one to study. The ground rises from the street to the foun-

fications. This makes the structure set up well and secures dignity in comparison with the usual type of a house. This is advisable because the sizes used are on a small scale, suitable to cottage proportions. The

by furring out wire lath for cement covering; the gable likewise. This gives the cottage a distinguished appearance.

The height of the windows is assisted in appearance



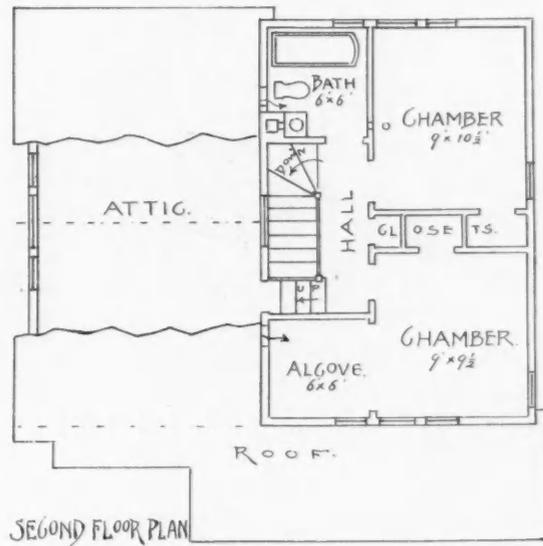
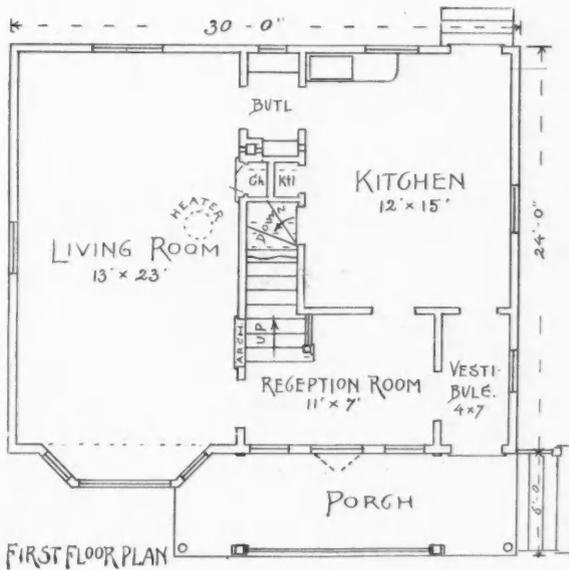
Attractive Suburban House with Several Unique Features

highest wall is 19 feet above the ground and most of the windows are 6 feet high.

The basement is shown of concrete. The first story is cement on wire lath up to the lower window head.

by the up and down lines of the sash bars. Other up and down features are also employed for a similar effect.

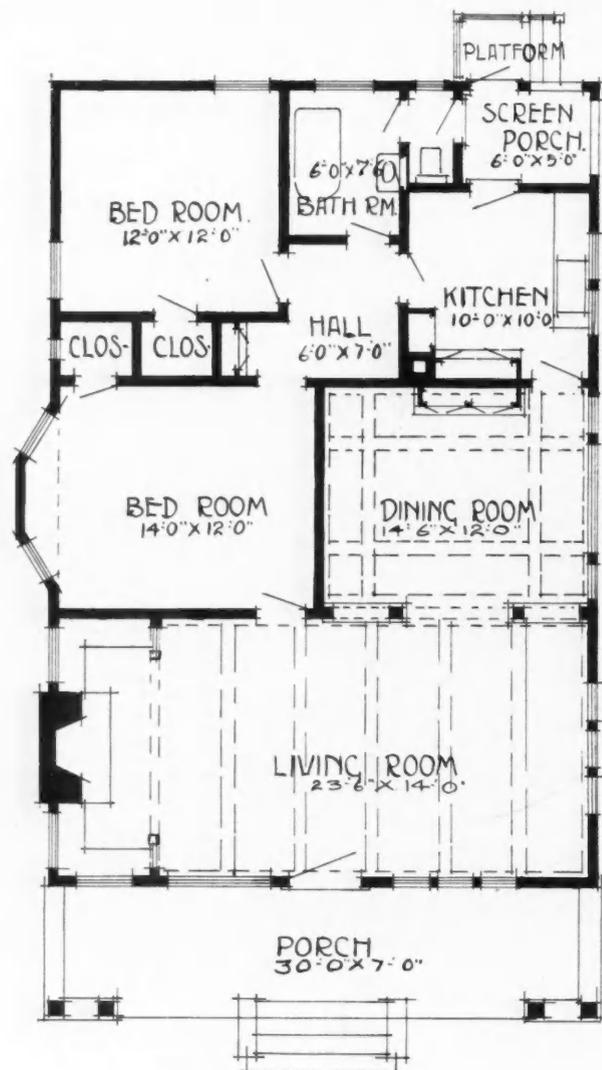
The working arrangement of the plans is very convenient for the housekeepers. An economical heating



This is a continuous line with the porch and only cut through by the living-room window heads. Above this the sides may be shingled or have narrow shiplap.

A pier is fashioned on the front of the second story

arrangement is secured by placing a good heater in the living-room. With two ventilators near the ceiling that open into the second-story alcove and bathroom the chamber floor may be sufficiently warmed



for sleeping. A drum may also be placed in this story over the kitchen stove. This shows what advantages may be artistically secured when people are not insistent upon commonplace arrangements.

#### A California Bungalow

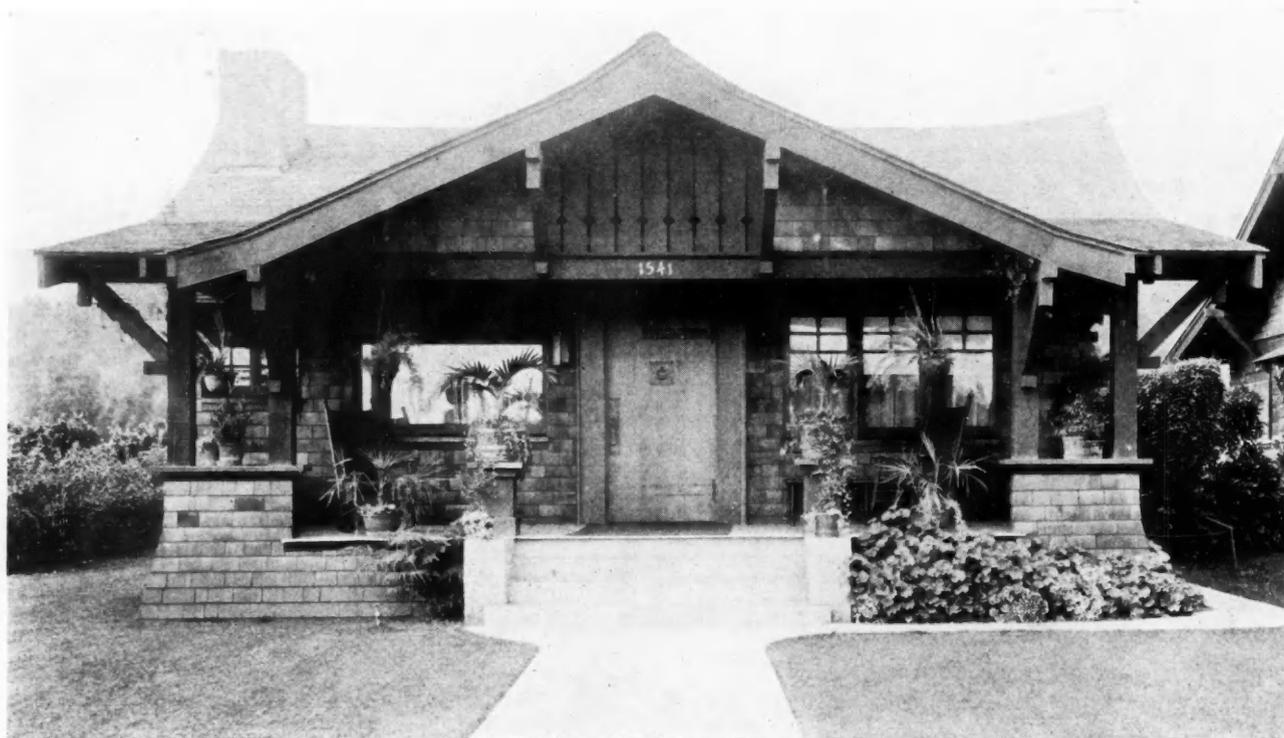
On this page we present a photograph of a very artistic 5-room bungalow designed by Henry L. Wilson, of Los Angeles, Cal. It is a good example of the bungalow style as adapted to the semi-tropical portions of the country. The wide-projecting cornice protects the walls from the hot sun and at the same time produces a light, airy, rather Japanese effect that is very pleasing. The upward curves at the ridge-pole ends also conform with this idea. The exterior finish is red cedar shingles laid  $4\frac{1}{2}$  inches to the weather.

Reference to the floor plan will show that the interior is divided to very good advantage into living-room, dining-room, kitchen and two bedrooms. There is a good supply of clothes closets and built-in cupboards.

#### A Practical 4-Room Bungalow

In connection with this, on the next page we are showing the perspective and floor plan of a very practical, substantially-built little bungalow cottage of very satisfactory design. The exterior is built on the approved bungalow lines, broad, cozy and comfortable, and is constructed in a thorough-going way, making this design a desirable one to follow when planning a permanent residence.

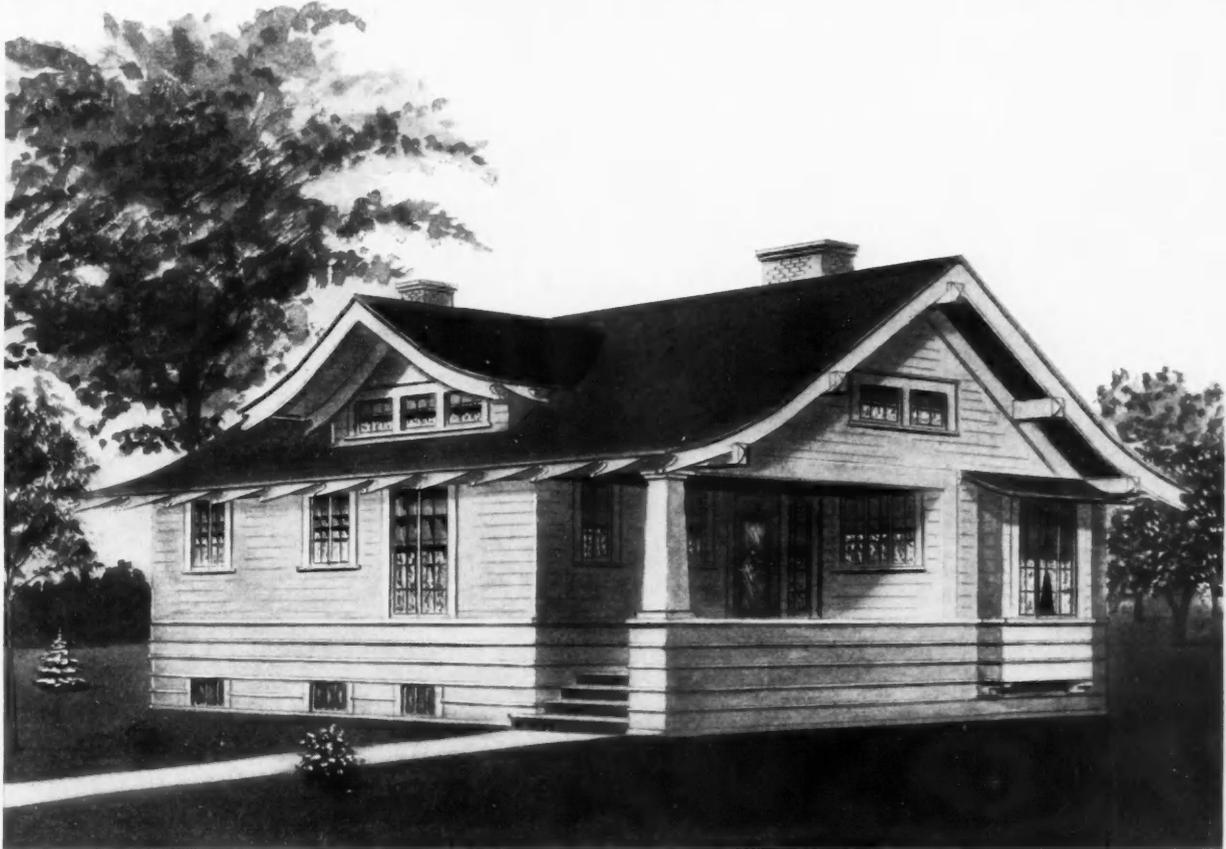
The interior, as shown by the floor plan, is laid out to good advantage. The hall makes all parts of the cottage accessible and allows more privacy than is



Typical California Bungalow of Artistic Design

very often the case with cottage plans. The living-room and dining-room are each of good size and opening together produce quite a spacious effect. The

This constantly renewed fresh outside air furnishes an abundance of carbonic acid to the mortar, thus hardening it, and producing in a short time the same



Cozy Little Four-Room Bungalow with All Conveniences. Cost \$1600

kitchen and pantry arrangement is very convenient. A good supply of closets and built-in cases is provided. The estimated cost of this cosy, well-built little bungalow is \$1,600.



**Drying New Buildings**

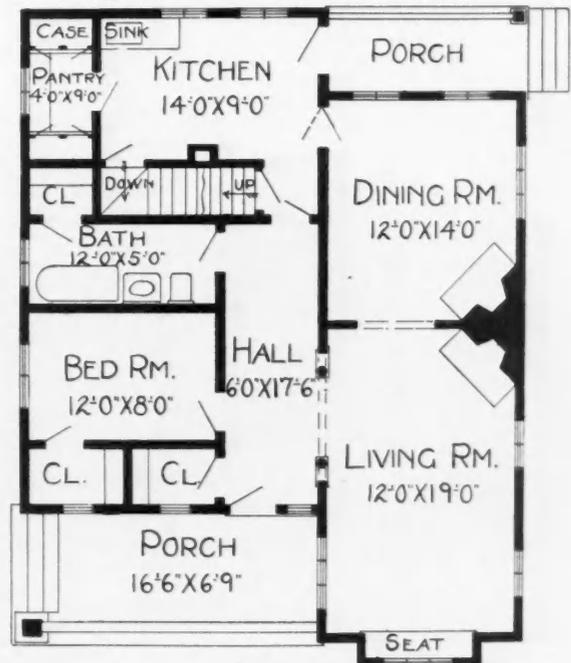
Consul Charles N. Daniels, of Sheffield, furnishes the following information concerning a demonstration of a hygienic system recently given in that English city in which builders took considerable interest:

Hitherto occupation of newly built houses has been delayed in order to allow them to dry, but with the use of this new apparatus, freshly plastered rooms can be perfectly dried within three days, and the excessive moisture of the walls completely extracted.

The apparatus consists of a stove with a firebox, suitable for coke fuel, surrounded by a number of small-diameter tubes, similar to gas pipes. By means of the apparatus fresh, dry outside air enters constantly into the air-supply tubes, and is highly heated in the tubes surrounding the fireplace. It ascends in a dry-heated state in the room, passes along the ceiling and walls, and absorbs the dampness, sinking down after being saturated with the same and re-entering the apparatus. It then mixes with the coke gases in the outlet tube and escapes into the chimney.

effect as if the mortar had dried naturally. It is claimed that no moisture can possibly show later on.

A striking recommendation for the apparatus is that



Floor Plan

the German law prohibiting the habitation of any house until six months after construction is abrogated by the authorities where this system is used.

## Pierced Decoration in Woodwork

THE REVIVAL OF AN OLD FORM OF ORNAMENTATION ON MODERN DECORATIVE LINES—ARTISTIC WORK ESPECIALLY SUITED TO SUMMER COTTAGES

By Sidney Phillips

ONE does not have to be a very old man to remember the days when our houses were covered with jig-saw scroll work—a form of ornamentation which began to die out with the great

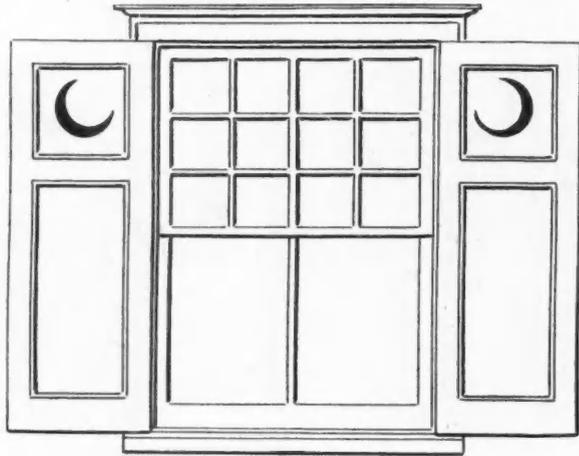


Figure 1

revival of taste in handicraft that followed the writings of Eastlake. It is very true that most of the scroll-sawed ornaments turned out from our wood-working mills were in abominable taste, because, as a rule, they were a mere meaningless mass of twisted lines and jumbled curves, and the facility with which they were executed caused the designers to allow their imaginations to run riot; and, owing to the lack of artistic training, the product was essentially bad. With reviving taste, these jig-sawed ornaments were abandoned, and because the product had lacked taste, the



Figure 2

process was entirely condemned. Nevertheless, even at the same time that scroll-sawed work was at its height of vulgarity in this country, it was being used

with considerable taste in France, in the ornamentation of the kiosks and other structures in the parks of Paris and in the wooden buildings of Sweden and Norway or the chalets of Switzerland. But the styles of these countries exerted little influence in America, and for the past fifteen or twenty years jig-sawed

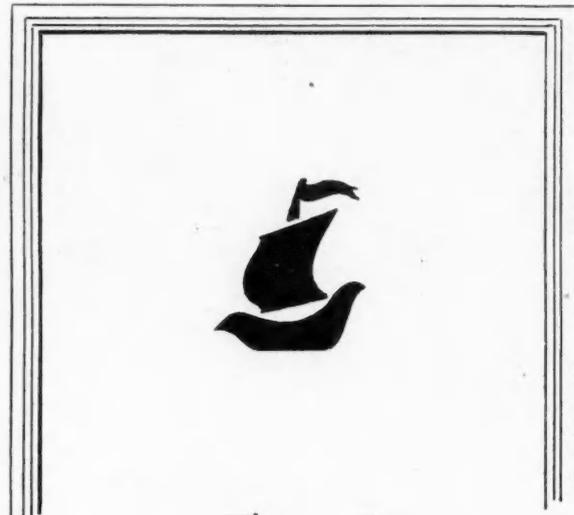


Figure 3

ornaments have fallen into "innocuous desuetude," and the ornamental piercing of woodwork had been practically overlooked.

With the introduction of the "Quaint" and the "Craftsman" styles of furniture, the possibilities of



Figure 4

this class of decoration have again become recognized to a certain extent. This may be also due to the revival of stenciling, which has taken on a new life and become very much more artistic in its character in the past few years. Modern decorators are using stencils to produce artistic results that no one would have associated with this process only a few years back, and the commonplace designs that are invariably thought of when stencil work was spoken of, have given place to new and original treatments of a highly artistic character.

Pierced ornament in woodwork, in its modern de-

velopment is closely allied with stencil decoration, inasmuch as in each case the design is cut from a background, and is made up of a series of holes, grouped together and shaped in such a manner as to produce a pattern, the background material—be it wood or the paper or thin metal from which the stencil is made, being held together by ties. But there is one essential difference. The stencil is cut for the pur-

effective in a pierced panel that would be insignificant or commonplace in a stenciled pattern.

One of the most effective uses for pierced decoration is in the panels of window shutters and doors, where they serve as ventilators, as well as adding an attractiveness to the woodwork. In the old Colonial houses, before wood-working machinery made the rolling-slat Venetian blinds a possibility, it was customary to make

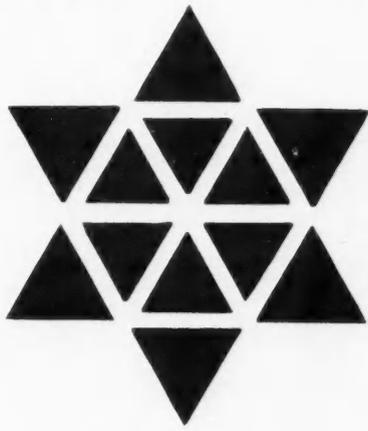


Figure 5

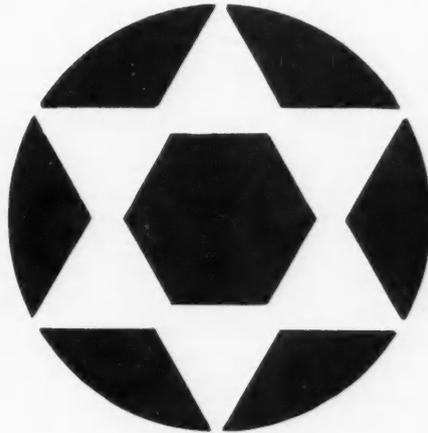


Figure 6

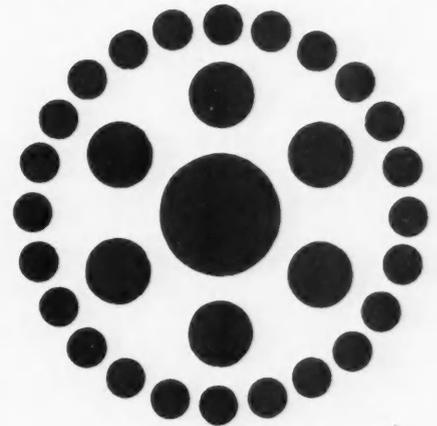


Figure 7

pose of applying color through the orifices or holes upon a flat surface to be decorated, and the design is in no way complicated by a sight of the edges of the stencil, which is of minimum thickness consistent with the work required of it.

The stencil, in other words, is a mere tool for the application of ornament, and hence there need be no limitation to the elaboration of the design. On the other hand, in pierced ornament, we must always take into consideration the thickness of the wood and the fact that we are dependent either upon the shadow back of the pierced surface or the light shining

solid wooden shutters, either paneled or perfectly plain for the first story windows, while the second story had Venetian blinds with heavy stationary slats. These solid shutters also served as a protection against prowlers at night, and the ornamental crescent or star pierced in the upper part of the shutter served as a loophole through which the rifle might be fired at an Indian who might be approaching with evil intent, as well as answering for a ventilator in more peaceful times.

In many of the modern Colonial houses, the architects have introduced ornamental pierced patterns in

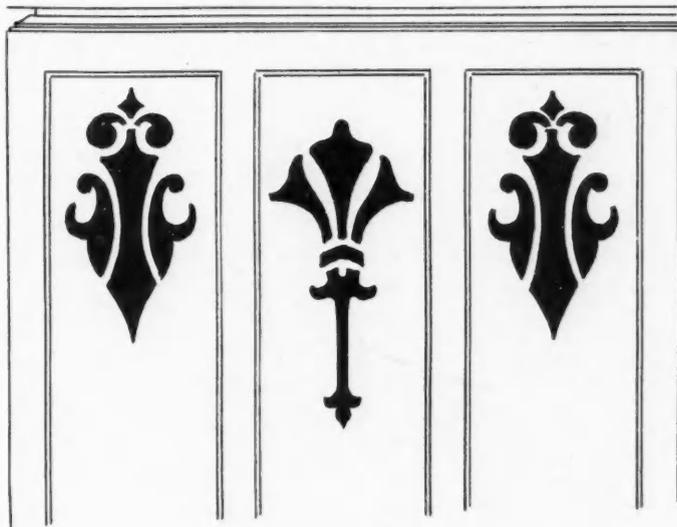


Figure 8

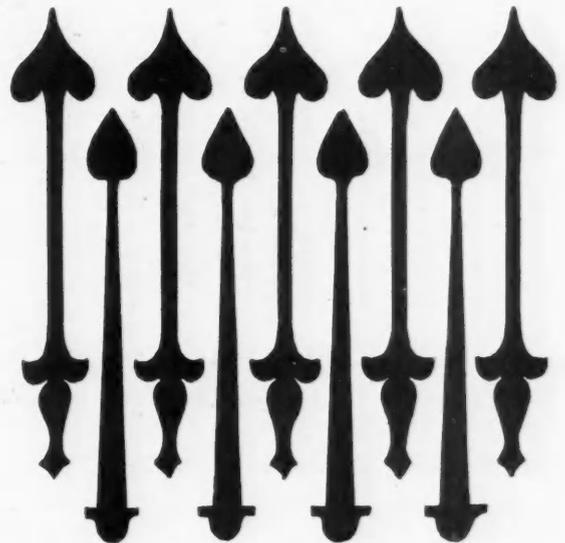


Figure 9

through it, to produce the decorative effect. Hence, our designs must be simple and bolder in their treatment than in stencil ornament; and while a stencil may sometimes offer a good suggestion for a pierced decoration, there are some patterns that would be very

the window shutters with excellent effect. An example of this will be seen in Fig. 1, where large crescents are used as ornaments in the upper square panels of the shutters. A very effective pierced shutter pattern is shown in Fig. 2, the bay tree in a tub or flower pot

being conventionalized in a pleasing manner. For a summer cottage by the seashore, what could be more appropriate than the old-time ship shown in Fig. 3. Another pattern that is somewhat commonplace, but nevertheless effective, is the heart pattern shown in Fig. 4. The diamond, club and spade, of the playing cards, also are useful patterns that are easy of execution.

Simple geometrical forms are always effective for pierced ornament. Figures 5, 6 and 7 are all based on the familiar hexagon inscribed in a circle, and singular as it may appear have all been developed on circles of the same size. Fig. 6 might have been modified by using a second star, instead of a hexagon, for the inner opening, the points of the second star being located at the angles of the hexagon. Fig. 7 can be executed entirely with auger bits or with extension bits for the larger holes, if worked out on a large scale. Extreme care, however, is necessary in laying

out the pattern and in boring the holes exactly in the proper places, otherwise the design would be spoiled.

A dado or paneled screen is shown in Fig. 8, different patterns being used alternately in the upper part of long panels. Designs of this class could also be effectively used on a balcony or veranda railing.

Fig. 9 is a pattern that is capable of many variations. It may be used as the ornament for a wainscot made of narrow boards, the joints following the center line of either one of the figures. Or the pattern may be pierced in a wide paneled door to give the effect of grille work, or may be pierced in the painted and enameled woodwork used at the back of a show window.

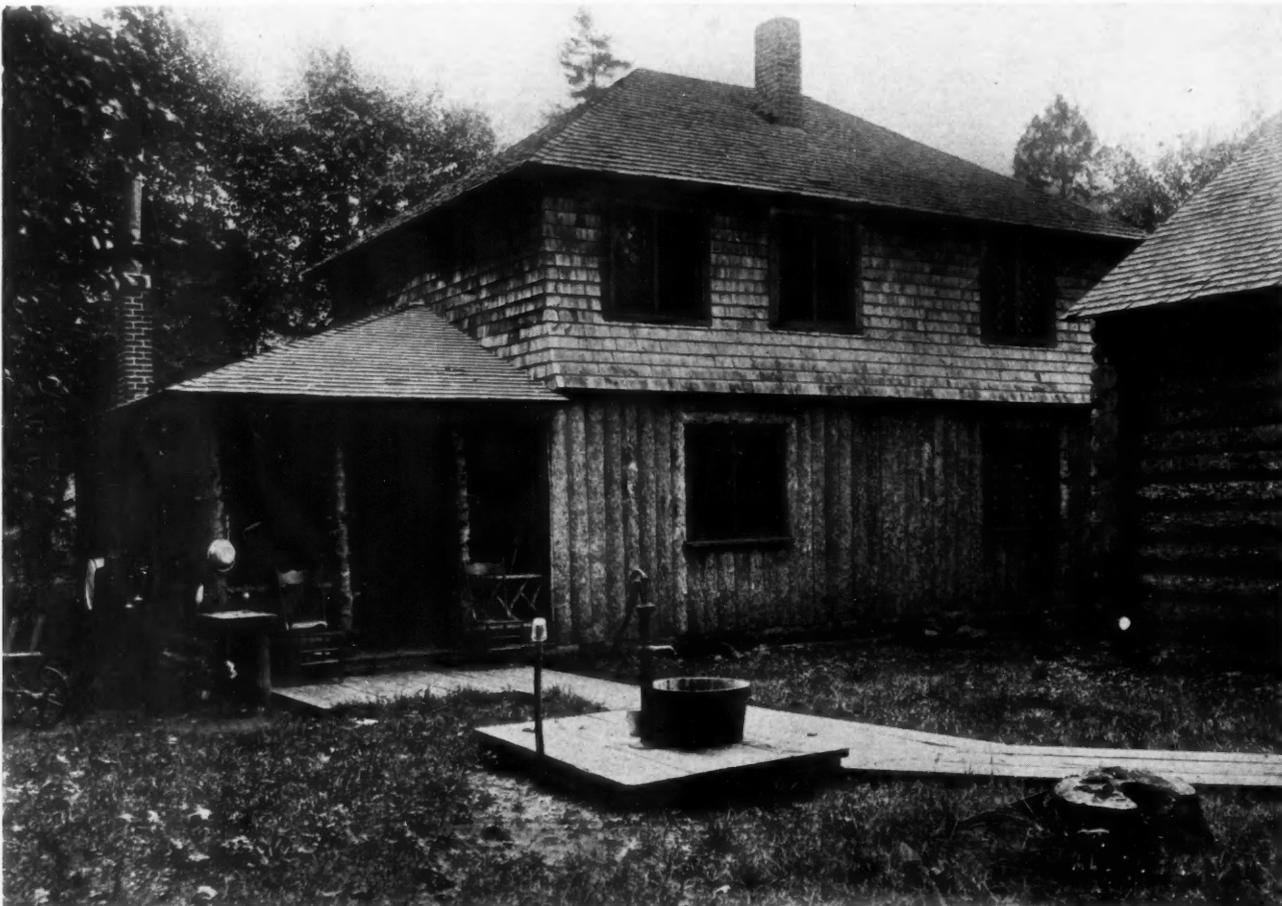
These are only a few examples of the possibilities of pierced ornament, offered for the consideration of the readers of the *AMERICAN CARPENTER AND BUILDER* in the hope that it may interest them in this artistic revival.

## Rustic Home of Mrs. Benjamin Harrison

By Waldon Fawcett

**A**T THIS time, when builders in all parts of the country, who are quickly responsive to the tendencies of their clients, are devoting an increasing amount of attention to rustic construction, more than passing mention is merited by Berkeley Lodge, the home of Mrs. Benjamin Harrison, widow of the late ex-President of the United States. This

country seat—or, perhaps, it had better be called the woodland home of Mrs. Harrison—is located in Herkimer county, in northern New York, on a commanding site overlooking the Second Lake of the Fulton Chain of Lakes. In mere size, Berkeley Lodge is easily overshadowed by some of the misnamed “log cabins” of our modern millionaires in the Adirondacks; but



The Housekeeping Annex at Berkeley Lodge



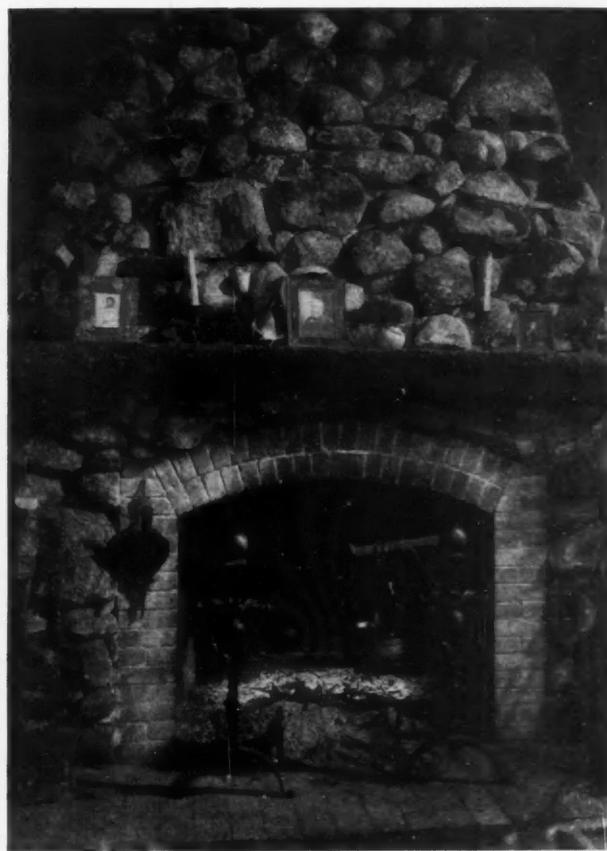
**Berkeley Lodge—Staunch Log Construction**

it is because of this very attribute of more moderate cost that the Harrison home may prove more helpful as an object lesson to the average builder.

Berkeley Lodge, it must be explained at the outset, comprises not a single building, as might be supposed, but a group of structures each complete in itself. This is a plan that is becoming increasingly popular among dwellers in rustic homes where the unplastered walls, unless specially constructed, contribute to the transmission of sound between different rooms, and where the correspondingly easy communication of odors from the kitchen constitute one of the best arguments in behalf of the detached kitchen. It is customary in all such cottage communities, comprising a single domestic establishment, to have the various principal building detached, or semi-detached, but connected by covered passageways or otherwise. At Berkeley Lodge, where the principal buildings are perhaps fifty feet or more apart, the connecting links are board walks with rustic balustrades, but with no shelter. Covered passageways, it may be explained, would have obstructed the view from the knoll upon which all the buildings are located.

The main building at Berkeley Lodge is a one and one-half story structure with two-story octagonal towers at two of the corners and porticos at the front and rear. The first story is of log construction, with shingle above the first story. Practically the entire building, with the exception of the towers, is given over to an immense living room, open to the roof

and with the rafters of peeled logs exposed. The walls are not plastered, but ceiled with spruce, which,



**Detail of Rustic Fireplace**

though treated with no stain or varnish, retains all its pristine beauty—thanks partly, no doubt, to the location of the cottage away from city grime. Perhaps the most impressive architectural feature of this attractive room is found in the immense fireplace of rough field stones—so skilfully set in cement as to have the appearance of being loosely laid up and with moss filling many of the chinks. The mantel is a half log with the bark on. On either side of the

is the building above described, is sheathed with slabs; these slabs, with the bark on, being placed vertically. That this structure may be interpreted in very truth a "housekeeping annex," there are provided on the second floor sleeping apartments for the servants. The third of the principal buildings at Berkeley Lodge, located at a sufficient distance from the other structures to insure absolute quiet, and likewise of rustic construction, is known as "The Refuge." This two-



Interior Berkeley Lodge—The Living Room

fireplace a rustic stairway rises with one turn to a gallery extending across either end of the big room. These galleries afford access to the diminutive sleeping apartments on the second floors of the two tower structures. There are similar sleeping rooms on the first floors of the towers; to these, doorways open direct from the floor of the living room. At the rear of the living room is a capacious closet lined with tin, in which bedding and other furnishings can be stored, secure from field mice and other pests, when the house is closed for any length of time.

In many a rustic residence of the latest approved type only the kitchen is detached from the other apartments; but at Berkeley Lodge both kitchen and dining room are located in a nearby structure, known as the "Housekeeping Annex." This is a two-story structure with front and back porches. The second story is shingle, but the first story, instead of being of log, as

story structure is given over entirely to sleeping apartments. Those on the second floor are reached by an outside staircase, so that there is no need to disturb occupants of rooms on the first floor. Mrs. Harrison, in using this "refuge" as quarters for the guests that comprise her house parties, is merely adopting a custom that is rapidly finding favor with American owners of residential establishments of any size. The provision of separate but convenient quarters for guests has been found to possess double advantages. It gives the guests a sense of independence in their movements and relieves a host or hostess of the necessity of continuous visiting.

#### ✦ Cynical

"My wife can cook," said the benedict proudly.

"Don't worry! Maybe she won't," answered the bachelor.



## Two Unique and Useful Furniture Designs

COMPLETE DETAILED INSTRUCTIONS WITH WORKING DRAWINGS SHOWING HOW TO MAKE AN ELECTRIC LIGHT PENDANT FIXTURE AND A MISSION ROCKER

WITH the extended introduction of the electric light has come the demand for new lighting fixtures. Hardly a village now but has its electric light plant. In many places farmers are putting in their individual lighting plants. To meet the demand for a fixture which can be constructed in the Home Workshop we offer the accompanying design. It can be constructed wholly of wood—two kinds being used, the parts showing light in the photograph being of some close-grained, hard, light-colored wood and the rest of a dark wood. One having the necessary tools for cutting and brazing brass, a very effective result is obtained by making the light parts of  $\frac{1}{4}$  and  $\frac{1}{2}$  inch square brass tubing. We have made out the mill bill for wood only.

There will be needed the following:

1 piece, dark wood, S-2-S,  $\frac{3}{4}$  by 10 by 42 inches.

1 piece, dark wood, S-4-S, 1 by 4 by 18 inches.

1 piece, dark wood, S-4-S,  $\frac{1}{2}$  by 1 by 5 inches.

1 piece, dark wood, S-4-S,  $\frac{3}{4}$  by  $1\frac{1}{2}$  by 86 inches.

1 piece, light wood, S-4-S,  $\frac{1}{2}$  by  $\frac{1}{2}$  by 285 inches.

1 piece, light wood, S-4-S,  $\frac{1}{4}$  by  $\frac{1}{4}$  by 528 inches.

1 piece, dark wood, S-4-S,  $\frac{7}{16}$  by  $1\frac{1}{2}$  by 7 inches.

1 piece, light wood, S-4-S,  $\frac{1}{2}$  by  $1\frac{3}{4}$  by 44 inches.

1 piece, dark wood, S-4-S,  $\frac{1}{2}$  by  $\frac{1}{2}$  by 60 inches.

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

In this bill the thicknesses and widths are specified exact but in the lengths allowances of  $\frac{1}{4}$  inch to each piece has been made for cutting. It will be seen that instead of specifying each piece, the lengths of pieces

having like thickness and widths have been combined. This saves expense in that it does not require the mill men to cut to length, and is no disadvantage whatever. Order all the planed surfaces sandpapered at the mill. The machine will do it much more quickly and better—provided the sanders are careful not to “sand them out of square.” Begin by building the

top. Miter the 10-inch board so as to make a square  $19\frac{1}{2}$  inches, Fig. 1. Around this miter the  $1\frac{1}{2}$  by  $\frac{3}{4}$  inch piece, keeping the edge flush with what is to become the lower side of the part just made. With the  $\frac{1}{2}$  by  $\frac{1}{2}$  inch light wood cover the joint thus made. Inside this, and of the same material, build another square 10 inches from outside to outside.

The little corner blocks are to be 1 inch by 1 inch by  $\frac{1}{2}$  inch thick, placed as shown in the drawing.

All these pieces are to be fastened with thin brads and glue. The heads will be set and covered later with putty which matches the finish of the wood. It will be necessary to drill holes lest the brads split the wood, especially on the mitered corners of the smaller pieces.

Next make and place the blocks to which the pendants are to be fastened. On these build of  $\frac{1}{2}$  by  $\frac{1}{2}$  inch stock the squares of light wood and we shall be ready to begin on the pendants.

The drawing, Fig. 1, shows the connection of pendants to their supports when metal tubing is used. For wood, the connections must be made so as to avoid rigidity, else the strain which might come on the connections through accidentally striking them a



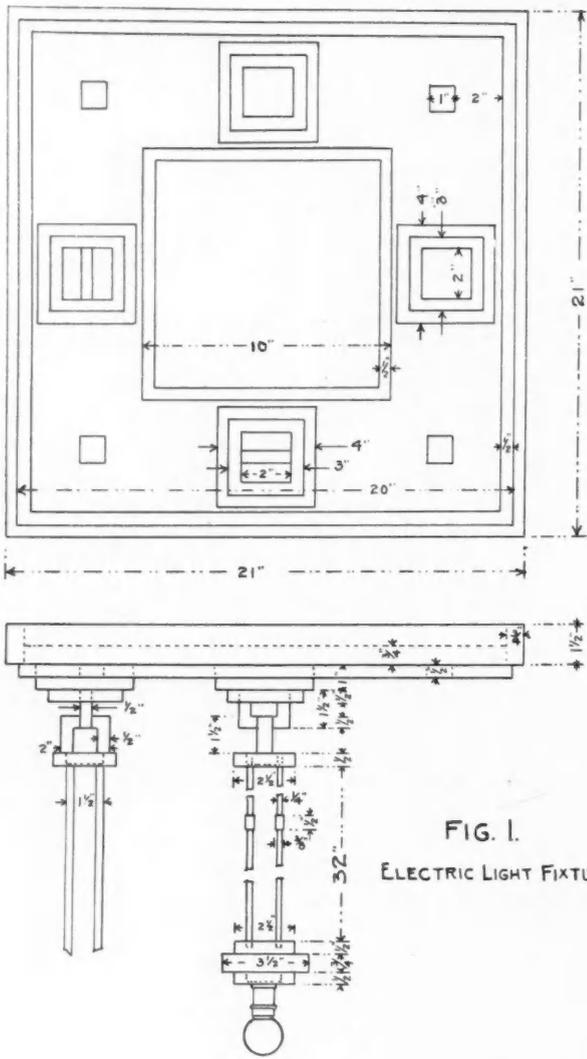


FIG. 1.  
ELECTRIC LIGHT FIXTURE.

side blow, would be likely to break them. This loose connection is obtained by making a link connection like that of a chain, one of the square links passing through the other.

The easiest way to construct the parts into which

the four rods fasten their upper ends is to square up a piece of the 7/16-inch stock to 1 1/2 inches each way and cut out the corners sufficiently to take in the 1/4-inch rods at each. Around this break the 1/2 by 1/2 inch light wood.

The part below will be made by letting the 1/4-inch rods into the corners of pieces squared to 1 1/2 by 1 1/2 inches by 1 11/16 inches long, the grain extending vertically when the piece is placed. Around these break the 1/2 by 1 3/4 inch light wood, and around this the 1/2 by 1/2 inch light wood.

The ornamentalations in the middle of the rods may be made by "breaking" the rods and doweling them to pieces of 3/8 by 3/8 by 1/2 inch stock.

The photograph suggests the manner of wiring, the wires passing up between the four rods to the top, thence through the top and to the central outlet.

**How to Make a Rocking Chair**

The rocking chair which we offer this month is a companion piece to the arm chair described in the April, 1909, number.

The following stock bill gives the thicknesses and widths exact, except the back posts, but makes allowances in length for "squaring up." The back posts are to be got from the one piece specified:

	Thick	Wide	Long
	In.	In.	In.
Front posts, 2 pieces, S-4-S.....	1 3/4	1 3/4	22
Back posts, 1 piece, S-4-S.....	1 3/4	6	34
Front horizontal, 1 piece, S-4-S....	3/4	2 1/2	20 3/4
Front horizontal, 1 piece, S-4-S....	3/4	2	20 3/4
Back horizontal, 1 piece, S-4-S....	3/4	4 1/2	20 1/2
Back horizontal, 1 piece, S-4-S....	3/4	2	20 1/2
Back horizontal, 1 piece, S-4-S....	3/4	2 1/2	19 3/4

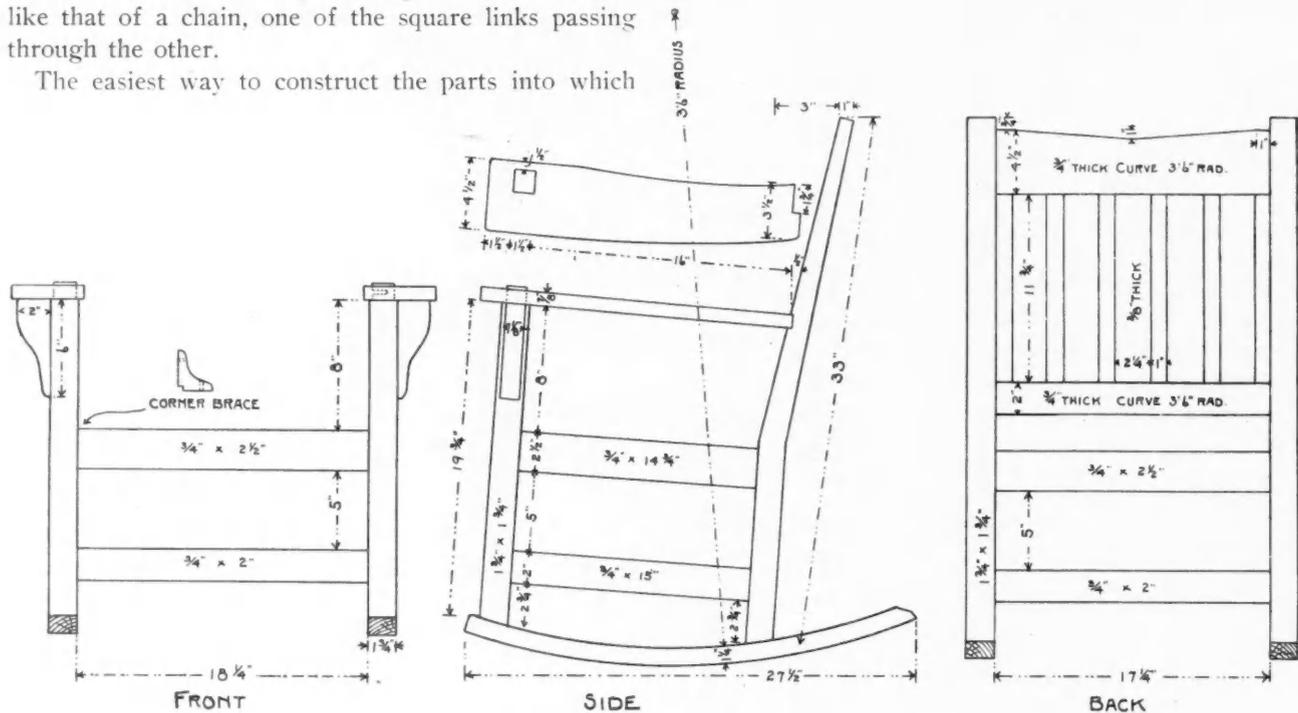


FIG. 2. ROCKING CHAIR

Back horizontal, 1 piece, S-4-S. . . . .	$\frac{3}{4}$	2	19 $\frac{3}{4}$
Side horizontal, 2 pieces, S-4-S. . . . .	$\frac{3}{4}$	2 $\frac{1}{2}$	17 $\frac{1}{8}$
Side horizontal, 2 pieces, S-4-S. . . . .	$\frac{3}{4}$	2	17 $\frac{1}{2}$
Back slats, 5 pieces, S-4-S. . . . .	$\frac{3}{8}$	2 $\frac{1}{4}$	12 $\frac{3}{4}$
Arms, 2 pieces, S-4-S. . . . .	$\frac{7}{8}$	4 $\frac{1}{2}$	20
Braces, 4 pieces, S-4-S. . . . .	1 $\frac{1}{8}$	2 $\frac{1}{4}$	6 $\frac{1}{2}$
Braces, 4 pieces, S-4-S. . . . .	$\frac{7}{8}$	3	3
Rockers, 1 piece, S-4-S. . . . .	1 $\frac{3}{4}$	5 $\frac{1}{2}$	28 $\frac{1}{2}$

Begin work by squaring up the ends of the front posts and shaping the rear ones. Chamfer the ends, top and bottom, slightly, and lay out the mortises and tenons. The tops of the front posts are to be tenoned through the arms.

Next prepare the curved horizontals for the back. This is done by first preparing a curved form having a radius of 3 feet 6 inches. The pieces to be curved



are steamed thoroughly, then clamped to this form and allowed to dry. The April, 1909, number, page 49, tells how this steaming can be done.

The arms may be shaped while these pieces are drying, and the rails or horizontals of front and back tenoned. Note that the different lengths of rails on the sides will necessitate the use of the bevel in marking the shoulders. Also that the back being narrower than the front will necessitate slant in either tenon or mortise.

Assemble the front, then the back. The back slats are to have their ends "let into" the horizontals a good  $\frac{3}{8}$  inch each. When the glue has hardened put the side rails and the arms in place. Dowel and glue the brackets under the arms.

The corners are to be reinforced with braces screwed to the inside of the seat rails.

After the finish has been applied put on the seat as follows: Stretch a canvas over and around the seat rails and tack it to their under sides. Cross weave over this and fasten underneath webbing such

as upholsterers use. On the webbing place a cushion of elastic felt or hair. A piece of muslin placed over this, and on top of this the final covering of Spanish leather completes the chair except for the ornamental nails as shown in the picture.

+

### Speedy Brickwork

The absolute record for bricklaying, says an exchange, is held by an American named Frank Stoehwachs, who in Chicago laid 162 bricks in two minutes and a half, using a trowel and putting in cross joints. It should, of course, be borne in mind that this was purely a piece of exhibition work, and all was made ready beforehand.

The brick-making record apparently has not been beaten since 1886, when John Watkins, of Baltimore, made 922 bricks in 55 minutes. He was assisted by two men to carry off the bricks and a "wheeler."

+

### Cement for Wood, Metal or Glass

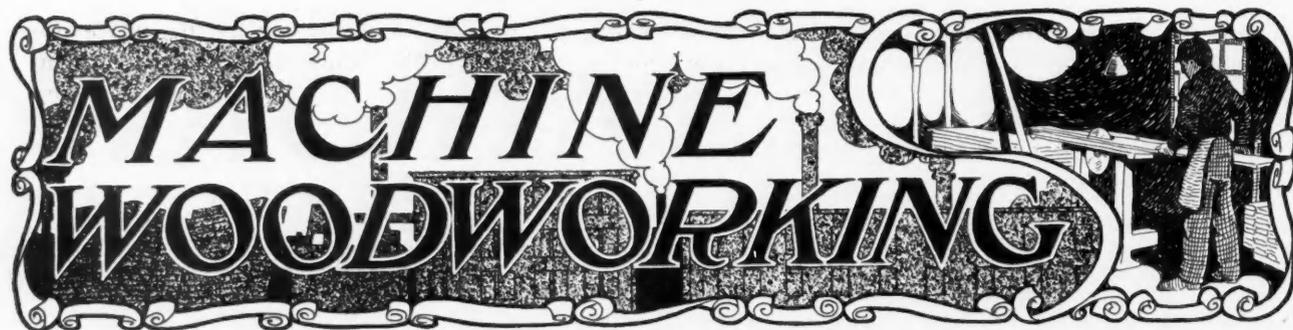
In answer to a correspondent the *Painters Magazine* gives the following formula for a tough, quick-hardening cement that will not shrink after becoming hard and will unite wood or stone to glass or metal:

"The simplest formula we know of is to mix monoxide of lead, known as litharge or massicot, preferably the latter, which comes in a yellow powder, with enough glycerine to make a paste of the desired consistency and use it immediately after mixing. This cement may be colored by adding dry colors in small portions, but these must not be more than 10 per cent of the quantity of the massicot or litharge used or it will prevent quick setting. Gentle heating will make it set in a few minutes and then it will resist both pressure and heat."

+

### Does It Pay to Pick up a Nail?

To settle a discussion, *Technical World* has figured out whether it does or does not pay to pick up a nail. It is claimed that one keg out of five is never used, but goes to waste. Assuming that it takes a carpenter ten seconds to pick up a nail, and that his time is worth 30 cents an hour, the recovery of the nail he has dropped would cost .083 cents. The money value of an individual six-penny nail is .0077, that is, it would not pay to pick up 10 nails if it took 10 seconds of time worth 30 cents an hour. Ordinary men who are not very quick can, however, pick up a nail on a moderately clean floor in five seconds. Assuming that this is a better average than the 10 seconds, and that we are paying the carpenter only 25 cents an hour, it will still cost to recover the nail .0347 cent, which is nearly five times the value of an individual nail. There is, therefore, a considerable factor of safety in the original calculation, and we are bound to believe that it will not pay to pick up nails.



## The Band Saw as a General Utility Machine

WHAT THE BAND SAW WILL DO IN CARPENTER AND WOODWORKING SHOPS—HOW IT SHOULD BE CARED FOR AND OPERATED FOR BEST RESULTS

By W. D. Graves

IF ALL of us could have all that we feel we ought to have, life would be stale; but there seems little likelihood that our existence will soon lack savor for that cause. Most of us must needs trim our wants quite ruthlessly lest our purses, weighed against them, "kick the beam." So, in considering the installation of machinery, it is needful for most and expedient for all, that we should so calculate as to buy only those machines which will be capable of doing the greatest percentage of our work.

The contractor and builder with a limited amount of capital to invest (and where is he who claims exclusion from this category?) may well consider the installation of a band-saw only, in preference to a buzz-saw only. True, he would not be able to do the grooving and rabbetting that he could do with the latter, nor any of that work on which the cut is not entirely through the stock; but he could rip thicker stock, could do re-sawing which would be impracticable for a buzz-saw, and he would require much less power.

The tyro, contemplating the purchase of a band-saw, is apt to consider only its value for curvilinear work—to think of it only as an improvement on the jig-saw. It is an improvement on the jig-saw—and much more. For most work it is an improvement on the buzz-saw. It is so pre-eminently and admittedly superior to the jig-saw, for practically all the purposes to which that crude implement is adapted, that any attempt at comparison here would be a mere waste of good ink. For straight cutting, however, the small shop band-saw is not yet fully appreciated. To one who has operated a circular-saw with scant power, there is something especially pleasing in the way that a band-saw "zips" through its work. It is as a rubber-tired buggy compared with a farm wagon.

The ordinary light shop band-saw, though doubtless primarily designed for scroll work only, is capable of much more than that. A machine with a 32-inch or 34-inch wheel, the most ordinary size, is easily capable of re-sawing a 12 or 14 inch board on occasion, and will do, in a highly satisfactory manner, all the ripping ordinarily required in a small plant. All this with less power than would be required to operate a circular of less than half the capacity. One of

the progressive advertisers in this journal recently illustrated a small buzz-saw direct-connected with a gasoline engine; and, doubtless, could readily furnish a band-saw connected in the same manner. A smaller power (and a correspondingly smaller contribution to Standard Oil) would serve for a band-saw capable of doing the same amount of ripping. It would seem that a portable combination of this kind would be a highly desirable one; but one having the two units could very readily combine them to suit his own needs.

Band-saws, it is true, are not usually furnished with ripping gauges; but some are, and all may be. Indeed, one may very readily be made and applied by the operator himself. A band-saw will not stand the abuse and hard usage that a circular will—but one doesn't buy machinery to abuse—and, as it does the work so much more easily, hard usage is uncalled for. One difficulty, doubtless the principal one, about using a band saw for ripping, lies in improper filing. In filing by hand it is almost, if not quite, impossible to file the teeth square across; and the saw is consequently apt to have a decided tendency to crowd to one side. Some claim to remedy this difficulty by filing from both sides and making the front of the tooth slightly fleaming; but observation does not tend to confidence in the efficacy of this plan. Also, the difficulty may be somewhat mitigated by setting the gauge at a slight angle with what would theoretically be the cutting direction of the saw. Although it is well to have the gauge capable of a slight adjustment in this way, the difficulty may be more readily and effectively eliminated by the purchase of a filing machine, many kinds of which are on the market now. These little machines, aside from the fact that they will do more accurate work than can be done by hand, will soon pay for themselves in time saved; and, as their first cost is slight, there seems no foundation for argument against their use.

A band-saw ill filed will probably enter a more immediate and noticeable protest against over-crowding than will a circular equally ill filed; but we all know—though we are too prone to allow our knowledge to become befogged—that it *pays* to keep any tool in good order.

A mistake which most band-sawyers have made (the writer among the rest) and which most new operators are likely to make, is the buying of wider blades than necessary for ripping. This error arises, partly, from the idea that a wide blade will aid in keeping the cut straight; on the same principle that a long plane tends to a straight edge. Unless the filing is properly done, however, the wide blade is apt to aggravate the trouble instead of mitigating it. The ill results of bad filing and crowding the feed would be better avoided by using a very narrow blade with ample set. The idea is, too, that a wide blade will "stand up to the work" better, *i. e.*, spring black less under a forced feed. Of course this is somewhat true, but one shouldn't force the feed. If the ill results of such practice do not show on the work, they will soon show on the blade. The blade should be kept in keen cutting order, and be fed only what it will cut easily; for more work will be accomplished in this way. A band-saw must be considered strictly as a *cutting* tool; not as an abrasive implement. It is best to begin right, by having the saw properly filed; then one will not feel the need of a very wide blade. With proper treatment a blade  $\frac{1}{2}$  or  $\frac{5}{8}$  inch wide will usually be ample for the heaviest shop requirements. Such a blade will cost less, last longer, and be much more easily handled than a wider one.

One is apt to be a little fearsome as to his ability to keep a band-saw in order; but such fear is groundless. The essential points as to brazing small blades may easily be acquired by a good mechanic in a few minutes; while one who can keep a hand rip-saw in good order knows all that is necessary in order to file a small band-saw blade. Indeed, if the work is done by hand, it probably requires less skill to keep a band-saw blade in good order than is required in the case of a circular. This fact may not be immediately apparent to the superficial observer, because circulars are so often forced to do work when they ought to be in the scrap heap; and their protests are not always understood. There is no question but that a circular may be crowded harder when unfit for work; but, to one who appreciates a keen-cutting, "sweet-working" tool, this counts for little.

One should not, however, depend upon his hand skill in keeping a band-saw in order; as machines for the purpose are cheap and simple, while their work is as much superior to hand work as is that of any machine. Band-saw blades are now so cheap; and, with fair usage, so durable, that cost need scarcely be considered. With the best of care they will, in time, become so brittle as to be worthless; but that is a matter of much use. One should not pall at the cost of good rolling guides, and should take care that the blade runs on the wheels smoothly and without uneven strain; for these items of expense and time are a good investment.

Probably the band-saw is the least dangerous of wood-working machines. It is the custom, especially

among the younger of our fraternity, to sniff at the idea of danger; but the danger is an item well worthy of consideration. The man who takes needless chances is none the less a fool because he has "nerve." The sublime and the ridiculous are more widely separated than are heroism and foolishness.

The blade of a band-saw is so guarded that one can hardly be cut by it, except by the most gross carelessness, and in case of breakage, it is practically sure to fly away from, rather than toward, the operator. They are not entirely "foolproof"; but may very easily be so safe-guarded as to kill only the most extreme fools; and these, though they would be considerably missed, would perhaps be better so.

Of course the band-saw is not capable of doing all the work that a circular will; nor will the circular do anything like all the work that *it* will. One *should* have both; and, where only one is to be had, the class of work to be done must, of course, be the deciding factor. It is far from the intent of the writer to assert that either will entirely fill the place of the place of the other; but it seems fitting to call attention to the ripping capabilities of the small band-saw; for, as a scroll-saw, it speaks for itself. As is the case with most machines, a lifetime of use scarce serves to acquaint one with its limitations—or is it that one scarce learns his own limitations in a lifetime? Ah, well, the capabilities of a machine depend much on the man before it, and on his likings. In choosing a machine, as in choosing a business, it is well to give more weight to your likings than to the advice of others.



### A Meerschaum Town

The town of Vallecas, in Spain, is almost entirely built of meerschaum. Vallecas has on its outskirts great quarries of a meerschaum too coarse for pipe-making, and a meerschaum-built town is the result—an ivory-white town that shines in the Spanish sun. Think of the possibilities for color in the chimnies!



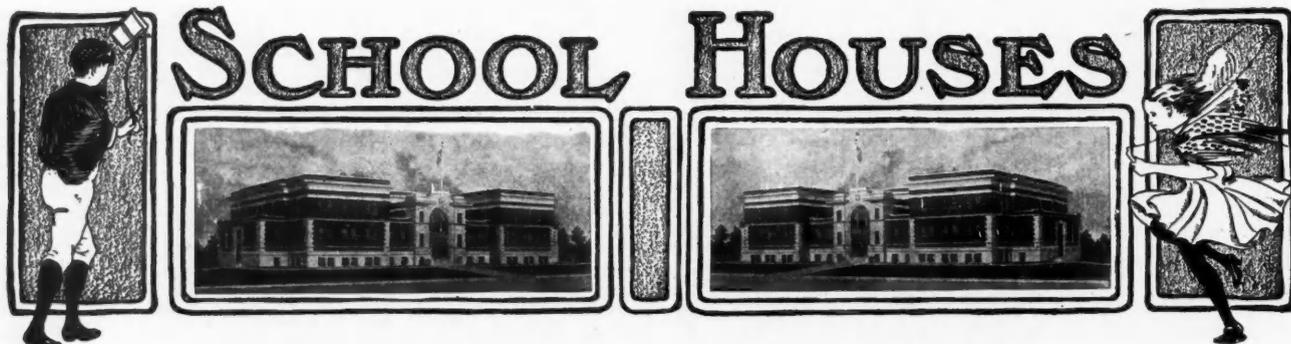
### Contractors to Meet

At a recent meeting of the executive committee of the Illinois Society of Municipal Contractors it was decided to hold their next annual convention in the city of Chicago during the third annual cement show. This step was taken with the idea in view of permitting the members of the association who will attend the convention to also visit the cement show.

The Chicago cement show is rapidly making its importance felt throughout the country and this is an indication of the attraction it has become for organizations of engineers, contractors and technical bodies.

It is reported that several other organizations also contemplate holding their next annual meeting in Chicago simultaneously with the cement show.

Extensive preparations for the event are already in progress which promises an exhibition even more remarkable than the successful show held last February.



## Modern Country School Building

PERSPECTIVE AND FLOOR PLANS OF AN ATTRACTIVE LITTLE TWO-ROOM SCHOOL BUILDING WELL ARRANGED FOR COUNTRY DISTRICTS

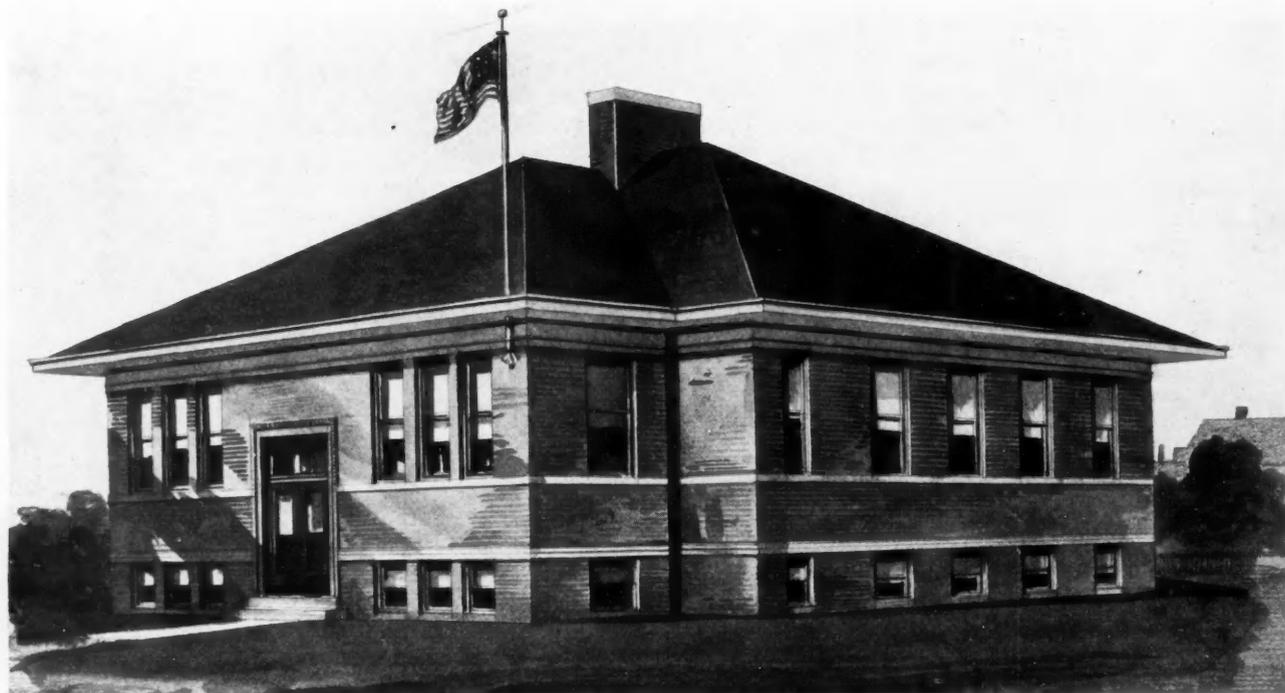
**W**E ARE showing this month perspective and floor plans of an exceptionally well-designed little school building such as is usually required for villages and for country districts. It is the work of Geo. W. Ashby, architect.

The exterior is plain and simple yet attractive; the sweeping lines of cornice and roof produce an effect of bigness surprising in a school building of this size (the dimensions are 50 by 52 feet); and the whole

extra expense this basement could be fitted up at any time for science laboratories or for shop and manual training work.

### Household Hints

A very simple and effective method of overcoming draughts from an exposed window is to fill the window in with bricks, heavily plastered, and covered with a green wall paper two inches thick.



effect is dignified and pleasing. The material of the exterior is red brick for the walls with sill course and water-table of a glazed brick of lighter color. The cornice is of wood and the roof is shingled.

The main floor of this school building is divided into two class rooms 25 by 36 feet in size; there are also, at the front, a teacher's room 13 feet 6 inches by 11 feet and a library the same size; each classroom has a coat hall attached.

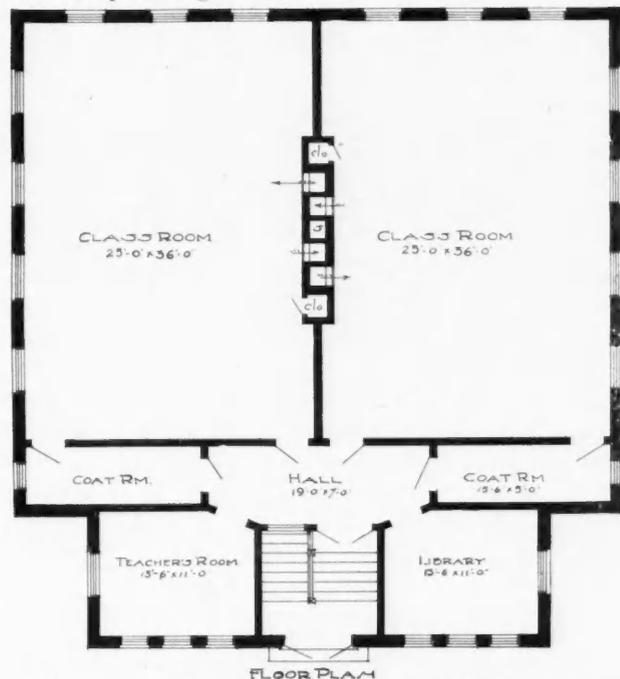
The basement as planned is well lighted and high enough to be of much practical service. It contains playrooms, toilet-rooms and heating plant. At slight

In the suburbs the problem of how to get your wife's spring hat in through the front door has been solved by the building of a large square receptacle on the front piazza, which can be used as a hat garage, so that the bit of millinery need not be taken into the house.

To cure your children of the habit of sliding down the banisters, keep them freshly varnished all the time. It makes no difference whether you varnish the children or the banisters as long as the varnish is sticky.

An upright piano makes a very useful article of furniture for a small suburban residence, it takes up

little room, and can be used in emergencies as an ice-box, or, as a tolerably commodious upper berth for the unexpected guest.

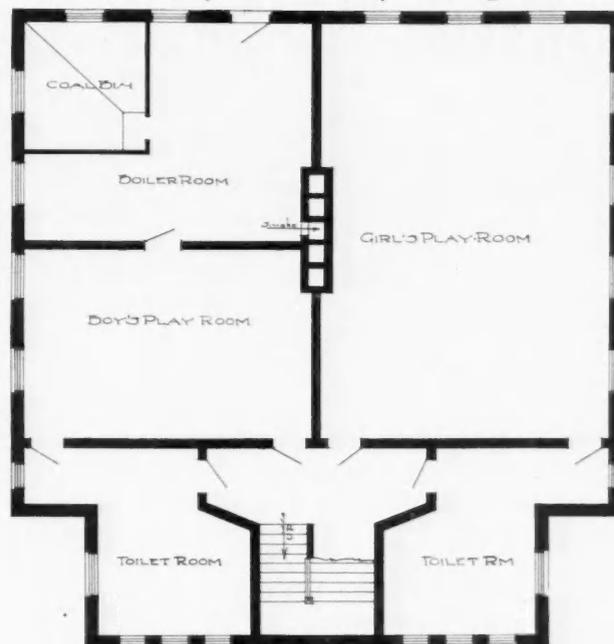


FLOOR PLAN

If you go in for raising pigs do not let them run on the grass. Exercise keeps them lean and hardens their muscles. The philosopher voiced a great principle in pig-culture when he remarked "the pen is mightier than the sword."

Growing plants indoors are always decorative.

Morning-glory seed dropped in the little heaps of dust which your housemaid daily conceals under the sofa, and carefully watered every morning, will com-



BASEMENT PLAN

pletely change the appearance of the most unpromising drawing-room.

The best place to keep a rubber plant is in the front parlor window. The extensive view of the highway with its throngs of passers-by will keep the plant actively rubbering at all hours of the day.

## Bead Moldings—Their Design and Use

DIFFERENT STYLES OF DESIGN FOR USE WITH THE DIFFERENT KINDS OF STRUCTURAL MATERIALS—  
SYMBOLISM IN THE DEVELOPMENT OF DESIGNS

**T**HE corner bead is one of the most pleasing elements entering into the decoration of moldings. In this connection the following diagrams will be found very useful. They show the most suitable style of bead for all kinds of building materials.

The kind of bead that will look well in one material will not prove so satisfactory in another. Then again success depends upon the texture of the material and the kind of tools employed. One often sees beads cut in stone with difficulty because the pattern was obtained from woodwork or plaster.

Beads for cabinet work are turned out whole, as a matter of course, and the sides shaved smooth for fastening in place. While every variety can be produced this method of manufacturing them does not allow such delicate work as the carved marble examples of the Renaissance from which they are copied.

Workers in many modern materials probably know, for the most part, very little about the classic type, and go by whatever they may be familiar with in other materials.

Beads in common building stone have to be coarsely shaped to secure a strong molding. Straight surfaces are best. The little round globule is unsuitable. In

granite it is best to cut through the delicate parts, making a kind of tooth in a cove, the shallower the better.

More pains can be taken in terra cotta because any quantity is molded from the one model, but the shape has to be confined to half the thickness of the bead so it can be drawn out of the mold. The style of bead may just as well agree with the shape of the modeling tools in use.

Work in cast iron should avoid sharp edges and recesses as the molten metal may bubble or fray the edges. To be sure, very fine work is done in alloys from wax models but an appropriate pattern is sometimes a great saving.

Sheet metal work is stamped out; and some design in discs, not more than half a circle in thickness, may be most easily counted on.

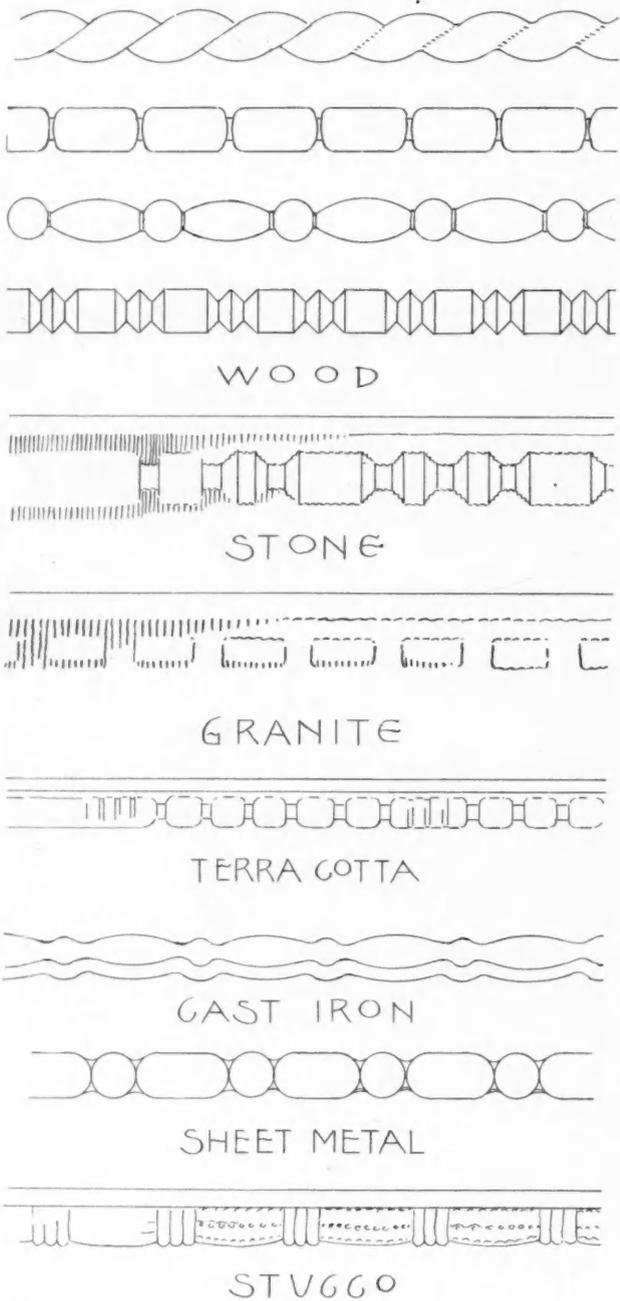
Stucco, of course, favors the most delicate forms. Very slight indentations prove satisfactory, but if tinting is added the interstices fill up. Painting dulls any work of this kind.

Probably the cabinet mill man will say he has been forced to omit a great deal of bead work recently because of the housekeepers' complaint that it catches the dust and is hard to clean. Such objection could

doubtless be easily overcome if it was met with a little interesting information about bead work, its origin and former uses. It gives value to this kind of ornamentation that makes it worth having.

BEAD MOLDINGS.

MOST SUITABLE FORMS FOR VARIOUS MATERIALS



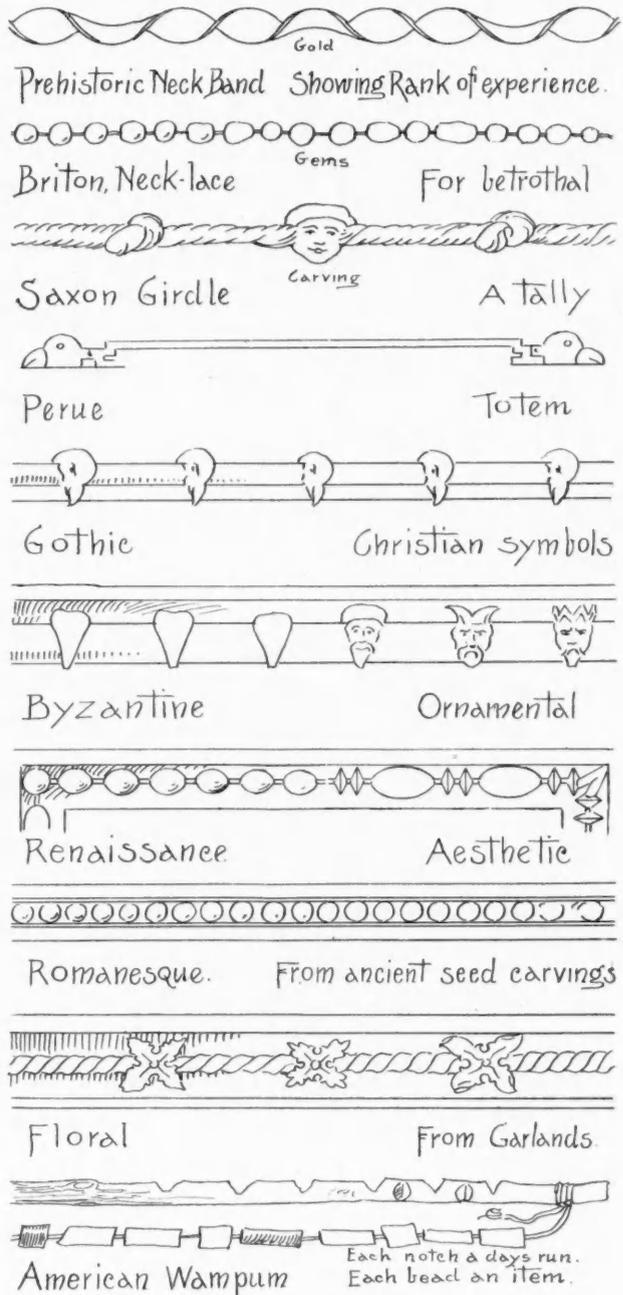
One would not think that twisted or cable molding ought to be in the bead list of ornamental devices; but reference to its source proves that it does. Among northern people, in very olden times, the belt or girdle was their account book. They kept tally of their personal affairs upon it with knots, beads and precious stones. Even to recent times a betrothal among the descendants of the native Britons was signified by necklaces of jet, ivory and amber beads and shells. A gold torque of peculiar twist which was worn about the neck came later. The importance of these mat-

ters led to the carving of these objects in stone. Consequently the first bead moldings are found cut in early Saxon walls. These devices may be seen in the illustrations, which are also useful to the designer of new patterns.

From this historic source architrave beads became a feature of Gothic and Byzantine architecture. New people appropriated the idea for new uses. Work-

HISTORIC

OR EARLIEST USE OF BEAD MOLDINGS



men were impressed with its beauty even after its significance had been forgotten.

It is worth noticing that the Italian bead chaplet in its modern use is still a bead upon a string in the carving. The Romans who penetrated the northern countries there found the "strangers," as they called the natives, stringing berries and flower buds for their

use. The value of the materials did not affect the accomplishments they represented.

We see by this how much more may be said in favor of bead moldings than their mere prettiness. It is such associations as these that give dignity to ornamental work and keep it from falling out of favor.



### Proper Tool Grinding

The woodworking world is of late learning some things about the grinding of woodworking tools. It is learning, for example, that many more tools are spoilt in grinding than are spoilt from defects in metal or in temper originally. This fact has been brought out most emphatically in connection with the grinding of planer and other machine knives in automatic grinding machines. The knife manufacturers have found, upon investigation, that nine times out of ten when there is trouble with knives the trouble originates in the grinding. It is found that the people have always been in too big a hurry to get their knives. That is, to get the work done, and not only make the grinding wheels cut too rapidly, but have been running them at too high a speed. Also, it has been found that a knife can be spoilt by a slow-moving grindstone by putting too much pressure on it, no matter how much water may be used in the grinding. In short, the knife men claim that whenever heat is generated in grinding, when the sparks fly and the edges of the knives turn blue, the metal has been injured.

Now there is no question but that the same applies with equal force to the grinding of chisels, plane bits and other tools used in woodworking. When we go to grind tools, we realize that, while there is an old saying to the effect that no time is lost in whetting, still it is termed non-productive work, and we are anxious to get through with it as soon as possible and get back to doing something.

As a result, almost every man will use unnecessary force or pressure in applying the tools to the grindstone and without realizing it will injure the temper of the tool. The proper grinding of a tool consists of protecting its temper as well as in grinding it to proper shape. Really, it is protecting the temper that is of the most importance. When you make sparks or turn spots blue on the edge of your tool you are injuring the metal. There are two ways this heat injures the metal. One is to draw the temper and make it soft, and the other is to burn the edge and make it crumble. Sometimes one of these happens and sometimes the other, but no matter which it is, injury has been done, and the tool is not worth what it was.

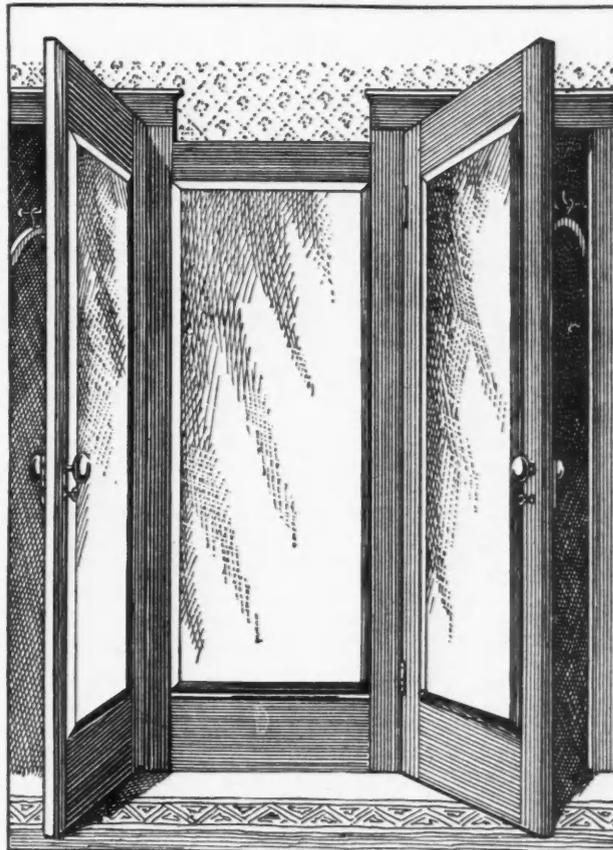
So keep this in mind when you go to grind tools again; don't get in too big a hurry. Be patient, grind them thoroughly, but do the work slowly and you will be rewarded for the extra time spent by having tools which will hold their edge much better. Of

course, the grinding won't put temper nor metal into a cheap tool that hasn't quality in it to begin with, but careless grinding will soon ruin good tools. So, get good tools in the first place and then take pains and put in more time at the work of grinding, so as to keep them in good shape.



### Ingenious Mirror Scheme

A number of the newest and most expensive apartment buildings in Chicago and New York, built without too much economy of space, have cleverly arranged twin closets about 3 feet apart in the bed-



Triple Mirror Arrangement for Apartments

rooms, says *Popular Mechanics*. The doors open in opposite ways, swinging toward each other, and in their fronts are mirrors. The flat wall space between is set with a larger mirror of the same height, and by swinging and adjusting the doors it is possible to get a view of oneself from the front, either side, and the back.

The arrangement is really a triple mirror scheme on a large scale, and one that takes up practically no room at all, as the doors are swung closed when not in use, becoming in reality an attractive set of mirrored panels.



### Longest Bridge in the World

The longest bridge in the world crosses the Yellow Sea near Sangang, China. It is called the Lion bridge, and its length is  $5\frac{1}{4}$  miles. It is supported by 300 huge arches, is 70 feet above the water, and is enclosed in an iron network.



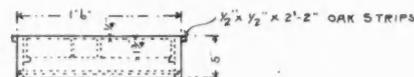
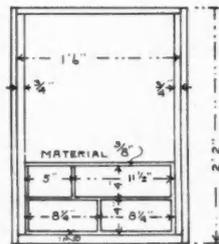
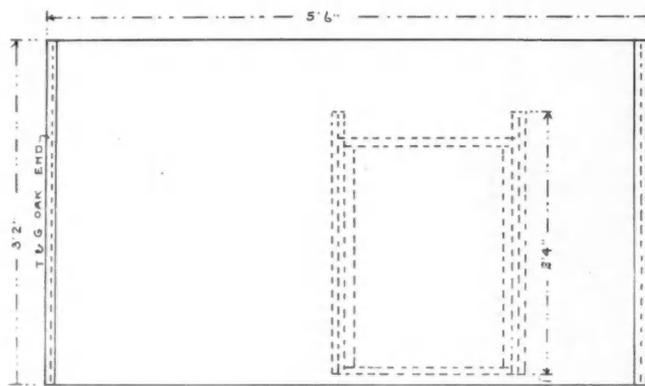
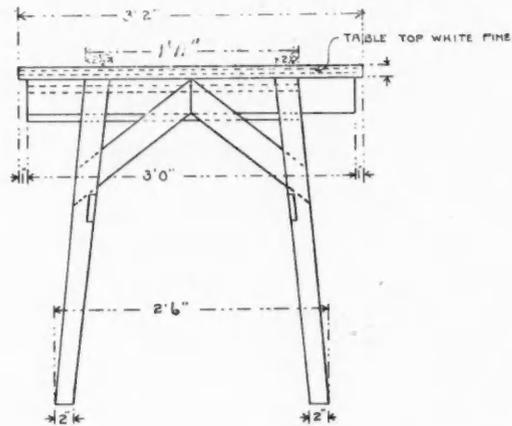
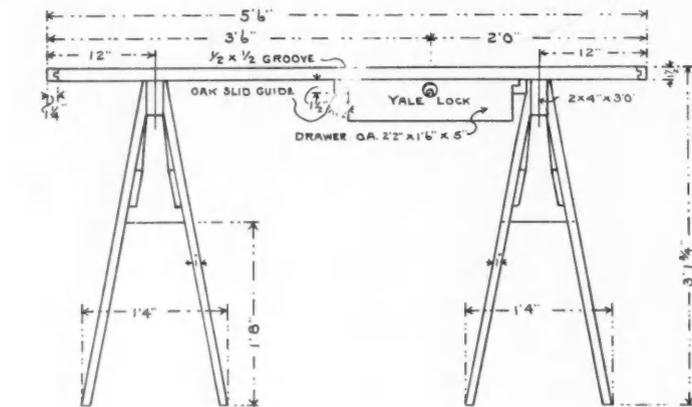
**Brick Veneer Framing Question**

To the Editor: Burley, Idaho.  
 As I am a charter subscriber of your valuable paper I would like someone to give through the correspondent columns of your paper the best and easiest way to set and fit window frames in a brick veneered frame house. I would like the best way to put them in with weights and without weights. The house is framed with 2 by 4 studs, 16-inch centers and is sheathed with shiplap. I would like also the best way to fix sill and segments for the outside of the frames, also brick mold.  
JOHN T. MAHOOD.



**How to Make a Drawing Table**

To the Editor: Indianapolis, Ind.  
 In the April issue, I noticed one of your readers wishes to have printed a working sketch of a drawing table. The ac-



TRESTLE DRAWING TABLE.

companying sketch shows a table which I use as draftsman at the office and have one also at home. It is very easy to construct and is as convenient as any I have ever worked on.  
WILL JACOB.



**He Says It's Patented**

To the Editor: Milwaukee, Wis.  
 I note an interesting article in your April, 1909, issue com-

mencing at page 58, entitled, "Sewage Disposal by Septic Tank," by T. B. Kidner.

The system described there appears to be a satisfactory solution of the problem of sewage disposal for houses isolated from a pipe sewage system, but it appears to be a system covered by United States patent 634,423, patented October 3, 1899, by Cameron, Commis & Martin, especially as to claims 2 and 21. These patentees also refer to equivalent British patents 21,142, dated November 8, 1895, and 23,042, dated October 17, 1896, so that the United States patent will not expire by limitation with the British at least until November 8, 1909.

Your attention is also directed to the decision by the circuit court of appeals published in *Engineering News*, Vol. 59, No. 4, commencing at page 88, in which these two claims, among others, were sustained.

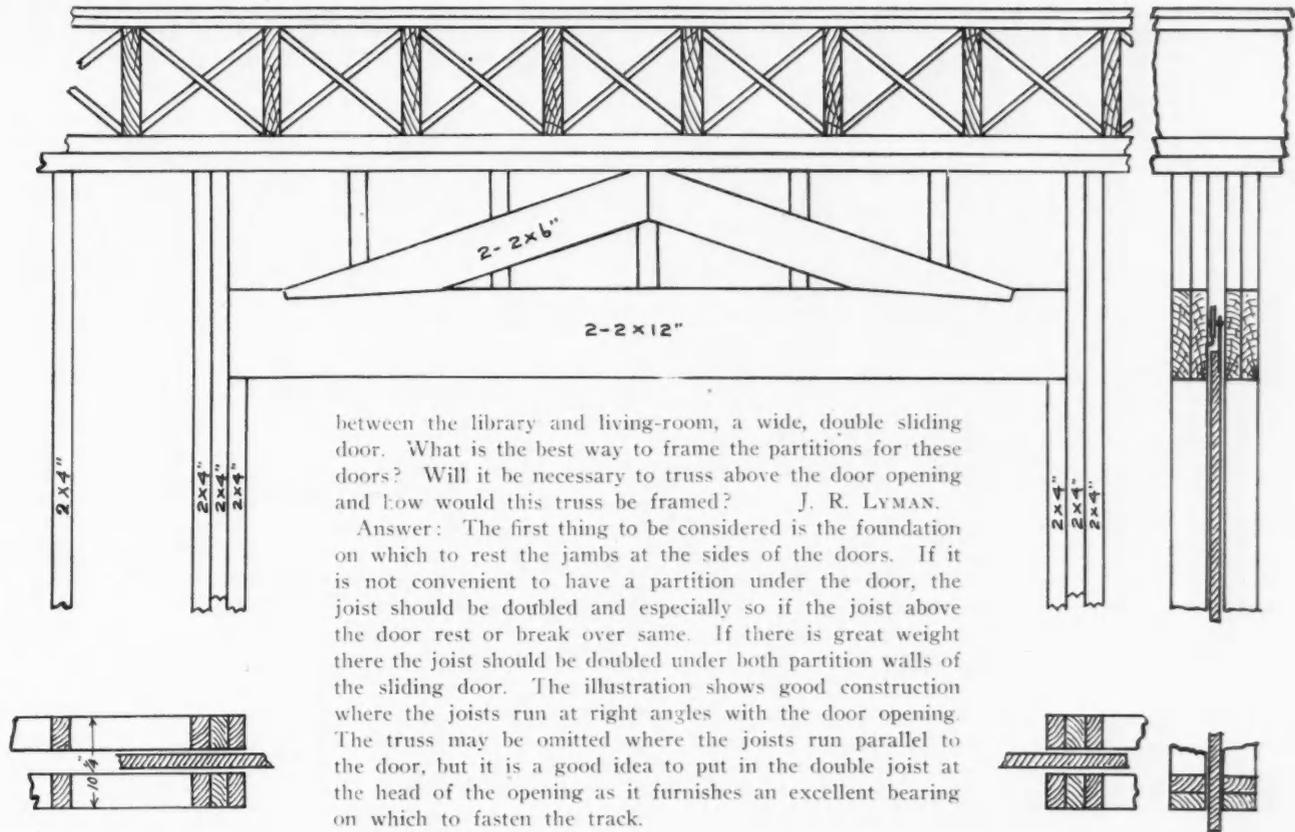
I suggest that, in view of the facts surrounding this United

States patent, your readers, by making practical use of your article, will subject themselves to serious legal consequences.  
G. J. DEWEIN.



**Truss for a Sliding Door**

To the Editor: Oak Park, Ill.  
 I have a house to build which is to be of brick veneer construction. A very fine job is desired. There is to be,



between the library and living-room, a wide, double sliding door. What is the best way to frame the partitions for these doors? Will it be necessary to truss above the door opening and how would this truss be framed? J. R. LYMAN.

Answer: The first thing to be considered is the foundation on which to rest the jambs at the sides of the doors. If it is not convenient to have a partition under the door, the joist should be doubled and especially so if the joist above the door rest or break over same. If there is great weight there the joist should be doubled under both partition walls of the sliding door. The illustration shows good construction where the joists run at right angles with the door opening. The truss may be omitted where the joists run parallel to the door, but it is a good idea to put in the double joist at the head of the opening as it furnishes an excellent bearing on which to fasten the track.

**Jib Head Frame to Close at Top**

To the Editor:

Leaksville, Miss.

I have been taking the AMERICAN CARPENTER AND BUILDER ever since the beginning of 1906. I have not missed a single number and do not want to be without it as long as I am following the carpenter trade. I find a lot of information on various subjects and have been greatly benefited from the writings of my fellow workmen. I think that we should help our fellowmen as much as possible with an exchange of ideas. I would like to ask this one through the columns of our paper:

The proper way to make window frames with an open head so that the lower sash may be raised up out of sight and when lowered, the opening in the head will be closed.

O. E. BAIRD.

Answer: The accompanying illustration is a reproduction of Mr. Uhl's sketch. If built with close-fitting joints and thoroughly nailed together, it will be sufficiently strong to carry all that will be required of it.



**Bay Windows, Screens, Etc.**

To the Editor:

Hughesville, Md.

In the May number Albion Knowlton asks "What Is the Trouble?" The trouble all lies in the window above the bay window. I have had several similar experiences and have proven without a doubt that rain drives between the ends of siding and window casing, then follows down the studding or sub-siding, as the case may be, and therefore behind the flashing and on through the ceiling below.

My remedy is to work a thin putty into all the cracks around the window and then give a good coat of white lead and oil. I am now repairing a bay window that has leaked so badly that all the timbers were rotten and had to be renewed.

I answer to P. J. Buerckle in same issue as to proper way to hang screen doors, would say that the wire should be on the inside both for looks and for convenience.

If the editor will allow me to further take up valuable space in our most excellent paper I would like to submit a "sticker" that I believe has not been submitted before. The original ran something like this, "A ship ran aground, staving

**Rafter Truss for Metal Roof**

To the Editor:

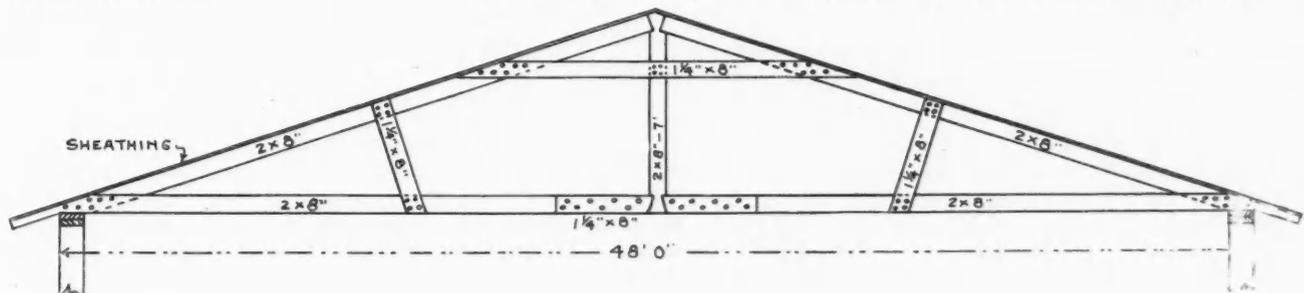
Killbuck, Ohio.

Would like to know if this form of rafter would be sufficient to carry steel roof and ceiling. The rafters are to be set on 2-foot centers on a building 48 feet wide and having a pitch of 3 1/2 inches to the foot.

The joists are to be spliced in the center and all bracing to be nailed on both sides of joist and rafters.

Kindly answer in the next number of the AMERICAN CARPENTER AND BUILDER.

A. H. UHL.



a hole in the side. The ship's carpenter, after trimming out the hole to the size of 5 by 13 inches preparatory to patching, found that he had nothing but a piece of plank 8 inches square. How did he cut the plank to fit the hole?" Can some brother give me a mathematical explanation?

N. N. SIGNED.

### An Adjustable Drawing Table

To the Editor:

Richmond, Ky.

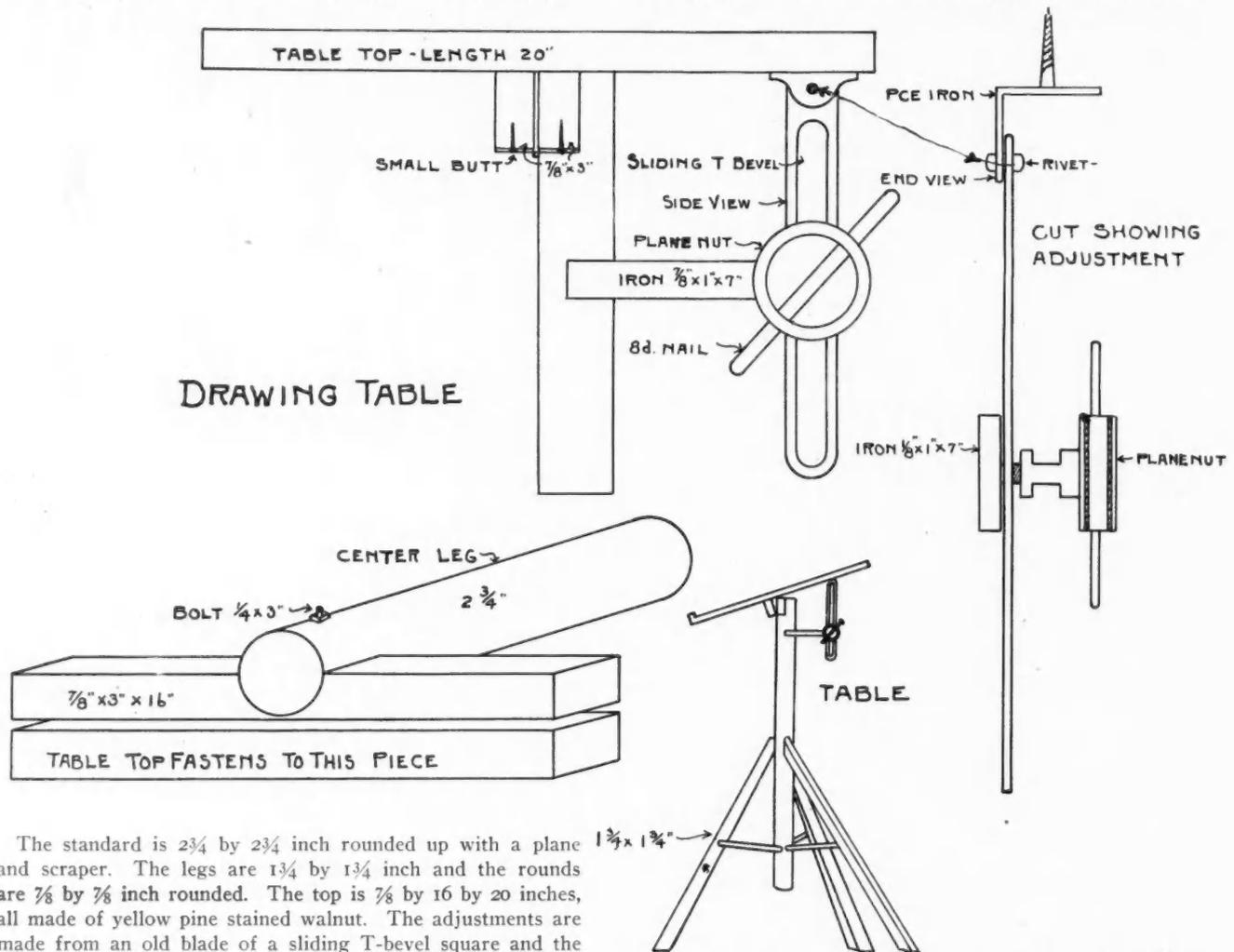
I notice in your last issue an inquiry as to how to make a drawing table. I take pleasure in sending you a drawing of my table which I made for myself. Have made many other tables but this one is my favorite. It sets level anywhere on floor or ground and is perfectly rigid in every respect.

few more things written by older ones in the trade about the regular and most common work as well as the higher priced work. I am only one of a great many and think that our paper is all right; but would like it much better if it had more written on the more common things of our trade.

Now here is a question that I would be glad to see answered as a help to me and to many others: What is the best and easiest way to fit a door and window; the proper way to mark same to saw, and proper distance to leave between door and jamb?

A. W. CRYSLER.

Answer: A good way to fit a door is to get a stick just the height of the opening and another just the width; try the width at the top and bottom as well as in the center, for while it should be the same in every place yet carpenters are not always quite that accurate in setting jambs; therefore the



The standard is  $2\frac{3}{4}$  by  $2\frac{3}{4}$  inch rounded up with a plane and scraper. The legs are  $1\frac{3}{4}$  by  $1\frac{3}{4}$  inch and the rounds are  $\frac{7}{8}$  by  $\frac{7}{8}$  inch rounded. The top is  $\frac{7}{8}$  by 16 by 20 inches, all made of yellow pine stained walnut. The adjustments are made from an old blade of a sliding T-bevel square and the lock nut of an old jack-plane. This table can be made for about one dollar. This table can be made any height for standing or sitting work. If the draftsman prefers to sit down to draw the height should be 30 inches, if to stand, 42 inches. The legs should be spread about 3 feet from out to out and should run to within 10 inches of the top of the table. I hope this will be of some value to the brother carpenters.

J. H. STOGNER.

### Fitting Doors and Sash

To the Editor:

Richwood, Tenn.

I have been taking our paper for a year or more and will say that a man can learn a great many things from it and it is a very helpful paper. But will say further that I am a young man (as I expect many others are) and we want to learn all we can. I think our paper would suit us young carpenters and would be more interesting to us if it had a

one that fits the doors should be very careful with his measurements. Now make the door to the measurements found and there will be very little refitting. Perhaps a more common way is to fit the hinged edge of the door to the jamb and then hold the door back against that edge and mark the other edge by holding a lead pencil against the jamb, thereby getting it exactly the entire length. This way is handy where one on one side can hold the door while another on the other side can mark it; yet with a little practice one soon learns both to hold and mark the door.

Now how tight or loose a door should be fitted is a question that has caused a great deal of argument; and is a question that cannot be answered as easily as one might imagine. It depends entirely on the conditions of the material. If it's late in the fall and the building has just been plastered and is wet and damp and the jambs are all swelled up about it and the doors are brought in before the building is dried out so they are damp also, they will surely have to

be fitted pretty close, or when the house is dried out completely the doors will swing clear through the openings. I have known cases of this kind on fine residences, where they had to go around and tack a thin piece the entire length of the doors to make them wide enough to fill the openings, which practically ruined the otherwise beautiful home. Though they knew no other way except to get new doors, such a job, can be better remedied by removing the casings as carefully as possible and cutting and moving over the jamb close to the door as necessary.

But for an ordinary job where the material is in the proper conditions the old rule to leave a crack so you can easily slide a silver dollar the entire length of the door is about right, *i. e.*, by holding the hinged edge tight against the jamb, slide the dollar along the front edge of door between it and the jamb, then when you hang the door, hang it so you can slide a dime its entire length of the hinged edge, and the balance or the largest crack should be at the front edge. The thickness of a dime at the hinged edge and the thickness of a penny, nickel or quarter at the front edge makes a good guide, though I will admit that that's not the way a carpenter generally takes measurements.

After you have the door so the dollar will slide freely the entire length scribe the top and fit it accurately to the top jamb, and when it's hung be sure and leave as big a crack there as anywhere to allow for slight settling of the house or jamb without binding the door, as often happens even before the painter is through with the job. Remember in all this fitting to judge the condition of the lumber and allow plenty for the painter to properly put on his finish.

Doors are not generally scribed and cut off at the floor until after they are hung. A door should be beveled back from the face edge, so the edge at the hinges will work freely and so that the front edge can be opened.

The best door holder I have ever used out of the many different ones I have tried is made with two pieces of 2 by 2 a little over a foot long. Nail a piece of parquet floor about the same length across the center of them and nail at the top edge of the flooring two 2 by 2 inch blocks just a fraction farther apart than the thickness of the door; so when the door settles down on it the flooring, which is thin, will bend and tighten up on the door. Any flooring or common board will do, though if much thicker than  $\frac{3}{8}$  inch it should be kerfed with a saw to make it bend easily.

In fitting sash I first remove both stops and one parting strip and cut the lugs off the top sash. If I find it needs only a very little fitting (which is all sash should need) I put the half inch thickness of my 2-foot rule on for a gauge and cut out the little notch in the sash for the parting strip; then I fit the sash just so it will run freely, taking in fully the conditions of the materials and surroundings. A sash to run nicely should be fitted loose enough not to bind and yet not so loose as to rattle and buck.

I fit the lower sash the same as the top, and then with my compasses measure at the meeting sash the distance that the bottom sash is to be cut. Then after setting them at the center sash, mark the bottom of the bottom sash both in and outside and cut to the scribe lines, which gives both fit and bevel. Where sash is glazed before fitting a bevel can be set for the bottom bevel, which is generally made to fit the bevel of the sill, though in some instances a different bevel is given which it is claimed allows the bottom sash to dry out better.

DWIGHT L. STODDARD.

### A Well-Built Bungalow

To the Editor: North Platte, Neb.

I am sending you the photo of a bungalow of my design, built here last fall for Mr. E. A. Cary. It may be of interest to some of your readers as showing something of the cost of a well-built bungalow in this state. It is a gem of its

kind; has 6 rooms, pantry, bath and basement full size of the building. The outside dimensions are 32 by 44 feet. It has all modern conveniences, hot air furnace, electric lights and gas for cooking. The foundation is of concrete blocks and the basement floor is cement. The construction is very



substantial and the finish thoroughly first-class throughout. The cost complete was \$4,500.

J. R. WHITE.

### For Leaky Bay Windows

To the Editor:

Lamoni, Iowa.

In reply to Mr. Knowlton's inquiry, May number, about a leaky bay window, I will say I have only found one remedy for it, and that is to put a piece of tin or zinc—or copper, which is the best—clear back under the window sill and turn it up and nail to the inside edge of sill. The leak always comes from the parting stop groove; the water beats against it and runs down the parting stop. I have never had any trouble with them since I commenced this way. The first one I ever did this way was 16 years ago, and it has never given me any trouble—there was a double window over it.

H. L. FERGUSON.

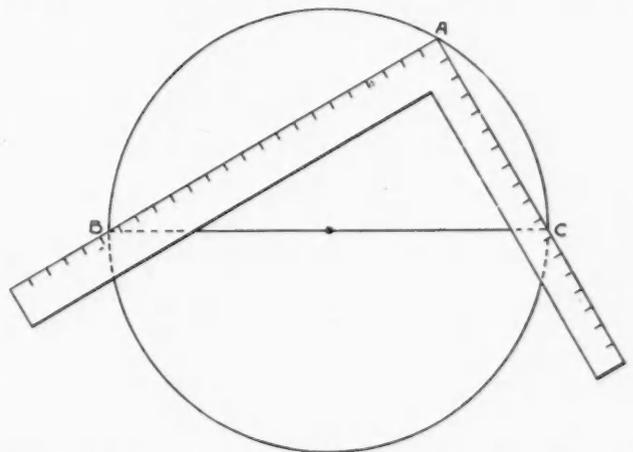
### Finding the Center of a Circle

To the Editor:

Rawlins, Wyo.

In the April number, Mr. J. W. Lattimer, of Beaver Crossing, Neb., gives a simple method for finding the center of a circle. I send you herewith a method which I think is more simple than Mr. J. W. L.'s method.

Place the heel of the square touching the circle. Draw a



line from B to C and the center of line B-C is the center of the circle every time, no matter what the position of the square is, provided the heel touches the circle.

FRANK BLAKE.

### He Spots an Error

To the Editor:

Herculaneum, Mo.

If allowed, would call your attention to page 192 of May number in regard to detail of stairs. The first baluster from

newel is set front face in line with front of riser, which I would call correct, and third baluster is set back and out of line with riser. I would say the third baluster is set wrong.

J. W. DUGAN.

Answer: Your point is well taken. Yet when you consider that the detail in question was drawn by a second-year apprentice boy it does not seem so bad. This mistake shows how important and necessary it is to be very particular about even the smallest details of carpentry work. In no other way can good work be done.

**Another "Sticker"**

To the Editor: Fayetteville, Ark.

I would like to propose a sticker that I have never seen worked. It reads as follows:

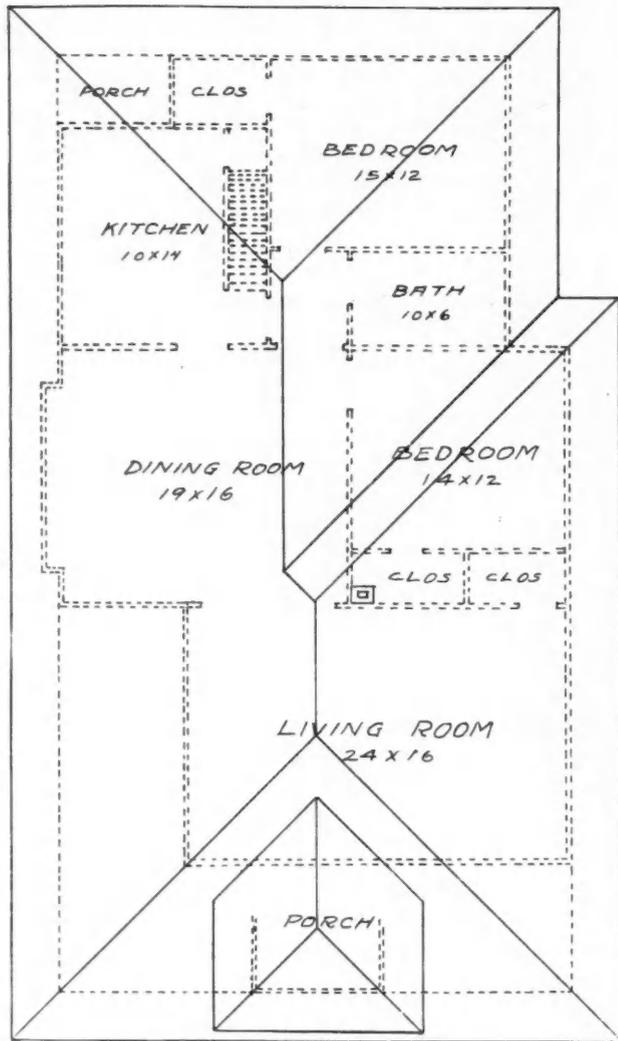
There is a conical glass 6 inches deep; the diameter at the top is 5 inches; it is 1/5 full of water. If a ball 4 inches in diameter be put into this glass, how much of it will be immersed in the water?

W. W. McCAST.

**Bungalow Roof Design**

To the Editor: Dexter, Iowa.

Enclosed find a floor plan which I would like to have you



**ROOF PLAN.**

tell me what would be the best way to put on a roof to give it a bungalow effect, with about 3-foot cornice and also what would be the proper height for studding. Of course, do not

expect much room upstairs, possibly only a storeroom.

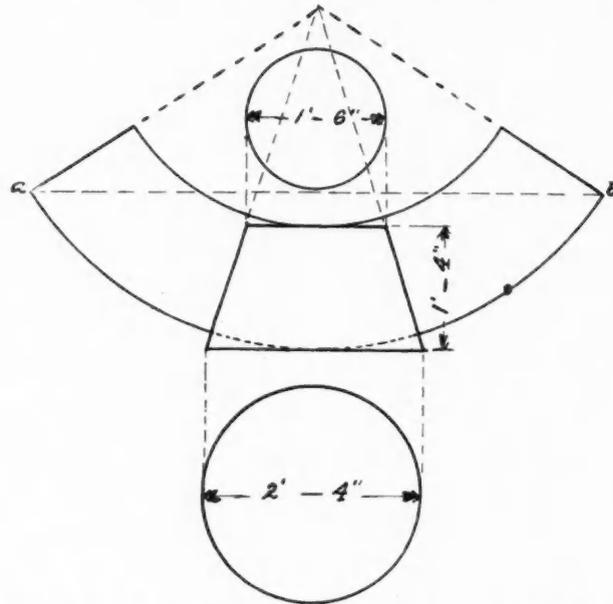
GEO. C. JOHNSON.

Answer: The shape of this house is very nicely arranged for the bungalow type, as will be seen by referring to the accompanying illustration, which is a reproduction of Mr. Johnson's sketch. The walls are shown by the dotted lines and the roof by the heavy lines. Would recommend using 10-foot studding with about an 8-inch rise to the foot for the roof. The ceiling should not exceed 9 feet in the clear.

**Length of Chord**

To the Editor: Pittsburg, Pa.

Will some one who knows tell me through the columns of the AMERICAN CARPENTER AND BUILDER whether the length of



a veneer for the frustrum of a cone, as from a to b, can be found by mathematical calculations, when the two diameters and altitude are known? It is the chord of the segment, a b, I want to get from the measurements given.

J. E. MITCHELL.

**Veneer Jointing Pointers**

To the Editor: St. Joseph, Mich.

As I am an old veneer man I will contribute a little article on the subject of veneer jointing and will be pleased to give any information to any of our family of subscribers at any time. I do not intend to criticise the article that appeared a short time ago in regard to using this prepared tape or paper, but will say that if you want to do a first-class job you had better not buy any of it. I have tried it many times and find it is no good. My advice is: Be careful and get a perfect joint, use good quality of paper strips and good glue, and if the veneer be very stiff and crooked clamp a warm strip over the joint, but lay strips of newspaper over so the strip will not tear your veneer. My way of laying is to lay the paper outside; for two reasons. 1. If you have many to glue and use warm cauls between them (which is absolutely necessary for a good job) and you lay the paper strip inside, the chances are that the hot glue will loosen your paper or crack it, and your joint is all off and you will be sadly disappointed when you come to loosen your stuff up.

2. If the veneer (as is often the case nowadays) be very thin and your strip paper a little heavy and laid inside, you will find that great care is necessary in sanding up, lest you sand through the veneer. Try for yourself this simple test: Take some joint paper 1 or 2 inches square, glue a piece of wood on both sides of it; then when dry see how easy it

will break in two, as the paper will split or rip. Now again, the paper being outside, the veneer is a little more compressed at the joint than anywhere else by the thickness of the paper. Then to get the strips off soak or dampen with hot water and they will peel off; scrape off the glue and your veneer will be just as even as it is possible to make it.

I did not intend to say so much on this little subject but really I wanted to make it as plain as possible and explain what I have learned by years of practical experience. My advice is if you have never seen any veneering done and have any to do better see some one that has some idea of the work.

JAMES D. TAHANEY.

**A Convenient Drawing Table**

To the Editor: Flushing, N. Y.  
Being a reader of your valuable paper I notice Joseph Kucera asks in April number for a detail, outlining a draw-

ing table. I have just completed one which my friends and I consider very useful. I enclose a plan. If you have room I would like to have you print it as I believe it would prove interesting to brother readers, as it is both simple and serviceable.

CHARLES GEO. NELMS.

**Whitest Gloss House Paint**

To the Editor: Cosby, Mo.  
I have a customer who wants his house painted a gloss white without trimming (to be mixed with white lead). What I want is directions just how to mix the last or finishing coat so as to get the whitest and best results; and I also want it to be durable.

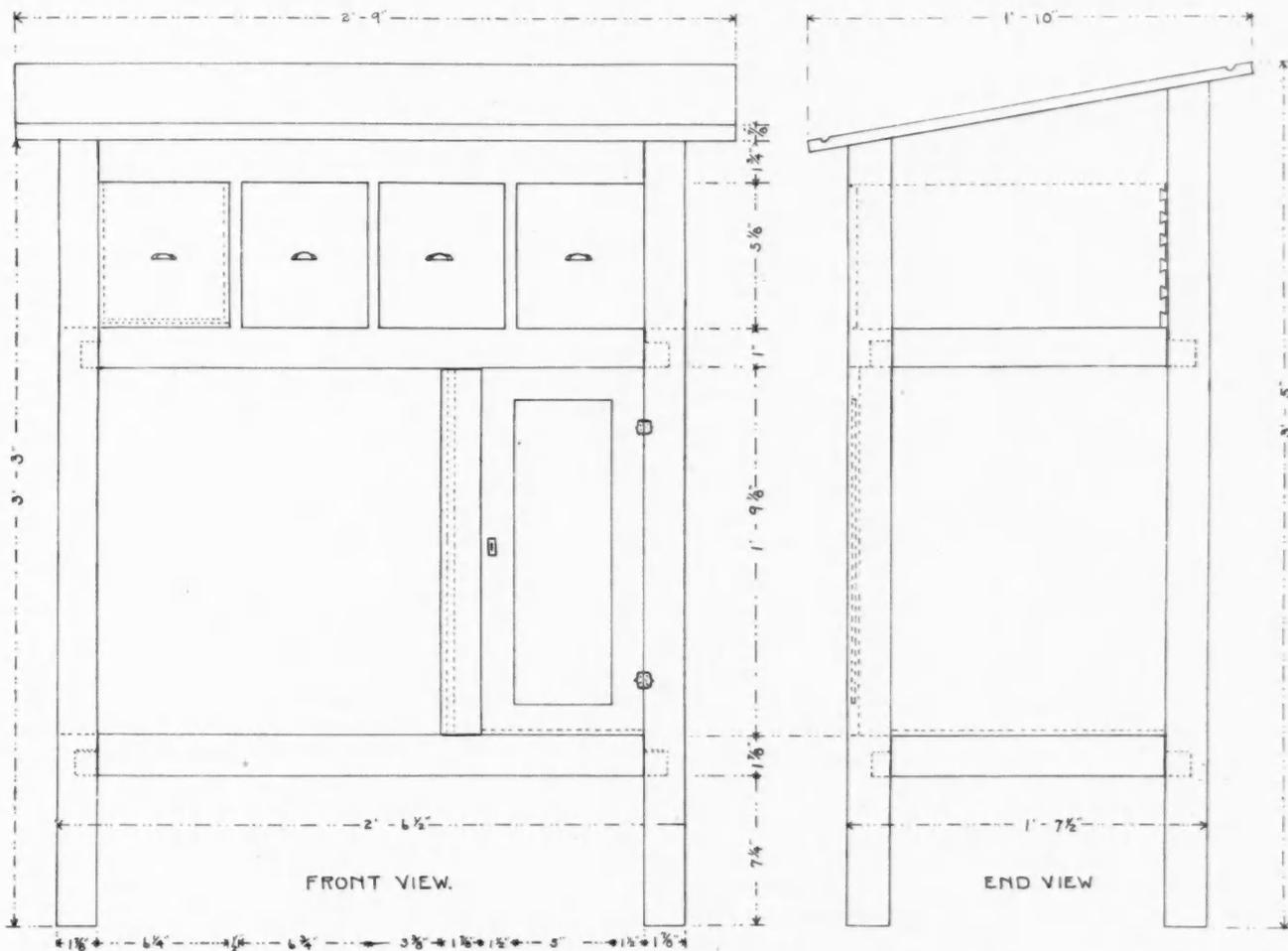
Please tell me just what ingredients to put in and how

to proceed to mix them. As this is the second question I have asked you on painting I would apologize, but being a charter member, tried and true, I will not make the apology this time. Please let me hear from you as soon as possible as we are painting the house.

H. M. THOMAS.

Answer: Owing to the fact that white lead perishes by chalking or powdering off the surface, when mixed with linseed oil, it would be impossible to obtain a durable gloss white finish unless the final coat were mixed with a mixing varnish; or better yet, the house should first receive two coats of white lead paint as a foundation, followed by two coats of the best quality exterior white enamel.

Some linseed oil manufacturers are now putting on the market specially treated linseed oil which will dry with a reasonably good gloss that will wear much longer than the gloss obtained from ordinary raw oil. A manufacturer of paint specialties makes a linseed oil varnish that would prove fairly durable. In either case, and also if the house is to be



finished with enamel, the coat before the gloss coat should be cut with sufficient turpentine to cause it to dry flat, or with not more than an egg-shell gloss. Any yellow tone that the white lead and oil may have will speedily bleach out when exposed to strong light.

As stated above, there are a number of special enamels made that will stand long-continued exposure to the weather; as is shown by the fact that they will wear for two or three years upon the freeboard and the deck houses of yachts, but these materials are quite expensive and the painter should get a substantial advance in price over ordinary painting. The result, however, will amply justify their extra cost. If these cannot be obtained equal parts of pure white lead and French zinc white in oil should be thinned to the consistency of cream with pure turpentine; adding one-half pint white

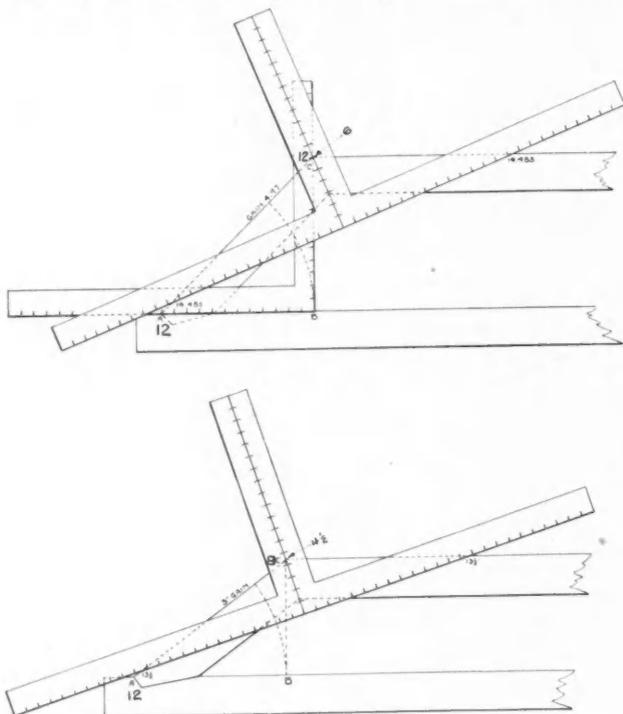
japan to each quart of the mixture, and thin to flowing consistency with the palest wearing body or outside white enamel varnish that can be obtained, using this for a finishing coat. It must be flowed on like varnish, in a smooth even coat, taking care to avoid laps, and must not be rubbed out like paint.

EDWARD HURST BROWN.

**Miter for Truss or Bay**

To the Editor: Windber, Pa.  
 Being a charter member, I would like to answer Mr. A. D. Woodson's question in the June number, 1908, concerning top cut of a bridge truss; and also Mr. Fred G. Nye's question in the April number, 1909, for a rule to get the miter of a bay window by the aid of the square.

I give herewith two examples of how I bisect any angle with the aid of the steel square and pencil. The rule is sim-



ple; but in order that all may understand it, I give one example of half pitch and one 9-inch rise to 1-foot run.

Rule: Base, plus one-half of gain of rafter on blade of square. One-half of rise on tongue; tongue gives the cut to bisect the angle.

Another rule to get the same result: Base, plus the length of rafter on blade, rise on tongue; tongue gives cut.

Rule to bisect this angle with the steel square and pencil: Base 12 inches, plus one-half of gain of hypotenuse 1 1/2 inches, equals 13 1/2 inches on blade. One-half of altitude, 4 1/2 inches on tongue; tongue gives cut.

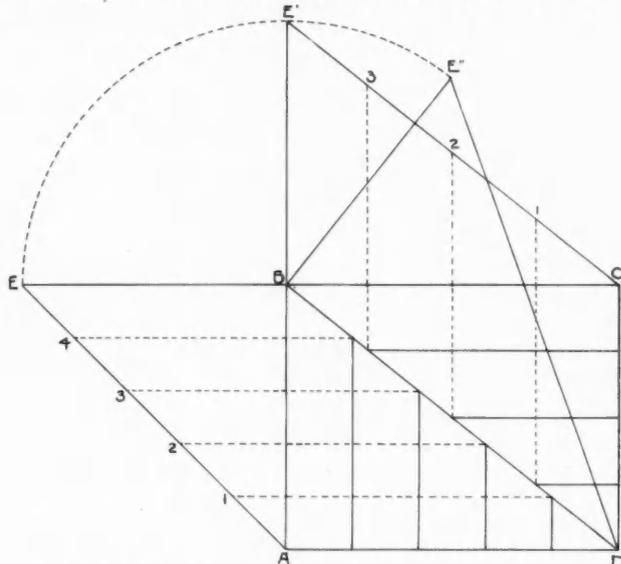
Same rule, but different application: Base, plus hypotenuse equals 27 inches on blade; altitude or rise 9 inches on tongue; but the square will not reach 27 inches. Then one-half of 27 inches equals 13 1/2 inches and 4 1/2 inches is one-half of 9 inches; then we have 13 1/2 inches on blade and 4 1/2 inches on tongue, same as above. So then to bisect this angle take 13 1/2 inches on blade and 4 1/2 inches on tongue; tongue gives miter.

JOHN L. BRETH.

**Framing an Uneven Pitched Roof**

To the Editor: Passaic, N. J.  
 I have noticed in your March number that W. O. H. has a roof to frame which is somewhat similar to one I had recently. I have followed up your steel square problems and have received much benefit from them, but do not know it all

yet, and as I have never seen anything like this during my period of study. I enclose a sketch of a roof and hope to have you go into all the details necessary to lay out the right and left jacks; also the valley rafters. There are two pitches



to deal with and I would like to have all the light on the subject possible.

P. B.  
 Answer: Lay off a parallelogram to a scale, as A B C D, with side and end equal to the runs of the respective gables, as follows:  
 A B, short run; B C, long run; D B, run of valley; B E, rise, which must necessarily be the same as for common and valley rafters; A E, length of common rafter for narrow gable or steeper pitch; C E', length of common rafter for the wide gable or main pitch; D E'', length of the valley.

It will be seen that there are three jacks on one side of the valley and four on the other. It should be remembered that a jack is simply a part of a common rafter and the lines shown in the plan represent only the respective runs. The dotted lines intersecting the runs at the line D B to the respective common rafter will show their lengths, as A 1, on line A E, represents the length of the first jack on the steeper pitch side, and C 1 the same for the other side.

The seat and plumb cuts for the jacks are the same as for the common rafter to the side for which they belong. The side cuts are found by taking the run of the long common rafter and the length of the short common rafter to a scale on the steel square and the cut will be found on the side on which the length is taken for the short common rafter.

Referring to the diagram, it is A D on one arm of the square and A E on the other. Cut on the latter. Proceed in like manner for the other side.

A. W. WOODS.

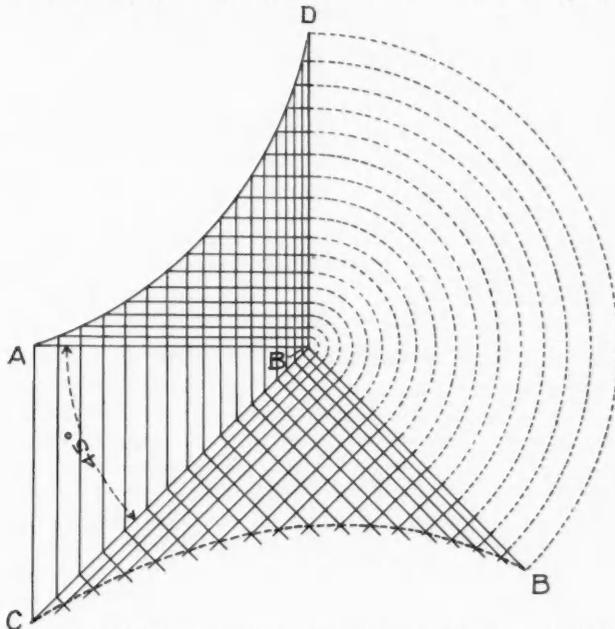
**To Develop Curved Rafter Ends**

To the Editor: Anaheim, Cal.  
 As I have taken your paper ever since its birth, and expect to continue, I take the liberty to ask a question. In getting out rafter ends that have a sweep or curve, how do you make the hip ends without scribing them from those of the common rafter, so that all parts will line up properly?

E. L. HEIN.  
 Answer: Questions pertaining to this subject, have been answered several times since the first publication of this paper. There are several ways of solving the problem. It is answered in the article on the use of the steel square for this month. However, we will give it special attention by solving it by the old method, which is found in all the books published on carpentry and joinery work and is the method most generally used for such work. The illustration explains itself.

The curve for the common rafter can be anything desired and should be laid off full size.

In the illustration, A B represents the run of the curve for the common rafter and C B the same for the hip. B D represents the rise and necessarily follows that A D represents the curve given the common rafter. For a square-



cornered building and where the pitch is the same on both sides, the run of the hip will necessarily rest at 45 degrees from that of the common rafter as shown.

Next, lay off any number of lines parallel to the run of the common rafter, also a like number with corresponding spacing parallel to the run of the hip, but to be of indefinite lengths, as shown. Now, draw lines from the curve of the common rafter (A D) and at right angles to the run (A B) intersecting the run of the hip (C B), thence at right angles indefinitely. At the intersection of these lines to the corresponding parallel lines of the hip will be the points from which to run an off-hand curve to correspond with that of the common rafter. Rafter end of various fancy slopes, such as are used for bungalows, are developed in a similar way.

For particular work, the curve of the hip should be backed, and this may be found by measuring back one-half of the thickness of the hip on the parallel lines, which will give the gauge line along the side of the rafter from which to remove the wood to the center, as formed by the first curve developed.

A. W. Woods.

**Remedy for Leaky Bays**

To the Editor:

Strawberry Point, Iowa.

I am a charter member of the AMERICAN CARPENTER AND BUILDER and think it is the best trade journal, for I have learned more from its pages than from any other magazine. I always like to read the correspondence department, as much information is contained therein.

In answer to "What Is the Trouble?" in the May number, page 209, to Mr. Albion Knowlton, Lanesville, Mass., will say:

The trouble lies in the joint where the clapboards and window casing join together, as a beating rain will beat through in this joint, no matter how close, being open underneath the window it has a little draft, causing the moisture to be drawn through, and follow the paper or shiplap which is back of the zinc flashing. Here I will say that most of the carpenters will place the shiplap and paper, then place flashing outside of paper, this will surely leak; if any of the brother carpenters doubt my word, then just try taking your

flashing out—the leak will be about the same. Again, run the flashing behind the shiplap, set your window frame, paper and clapboard, and I will guarantee a "no leak." I discovered this remedy about 10 years ago and have had no trouble since.

G. E. GRATKE.

**Timberman Problem Solved**

To the Editor:

Philadelphia, Pa.

In answer to the problem for timbermen given in your May issue I submit the following solution:

In every right-angled triangle the square of the hypotenuse is equal to the sum of the squares of the base and perpendicular.

The sides of the triangle will have a relation to each other of 3:4:5 respectively. Let one side equal the width of the stream which is 50 feet. Then the short side will equal  $\frac{3}{4}$  of 50 feet or  $37\frac{1}{2}$  feet. Therefore  $37\frac{1}{2}$  feet from the ground the tree will break and  $\frac{5}{4}$  of 50 or  $62\frac{1}{2}$  feet will be the length of the other part hanging over the stream.

PAUL T. LESHER.

Correct solutions have been submitted to date from the following also:

- A. H. Harmon.....Kalamazoo, Mich.
- F. M. Knowlton .....Brattleboro, Vt.
- L. H. Arnold.....Chicago, Ill.
- Ed. Vail .....Gouverneur, N. Y.
- I. P. Hicks.....Omaha, Neb.
- Chas. S. Tibbetts.....Portland, Me.
- R. H. Harper.....Zion City, Ill.
- L. D. Dowley.....Long Beach, Cal.
- Oscar Nielson.....Tacoma, Wash.
- H. E. Phelps.....Lebanon, N. H.
- Ralph M. Cross.....Wellston, Mo.
- B. P. Tureaud.....Convent, La.
- C. R. Snedeker.....Lodi, Ohio
- J. W. Trafzer .....Springfield, Ill.

**The "Ball and Cannon" Problem**

To the Editor:

Zion City.

I enclose herewith solutions to some of the "stickers" in the May number.

In regard to the cannon problem I should say that the backward motion of the cannon would neutralize the forward impulse of the ball and the ball would, therefore, remain stationary. If the cannon were somewhere in space and not affected by the resistance of air, ether or friction upon the earth, it would be 3,600 miles from the starting point at the end of an hour.

Under actual conditions it would be as difficult to calculate the resistances as to furnish the motive power to propel the cannon as stated.

R. H. HARPER.

**Another**

To the Editor:

Wellston, Mo.

I find the "sticker" column very interesting and the AMERICAN CARPENTER AND BUILDER is a jewel.

In my opinion Mr. L. E. Brundage in his gun supposition places the cart before the horse and simply plays hob with natural philosophy by using the cannon as a projectile so that the ball remains at the place where the cannon was discharged, and the cannon would in one hour's time be 60 times 60 or 3,600 miles away.

RALPH W. CROSS.

**The "Can Storage" Problem**

To the Editor:

Portland, Me.

I am a new subscriber and taking considerable interest in

the "stickers" printed in the April and May numbers, will present myself for membership in the class by trying to solve a few of them.

In regard to the number of cylindrical cans 1 foot in diameter and 2 feet long, I find that by laying the cans on their sides, 5 tiers with 12 cans one way and 6 the other, and 4 tiers with 11 one way and 6 the other can be piled in room 12 feet square and 8 feet high or 624 cans.

I will submit a problem that, while being very simple to those using trigonometry, will prove more difficult to solve by simple mathematics.

The problem is to find the area of a pentagon whose side is 10 inches.

CHAS. S. TIBBETTS.



### For Etching Tools

To the Editor:

Mascoutah, Ill.

Without doubt the following solution for etching tools will prove valuable to many of your readers on account of its cheapness and durability.

Take 4 ounces bluestone, 2 ounces salt and  $\frac{1}{2}$  pint rain water; let it stand about 12 hours or longer, as the mixture becomes stronger with age.

Cover the parts you wish to protect from its influence with paraffine, soap or some other similar substance. Take a sharp-pointed instrument and scratch your name or design upon this; then put on the acid. After the tool has been exposed to this liquid for a few minutes, the acid is poured off and the tool washed with clean water and thoroughly dried.

GEORGE W. HEHNER.



### Two Questions Answered

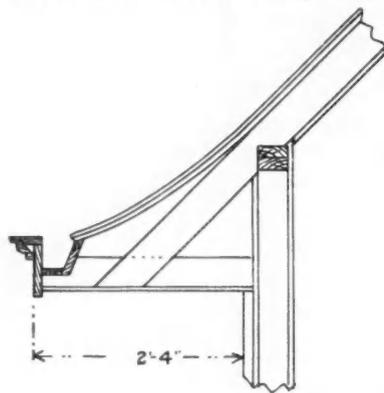
To the Editor:

Stockton, Kan.

You will find enclosed a tracing taken from a blue print. Will you kindly answer how to put on the return according to the plan. It will be a great favor to me. Also state if it is best to kerf molding on sweep or work it out by hand?

ART PICKENS.

Answer: In this case, the drawings show that the side gable does not project beyond the eave of the main roof and the fascia mold is continuous from the eave to the gable. However, there should be a piece gotten out to member with



SECTION MAIN CORNICE

the lower edge of the mold to go around the return, as shown.

As to the second question, it makes a far better job to work the mold out of the solid, as there will be no places to open up, as will be the case in kerfed work, no matter how skillfully it may be done.

A. W. WOODS.

### New Idea for Fire Protection

To the Editor:

Florence, Mont.

About a dozen years ago, when my good neighbor, Blaydell, was building his house, he incidentally became possessed of a barrel of empty quart bottles. He filled these with a solution similar to that used in "hand fire grenades" (costing something like a dollar), corked them tightly, and scattered them about in the plastered-in places around the chimney, in the upstairs partitions, and in the walls on the upper floor.

A few years later he sold the house and moved to another state. In a late local paper he noted an item to the effect that a fire had recently broken out around the chimney of that house; but that, for some unknown reason, it had gone out of itself before water could be gotten on it.

There may be cause for somber conjecture as to how he came by those bottles; but the use he made of them seems to have justified itself.

W. D. GRAVES.



### Finishing Oregon Pine

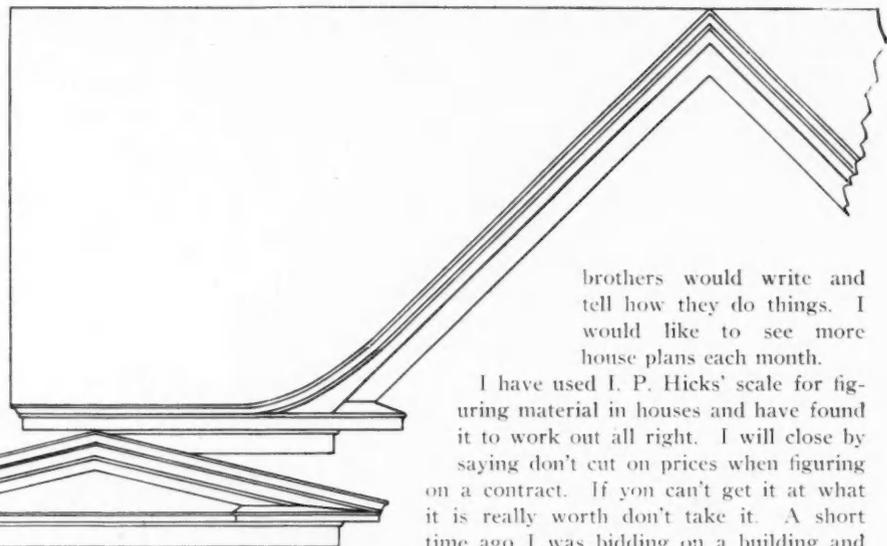
To the Editor:

Lebanon, Ore.

In your last edition, under the head of "Painting," Mr. Edward Hurst Brown gave us some good pointers in regard to staining Oregon pine and I want to tell you how we carpenters do it here when we have a contract to finish up a building. The first thing we do is to scrape and sand all doors, moldings, base and casings, in fact all inside wood, and then we take a good wood dye and paint all wood a good coat; don't be afraid to daub it on thick; two coats are better than one. After the dye has dried thoroughly we take the steel scraper and scrape all the dye off the hard parts of the wood and finish with fine sandpaper or steel wool. Don't be afraid to use the scraper and sandpaper. We do all this work on the bench before we place the work. After it has been placed we turn it over to the painter to putty up nail holes and to varnish. Select flat grain material and follow the above directions and you will have a finish fine enough to go into a king's palace.

I sometimes use a stain of my own made out of burnt umber, asphaltum and gasoline. If G. S. Smith, of Berkeley, Cal., will try the above rule I am sure he will get the desired effects.

I am a charter member and have received much help from the AMERICAN CARPENTER AND BUILDER. I wish more of the

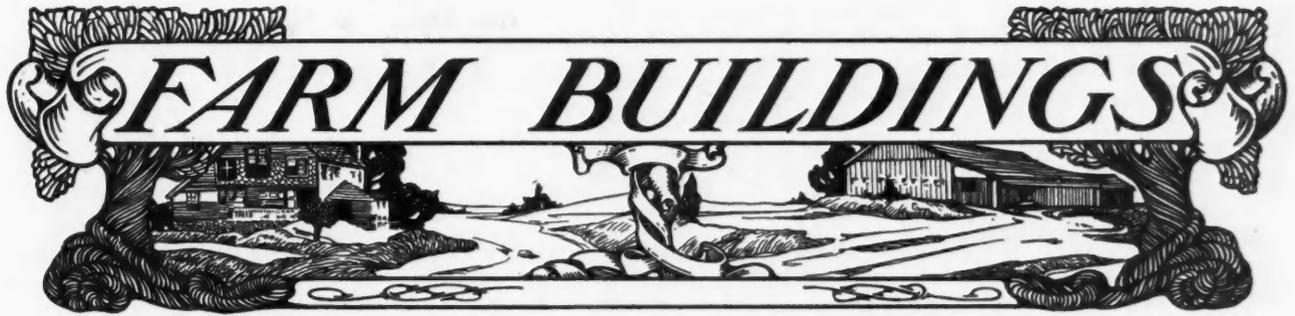


brothers would write and tell how they do things. I would like to see more house plans each month.

I have used I. P. Hicks' scale for figuring material in houses and have found it to work out all right. I will close by saying don't cut on prices when figuring on a contract. If you can't get it at what it is really worth don't take it. A short time ago I was bidding on a building and

when the bids were opened my competitor was \$25 under me. The man came the next day to me and said he would rather that I should build his house and if I would meet the other man's price I could have it. I replied that I did not cut prices, that I treated everybody alike. The other man got the job.

J. M. BURTENSHAW.

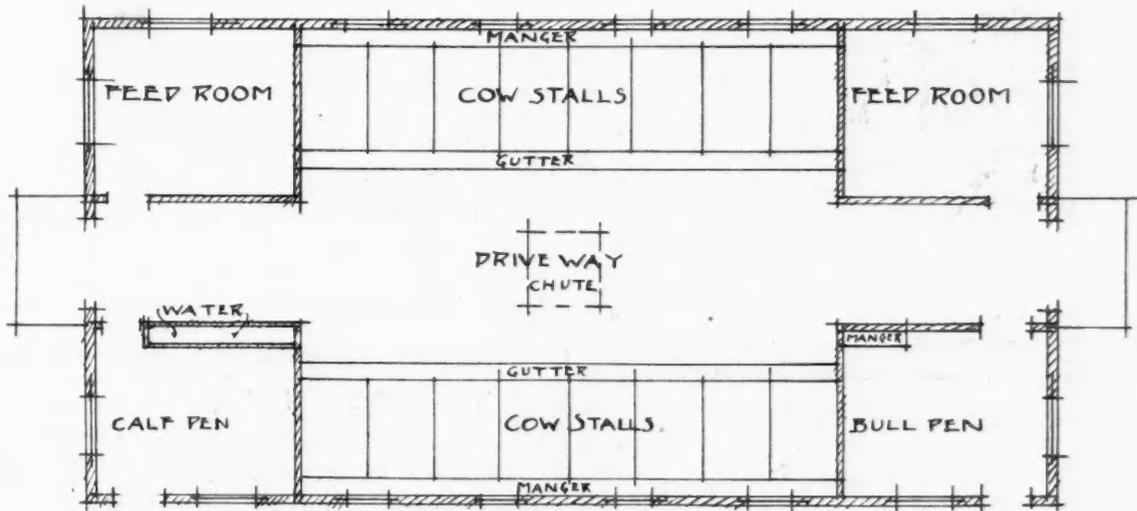


### A Small Dairy Barn

PERSPECTIVE AND FLOOR PLAN OF A WELL-ARRANGED DAIRY BARN DESIGNED TO STABLE A SMALL HERD—DESIRABLE FEATURES NOTED

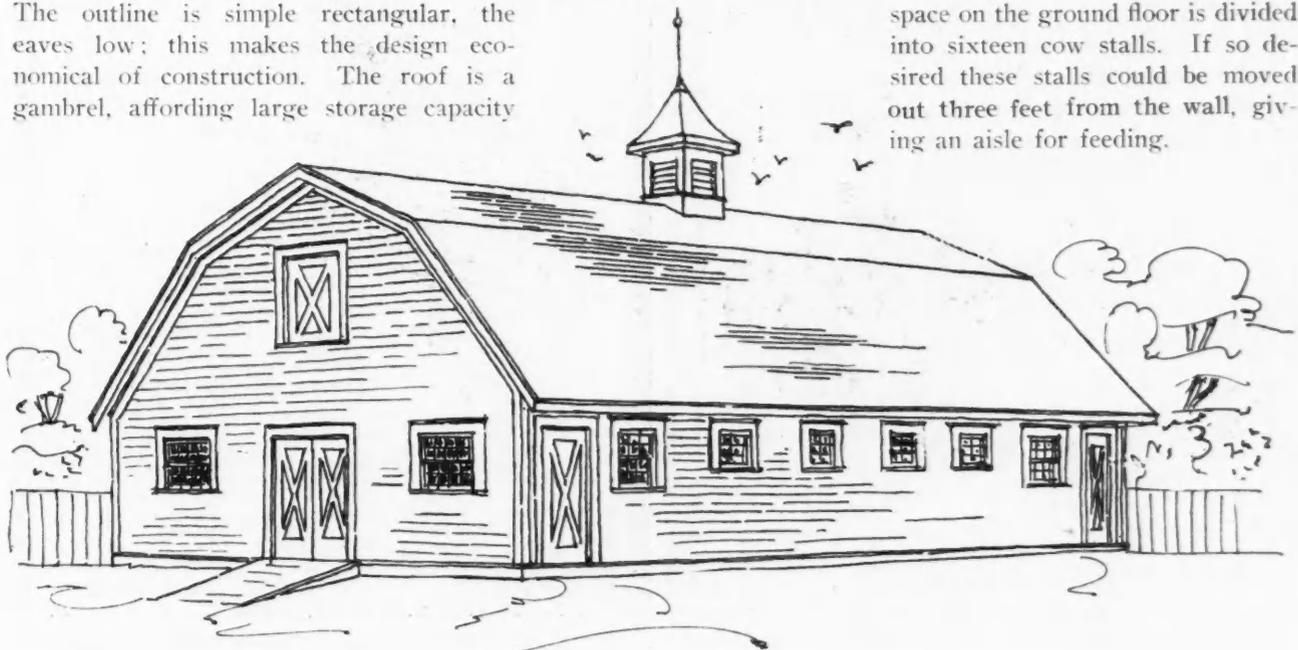
PLANS for a typical dairy barn of well-proportioned exterior appearance and of proper size for the ordinary small farm herd are presented herewith. It is of the general form that has proved

for dry fodder. This barn is perhaps better lighted than most of this type; but for a thoroughly satisfactory dairy stable a great deal of light is a necessity. There is a wide driveway from end to end through



itself through many years to be the most economical and satisfactory for the needs of the ordinary farm. The outline is simple rectangular, the eaves low; this makes the design economical of construction. The roof is a gambrel, affording large storage capacity

the barn. In each corner a square room is partitioned off for feedrooms, calf pen, etc. The balance of the space on the ground floor is divided into sixteen cow stalls. If so desired these stalls could be moved out three feet from the wall, giving an aisle for feeding.



# PRACTICAL TRADE APPLIANCES

## A New Floor Surfacer

The Floor Sanding and Polishing Machine Company, Philadelphia, Pa., are advertising that they "Want men who want to make money." Some brains, a little energy, and one Flexible floor surfacing machine will, they say, insure a profitable income. Rarely does any business afford such active and profitable employment or such large and immediate returns on the capital invested.



Machine surfacing is an entirely new industry, one that has been instantly received with the greatest enthusiasm by architects, contractors, build-

ers, owners and tenants of large buildings of any kind. The field is fresh and active competition is not yet a problem; business is waiting everywhere—in every block of every city. A machine will earn its cost in a short time, sometimes on one job.

The photograph illustrates the floor-surfacing machine that will do work thoroughly satisfactory. It occupies a floor space of 18 by 24 inches. It is not a heavy, cumbersome machine, requiring an elevator to raise it from floor to floor; two men can carry it anywhere. Yet it is more than twice as heavy as the little machines that trifle with the floor. It does what no other machine will do, and what no hand work can do.

In every particular it is made with the greatest care, which makes it work with the greatest precision, and with the least wear to its mechanism. Every reader of the AMERICAN CARPENTER AND BUILDER should be acquainted with this machine and what it will do. Full information will be gladly furnished on request.

## Defiance Combination Machine

This engraving represents the No. 8 variety sawing, shaping and boring machine made by the Defiance Machine Works, Defiance, Ohio. It has been designed for all general wood-

### "Absolutely Storm Proof in All Weather"

"We are very much pleased with this installation." This praise is from a letter from the Inland Steel Company, Indiana Harbor, Ind., one of the thousands of large progressive companies using

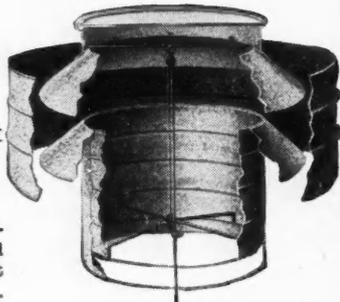
## BURT COMBINATION SKYLIGHT VENTILATORS

Burt Ventilators have extraordinary capacity. They are made with metal or glass skylight glass top with patented sliding sleeve dampers and are storm and dust proof at all times, and do not interfere with the light whether closed or not.

New 96 page catalogue, showing fine illustrations of mills, factories, shops, foundries and residences where Burt Ventilators are in successful use, will be sent if you write for it.

**THE BURT MFG. CO.**  
500 Main Street  
AKRON, OHIO.

The Largest Manufacturers of Oil Filters and Exhaust Heads in the World.



Notice Sliding Sleeve Damper. (Patented.)

Geo. W. Reed & Co. Montreal, Sole manufacturers of "Burt" Ventilators for Canada.

# CONGO

## The Only Roofing Guaranteed by a SURETY BOND

It Protects You Absolutely. A Guarantee Without a Loophole.

When we used to say that Congo 3-ply would last ten years people laughed and replied that "Everybody claimed that." When we offered to guarantee such service they said "Guarantees mean nothing—the buyer can never enforce them."

So we went to the National Surety Co., and paid them a large cash premium to issue a Surety Bond with every roll of Congo Roofing.

These bonds give our customers a real, substantial guarantee as good as a government bond.

If the customer's own lawyer drew the guarantee he could not devise an instrument that would give any better protection. It is because Congo is so tough, perfect and durable that the National

Surety Company is willing to stand back of it. They know that we use the best materials and the best methods and that we watch and inspect every roll. Then we wrap it for domestic use just as carefully as if it were destined for Madagascar or Thibet, and

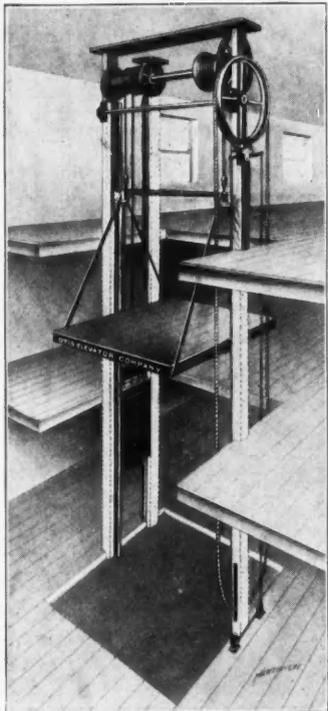
you get perfect, undamaged rolls every inch of which you can use. The man who buys Congo gets the most value for his money and takes no chances.

We will send you a copy of that guarantee on request—a also a sample of Congo Roofing free.

**UNITED ROOFING AND MFG. CO.** Successor to Buchanan Foster Co.  
Chicago. 555 West End Trust Building, Philadelphia, Pa. San Francisco.



**O** HAND POWER **T**



STORE

ELEVATORS  
 \$ 75 TO 95  
 SEND FOR FOLDER 26

OTIS ELEVATOR COMPANY

NEW YORK - CHICAGO - SAN FRANCISCO AND ALL PRINCIPAL CITIES

**I** **S**



(See letter below)

**Amatite Roofing**

Colchester, Connecticut, September 4, 1908.  
 Barrett Manufacturing Company:

Dear Sirs: The Amatite Roofing on my own grain store is giving much better service than I could believe it would at such a moderate price. It is by far the cheapest roofing on the market, when you consider the wearing qualities. Am going to use it on my other building.  
 (Signed) AMOS C. CASE.

This is a type of hundreds of letters which we get regarding Amatite.

It is better made; has better waterproofing material and weighs more per square foot than any other roofing of the same price.

And Amatite has one distinction which makes it stand out above all others—it has a real mineral surface which does away entirely with painting.

No other ready roofings compare with it from the standpoints of low cost, no maintenance cost and absolute protection. Sample and Booklet on request.

BARRETT MANUFACTURING COMPANY

New York, Chicago, Philadelphia, Boston, Cincinnati, Minneapolis, Cleveland, St. Louis, Pittsburgh, New Orleans, Kansas City, London, Eng.



*It Stays and Pays*

**The Salient Points of a Store Front**

are few, therefore the strength of each point must be proportionately greater, since upon their combined support of the show window depends the earning power of the money invested therein.

One of the most important points in good store front construction is

**ITS STAYING QUALITIES**

Is it fire-proof, rot-proof, rust-proof, warp-proof? Will it be as serviceable and attractive in five years as today?

Another point is

**ITS EFFICIENCY**

Does it meet every requirement, overcome-all difficulties? Does it by its originality attract the passerby and does it give greater strength to the window display?

*Kawneer System*

of Store Front construction was designed by an architect having a large clientele. It is distinctive; it is architecturally correct? it is thoroughly adaptable.

From the various forms of corner bar, division bar, transom bar, bulkhead and jamb construction, can be erected a Store Front as original and distinctive as it will prove serviceable and attractive. Copper, brass, aluminum and bronze will not rust, rot or warp, nor is any paint required to keep them attractive. These metals are unaffected by climatic conditions, are practically indestructible and for this reason are used exclusively in the manufacture of the "Kawneer System." **A Store Front Built Right Stays Right.**

Inspect a "Kawneer System" front today. Ask those who have profited thru its service, then write for **Catalog No. 2, Price List B**

*"It stays and pays"*



**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.  | Los Angeles     |
| London, Ont. | Portland     | Houston          | Syracuse, N. Y. |
| Denver       | Atlanta      | Vancouver, B. C. | Seattle         |

See Ad. in "Sweets." Index Pages 650 and 651.

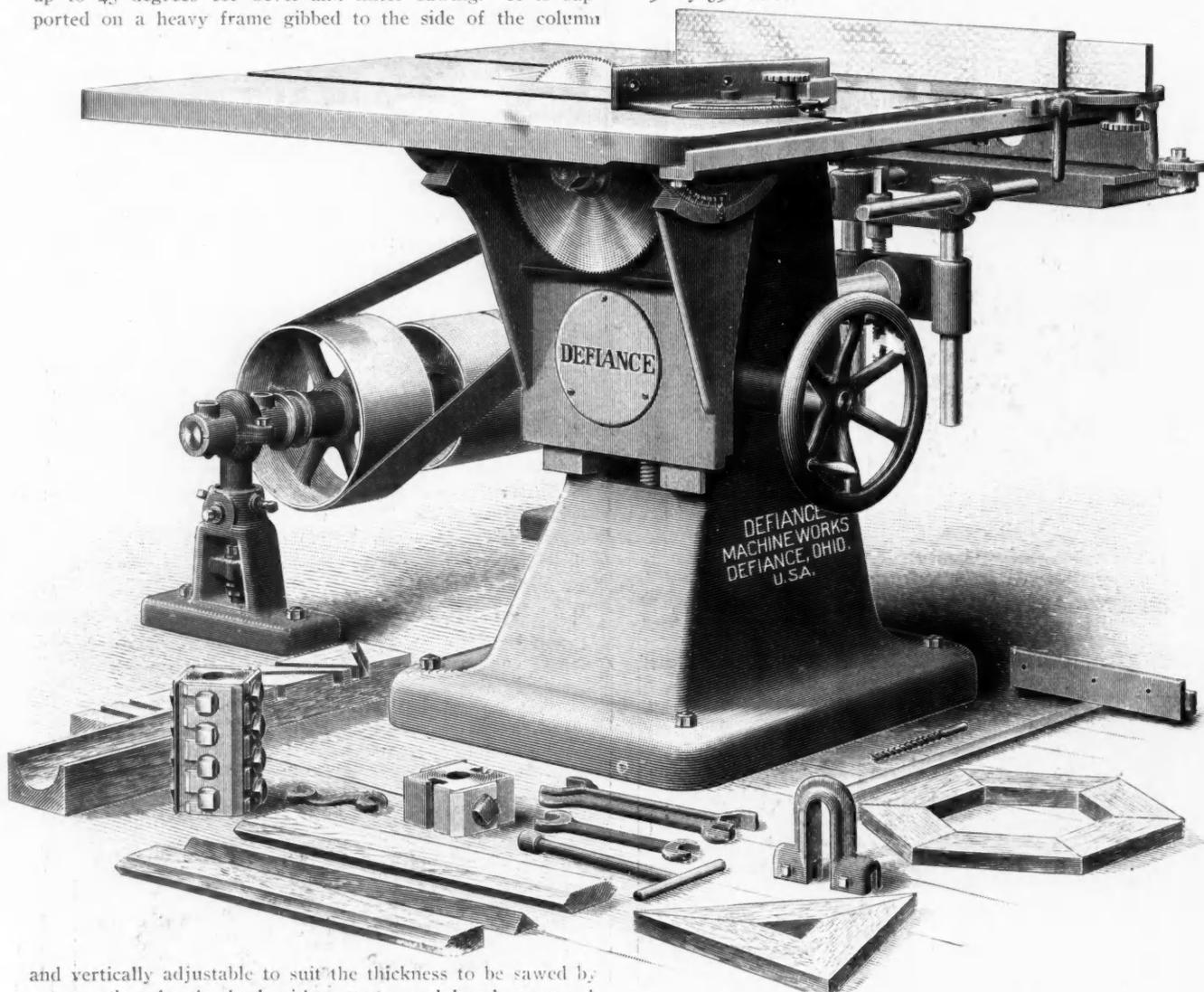
shop purposes. It will rip, miter, cross cut, groove, plane, shape and bore, which makes it one of the most desirable combination machines for sash, door, furniture, patterns, carriage, wagon and other shops where wood is worked.

The column, of neat design, is a heavy casting in one piece with cored center and a wide floor base, insuring rigidity. The table is 36-inch by 44-inch, of iron, in a single piece planed true, and it can be set to a scale to varying angles up to 45 degrees for bevel and miter sawing. It is supported on a heavy frame gibbed to the side of the column

saw through material  $3\frac{1}{2}$  inches thick; also four boring bits and one slotted cutter-head with 4-inch knives.

The counter is furnished as follows: Shaft,  $1\frac{11}{16}$ -inch by 44-inch; two No. 2 floor stands 20 inches high; one driving pulley, 12-inch by  $5\frac{1}{2}$ -inch; one pair of tight and loose pulleys, 10-inch by 6-inch; speed, 750 rotations per minute; with the loose pulley fitted with bronze bearings.

The horsepower to drive, 2, and the floor space occupied, 90 by 59 inches.



and vertically adjustable to suit the thickness to be sawed by a convenient hand wheel with a screw and bevel gears. A portion of the table around the saw is removable to allow of planing, grooving, gaining, rabbetting and other cutter-heads up to 6 inches wide being used. The ripping fence is gibbed to the front edge of the table, standing square or instantly set to a scale to any angle with the saw. The front edge of the table is laid off in inches and fractions to quickly set the gauge the desired distance from the saw for narrow or wide ripping without the use of a rule. The greatest distance between the saw and fence is 18 inches. The table has dovetailed grooves each side of the saw for cross-cut fence and miter gauges.

The boring table, of iron planed true, is 10 by 22 inches. It is fitted with an adjustable fence that can be set square or to any angle with the boring bit and to gauge the depth of boring. It will bore holes in hard or soft wood up to 10 inches deep. It slides to and from the bit with the greatest ease and is adjustable vertically by a screw and hand wrench.

The arbor, of ground steel  $1\frac{7}{16}$ -inch diameter, rotates in genuine babbitt-metal self-lubricating bearings. It is supplied with a 12-inch combination cross-cut and rip saw that will

### Send for These!

The Excelsior Slate Company, of Pen Argyl, Pa., have issued several new catalogues and price lists of the product mined and manufactured by them which should be of interest to all carpenters and builders. The special catalogue of marbled slate products contains twenty-six illustrations of mantels and wainscoting. Copy of this catalogue or copy of catalogue describing the mining and manufacture of roofing or structural slate or blackboard will be sent free upon request.

### Free Sample of Amatite

Many of the readers of this paper may not know that the makers of Amatite Roofing distribute free samples for the information of prospective purchasers.

Some of our readers have probably doubted that a roofing could be made which would need no painting, and the sample of Amatite is convincing evidence that a practical mineral surface has been invented.

Sending for the free sample does not entail any obligations and there is no charge—not even for postage. With the sam-

# LUMBER TRUST PRICES SMASHED!

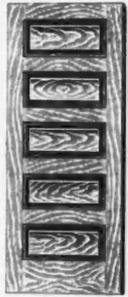
## CHICAGO HOUSE WRECKING CO.'S GREAT OFFER!

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

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

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

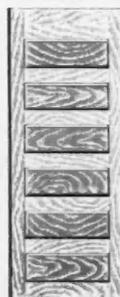
### THE HIGHEST GRADE DOORS ON THE MARKET AT LESS THAN WHOLESALE PRICES!



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



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



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

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

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

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

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

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

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

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

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



**HOUSE DESIGN No. 6.**

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



**HOUSE DESIGN No. 126.**

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



**HOUSE DESIGN No. 139.**

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

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

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

We can furnish any kind of material from a sheathing board to the very best quarter-sawn white oak interior finish, all at prices that defy competition.

Widths	Lengths		Per 1000	Widths	Lengths		Per 1000
12"	20'	No. 1 Arkansas Soft Pine Barn Boards	\$19.50	8" and 10"	10' to 16'	No. 2 Soft Minnesota Pine Roof Sheathing	\$17.00
6"	10' to 20'	No. 1 Arkansas Soft Pine Drop Siding, any Pattern	30.00	4" 6" 8" 10"	1' x 2'	No. 2 Soft Minnesota Pine Roof Sheathing	17.00
8"	10' to 20'	No. 1 Genuine White Pine	29.50			Selected White Pine Sheathing	20.00
12"	16'	No. 1 Genuine White Pine Barn Boards	30.00			Selected Soft Minnesota Pine Furring Strips Sized, per 1000 lin. feet	3.00
6"	10' to 16'	No. 2 Genuine White Pine Fencing	20.00	4" or 6"	4'	Byrkit's Pat. Sheathing Lath	15.00
4"	8' to 20'	Clear Y. P. Flooring D. & M. Kiln Dried	24.00			No. 1 Michigan Soft Pine Lath	3.75
3"	10' to 20'	Edge Grain Y. P. Flooring D. & M. Kiln Dried	26.00			No. 1 Michigan Soft Pine Lath	1.50
3" 0/4"		Selected No. 2 Kiln Dried Y. P. Flooring	17.50			No. 1 Soft Arkansas Pine Lath, Kiln Dried	2.95
5/8" x 4"		Clear D. & M. and Beaded Y. P. Ceiling	21.00			Diamond A Washington Red Cedar Shingles 6" to 2", 6" and Better, Clear: Good widths, best 2nd Grade Shingles made. If shingles are laid 4 1/2" to the weather, a perfect roof is assured.	2.35
2" x 6"	12'	No. 1 D. & M. and Beaded Y. P. Ceiling	14.00			Extra Star "A" Star Washington Red Cedar Shingles	3.00
2" x 4"	14'	No. 1 Y. P. SISIE	16.00				
2" x 4"	14'	No. 1 Y. P. SISIE	17.00				
2" x 8"	20'	No. 1 Y. P. SISIE	19.00				
2" x 8"	20'	No. 1 Y. P. SISIE	19.00				
2" x 10"	18'	No. 1 Y. P. SISIE	19.00				
2" x 12"	20'	No. 1 Y. P. SISIE	19.00				
8" x 10"	10' to 20'	Yellow Pine Sheathing Boards	16.00				
4"	10' to 16'	No. 2 Soft Minnesota Pine Roof Sheathing	17.00				

The above prices are free on board cars Chicago. In car-load lot shipments; prices good for June and July only.

### SEND FOR OUR FREE MAMMOTH ILLUSTRATED CATALOG No. 742.

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

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

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

# All Free to

## American Carpenter and Builder Readers

### *Let Us Send You These Samples*

**D**ON'T put it off 'til later — send us the coupon right now. It will only cost you a minute's time and a two-cent stamp. We have got to do a whole lot more than that. It costs us a lot of money to send out these samples. We couldn't afford to be so liberal if it were not for the fact that a man cannot test Johnson's Wood Finishing specialties without being convinced of their superiority.

We want to send you at once this package of samples, including a bottle of Johnson's Wood Dye (any one of the 14 shades you want), a sample of Johnson's Prepared Wax Black and a sample of our Under-Lac (better than shellac or varnish) for a high-glossed finish.



We want to send you a sample of our Black Wax, for it is the only wax on the market suitable for use over dark finishes. All other brands will show light in the grain or corners where it is sometimes carelessly left. You will be very much surprised at the results obtained with our Wood Dye and Prepared Wax Black. With Johnson's Wood Dye inexpensive woods may be made as beautiful as hardwood.

We recommend the use of a coat of Johnson's Under-Lac over our Wood Dye upon pine, cypress and everywhere else that a higher gloss than a waxed finish is desired. A single coat of this Under-Lac is better than the best shellac or varnish.

Johnson's Prepared Wax can be successfully used upon furniture and woodwork as well as floors. It produces a lasting artistic finish to which dust and dirt will not adhere.

**S. C. Johnson & Son, Racine, Wisconsin**



## We'll Send You This Book, Too

"WE will also send you our illustrated guide book for home-beautifying. Contains complete color card and complete directions for finishing and refinishing wood.

It is full of practical information and helpful suggestions that are of great value to painters and wood-finishers.

Johnson's Wood Dye is made in fourteen beautiful colors. From these any desired shade can be made. To lighten use alcohol—to darken use Flemish Oak No. 172. Pick out any color you want from the list below, and write the number on the coupon. If you would like a set of wood panels, showing various shades of Johnson's Wood Dye, kindly note this on the coupon, and we shall be glad to include them with the working samples. These panels will be mighty handy for you to show your customers. Help them to pick out just the colors they want. And you can depend on it, Johnson's Wood Dye will always match up exactly with the samples.

- |                        |                             |
|------------------------|-----------------------------|
| 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 Manilla 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   |

Fill out the coupon and let us send you sample bottle of Johnson's Wood Dye, one bottle of Johnson's Under-lac and a sample of Johnson's Prepared Wax Black.

**S. C. Johnson & Son, Racine, Wis.**

**Please Use this FREE COUPON**

**S. C. Johnson & Son, Racine, Wis.**

I accept your offer of Free Booklet Edition A. C. R. 6 sample of Johnson's Wood Dye, shade No. .... and samples of Johnson's Under-lac and Prepared Wax Black.

Name ..... Address .....

Name ..... Address .....

I usually buy my paint at store of .....

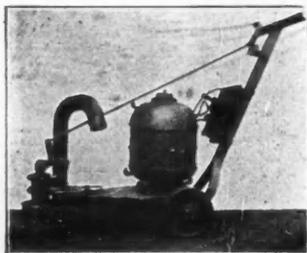
ple is sent a little book telling all about Amatte and showing pictures of roofs in all parts of the country where Amatte has given protection without painting for many years.

Just drop a postal card to the nearest office of the Barrett Manufacturing Company, New York, Chicago, Philadelphia, Boston, St. Louis, Cleveland, Pittsburg, Cincinnati, Minneapolis, Kansas City or New Orleans.

\*\*\*\*\*

### Opportunity for Business

Contractors and builders will find it to their interest to get in touch at once with John M. Crook, 841 North Fifty-third avenue, Chicago, general agent



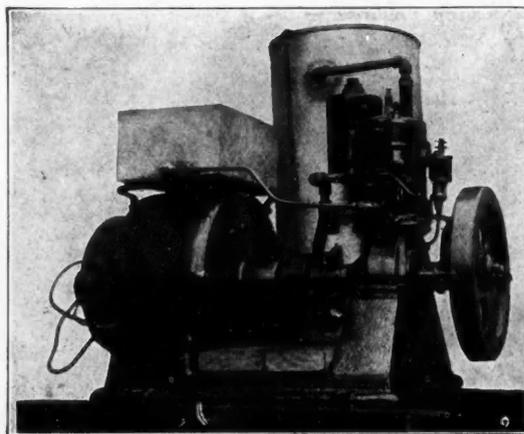
and introducer of the Schuttler floor finishing machine, known to the trade as "the world's best" floor polishing machine.

For many years contractors and builders have been in the market for a device to smooth or surface and polish hardwood floors. The cut shows the Schuttler machine recently patented, by

the use of which one man can now do the work and better work than formerly many men could by hand labor.

With it the operator can surface any floor, be it ever so bad, be it old or new, good, bad or indifferent, and when finished it carries a surface like glass and has a lustre like the highest polished piano. This machine gets ideal results, no matter what the condition of the floor may be. If it is very bad it is first planed to a level surface and then by the use of carborundum in many grits it is brought down till it is as smooth as glass. Following this felt and oil are brought into play and at the end you have a surface that will reflect objects like a mirror.

The machine operates by electricity, and if there are connections in building that power will do the work. If there is no power near the independent plant, as illustrated, is used, generating all the power needed. This can also furnish light and, by means of these two conveniences, work can be executed anywhere and at any hour that may be convenient, day or night, if need be.



The usual charge by carpenters for fine floor finishing work is \$2 per 100 square feet. With this machine it is stated that you can do 100 square feet an hour on the very worst floor—on the best floors as high as 3½ squares (350 square feet) an hour. The average will run about 200 feet, or \$4 an hour. The cost of operation is a trivial matter. Running the portable plant is an expense of 35 cents for ten hours. Where power is inside and furnished the usual charge is \$2.50 a day for it.

The outfit consists of the inside floor-grinder and polisher.

# SEA GREEN & PURPLE SLATE

MAKES

## Roofs That Never Wear Out

Sea Green and Purple Roofing Slate is the *only* roofing material that *never wears out*. That affords spark and fire protection, pure cistern water, reduces insurance rates and *never* requires a dollar for paint or repairs—the kind of roofing your customers are demanding and are going to buy—either through you or the *first man* in their neighborhood who can supply their wants.

### CARPENTERS AND BUILDERS

Don't you see the demand that is developing in your locality for a strong, durable roofing material? Something that will give faithful service without yearly paint and repairs expense? Don't you *realize* that with very little effort you can establish a very profitable growing Slate Roofing Business? One that can be conducted in connection with your present line without added trouble or expense. We want you to take up Slate Roofing this spring and handle our **Sea Green and Purple Roofing Slate**. Write to us at once for delivered prices and *free* book of instructions. Don't delay. **Write today.**

This proposition does not apply in any locality now covered by an established Slate Roofer or Roofers.

**AMERICAN SEA GREEN SLATE CO., Box 36. Granville, N. Y.**

# INCREASE YOUR PROFITS "HERCULES" BY MAKING CONCRETE BUILDING BLOCKS

The Blocks That Sell—The Blocks That Are Always in Demand—The High Grade Block



## Hercules Concrete BLOCK Machines



Are used by the progressive, up-to-date and successful Contractors and Builders everywhere :

By the United States Government—the British Government—the Leading Railroads and large Engineering Concerns.

### They use HERCULES machines BECAUSE THEY GO FURTHER

They make sizes of blocks other machines cannot make.

They make better blocks by making them wet.

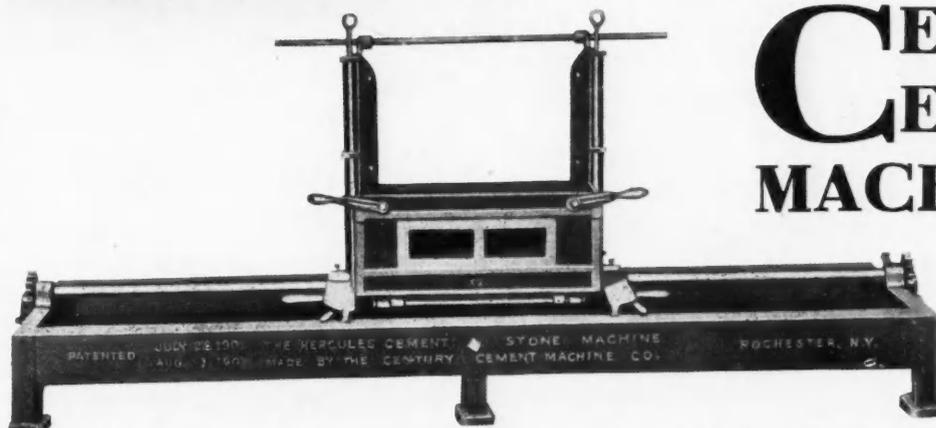
The output of one "Hercules" exceeds the combined production of from two to four machines of other makes.

It is the only machine that will expand to meet every requirement of an up-to-date block plant, making, as it does, on one machine, all lengths and designs of building stone from 3 inches to 6 feet long in all heights and thicknesses.

It will pay you to investigate.

Send for Catalogue to-day.

## CENTURY CEMENT MACHINE CO.



279-289 St. Paul St.  
ROCHESTER, N. Y.

PATENTED JULY 22 1906 THE HERCULES CEMENT STONE MACHINE ROCHESTER, N. Y.  
MADE BY THE CENTURY CEMENT MACHINE CO.



Unlatch the screen, swing it out, and the flies are outside the house. Brush them off and close the screen. Do this once a day and the house will be clear of flies.

## BIGGER PROFITS

FOR THE CONTRACTOR  
Who Uses The  
**WATROUS NO. 17 SCREEN HANGER**

These same pieces, arranged to suit, will hang either a full or a half screen from either the top or side. Storm sash should be hung from the top, but this is the only way to hang a screen.

Only four screws to set instead of twelve, a saving in labor of two-thirds. A gauge mark locates the piece instantly, and makes mistakes impossible. A carpenter who has bought other hangers, could afford to throw them away, buy the Watrous No. 17, and make more money on the job. Mounted working model sent free postpaid to dealers or carpenters. Write to-day.

Finish either japanned or galvanized, with galvanized screws.



**E. L. WATROUS MFG. CO.**  
DES MOINES : : IOWA

# BISHOPRIC WALL BOARD

## Better than Lath and Plaster

BISHOPRIC WALL BOARD (Pat'd.), the wonder-worker in building construction, is taking the place of lath and plaster. It is made of kiln-dried, dressed lath, embedded in Asphalt Mastic (99% pure), and surfaced with sized cardboard. It is constructed in the factory, cut into sheets, 4x4 feet, and shipped in crates—ready to be nailed to studding.

Bishopric Wall Board Sheets are of uniform, even thickness; are cut absolutely true, insuring neat, close, snug unions and smoother wall surfaces than lath and plaster. It may be sawed in any size without waste. Expert labor not required. Hammer and saw the only tools needed. Can be nailed to studding in less time than lath alone is put on for plastering; is ready for the immediate application of wall paper or paint. It is guaranteed not to crack, flake or blister; is proof against moisture, heat or cold. Being a non-conductor, it saves fuel in winter and keeps the house cool in summer.

Bishopric Wall Board is suitable for costly dwellings or modest cottages, bungalows, flats, summer homes, health resorts, offices or factory buildings. For ceilings beautiful Mission effects may be produced at very reasonable cost. Nothing better for finishing your attics, new partitions and cellar ceilings, in old or already completed buildings, because of its cleanliness and low cost of application. Cut shows easy method of application.

Write to-day for FREE Sample, descriptive booklet and prices, freight paid. Can ship from Cincinnati or direct from our factories in New Orleans, La., and Alma, Mich.



**The Mastic Wall Board & Roofing Mfg. Co., Ltd.**  
38 E. Third Street, Cincinnati, O.

the portable electric plant shown, 100 feet of cable for transmission of current from generator to grinder and 1,000 letters of introduction with name and address affixed. This outfit is sold with county rights. These rights follow the machine and are irrevocable. They are part and parcel of the outfit. A moment's reflection will convince any live party what a wide opportunity for good, clean business activity and what a big revenue opens itself to the man who has a monopoly in a thickly settled district or in a rapidly growing country. Ten to twenty thousand population should keep a machine going at a merry clip every hour of the day, month in and month out. And the first outfit should prove only a forerunner to several. The buyer of the first array has the sole rights to buy more if wanted. And they'll be wanted. Few readers of the AMERICAN CARPENTER AND BUILDER can afford not to investigate this proposition. Write to John. M. Crook, general agent, at once; address Dept. A. C. B.

### A Handsome Roofing Folder

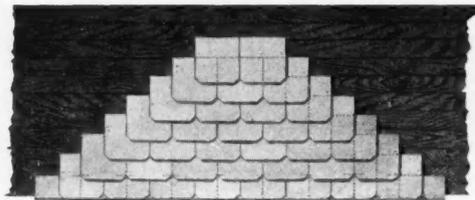
One of the most dramatic successes in the line of building materials is pictured in a handsome folder put out recently by the Keasbey & Mattison Company, of Ambler, Pa.



The folder illustrates 26 buildings roofed with Asbestos "Century" shingles—from Rhode Island to Nebraska, from Wisconsin to Texas, besides a residence in Porto Rico.

These shingles, as most architects and builders are aware, are composed of a concrete of cement and asbestos fiber, compacted and formed into slate-like sheets under tremendous hydraulic pressure. They are applied like any ordinary shingles or slates, being nailed either to a rough sheathing, or (cheaper but less desirable) directly to the lath.

Members of the trade who are not in touch with what is



destined to be the greatest development in building materials are advised to write the selling agents for this folder and other information.

### Boos Adjustable Block Machine

The Coltrin-Boos Manufacturing Company has advanced with the development of the concrete block industry. The Coltrin machine was a pioneer in block making as a side-face machine, and during the past nine years has been improved from time to time and finally was changed to a face-down machine. For several years this company has made leaders of the improved Coltrin and also the Boos machines. Both machines are adjustable, the Coltrin making any length up to 24 inches and the Boos anything up to 20 inches. Both

# Andrews Heating Co.

MANUFACTURERS, CONTRACTORS and ENGINEERS

## HEATING

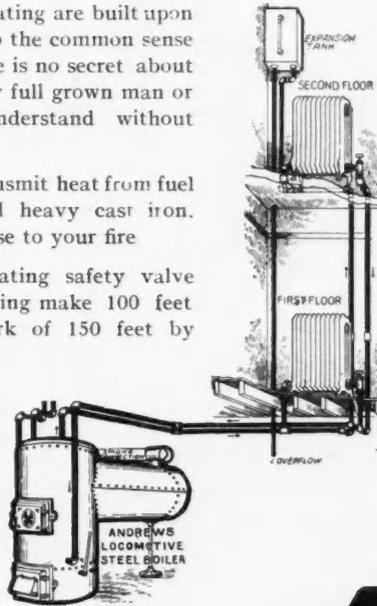
Andrews Systems of Heating are built upon principles that appeal to the common sense of the purchaser. There is no secret about a heating plant that any full grown man or woman can not fully understand without special training.

A steel boiler will transmit heat from fuel more rapidly than will heavy cast iron. That gives quick response to your fire

The Andrews regurgitating safety valve and group system of piping make 100 feet of radiation do the work of 150 feet by other systems.

You can install your own Andrews heating plant or hire a carpenter or handy man to do it. It isn't any more difficult than screwing a nut on a bolt or setting up a stove and stove pipe.

Our book tells. Send for it.



# Heating Co.

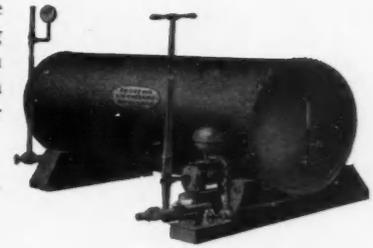
## WATER SUPPLY

Andrews Air Pressure Water Supply gives to a country home or farm house the essential convenience of city water. You can have running hot and cold water in your house using the Andrews air tight tank in the basement or the ground outside.

This is filled by the use of a pump, worked either by gasoline engine, windmill or hand power, the water being delivered under pressure. It has all the advantages of an overhead tank, but it never freezes, never runs over, and the pressure is usually sufficient to throw water over the house, thus making ample fire protection.

It costs so little that no man building a country home can afford not to have an Andrews Water Supply.

Our Book Tells. Send for it.

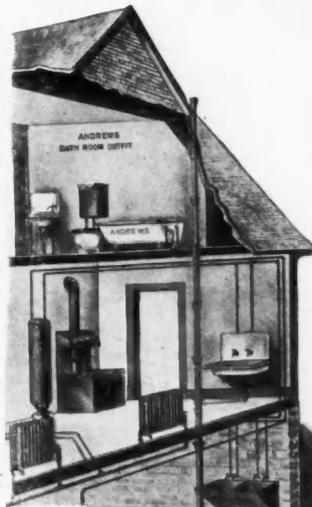


# 4

## PLUMBING

The Andrews Plumbing Equipment for a house is now made so that no plumber is needed. The pipes are all screwed together and the fixtures are easy to set up. This saves the excessive cost of the proverbial "plumber's bill." The Andrews Plumbing Equipment, shown in the illustration, is so reasonable in price and so dependable in quality that no home owner can afford not to know all about it.

Our book tells. Send for it.



## SEPTIC TANK

The Andrews System of Sewage Disposal is by Septic Tanks, as shown in the illustration. Cesspools are no longer tolerated by sanitary science. They are the cause of much sickness but the Septic Tank is a scientific method of sewage disposal in which the bacteria that cause disease destroy the dangerous elements in the sewage and in the end destroy themselves.

All this is fully and satisfactorily explained in our Book. Send for it.

72 Pages Portfolio—over 300 fine Illustrations—Every Page Worth Reading. Tells you How to Make your Home "Modern," Comfortable and Sanitary.

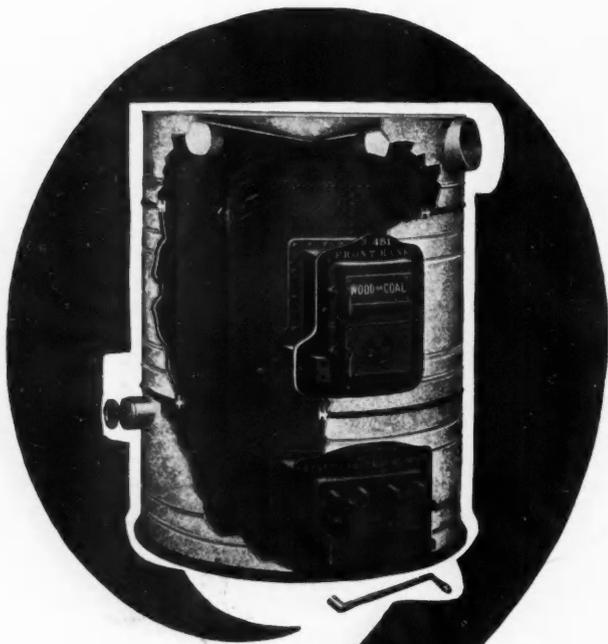
We Print a Book Called

# "Andrews 4 Systems" Free

1089 Heating Bldg.,  
Minneapolis.

1089 Marine Bldg.,  
Chicago.

# What do you KNOW about Furnaces?



**I**SN'T it just as important to you to know all about the means by which you intend to heat your home or building, as it is to know about the other details?

There are all kinds of furnaces, of course, but it costs no more to get the best. The first cost does not always determine the actual cost—perhaps you've had experience already in repair bills and large coal bills. What you thought you were saving has really been an overcharge—the furnace you thought an investment proved an expense.

Do you know the advantage Steel has over Cast-iron?

Do you know the advantage a furnace built on straight lines has over the zig-zag furnace?

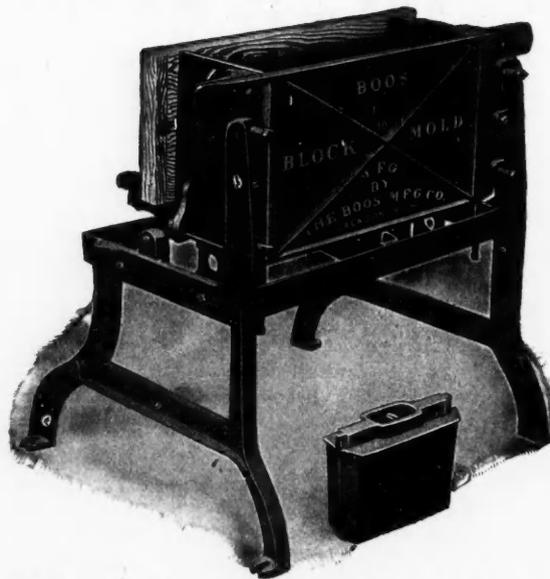
Do you know the advantage of having a furnace built of non-warping parts combined with heat-enduring features?

Do you know the advantage of having a furnace that will burn any kind of fuel—and heat the house from cellar to garret?

All these and many more are the things we tell you in our latest FRONT RANK Catalogue, and that catalogue is yours if you'll write for it. Do it NOW—you may forget it later, and tell us, please, when you write, the name of your local furnace dealer.

**Haynes & Langenberg Mfg. Co.** :: FRONT RANK Steel Furnaces  
4057 Forest Park Boulevard, St. Louis, Mo.

machines have been built with the points of *durability, simplicity* and *speed* always in mind, and the results have been more than satisfactory to their customers.



This progressive company, recognizing the need a large number of carpenter and building contractors have for an easily adjustable machine, one suitable for foundations, porches, houses, etc., have put on the market an outfit that is sure to find a ready sale. The machine is strong and durable and yet light enough so it can be easily moved from job to job. Many contractors are buying this outfit and as their business in block making increases they can add additional plates. As the machines are adjustable it is always possible to get new designs in face plates. It is not necessary to have a separate machine for each size block wanted. The company offers to send the Boos machine on five days' free trial to any reliable builder. This company is just putting on the market an improved silo machine. Cement block silos are growing in popularity all the time.

A letter asking for Catalogue B, addressed to the Coltrin-Boos Manufacturing Company, Jackson, Mich., will get our readers full particulars of these practical, easily-operated machines.

### Improvements at the Union Plant

The Union Roofing & Manufacturing Company, of St. Paul, Minn., let the contract last week to the Kellogg-Mackay Company, of Chicago, for a complete automatic sprinkling system to be installed in their mills at a cost of \$22,000.

This roofing concern made extensive improvements during the last year in their aims at greater capacity. They have at the same time taken every precaution to insure the source of

## Contractors and Builders!

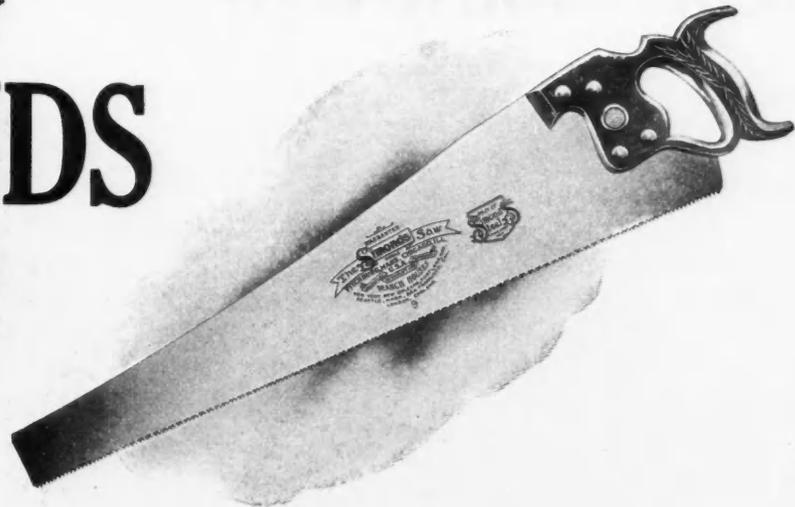
Let us Furnish you with Estimates on

ROOFING SLATE	MARBLEIZED SLATE—
SLATE BLACKBOARDS	MANTELS
STRUCTURAL SLATE	WAINSCOTING
SLATE GRAVE VAULTS	TILED FIREBOARDS
	AND FACINGS

Send for Catalogue of Marbleized Slate Mantels and Price List

**THE EXCELSIOR SLATE CO.**  
PEN ARGYL, PA.

A NEW  
**SIMONDS**  
 Crescent Ground  
**SAW**  
 No. 9



**You Can Not Buy This Saw**

from many dealers at present. It is too new. They haven't got it. But the demand is big and dealers are being stocked as fast as possible.

Simonds No. 9. — The new saw is a Skew-back Ship Saw about 1 3/4 inches wide at the point and increases gracefully and gradually to the handle. Used daily as a finishing saw, siding saw, mitering saw, combination, hand and panel saw. Carved and polished apple handle with five brass screws.

The blade is "Crescent Ground" with four gauges taper for clearance, making the most perfectly graduated blade on the market. Made of Simonds Steel and fully warranted against all defects whatsoever. As nice an appearing saw as there is made. Packed the Simonds Way, one saw in a case by itself. Price, 26-inch saw, any place in the U. S., \$2.00.

**HOW TO GET IT**

Fill out this coupon and mail to us. Send no money. We will forward the saw to the dealer you name and will write you at the same time. When you get our letter, call on that dealer and ask for your saw. When no dealer is convenient send \$2.00 with your order and we will forward promptly, charges all paid.

Write today and have a good saw to use all summer.

**Simonds Mfg. Co.**  
**Fitchburg, Mass.**

Branches in Leading Cities



\_\_\_\_\_ 19\_\_\_\_  
**SIMONDS MFG. CO.,**  
**Fitchburg, Mass.**

Please send me one Simonds New No. 9 Skew-back Ship Saw, 26 inches long. \_\_\_\_\_ points to the inch.  
 Ship without expense to me, to

Put name of Hardware Dealer here. \_\_\_\_\_

Street address of Dealer, when necessary. \_\_\_\_\_

City. \_\_\_\_\_ State. \_\_\_\_\_

I agree to call and pay \$2.00 for this saw when it reaches the above dealer.

Signed \_\_\_\_\_

Address \_\_\_\_\_

When no dealer is named, enclose price of saw and it will be sent direct to you, charges prepaid.

Cut out this coupon and mail promptly.

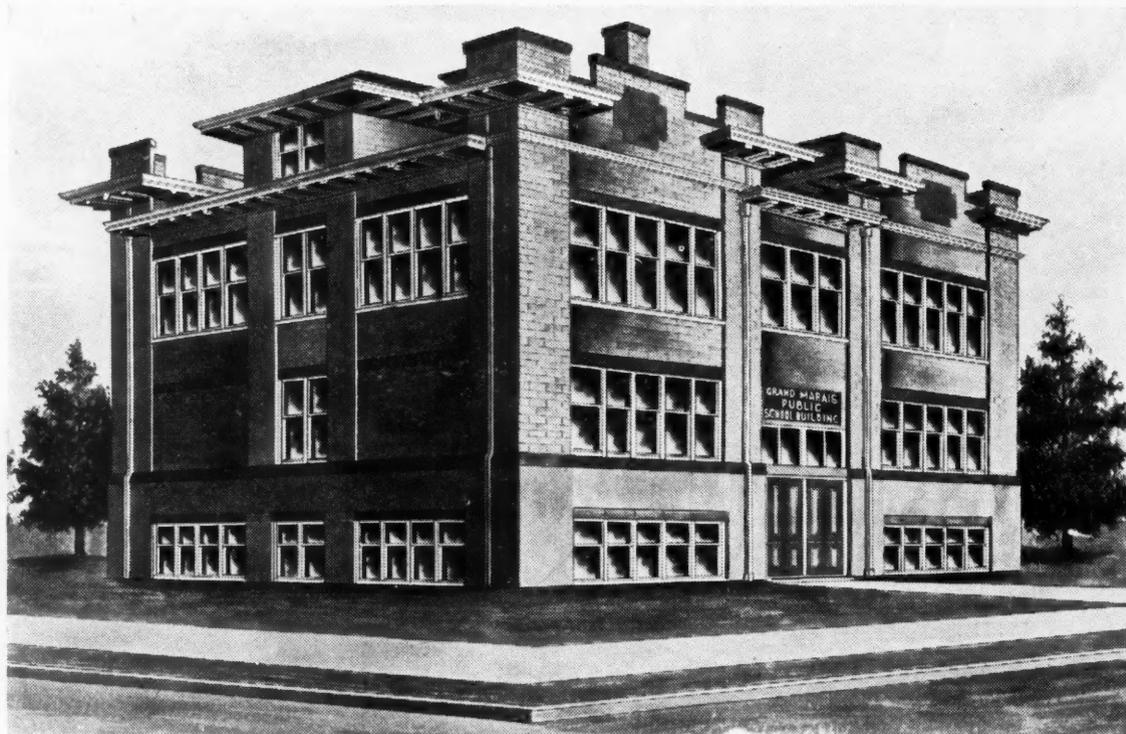
A. C. B.

their dealers' supply by fire-proofing their entire plant. The buildings are all of brick, steel and concrete construction and with this added protection their stocks and buildings are doubly insured against possible fires.

### School Building of Anchor Blocks

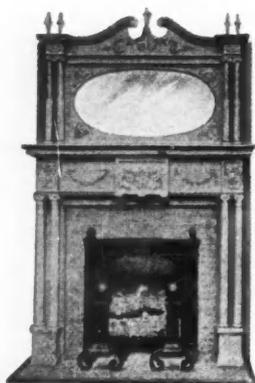
We show here a picture of the Grand Marais, Minn., pub-

lic school building, built with Anchor continuous air-space concrete blocks. We are indebted to the Anchor Concrete Stone Company, Rock Rapids, Iowa, for the use of the cut. This school building is 62 by 82 feet in dimensions. The interior is finished in birch walnut, is heated by steam and has an independent electric light plant. The plaster was ap-



Great Variety  
of Designs

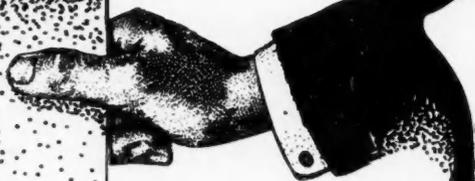
Colonial  
Corinthian  
Craftsman  
Mission  
Renaissance  
Ionic, etc.



## KING MANTELS

\$5000.00

Worth of Proof



In our magnificent catalog—including the art supplement "Colonial Beauties"—is shown the greatest variety of beautiful and serviceable mantels ever catalogued.

Illustrates the graceful outlines—the artistic conceptions that were designed to match every style of furniture made.

Gives reasons why King Mantels have no equal on earth. Explains the points that you have read about. Backs up every claim we make with solid proof.

Although this catalog actually costs us 50 cents to deliver, we will send it absolutely free to any builder who names the probable number of mantels that will be required.

### Artistic and Durable

Although King Mantels are superior to anything made for durability and unique appearance, the price is just as low as the other kind.

Of course our large output makes this possible.

Get the catalog before the first edition is exhausted.

**King Mantel Company,**

551-553 West Jackson Avenue,  
KNOXVILLE, TENN.

# The Carey Roof Standard

**FOR** over a quarter of a century Carey's Flexible Cement Roofing has been recognized as the one perfect finished roofing ready to apply.

**A**LWAYS uniform in weight, thickness and quality of materials. Carey's is in a class by itself and we invite dealers desirous of building up permanent trade to communicate with us, with a view to becoming a part of the largest roofing distributing organization in the world.

Only dealers who stand high in their locality handle Carey's.

Carey's requires no skilled labor to apply. No specifications to follow as with "built-up" roofs. No materials to mix. The

workman is not the manufacturer. Plain, simple directions are printed on the wrapper of each roll.



**C**AREY'S is strictly a standardized roof, made of materials and of a form that can be perpetuated to last the life of the roof boards. Our patent wide lap is an exclusive Carey feature that protects and preserves the nail heads from rust and insures an absolutely watertight and wind-proof joint.

Nothing equals the Carey lap in completing a perfect union of the roofing sheets.

The fire-retardant quality of Carey's is endorsed by insurance authorities every-

where. Carey's is a roof built for the highest class construction, for flat or steep surfaces.

Carey's Flexible Cement Roofing is put up in rolls, twenty-nine inches wide, of sufficient length to cover 100 square feet, surface measure, applied to the building. Nails and cement for the proper application are furnished with each shipment.

Send for Free Sample and Carey's Roofing Book

**The Philip Carey Mfg. Co., 30 Wayne Ave., Cincinnati, O.**

**Forty-five Branch Offices and Distributing Points**

- |   |   |  |
|---|---|--|
| The Philip Carey Co., Atlanta, Ga.        | The Philip Carey Co., Havana, Cuba          | The Philip Carey Co., Pittsburg, Pa.               |
| " " " " Baltimore, Md.                    | " " " " Jacksonville, Fla.                  | " " " " Norfolk, Va.                               |
| " " " " Birmingham, Ala.                  | " " " " Kansas City, Mo.                    | " " " " Rochester, N. Y.                           |
| " " " " Boston, Mass.                     | " " " " Knoxville, Tenn.                    | " " " " Scranton, Pa.                              |
| " " " " Buffalo, N. Y.                    | " " " " Little Rock, Ark.                   | " " " " St. Louis, Mo.                             |
| " " " " Charlotte, N. C.                  | " " " " Memphis, Tenn.                      | " " " " Seattle, Wash.                             |
| " " " " Chattanooga, Tenn.                | Warren & Bailey Mfg. Co., Los Angeles, Cal. | " " " " Syracuse, N. Y.                            |
| Western Rfg. & Supp. Co., Chicago, Ill.   | W. S. Nott Company, Minneapolis, Minn.      | " " " " Toledo, Ohio.                              |
| The Breeze Bros. Co., Cincinnati, Ohio    | The Philip Carey Co., Montreal, Que.        | " " " " Toronto, Ont.                              |
| The Col. Rfg. & Supp. Co., Columbus, Ohio | " " " " Nashville, Tenn.                    | " " " " Washington, D. C.                          |
| The Philip Carey Co., Cleveland, Ohio     | " " " " New Orleans, La.                    | " " " " Wheeling, W. Va.                           |
| " " " " Dallas, Tex.                      | " " " " New York, N. Y.                     | " " " " Winnipeg, Man.                             |
| " " " " Denver, Colo.                     | " " " " Newark, N. J.                       | " " " " Youngstown, Ohio.                          |
| " " " " Detroit, Mich.                    | Sunderland Rfg. & Supp. Co., Omaha, Neb.    | Western Asbestos-Magnesia Co., San Francisco, Cal. |
| " " " " Harrisburg, Pa.                   | The Philip Carey Co., Philadelphia, Pa.     | Nott-Atwater Company, Spokane, Wash.               |

# Genasco Ready Roofing

Trinidad Lake Asphalt is the backbone of Genasco. It is the greatest weather-resister known. It makes Genasco cost a little more, and makes it worth it because it lasts so long.

When the owner doesn't have leaks, damage, repairs and renewals to pay for, he has real roof-economy.

Get Genasco—the worth while roofing for every building you erect. Look for the hemisphere trademark, and you'll get the roofing backed by a thirty-two-million-dollar guarantee. Mineral and smooth surface. Write for samples and the Good Roof Guide-Book.

**THE BARBER ASPHALT PAVING COMPANY**

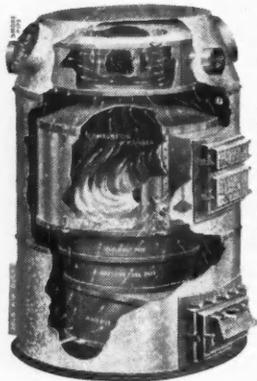


Largest producers of asphalt and largest manufacturers of ready roofing in the world.

**PHILADELPHIA**

New York San Francisco Chicago

## BUY A BOVEE FURNACE



Direct from the Factory  
**AND SAVE \$50.00 TO \$100.00 ON YOUR HEATING PLANT**  
 They Actually Save from One-third to One-half of the Fuel

We have one of the best equipped furnace factories in the west and make more than 30 different furnaces of seven leading styles and can furnish our customers with practically any size or style of furnace they may desire, either Upright or Horizontal, sufficient to heat a large church or school house, down to a cottage heating plant complete with all pipe, registers and fittings for \$55.00.

Our furnaces are the only furnaces having a perfect ventilating system for every part of the house.

We ship our furnaces cut to fit. Any handy man can install them without the aid of a tinner.

Catalogue and full specifications free.

**Bovee Grinder & Furnace Works**  
 50, 8th Street Waterloo, Ia.



plied direct to the concrete blocks without lath or furring strips. The Anchor blocks used have given entire satisfaction. Attention is called to the Anchor Company's advertisement in this issue for more detailed information about its machinery.

### Heitland Grates and Mantels

A fireplace with its cheerful associations is to the home what the sun is to the outside world. It lends to the home an attractiveness that nothing else can, and outside of its beauty it forms possibly the best-known form of ventilation.



Every home should have at least one fireplace, and nowadays it is quite the common thing to see several in a home.

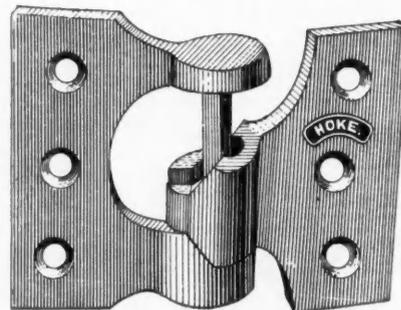
Before it is cold enough to start the furnace, when the nights alone are rather cool, a small fire on the hearth produces just enough to temper the cold.

The Heitland Mantel & Grate Company, of Quincy, Ill., have continually on hand a very complete line of mantels ranging from a low price to a high price. Their catalogue shows their manufactured line, artistic wood mantels, also brick and tile mantels, Heitland hot-water circulating fireplace heaters, improved grates, etc. This catalogue is worthy of a place in any library. Send for one today. It will interest you.

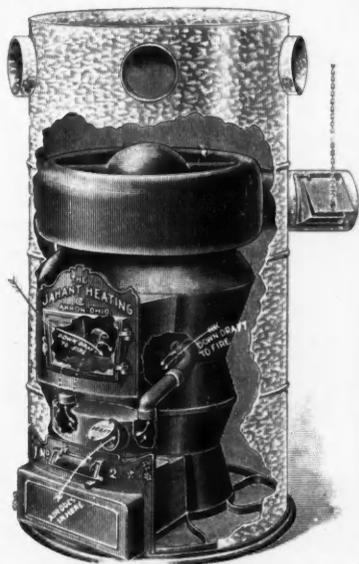
### The Hoke Reversible Hinge

The introduction of the Hoke hinge is filling a long-felt want with the building trades and is indispensable in the ever-

increasing effort toward saving time and money. The Hoke hinge is the product of much thought and long study in the requirements of practical mechanical appliances. It embodies all the best features of hinges already on the mar-



ket and with added improvements produces a hinge perfect



## Save \$30.00

### Buy Direct From Manufacturer

### And Pay But \$10. Down and \$10. a Month

WE not only save you  $\frac{1}{3}$  the dealer's price, but also sell you a furnace that is guaranteed to be absolutely free from defects, either from workmanship or material. We can do this because we manufacture every part of the Jahant Down-Draft Furnace and because we sell direct to the consumer—no middleman's profit. We furnish complete instructions for setting up the furnace; any one can do it.

### The Jahant Down-Draft Furnace

#### Scientifically Correct. Saves $\frac{1}{3}$ of your Fuel Bill

The "down-draft" (patented, see illustration), burns the fuel from the top down—not from the bottom up—and by this method burns every particle of the fuel, the gases, and most of the smoke. There is less waste of fuel with a Jahant Down-Draft Furnace than with any other heating arrangement yet devised. You can burn soft or hard coal—wood or lignite, with absolute success. No cinders or "clinkers" are in the ashes, even if you use the cheapest coal. The "down-draft" (patented), burns everything.

Every part of the Jahant Down-Draft Furnace is cast of the best new, gray, pig iron. No sheet steel is used. The fire pot is of extra heavy new cast iron, cast in two pieces, will last a life-time; cracking is impossible. We give a guarantee bond that the furnace is absolutely satisfactory—if it isn't you get your money back—we pay the freight.

**We allow liberal, easy payments** and want you to write for our plan whereby any one can heat their home by furnace at very little cost and use it while it pays for itself in reduced fuel bills.

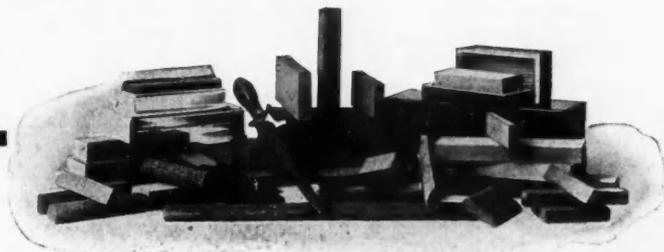
**YOUR PAYMENTS ARE BUT \$10. DOWN AND \$10. PER MONTH.**

Let us tell you more about the many conveniences of our furnace, its economy and healthfulness. How you can buy from the manufacturer direct—and pay a little each month, or secure a discount by paying cash. Write us today for our Booklet No. 3; a postal will do, we'll send it forthwith.

### THE JAHANT HEATING CO.

"Building Furnaces 30 Years"

AKRON, OHIO



## EVERY MAN WHO WORKS WITH TOOLS

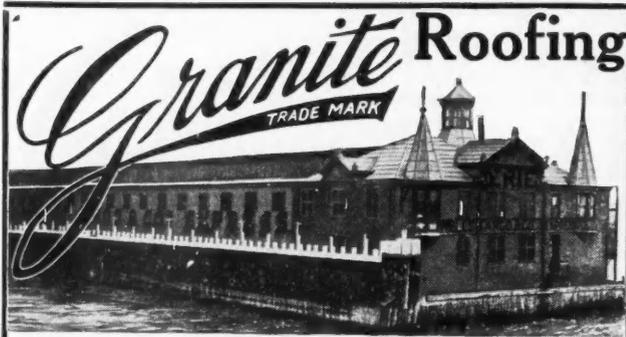
needs Carborundum Sharpening Stones—  
No other stone will put such a keen, even edge on a tool—  
No other stone will do it so quickly and easily—

*ASK YOUR HARDWARE MAN*

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

### THE CARBORUNDUM COMPANY

NIAGARA FALLS, N. Y.



This great pier was roofed nine years ago with **Granite Roofing**. At the present time it shows no signs of wear, and is expected to give excellent satisfaction, without attention or repairs, for at least ten years longer. Unlike the ordinary ready roofing, which is adapted only for temporary buildings and sheds, **Granite Roofing** may be economically used on all kinds of structures. Its unusual weight, 140 lbs. to the roll, gives to this roofing unparalleled durability. It can be laid by any one who can handle a hammer. **Granite Roofing** has a surface of sea-grit, thoroughly imbedded into its composition, which makes it fireproof and takes the place of the paint or coating.

Send for free Sample and Booklet, and learn about this best of all roofings.

**EASTERN GRANITE ROOFING CO.**  
1 Hudson St., NEW YORK CHICAGO ST. LOUIS

**ZIMMERMAN'S**  
**ANTI-SAG STRAP HINGE**

SEE THIS FLANGE CANNOT SAG OR TWIST

TWO BOLTS WHERE THE WEIGHT IS CARRIED

Ask your jobber or write us.

Attached by standard bolt or lag screw

Highest Award Jamestown Exposition.

Easily attached for Heavy Barn and Fire Doors, Gates, Fire Shutters. 22 sizes. 6 inches to 6 feet. The strongest hinge ever offered; superior to blacksmith hinge.

**HARRY ZIMMERMAN & CO., Patentees,**  
25 Wood Street, FREMONT, O.  
Eastern Selling Agents, G. F. S. ZIMMERMAN, 4 Arch St., Frederick, Md.

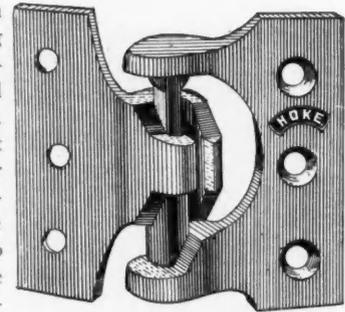
Chicago's Oldest, Largest and Most Reliable Hardware House

**STEBBINS HARDWARE CO.**

74 Van Buren Street  
CHICAGO

Dependable Merchandise at Lowest Prices

in all its appointments. The advantages of the Hoke hinge are various. It provides a hinge designed for use on either the right or left shutter. The hinge being reversible it dispenses with the necessity of right or left parts as heretofore required. It will hold the shutter or door locked in open position, preventing accidental closing and falling off on an upward pull when closing the shutter. It is arranged to permit convenient hanging, entirely obviating the heretofore required time and annoyance in neat adjustment, the two parts coming together like a clasp automatically adjusting itself to its natural position, an object obtained by the use of a pintle leaf arranged for right and left hand attachment to the window casing or other support, and a movable leaf mounted to a swing on the said pintle leaf, and arranged for reversible attachment to the shutter by inversion.



This explanation is only cursory and does not do full justice to the merits of the Hoke hinge. It must be seen to be appreciated. If you wish to test this hinge send for free sample, mentioning the AMERICAN CARPENTER AND BUILDER, inspect it carefully, give it a fair trial. Send for sample today, addressing the Hanover Hinge Company, Hanover, Pa.

**Burritt Mantels for 1909**

In this issue will be found the advertisement of the A. W. Burritt Company, known throughout the country as "The Mantel Folks," announcing the fact that their mantel and grate catalogues for 1909 are now ready for delivery to those interested in goods of this character.

Because of thoroughly seasoned stock, careful workmanship and beautiful finish, "Burritt mantels" are advertised as "the finest medium-priced line on the market today," and it will be to the advantage of every contractor and builder to write for these catalogues today. Liberal discounts are allowed from list prices and freight charges are prepaid; in addition to this delivery in first-class condition is guaranteed.

This well-known and reliable firm is shipping "Burritt mantels" from Maine to Texas and from Massachusetts to Missouri, and the universal verdict is: "Entirely satisfactory in every respect." Write today for Catalogue "A," which will be mailed promptly, free of charge.

**Bishopric Wall Board**

Just a little over a century ago, the combination of lath and mortar became one of the accepted essentials of building. That revolution in structural methods early in the eighteenth



**STEEL POSTS**  
ARE  
**Cheaper than Wood**

These clothes or fence posts are made of tube steel, filled with concrete, and are therefore

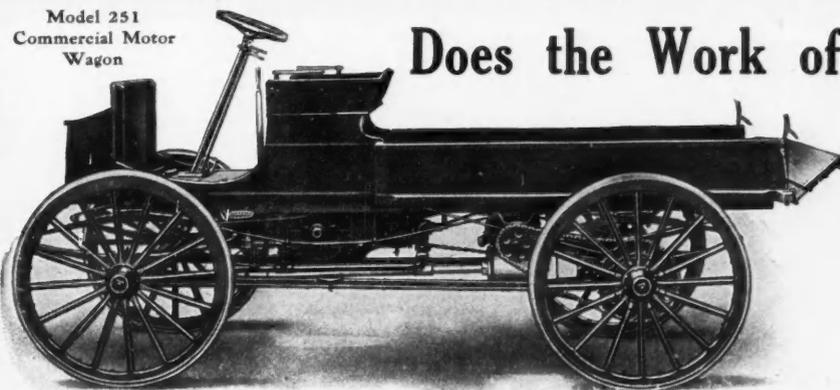
**Indestructible**

Are easily removed, leaving lawn free for mower or other purposes.

Catalogue on Application

**Milwaukee Steel Post Co.**  
Milwaukee, Wis.

Model 251  
Commercial Motor  
Wagon



## Does the Work of Two Teams—

and "It's cheaper to feed Gasoline to a McIntyre than Oats to a Horse." Any one of your hands can run a

*McIntyre*

**T**HE McIntyre Commercial Motor Wagon stands first among commercial vehicles not only because of low cost of maintenance and operation, but because of its permanent efficiency and *reasonable price*.

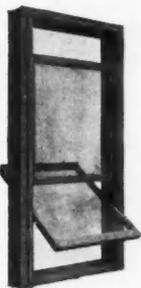
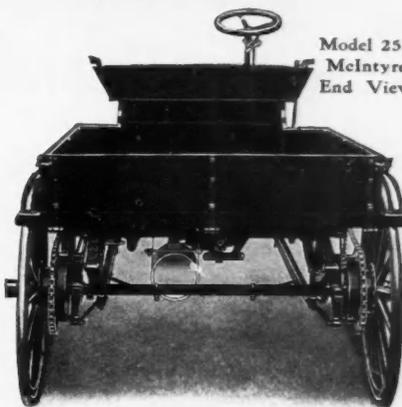
Our Model No. 251 means *economy* to you. Costs much less to operate and maintain than one horse and wagon, yet does the work of two teams. Repeated tests have established the fact that the McIntyre is the only car that can be run at an expense of less than one cent a mile. If you want to know the details of these tests, we furnish them on request, *proving—durability, low-price and minimum cost of up-keep and operation.*

The McIntyre balks at neither hills nor muddy roads. Any one of your men can handle it and travel from 4 to 30 miles an hour.

Write us at once for complete information, specifications and prices on McIntyre Commercial Motor Wagons. We have some interesting photographs of "McIntyre's" that are now in commercial use and want to refer you to their owners for practical results. Ask for Motor Wagon Catalog No. 143.

**W. H. McINTYRE COMPANY, Auburn, Indiana**  
256-267 Broadway, New York    1730 Grand Ave., Kansas City    418 Third Ave. So., Minneapolis    Tudhope-McIntyre Co., Orillia, Can.

Model 251  
McIntyre  
End View



## Architectural Sheet Metal Work

Large stock of our catalog designs on hand for prompt shipment of orders.

We have a large assortment of **garlands, modillions, enriched mouldings, capitals, finials, tympanum panels, rosettes, faces, etc.** which can be readily applied to wood or metal work.

Catalogue No. 12 K, just issued, shows full line of above lines, also **cornices, building fronts, skylights, fire-proof windows, metal tile roofing and steel ceilings.**

If you have not received a copy of this catalog write us today and we will mail you one.

Our prices are low. Our work is strictly first-class.

Send us **architect's drawings** for estimate. We will return promptly with our proposition. Discounts to the **trade** on application.

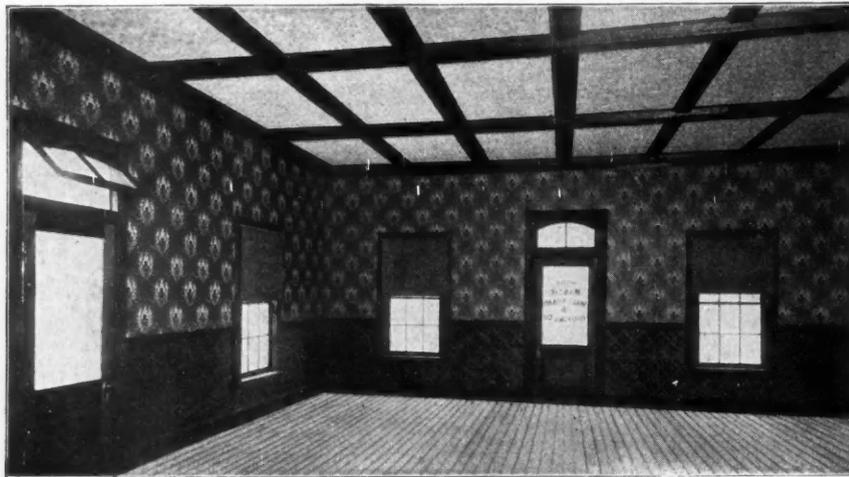


## THE W. H. MULLINS COMPANY

Manufacturers of Architectural Sheet Metal Work, Statuary, Fireproof Windows and Skylights  
214 Franklin Street, Salem, Ohio.

century was no more notable than the one wrought by

It comes in crates of 15 sheets, measuring 240 square feet of wall board to a crate, with a weight of one pound to each square foot. Every foot of wall board can be utilized. You do not have to pay for window and door spaces in its application. Bishopric wall board is readily cut with a hand-saw to fit all spaces without any waste at all. Therefore, 1,000 square feet of wall board will cover 1,000 square feet of space.



Bishopric wall board. This twentieth century invention does away with all the dust, dirt and dampness of plaster and lath.

Bishopric wall board, one of the products of the Mastic Wall Board and Roofing Manufacturing Company, Ltd., Cincinnati, Ohio, 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. This board is fully covered by letters patent in the United States, Canada, England, Germany and France. It is made of kiln dried, dressed lath, imbedded in hot asphalt mastic (99 per cent pure) at a pressure of 500 pounds to the inch. It is surfaced with heavy sized cardboard and cut at the factory in sheets 4 by 4 feet ready for nailing to the studding—also ready for interior decoration.

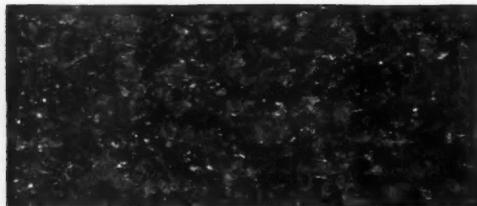
moment this wall board is nailed to the studding (light finishing nails are best suited for this work) all is ready for decoration. There is no delay for "the walls to dry out."



The moment the studding is up, you can inclose the building ready for immediate decoration and occupancy.

Bishopric wall board is good for all structures from the

# MASTIC Means the Perfect Roofing



THE ABOVE CUT IS AN EXACT REPRODUCTION OF A PIECE OF MASTIC ROOFING 2½x1½ INCHES AND SHOWS THE SLIGHTLY SURFACE FINISH.

## We Will Appoint Live Selling Agents

For several months we have been running our Ad in this journal with very gratifying results. However, there are many agencies yet to be arranged for.

The Contractor and Builder is our main dependence for getting our goods in use. He, more than anyone else, stakes his reputation on the goods he uses. For this reason, Mastic Roofing appeals to him.

## A Sample of Mastic Roofing is Convincing

There are many roofings offered. As the English language contains but a certain number of words that can be used in describing a roofing, there is necessarily a sameness about roofing Ads, and every maker naturally claims to have the best.

But, this sameness does not extend to the goods. Compare a sample of Mastic with any and everything else made. We rest our case right there. Write us to-day for this sample and full information.

## Write for Information and a Book

If you want cheaper roofings we furnish them at as low prices as any, but our recommendation and guarantee does not go with them. Mastic Roofing is made right and acts right. For permanent buildings you cannot afford to use anything else. Booklets and Samples Free.

# National Roofing Materials Co.

EDWARDSVILLE, ILLINOIS.



Asbestos "Century" Shingle Roof—Dayton Gun Club, Dayton, Ky.; William Lampe, Newport, Ky.  
Architect; R. L. Brown, Covington, Contractor

## Asbestos "Century" Shingles

"The Roof that Outlives the Building"

Asbestos "Century" Shingles improve with every day they are exposed to the weather, absorbing a little moisture from the atmosphere when first laid and maturing like every other concrete.

Asbestos is the natural reinforcement for cement. It resists climate, fire and time. Its silky fibres interlace into a web that reinforces the cement in every direction.

Asbestos "Century" Shingles are tough and elastic—fire-proof, weather-proof, accident-proof. Need no painting—no repairs. Laid like any shingle or slate—easily fitted and cut. Three colors—Newport Gray (silver gray), Slate (blue black), and Indian Red, in numerous shapes and several sizes.

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

**The Keasbey & Mattison Company, Factors**  
Ambler, Pennsylvania



## THE SUNNY SIDE

On the "sunny side" of the roof where the sun beats down at noon—that's where the shingles warp and crack—that's where the tin roof buckles and breaks at the seams and the cheap ready roofings meet their Waterloo.

On the "sunny side" of the steepest roof and in the hottest weather GAL-VA-NITE meets every requirement of the perfect roofing while the cheaply constructed brands, waterproofed with pitch, melt and slide to the eave troughs, filling the waterspouts with the conglomerated mass of pitch and rock surfacing.

The "sunny side" is but one of the many places where GAL-VA-NITE shows up the cheap ready roofings and proves its superiority. GAL-VA-NITE is made to protect and it does this so well that it is an absolute insurance against roof troubles.

GAL-VA-NITE is waterproofed with mineral asphalt and weatherproofed with a heavy "armor plating" of flaked mica, which is impervious to the ravages of rust and the dangers of flying fire brands and sparks. It needs no attention once it is laid and in addition to its durability it makes a neat appearing roof.

This pliable "mica-plated" ready roofing is put up in rolls of 108 sq. ft. complete with nails, lap cement and full directions for laying. Anyone can properly lay GAL-VA-NITE on any kind of a building with but a hammer and knife.

Better let us send you FREE samples and booklets. We are manufacturers and can give you straight roofing facts. Don't decide on your roofing material until you have seen and tested samples of GAL-VA-NITE. Just use postal today and ask for DETAIL No. 9



"For Roofing Right—Know GAL-VA-NITE."  
"MADE BY THE MILLS THAT QUALITY BUILT."

Address the  
Manufacturers

**UNION ROOFING & MFG. CO.**

ST. PAUL,  
MINNESOTA.

## THE MANUFACTURE OF CONCRETE HENS' NESTS

Pays enormous dividends on a very small investment

They are Sanitary—Will Last Forever. They offer a profitable field with No Competition

**ONE SALE MEANS A DOZEN**

Every man who owns chickens is a SURE CUSTOMER

OUR FOLDER TELLS ALL ABOUT THEM. WRITE TODAY

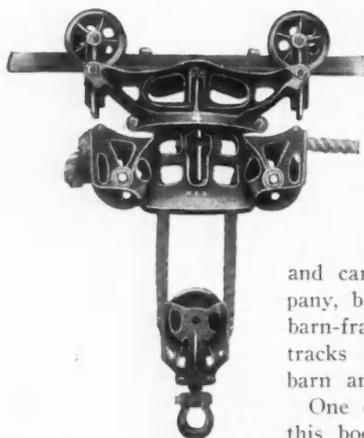
**B. M. BANGS & CO.,** BOX 464C  
LAKE MILLS, IOWA



modest cottage and bungalow to the sky-scrapers, banks, big offices, for country or city residences. Firm, airtight walls are guaranteed by its use. In the decorating of Bishopric wall board it readily takes on a very smooth decoration—either in paper, oil paint or cold water paint. The result is the same—every room in a building is made absolutely sanitary. Decorations as you like them are possible—smooth, plain surfaces or beautiful Mission panel effects. Nothing equals it for new partitions in old or already completed buildings. It may be applied over unsightly ceilings or walls with splendid results.

**Hay Tracks and Carriers**

One of the most interesting and instructive of the industrial books recently issued is Catalog No. 70, describing "Diamond" haying tools, the well-known hay tracks and carriers, forks, pulleys, slings and supplies made by the Whitman & Barnes Manufacturing Company, Chicago, Ill.



This book is especially valuable to contractors and builders for it shows not only the various types of reliable tracks and carriers made by this company, but also explains with full barn-framing plans just how the tracks should be erected in the barn and the hay carriers used.

One of the styles described in this book has been designed especially to meet the needs of the ordinary line of work re-

quired. It is known as the No. 4 "Diamond" and is illustrated herewith. The carrier is a wide-mouth swivel and reversible carrier and is made with independent single trucks.

The trucks are built from one solid piece of best malleable iron and cannot spread on the track with a heavy load. The track wheels run on turned steel axles and the rope wheels have chilled hubs and run on bushings that fit in recesses of the frame, thereby taking all wear and strain off the bolt. It is the strongest four-wheel carrier made.

The wide mouth receives the fork pulley, which swings with the load when locked, as it approaches from either direction.

The lock is positive and is forced into action by the pulley block coming in contact with the gripping dogs, which will hold the pulley perfectly until again released by the stop. The carrier will work out of either side of the stop by simply swiveling the rope.

Every reader of the AMERICAN CARPENTER AND BUILDER who is interested at all in barn construction or who expects to be interested at all in construction about the farm should have this Catalog No. 70 for reference.

**Of Interest to Slate Roofers**

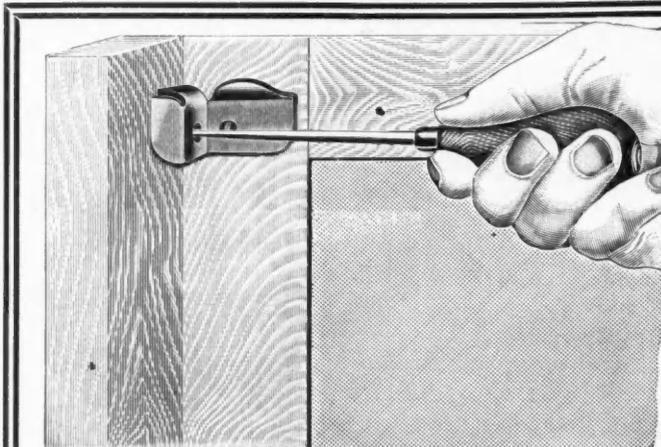
We take pleasure in publishing the following letter from the advertising committee of the American Sea Green Slate Company concerning the plans and policy of that company for extending and enlarging the business of all slate roofers.

May 12, 1909.

AMERICAN CARPENTER AND BUILDER, Chicago, Ill.

Gentlemen: The information comes to us that there seems to be a little misunderstanding in trade circles as to the object of the advertising policy of our company.

Briefly, same is as follows: During the past two years we have been advertising in a large number of agricultural, as well as trade papers, for the purpose of popularizing and increasing the use of Sea Green and Purple roofing slate in



Turn Button No. 45.

**Diehl's Turn Button**

For putting on Stationary Screens or Storm Sash from the inside of the house



**Diehl's No. 1 Hanger**

Storm Sash Hanger No. 1

For Screen or Storm Sash, the only Ball and Socket Hanger made and the only Hanger that can be hung one side at a time.

Samples on receipt of 10 cents to pay for packing and postage. DIEHL NOVELTY CO., SHEBOYGAN, WIS.

**This Looks Good to Others, How Does It Look to You?**

**\$110 to Be Given away in Prizes.**

We want you to know us, and to know our goods, and their superior qualities and conveniences over all others. We take the lead in a practical line of builders' hardware. To satisfy yourself of this fact send 10 cents in stamps for sample of any article that we manufacture. Seeing is believing. Send for catalogue and satisfy yourself.

In order to introduce our goods to the contractors, we are offering the following prizes to contractors that use the largest amount of our goods between April 1st, 1909, and December 1st, 1909.

- 1st Prize.—Gentleman's Gold Watch, 16 size, 17 jewel, hunting case, Howard movement, value \$35.00.
- 2nd Prize.—Gentleman's Gold Watch, 16 size, 17 jewel, hunting case, Hamilton movement, value \$25.00.
- 3rd Prize.—Gentleman's Gold Watch, 16 size, 15 jewel, open face, Elgin movement, value \$15.00.
- 4th Prize.—Gentleman's Solid Gold Watch Chain, value \$12.00.
- 5th Prize.—Gentleman's Solid Gold Fob, value \$10.00.
- 6th Prize.—Gentleman's Solid Gold Locket, diamond set, value \$8.00.
- 7th Prize.—Gentleman's Solid Gold Locket, value \$5.00.

**DIEHL NOVELTY CO.**

You can show any of these prizes to your local jeweler and if he does not verify our statement of value you may leave them with your local express company or banker and we will forward for the amount.

All carpenters and contractors wishing to enter the contest please fill out this coupon and mail it to us at the end of each month so that we may be able to award prizes to the right parties at the end of the contest.

Diehl Novelty Co., Sheboygan, Wis.

Name of Contractor ..... Address .....

Name of Dealer from whom goods were purchased ..... Address .....

Fill in with amount of goods used:

.... Doz. No. 1 Hangers and Fasteners.	.... Doz. No. 2 Screen Hooks.	.... Doz. No. 19 Basement Window Catch.
.... " " 1 Hangers only.	.... " " 17 Screen Door Hinge.	.... " " 45 Inside Turn Button.
.... " " 1 Fasteners only.	.... " " 18 Screen Door Hinge, extra part.	.... " " 55 Corner Brace
.... " " 1 Screen Hooks.	.... " " 21 Basement Window Hinge.	.... " " 60 Coupling.
.... " " 2 Hangers and Fasteners.	.... " " 22 Basement Window Hinge.	.... " " 28 Base Knob.
.... " " 2 Hangers only.	.... " " 9% Basement Window Hinge.	.... " " 50 Screen Door Catch.

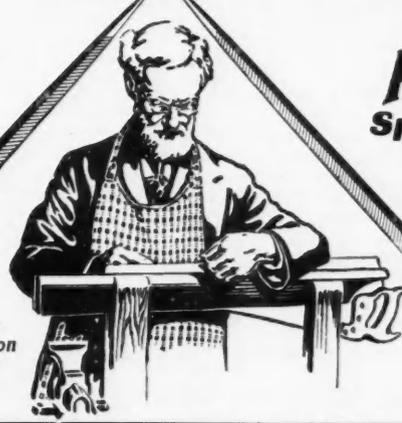
**This Is To Certify**

that I have sharpened thirty-five (35) hand saws with one E. C. S. Keen Kutter Special Slim Taper file.

I have sharpened as many as 15 or 20 a number of times.

**ROBT McDONOUGH,**  
Contractor and Builder.  
Mexico, Mo.





Sample files upon request

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

go clear to the bottom of the tooth. Slimmer than any others, and shaped for easy filing. Cut accurately by modern improved machinery. Tempered by natural gas, which gives them a peculiar hardness and toughness. If not at your dealer's, write us for free sample.

**SIMMONS HARDWARE COMPANY (INC.)**  
St. Louis and New York, U. S. A.

**BEST**

**HOT WATER RESIDENCE HEATING BOILER MADE**



**Guaranteed and Sold Direct where we have no agent**

Capacity of Heater nearly doubled without additional fuel by use of **Center Pipe** carrying water up through the center of deep fire pot. Heats from all sides.

I want to sell you a heater. Write me today

**PHILLIPS HEATING CO., Dept E, Aurora, Ill.**

**Give Your Shoulders FREE PLAY**



Don't make them sore and tired by wearing the old-style rigid-back suspenders, which tug, strain, and chafe with every move you make. Get a pair of

**President Suspenders**

and learn what real suspender comfort is. The sliding cord in the back of President Suspenders (which is not found in any other suspender) permits them to "give and take" with every motion of the body. They rest lightly upon your shoulders and allow you perfect freedom of movement. The Extra Heavy Weight, made especially for workers, outlasts several pairs of ordinary suspenders. Light and medium weight for dress wear. Extra lengths for tall men. Every pair sold with the maker's guarantee—satisfaction, new pair or money back. If your store-keeper cannot supply you, we will, postpaid, upon receipt of price, 50c. Get a pair today.

**THE C. A. EDGARTON MFG. CO.**  
739 Main Street : : : SHIRLEY, MASS.

**TYPEWRITERS ALL MAKES**



**Visible Writers** or otherwise *Olivers, Remingtons, Smiths, etc.*

Shipped ANYWHERE for Free Trial, or RENTED, allowing RENT to APPLY.

**Prices \$15.00 Up**

First class Machines fresh from the Manufacturers  
Write for Illustrated Catalog 45. Your opportunity.

**TYPEWRITER EMPORIUM, (Est. 1892) 92 & 94 Lake St., Chicago**

---

*It does not require an expert to use a typewriter. Any man can use one with slight practice, : : : : :*

**PORCELITE ENAMELS**

HIGH GLOSS  
DULL FINISH  
DEAD FLAT

**FOR ALL Purposes**

*Admit No Superior for Enamel Finishes on*

**Cement, Metal Ceilings, Wood, Plaster, Brick, Etc.**

**EXTERIOR OR INTERIOR**

*Address for Particulars*

**THE THOMSON WOOD FINISHING CO.**  
PHILADELPHIA

old territory for the benefit of all established slate roofers, and we are pleased to say that gratifying results have been accomplished as reported to us by slate roofers in various sections of the United States, who have reported a large increase in their yearly business.

In connection with the advertising in agricultural papers we found that there were many points not covered by established slate roofers, where the consumers were very anxious to have Sea Green and Purple slate roofs if someone could be found to do the slate roofing for them, so that to take care of this demand for slate in entirely new territory we have invited experienced men to take up the slate-roofing business, but under no condition has it been our intention or desire to interest new men in the slate-roofing business in any locality in the United States which was already being taken care of by an established slate roofer or roofers.

We wish to take advantage of this opportunity to say that your paper has brought us in good results in the way of prospects which have later been the means of bringing much slate-roofing work to established roofers in the territory in which your paper circulates. Yours very truly,

AMERICAN SEA GREEN SLATE COMPANY,  
Per Advertising Committee.

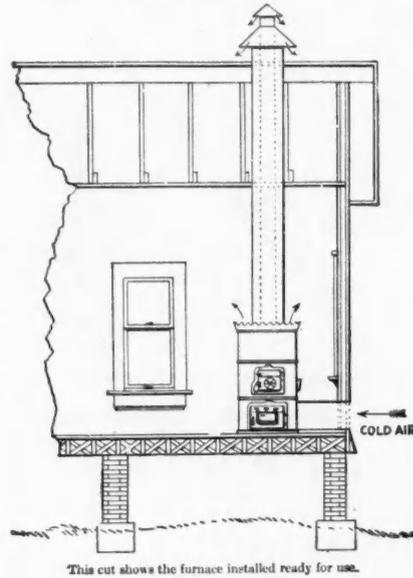
**Front-Rank System of School Heating**

There will be a revolution in school-house heating in a very few years. Even now school boards in most of the large cities are positively prohibiting the use of stoves in the portable, or 1-room schools.

Heating a room, say 25 by 40, with 50 or 60 children in it, with a stove, as is done in a great many country schools, is simply jeopardizing the health of every child in the room. How could it be otherwise when they are continuously breathing the same air over and over all day long! A single

child with consumption or any other contagious disease is liable to convey it to the entire room. Even with the best of ventilation there is danger. The more rapid the changes of air the less the danger. There is no change of air whatever, except the little that passes through the cracks around the windows; and often they are weather-stripped.

**FRONT RANK STEEL FURNACES.**

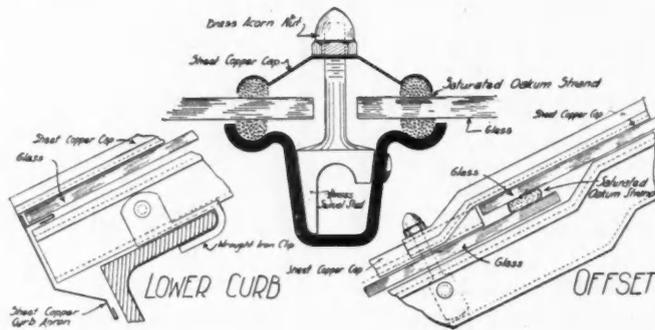


air is drawn rapidly from the floor, as is plainly shown in the cuts. The first is a sectional view of school-house, showing a Front-Rank furnace installed for use. The cold-air supply may be taken through the wall above the floor of the schoolroom, as shown in the cut; or it may be taken through the foundation wall and connected under the bottom of the furnace.

By referring to the next cut you will get a good idea of

**Lupton Rolled Steel Skylight**

(PATENT PENDING)



**ESSENTIAL FEATURES:** Unusual strength; weather tight connection over and under glass; no crossbars; no putty used; glass not in contact with metal, therefore not affected by vibration. WRITE FOR CATALOGUE AND DETAILS.

You will be interested in the LUPTON HOLLOW METAL WINDOW—Our Catalogue describes it.

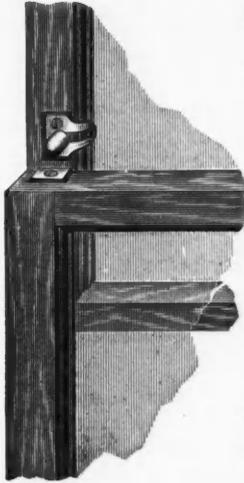
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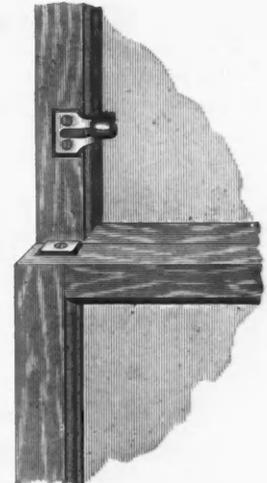
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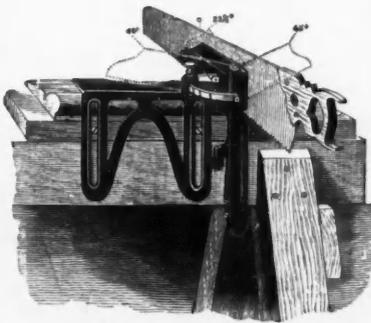
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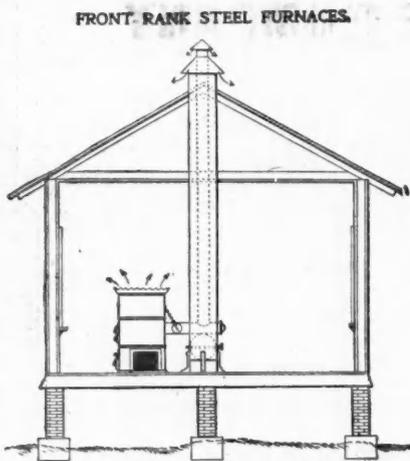
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**MEAD CYCLE COMPANY Dept. T-122 CHICAGO, ILL.**

how the smoke and ventilating pipes are run. It will be seen that the smoke pipe passes directly into the ventilating pipe, thus causing a perfect ventilator. No pipe will ventilate properly without artificial aid—the air must be either heated or forced through with a fan. This cut also shows that with the Front-Rank system it is not necessary to go to the expense of building a chimney—not even a safety thimble is needed, as the smoke pipe passes through the center of the ventilating pipe its entire length.



FRONT-RANK STEEL FURNACES.  
This cut shows the vent pipe standing on three legs (about ten inches from the floor), also clearest to smoke pipe, damper in vent, and where cold air from outside enters the furnace.

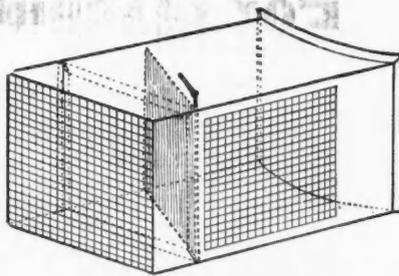
This system can be installed in an old building with as little expense as in a new one. The fact that it is not necessary to build special brick flues is an item worth considering.

Another economical feature is the way of taking the cold air supply, both from the interior and the outside, without the use of a register or register face.

In the early days when the country was sparsely settled and when school-houses were often built of logs, little attention was paid to ventilation—sometimes we got too much of it. Now, however, the cry is for more fresh air, even to the extent of compulsory legislation in many of the states.

The third cut shows how this is done. This is a cut of

the special cold-air chute. The curved end is fitted to the casing of the furnace, and the end showing the wire screen passes to the outside through the wall for the admission of cold or fresh air. The screen on the side is the opening for taking the air from the school-room. When it is desired to heat the room early before



The Front Rank cold air chute, showing how the cold air supply may be taken from the interior or outside, as desired.

the pupils arrive, close the outside opening and take the air from the room. After school begins the inside opening should be closed and the entire supply taken from the outside. A damper is placed in the chute between the two openings, so that by turning it to the right or left, either opening may be closed. This chute is inexpensive, and by the use of it it is not necessary to place grilles or doors at the bottom of the casing for the admission of the inside air.

The Front-Rank system not only insures perfect ventilation, but distributes the heat evenly all over the room. The even distribution is caused in this way: as the warm air enters the room it passes directly to the ceiling and is drawn down all over the room as the foul and colder air is drawn from the floor through the ventilator. By regulating the damper in the vent pipe the foul air may be drawn from the room as rapidly as may be desired. This should be regulated according to the number of pupils in the room. When the schoolroom is crowded the air may be kept comparatively pure by keeping up a good fire and permitting the fresh air

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## FOX MACHINE COMPANY

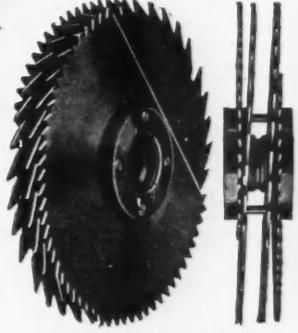
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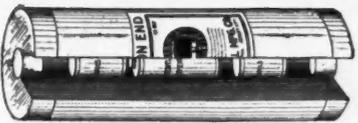
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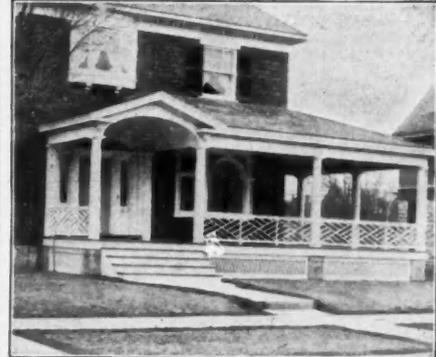
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# Petz

Patent Store Front Construction

It will pay you to investigate carefully the bar you select for that new store front. The **Petz Bar** not only has limitless artistic possibilities in the hands of a good architect but combines strength, ease of installation and safety to the glass.

To the merchant it offers all the light he requires as well as more and better display room in the windows. It allows glass to be set from the outside and to be insured at a low rate.

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MADE IN DETROIT

to come in from the outside as rapidly as it can be heated. The hotter the smoke pipe is, the faster it will cause the ventilator to draw the foul air from the room.

In selecting a furnace, get one large enough to heat the room when both the outside cold-air pipe and the vent pipes are wide open. It is far better to pay coal bills than to risk the health of the children.

To be an economical heater a furnace must have a large amount of radiating surface in comparison with the size of the firepot and this surface must be arranged so that the air in passing upward must come in close touch with every part of it.

It will be observed that the Front-Rank furnace is built on straight vertical lines, thus causing the air in its ascent to come in direct contact with the entire surface.

This principle is essential in a successful heater and is one of the strongest features in the construction of the Haynes-Langenberg furnace.

**Asbestone Floors**

A personal canvass made by Franklyn R. Muller & Co., 72-86 North May street, Chicago, among the leading architects in the United States disclosed the demand for a floor to combine the following qualifications:

To be sanitary without seam or joint, and moderate in cost. To present a pleasing appearance, feel good under foot and be light in weight. To be fireproof, durable under hard

usage, and less absorbent than other floorings. To possess sufficient resiliency to retain its unbroken surface in case of settlement of building longer than other hard floorings, and to be easily, cheaply, permanently and slightly repairable in case of cracking.

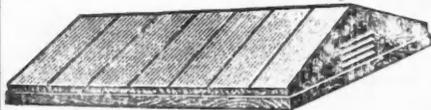
They thereupon evolved, after long and patient work, the Asbestone hermetically sealed floors to fill these requirements and meet the demand for a moderate-priced, permanent flooring, combining the advantages of wood, cement, tile, rubber, terrazzo, linoleum, etc., and eliminating many of their defects.

Asbestone is a perfected product of fifty years' observation under actual experience in the United States and Europe in laying floors with plastic materials.

It is a light, remarkably durable cementing material, absolutely fireproof and impervious to heat, cold and dampness.

It contains no Portland cement, sand, or any other cheap filler. It is fibry and possesses considerable elasticity and greater adhesive strength than any cement known to the trades. It is laid in plastic condition on wood, concrete or steel under-floors, and is usually carried with a cove several inches up the wall to form a base, hermetically sealing the entire area to produce a sanitary floor, presenting a fine-grained smooth surface, never slippery, of the consistency of hard rubber under foot.

The material is practically indestructible so far as ordinary wear or conditions are concerned. Being elastic by nature, asbestone floors will retain an unbroken surface longer than

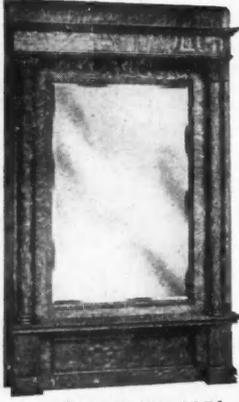


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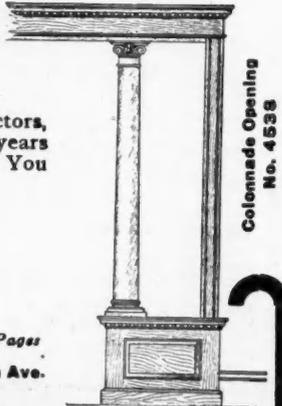
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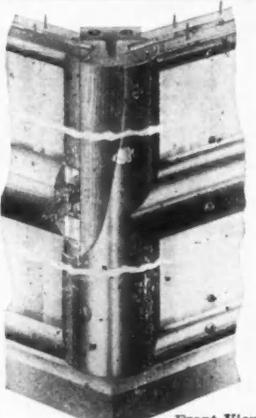
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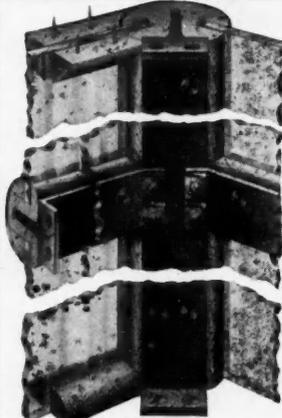


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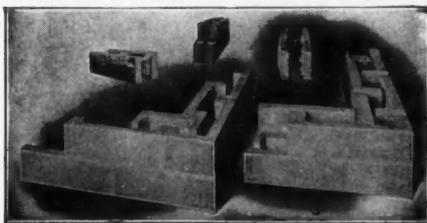
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We call attention to our new construction of **METAL CEILINGS**, now ready, having the nail holes punched, saving the erecting labor one half

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title, terazzo, or any other granular flooring. In case of cracking asbestone floors can be easily repaired by filling in with same material, similar to repairing plastered walls or ceilings.

Asbestone floors are considered by authorities to be the floors of today and of the future, not to be omitted by the modern architect in any important construction.

It is the standard sanitary flooring, there is no other material equally as good. The cost, no higher than that of other materials, coupled with thorough workmanship, expert treatment, and a guarantee, make it safe for the architect to specify asbestone hermetically sealed floors as manufactured by Franklyn R. Muller & Co., 72-86 North May street, Chicago, Ill., instead of experimenting with "equally as good" substitutes.

### How to Make Cement Fence Posts

Every reader of this paper should get a copy of the catalog issued by the Mandt Manufacturing Company, 551 Oak street, Hollandale, Wis., on cement fence post machines.

The machine manufactured by this company is exactly what farmers have been looking for. It is simple, durable and sold at a very low price.

With the Mandt indestructible fence post machine a farmer can replace his fence posts as they wear out at less than half the cost of wooden posts. The company also manufacture machines for making building blocks, suitable for barns, silos, tanks, etc. Their catalogue is a perfect mine of information and should be in the hands of every progressive farmer. Don't fail to send for a copy at once.

### Metal Ceiling Improvement

The Canton Art Metal Company, of Canton, Ohio, call attention to their new construction of metal ceilings, which they have just placed upon the market, and which they believe will merit the closest attention of users of metal ceilings. In their new construction, all nail holes are punched

clear, so as to do away with the necessary perforating of the metal while erecting. This gives a clear nailing point against the furring strips, and enables the nail to be driven home easily and accurately, without any chance of smashing beads.

Wherever it has been used it has found universal favor, and has in all cases reduced the labor considerably, in one case a job of 100 squares having been erected at a net cost per square of 77 cents.

Full particulars, with catalogue, will be mailed upon request.

### Safe Scaffolding

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

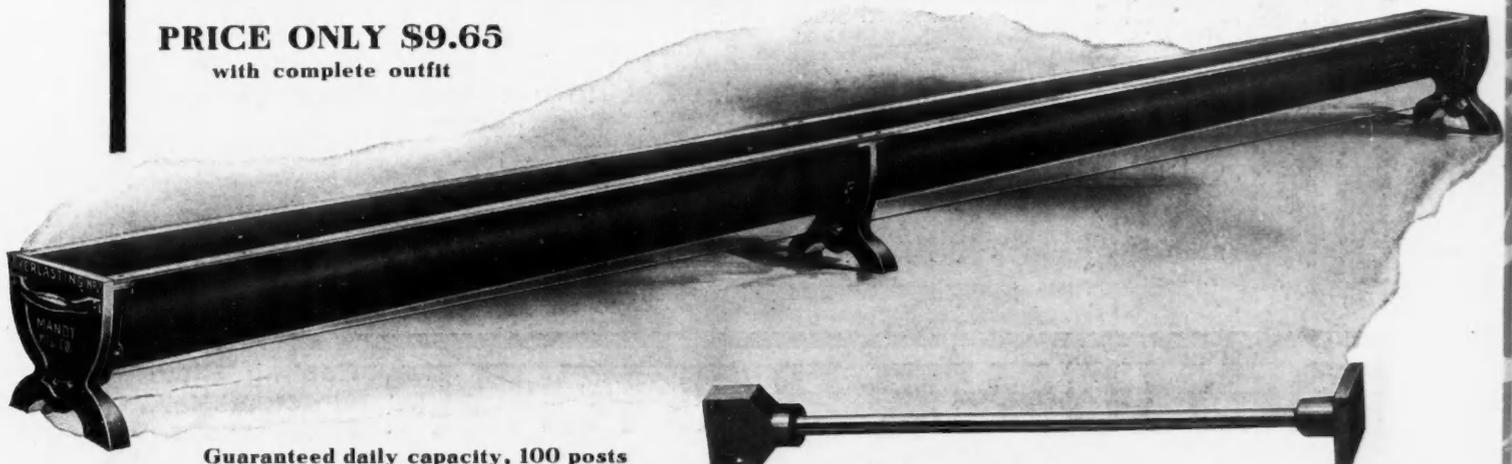
With the increased use of brick veneer these brackets will pay for themselves on any fair size job, as all that is necessary is to leave out a brick where the bracket sets against the sheeting, which can be filled in afterward. There are over four hundred contractors using these brackets in Detroit alone in lots of from one to five dozen. When not in use or when required to move them they can be shut up in a very small bundle and take up little room in storing.

One essential point which cannot be overlooked is that there has never been reported an accident on a scaffold where these brackets were used, which every workman or contractor can appreciate. These brackets entirely eliminate this danger, which should be impressed on every builder in the country. See illustrations in their advertisement on another page.

## "Mandt's Everlasting Cement Post" Machine

**PRICE ONLY \$9.65**

with complete outfit



**Guaranteed daily capacity, 100 posts**

**BUILT OF BESSEMER STEEL AND IRON.**

With this machine a man can make from \$8 to \$10 a day. No other business offers such large returns for money invested. It's easy to get orders for fence posts that are FIRE, ROT, FROST and LIGHTNING PROOF, when you can sell them cheaper than wooden posts. There is a tremendous strength in the shape of the Mandt—it is the most widely advertised, best known and liked post among the farmers everywhere.

**Simplest, Strongest, Swiftest and Cheapest Machine Ever Offered**

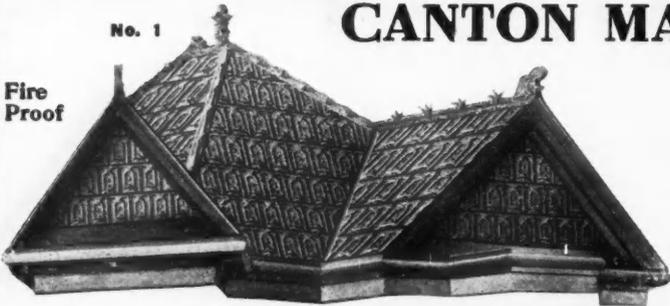
The fact that two men will AVERAGE over 100 posts, seven feet long, each, and every day means a large saving—shape permits use of VERY wet CONCRETE—being "face up" allows use of any style fastener—is portable—free from "shaky legs" and other "wiggly devices"—a STEEL CABLE runs entire length of machine, EVENLY distributing weight of post—only machine that won't spread—built to LAST FOREVER. Offered to you at our "10,000" price of only \$9.65 with tamper. Orders promptly filled.

**BIG \$3.00 BOOK FREE** We aim to sell 10,000 post machines this spring and summer, and it looks as if we would double that number, so if you want the latest and most complete book, entitled "CEMENT STONE, HOW to MAKE and USE IT" (Price \$3) for nothing—FREE—send your order, as each of our customers get one. Don't fail to get our new catalog, telling all about Cement Stone Making Machinery. **WRITE TODAY—NOW.**

**MANDT MANUFACTURING COMPANY, Hollandale, Wisconsin, 573 Oak Street**

Miniature sample of the "Mandt Everlasting Cement Post" sent free

**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

1320 E. 2d  
Street  
CANTON  
OHIO

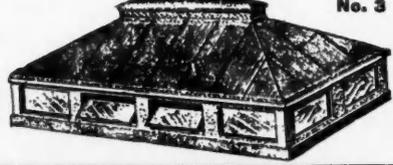
**No. 2**



**ABSOLUTELY STORM PROOF**

Cata-  
logue  
FREE

**No. 3**



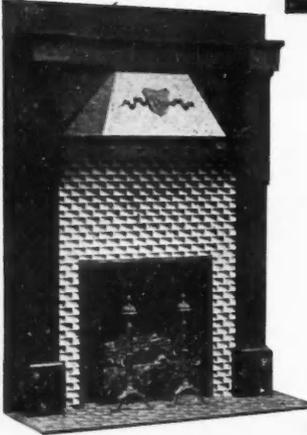
**32 REASONS Why you should USE Pittston Roofing Slate**

WRITE FOR ONE—IT IS ENOUGH

**THE PITTSTON SLATE CO. Miners and Manufacturers**  
J. M. ARMSTRONG Mgr. **SLATINGTON, PA.**

**Bangor Roofing Slate**

**STRUCTURAL SLATE** Quarries at Bangor and Pen Argyl, Pa.  
**BANGOR SLATE MINING CO., BANGOR, PA.**



**BURRITT MANTELS FOR 1909**

ARE BETTER THAN EVER

Seasoned Stock, Thorough Workmanship and Beautiful Finish  
make them the

**Finest Medium Priced Line on the Market Today**

Write for Catalogue "A"

**THE A. W. BURRITT CO.**  
"The Mantel Folks"

349-473 Knowlton St. - - Bridgeport, Conn.



**GENUINE BANGOR** Roofing Slate,  
Structural Slate,  
Blackboards.

Large Facilities, Prompt Deliveries

**EAST BANGOR CONSOLIDATED SLATE CO. - - East Bangor, Pa.**

Established 1852. THE ONLY PRODUCERS OF GENUINE Certificate Issued with Every Shipment

**FRANKLIN TUNNEL** Roofing Slate,  
Blackboards and  
Structural Slate.

SEND FOR PRICE SHEET

**SLATINGTON SLATE COMPANY, - - - - Slatington, Pa.**

## Trust An "Irwin" Bit Anywhere—Any Time

A SUPREME dependable quality in tools is at times of vital importance. The picture illustrates this fact. Daring workers on high scaffolding, using a tool which requires the use of both hands, are absolutely dependent for their safety upon the quality of their tools. The loss of balance from the breaking or bending of a tool would be fatal. You can trust an Irwin Auger Bit anywhere. It is made of a special quality of steel, tested for temper taking quality. It is drop-forged under a thousand pounds pressure, and is strong where the shank and twist join—the weak spot of all old style bits. Every Irwin Bit is tempered by a secret process in molten tin, oil and brine.

There is nothing left to chance in the making of an Irwin Auger Bit. For no bit receives the stamp "Irwin" until it has passed through severe tests for temper, strength, shape and size. Failure in even the slightest degree to pass any one of these tests is sufficient to consign the bit to the scrap heap.

The boring qualities of the Irwin Bits are tested in lignum-vitæ, the hardest known wood, which will turn the edge of most wood-working tools. Heads and cutters are sharpened and finished by hand filing. The Irwin Auger Bits are highly finished and fully polished from tip to tip. From forging to finishing each bit passes through 50 hands.

The Irwin Auger Bit is the only solid center stem auger bit made in every style and size. There are nearly 50 varieties—an Irwin Auger Bit for every special purpose.

The Irwin Auger Bits will not clog and will bore in the end or side of any wood. They are recognized as the strongest, easiest and fastest boring bits made.

Sets sold in cases or rolls, as you wish, without extra charge. Cases are the handsomest, handiest bit cases ever made. Quarter-sawed hardwood, finely polished with folding lid and sliding drawer.



# THE IRWIN

 A large, stylized graphic of an Irwin Auger Bit, showing the twisted shank and the cutting edge. The bit is positioned horizontally across the middle of the page, with the word "THE IRWIN" written in a bold, blocky font above it.

Each set of 20½ quarters contains one each 4, 5, 6, 7, 8, 10, 12, 14 and 16 sixteenths Auger Bits.

Each set of 25¼ quarters contains one each 4, 5, 6, 7, 8, 9, 10, 11, 12, 14 and 16 sixteenths Auger Bits.

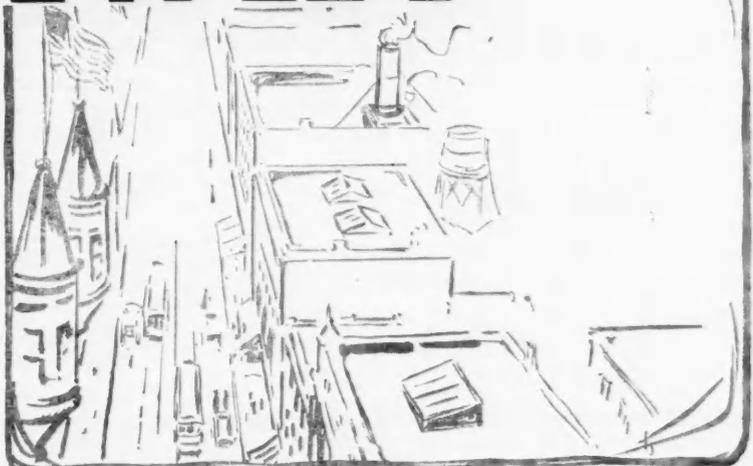
Each set of 32¼ quarters contains one each 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16 sixteenths Auger Bits.

Irwin quality is guaranteed. Price refunded if not satisfactory. If the bit is not branded, it is not the genuine Irwin Auger Bit. Buy them for the home, the farm, the factory and the shop.

If your dealer does not keep Irwin Bits, do not accept a substitute, but write us and we will see that you are supplied.

**THE IRWIN AUGER  
BIT COMPANY**

*Largest in the World*  
Station F18, Wilmington, Ohio



# THE PROBLEM SOLVED

You can have Modern Sanitary Plumbing installed in your home at a very low cost, for our "All Iron Pipe" system enables any handy mechanic, without previous experience, to do the work.

**DON'T BE HELD UP** for an exorbitant sum in order to possess these conveniences, for we will sell you the material at lowest wholesale prices.

**THERE IS NO MYSTERY** about the pipe work for plumbing. Look at the picture. The large vertical pipe is the stack. The smaller vertical pipe is the vent. All fixtures are trapped to prevent odor or sewer gas escaping into the rooms, and are so connected as to be properly vented. This is a fair type of sanitary installation. We will arrange any variations for you to supply you the most perfect arrangement for your home.

Whether in the city, where you have running water and sewerage, or in the country, where you have to provide your own water system and dispose of your own sewerage, you can have these improvements. We will sell you all the material of all kinds needed, make you working drawings, and tell you how to do the work.

**JUST SEND US A PLAN** of your house for our free estimate of all the material required to put in these modern conveniences.

## A Hot Water or Steam Heating Plant

**SOLD DIRECT TO YOU AT MANUFACTURER'S PRICE**

Don't say you can't afford a new heating plant for your home until you get our prices. They will surprise you—and we furnish plants in such convenient form that you can install them yourself if you want to—or have a handy man to do it at day laborer's wages. Get ready for next winter now. It costs you nothing to have us make an estimate for you—and we not only save you about 50% in the cost, but

### We Guarantee Satisfaction

You take no chances. We write it in the contract that our plant will supply the temperature required in each and every room, and hold ourselves in readiness to supply, free of all cost, all material, should any be needed to bring the plant up to our guarantee. Should the plant at any time within one year prove a failure, or unsatisfactory to you, we will refund the entire purchase price upon the return of the plant to us. We will make you complete working drawings, showing how to do the work; so that you can't go wrong. We will lend you an entire outfit of tools to do the work. Get started now and utilize your spare time this summer in installing a high-grade plant at low cost.

Remember we guarantee our plant in every way. You can't get a better, even if you pay twice as much. Write for information blank.

### READY ROOFING

We are offering the entire factory output of mill ends of Extra High Grade Vulcan Roofing. This is the regular \$3.00 grade of Ready Roofing, but there are two or three pieces in each roll of 108 square feet, or enough to lay 100 square feet. **Fire Proof!** not affected by Heat or Cold! Permanently Weather Proof. Stock limited. While it lasts at **95c** per roll.

### STEEL ROOFING

50,000 squares of Heavy Steel Roofing. This is made from metal used in the manufacture of soap. Never exposed to the weather and never nailed. 10 times better than the lightest weights of new. Coated both sides with weather proof "Gelatine" coating. Guaranteed perfect and free from nail holes. Flat, per 100 square feet..... **\$1.50**  
Corrugated, per 100 square feet..... **\$1.75**

**Write for Free Samples. Order at Once.**

Central M. & S. Co., Chicago.  
I am much pleased with the hot water heating plant, the pneumatic water supply system, the bath room outfit and kitchen sink that I purchased from you for my home. Every part of this plant is thoroughly satisfactory. We have extremely cold winters here but the heating plant heats the house perfectly. In purchasing this from you I have saved about \$400.00.  
Very truly yours,  
John Gasman,  
Bark River, Mich.

C. M. & S. Co., Chicago.  
The hot water heating plant which you sold me for my house is perfect.  
G. A. Daniels,  
Olean, N. Y.

We will sell you a Complete Plant or a Single Fitting. No order too large, none too small.

**Our Free Catalogue No. 103** shows plain net prices for each and every article. Write for it today. We also handle light and heavy machinery, gasoline engines, windmills, etc.



The Home of the Central Machinery & Supply Co.

**Central Machinery & Supply Co.** 2567 Archer Avenue, Chicago, Ill.

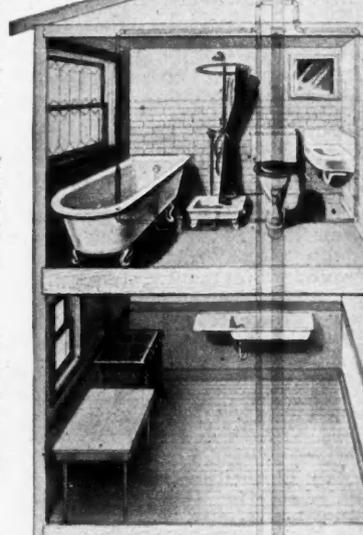


**\$39.00** FOR THIS COMPLETE SET OF HIGH GRADE BATH ROOM FIXTURES

We Sell Direct to the Consumer Our regular price \$45.00. Special price to readers of the Cement World, **\$39.00.**

The Bath Tub is 5 ft. long, 30 in. wide, porcelain enameled inside and over the rim, and is trimmed complete with full nickel trimmings. The Lavatory is iron, white porcelain enameled and complete with nickel trimmings.

The Closet is high grade sanitary bowl, with polished oak, copper-lined tank and seat and cover to match. This offer is for a limited time only. Other Bath Room Outfits from \$24.50 to \$125



We will sell you material for a complete installation like shown in this picture: together with all pipe for **\$135.**

Our Pneumatic Water Supply system will furnish running water. By a simple natural law, the water is forced up to the faucets. Our free catalog describes the operation fully. Price from \$40 up.

Pneumatic Water Supply Systems from **\$40 up.**



\$300 for hot water heating plant for this 12-room house including all material needed.



\$247 for all the material for a hot water heating plant for this 11-room house.



\$180. A first class hot water heating plant for this 8-room house for \$180.



\$135 is all it cost for a hot water heating plant for this 5-room cottage.



# "BRADFORD REDS"



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

## SUPERIOR FRONT BRICK

Brick Fireplaces

Standards—Romans—Ornamentals

MANUFACTURED BY

**Bradford Pressed Brick Company**

BRADFORD

PENN.

## SPECIAL PLANS AFTER YOUR OWN SKETCHES AT POPULAR PRICES

If you prefer to have a home constructed after your own ideas of arrangement, we would like very much to help you in developing your plans, or assist you in any way to solve the problem of a plan for your new home. There are scores of people who spend years in planning and designing the home they wish to build, and, in many cases, never cease regretting that it does not come up to their requirements. "Home made" plans are inaccurate and cause endless worry, waste of materials and extra expense. With our long experience and with the equipment and the facilities we have for handling work of this kind, we can relieve you of the trouble and anxiety of planning your own home, save you time and money and furnish you with plans that we know will be entirely satisfactory. All we ask is an opportunity to demonstrate our ability to please you.



CORNER OF DRAFTING ROOM.

Our work is by no means confined to the designing and planning of houses, for, in addition to this class of work, we make a specialty of such work as:

**Schoolhouses, Office Buildings, Bank Buildings, Factories, Town and Lodge Halls, Churches, Hotels, Public Libraries, Stores, Farm and Outbuildings and All Kinds of Public Buildings.**

Our Special Department is the finest of its kind in the country, being under the personal supervision of Licensed Architects, who have experience in handling all kinds of work, and they have the assistance of a corps of competent draftsmen.

Our location, equipment, and facilities for handling work of all kinds cannot be excelled. Every plan we design or develop is guaranteed to be complete and accurate in every respect. We can get plans out in the quickest time possible and at a price that cannot help but interest you.

Our experience being of such long duration and our work extending over such a large territory, enables us to give you the most satisfactory results in every instance.

Our aim is to please you. Our whole organization is at your service. Consult us before purchasing your plan. We can save you money.

### The Radford Architectural Company

185 E. Jackson Blvd.,  
CHICAGO, ILL.

261 Broadway,  
NEW YORK, N. Y.

**Just Off the Press**  
**ASHBY'S**  
**Designs of Schools and Libraries**

display a composition of utility, durability and good, pure architecture without any "gingerbread."

No buildings are too large or too small for our personal and prompt attention.

We develop your own ideas into a practical set of plans and specifications which can be executed to the smallest details into a building that can be built within your means and to your entire satisfaction.

Ashby's "Designs of Schools and Libraries" will be sent to parties interested in the erection of a school building or library for which plans have not yet been procured.

**G. W. ASHBY—ARCHITECT**  
 11th Floor, Medinah Bldg.  
 CHICAGO, ILL.

# *Drawing Trade to Builders*

**More Roofing Business follows the use of "satisfaction-giving" roofing. That's why contractors should continue the use of Ford's Roofing.**



## Look for the Record Behind the Roofing

The contractor is responsible for the roofing he uses. *Good* roofing makes pleased clients and more business. Our forty-year-old reputation is an iron-clad guarantee of quality. Ford's Galvanized Rubber Roofing is just as much ahead today as it has been since 1865.

### Warning

This roofing cannot be bought of "mail-order" or "catalogue houses" and the public are warned against cheap imitations sold under names closely resembling our brand.



## FORD'S Galvanized Rubber Roofing

Is made by a special manufacturing process and from special materials. The manufacturing process involves extreme heat and enormous pressure. It is the only process that insures a perfect prepared roofing.

The materials used, under this process, *must* be of extremely high quality. So every ounce of materials that enter into the manufacture are examined before being used. Thus we know the quality is there. Thus we are certain that every square foot of Ford's Roofing is *good*. That is why we take no risk in making broad guarantees.

### Roofs Covered with Ford's Roofing Are Safe

Where a good roof is needed, use Ford's Galvanized Rubber Roofing. It's the cheapest roofing, wearing and service-giving qualities considered, at present on the American market. It is "different" to other "cut-price" prepared roofings. Not much different in price but in the quality. The Ford quality is the standard quality.

Send for samples, particulars, dealers' names and important literature.



**FORD MANUFACTURING CO.,**  
2333 La Salle Street, CHICAGO



**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.

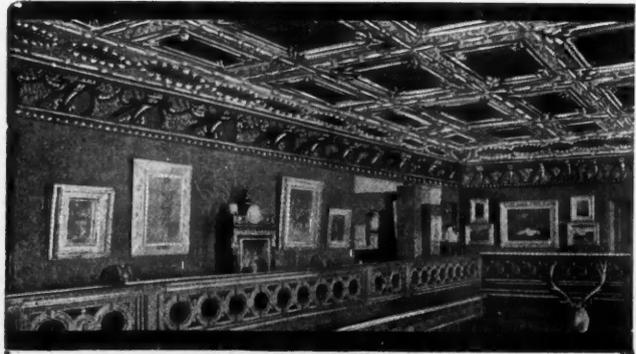
Manufactured from best quality Worcester Grade Terne Plate, furnished painted or galvanized (galvanized after being formed) size 10 x 14 inches.

Descriptive Booklet sent free on request.

**The Edwards Manufacturing Co.**

"THE SHEET METAL FOLKS"

401-417 Eggleston Ave., CINCINNATI, OHIO



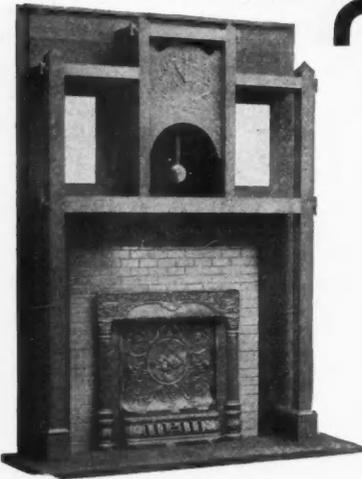
**THE NEW CEILING AND SIDE  
WALL ON THAT ROOM**

What shall it be? Steel, of course—because it is the most modern, sanitary and inexpensive, practically lasts forever.

Write to-day, giving dimensions and particulars. We will go into the matter with you thoroughly.

*"When it has the Eller trade-mark, it's the best in steel."*

**ELLER MANUFACTURING CO.**  
Canton, Ohio  
New York Office and Warehouse  
29-31 Lexington Ave.



**Central  
Mantels**

are distinctive in character, workmanship and finish. Twenty years' experience catering to the wants of the home builders enables us to know and meet their wants.

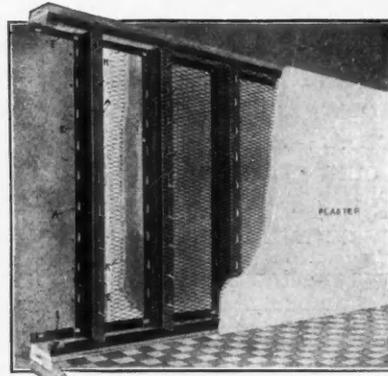
Our factory being equipped with all of the most modern labor-saving devices and keeping on hand constantly an enormous stock of raw materials, places us in a position to sell better mantels cheaper than it is possible for you to buy elsewhere.

We can furnish any style from Colonial to Mission, and in any wood or finish, at prices ranging from \$10.00 up.

The above is one of the many designs shown in our 112 page catalog, which is the finest and most complete mantel catalog ever issued. Catalog sent free on request to Carpenters, Builders or anyone building a home.

**CENTRAL MANTEL COMPANY**  
No. 1247 Olive Street - - St. Louis, Mo.

**You Are Missing Something Worth  
While, Mr. Contractor and Builder,  
If You Do Not Know About**



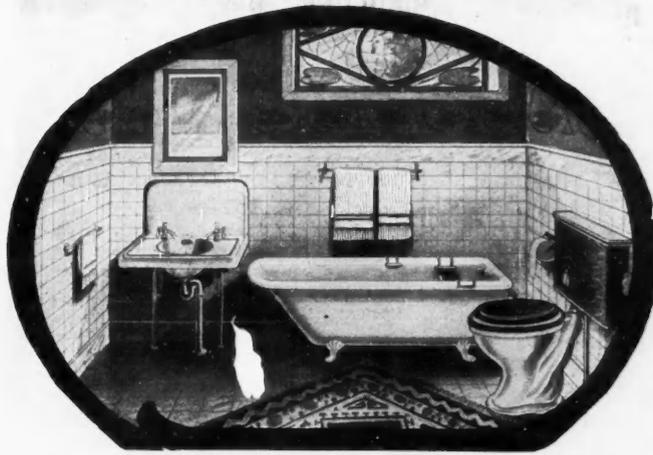
**BERGER  
PRONG  
LOCK  
STUDS and  
FURRING**  
for use with  
expanded  
metal lath.

It is a system you ought to be posted about. It is both simple and effective. One man can hang the lath on the prongs and clinch them securely with the tap of a hammer. Berger Prong Locks save time and money. There's no wiring and the lath can't get away.

Write TODAY for catalog F-55-S, which shows how this system is applied to various classes of construction.

**THE BERGER MFG. CO.**  
CANTON, OHIO

New York, Philadelphia, Boston, Chicago, St. Louis, Minneapolis,  
San Francisco, Atlanta



## \$50.00 Buys This High Grade Bathroom Outfit!

**Clean—Sanitary—Odorless—Newest Designs—Best Appliances—Finest Nickel Trimmings**

Here is an example of our ability to save you from 40 to 60 per cent. in the purchase of high grade plumbing fixtures. We guarantee that every article used in this outfit is absolutely brand new and first-class in every particular.

**THE BATH TUB** is spotless white porcelain enameled, with heavy roll rim and of very graceful shape.

**THE LAVATORY** is beautiful, spotless white porcelain enameled with full set of nickel plated trimmings.

**THE CLOSET** is the latest and most sanitary, vitreous syphon jet, polished solid oak seat and tank.

**THE ACCESSORIES** include bath seat, nickel plated soap cup, two towel bars and toilet paper holder.

**NO JOINTS TO WIPE**, all threaded pipe connections.

This is our No. 3 1/2 outfit, and our price of \$50.00 absolutely includes all of the plumbing fixtures shown in the illustration, properly crated and packed for shipment.

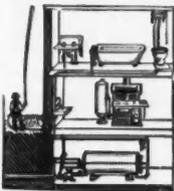
This is but a sample of the many different styles that we offer for sale. Fifteen different combinations ranging in price from \$25.00 to \$200.00. Our prices will save you one-half of what your plumber would ordinarily charge you.

We furnish a written binding guarantee with every outfit that we sell. If any material is not fully up to our representation or your expectation we will exchange at our freight expense or refund your money.

**OUR BOOK ON PLUMBING MATERIAL** contains charts, drawings and diagrams; shows how any ordinary mechanic can install plumbing fixtures without wiping joint, also tells how to secure perfect sanitation. We send it free if you mention where you have seen this advertisement.



## \$48.00 Buys a Modern Air Pressure Water Supply System



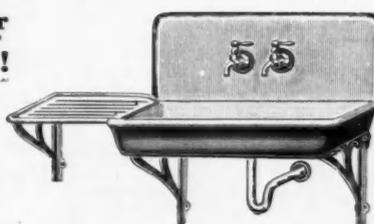
You can live in city comfort even though your home be on a farm. From \$48.00 upwards you can buy a complete outfit needed to give you these comforts. With our comprehensive instruction book you can install the outfit yourself. Let's tell you more about it. Our interesting book on water works systems is free for the asking. Remember it gives ample fire protection and reduces your rate of insurance. Other systems at prices lower than you can duplicate elsewhere. Write for prices.

## \$185 Buys Complete Hot Water Heating System For This House!

For \$185.00 we can supply the complete hot water heating system for the house shown in the accompanying illustration. Perhaps this low price will surprise you, as it has thousands of others who have sent us their specifications for our estimate on a heating system for their homes. What is your idea of cost for a system that would be adaptable to the requirements of your home? Are you like thousands of others who labor under the delusion that a heating system is expensive, and a luxury entirely beyond the means of an ordinary person? If so, we urge that you write us for specifications on the complete cost for a hot air or water heating system for your home. Our astonishingly low prices will surprise you. We will sell you a plant that will pay for itself within a few years in the economical consumption of fuel alone.



No matter how large or small your home, you should install a hot water heating system. It is more economical than a stove and will give you the comforts of an up-to-date home. We sell you the material and furnish complete plans and instructions and you can install the plant yourself or hire an ordinary mechanic. Thousands of persons have done it, you can do likewise and save 75 per cent.



**KITCHEN SINK.**

Genuine white porcelain enameled heavy cast iron roll-top; modern design; complete with heavy cast iron brackets, enameled iron roll top drain board, Fuller flanged faucets and lead trap to wall. Size of sink 18x30. Only \$11.50.



**INSTANTANEOUS WATER HEATER AT \$20.50**

Solid brass heavily N. P. Instantaneous Water Heater. Heats the water as fast as it flows through it. Capacity 2 1/2 gallons per minute. From 50 to 120 F. H. Economical; most rapid heater on the market. Automatic valves; reversible spout; guaranteed brand new and perfect in every way. Put through two rigid inspection tests before shipment. Running water the moment you turn on the gas.

### Names of these customers furnished upon request.

Chicago House Wrecking Co. Chicago, Ill.

Dear Sirs:--  
The heating plant you sent me is installed and working fine. Everything is entirely satisfactory in every way.  
Wishing you entire success, I remain  
Yours truly,  
Nome, Alaska.

Iowa City, Ia., April 6, 1909.

Chicago House Wrecking Co. Dear Sir:-- Chicago, Ill. Please send me one of your catalogs. I have one of your Hot water Heating plants installed in my house since 1906 and it gives fine satisfaction. I am more than pleased with it all the way through. Yours very truly.

Syracuse, Ind., March 5, 1909.

Chicago House Wrecking Co. Chicago, Ill. Dear Sir:-- I have my heating plant installed and it works fine. Can heat my place red hot if I want to. Yours very truly.

Garrett, Ind., Feb. 6, 1909. Chicago House Wrecking Co., Chicago, Ill. Gentlemen:--

You will remember me buying a Hot Water Heating Plant of you last fall. I wish to state that it has given perfect satisfaction and I am sure you will sell many more plants in this place. Yours very truly.

Spickard, Mo., Dec. 9, 1909. Chicago House Wrecking Co., Chicago, Ill. Gentlemen:--

Will you please send me your complete instruction book? The Hot Water Heating plant I bought of you this fall is absolutely perfect beyond question. Yours respectfully.

Every heating plant we sell is backed with an absolute guarantee of satisfaction. When you install one of our plants in your home you are sure of receiving an outfit that will maintain an even amount of heat in all rooms of your home, condition to which you eliminate the ordinary nuisance and bother of smoke, soot and ashes customary where stoves are used. A home equipped with a hot water heating system is up-to-date and will sell much more readily than an unheated house.

Get our estimate on a plant for your home.

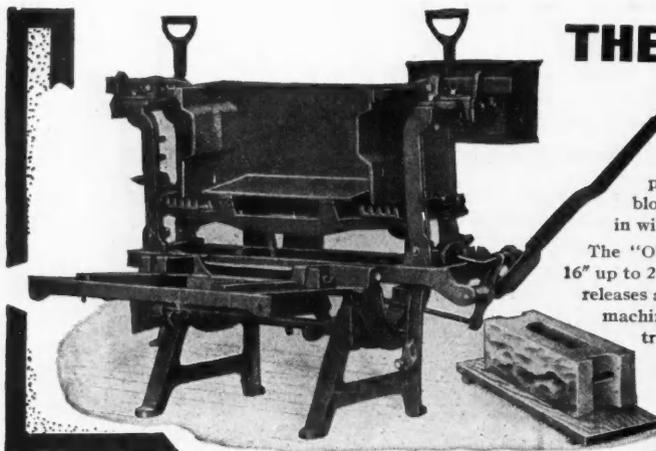


## Write for Free Bargain Catalog No. 742



We publish a book of some 500 pages, containing a general record of our goods and showing millions of dollars worth of merchandise secured by us at Sheriff's Sales, Receivers' Sales and Manufacturers' Sales. It is a friend to every economical person. You cannot afford to be without it. It lists Building Material and Supplies, Machinery, Roofing and Wire, Structural Material, Hardware of all kinds, Furniture and Office Fixtures, Belting and Rubber Hose, Plumbing and Heating Apparatus, Pipe, Valves and Fittings, Wire and Manila Rope, Electrical Apparatus, Safes and Vault Doors, Tanks, etc., etc. With this catalog we also mail to all who request it our special book on "How to Install Plumbing", etc. It's a book every home owner should possess.

**Chicago House Wrecking Co. 35th and Iron Sts. Chicago, Ill.**



## THE "NEW OLIVER" AUTOMATIC BLOCK MACHINE

With the "Oliver" all changes for making all the different sizes of blocks are made without the use of a wrench. Simply pick out one set of plates and place in another. The "Oliver" makes blocks running every inch from 2" to 24" in length, and from 4" to 12" in width; also 4", 6", and 8" height blocks.

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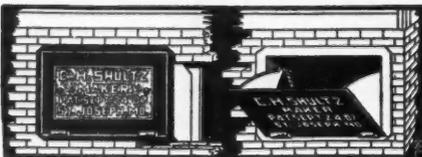
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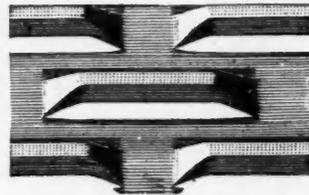
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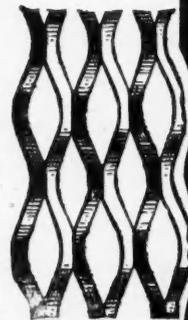
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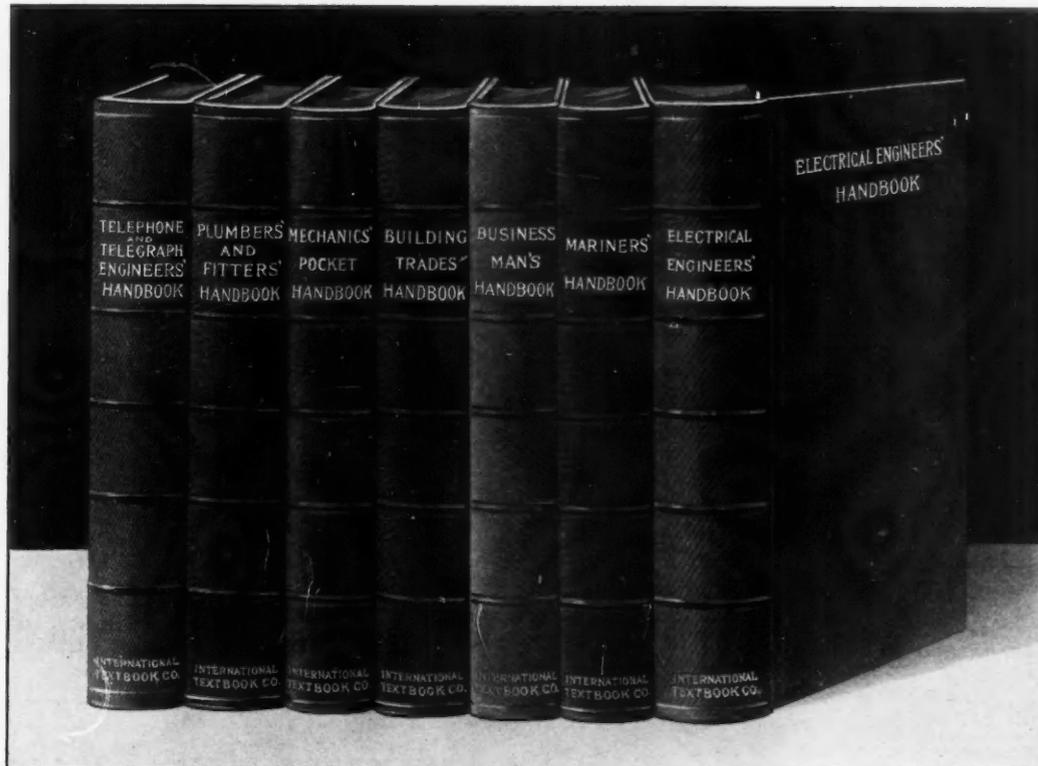
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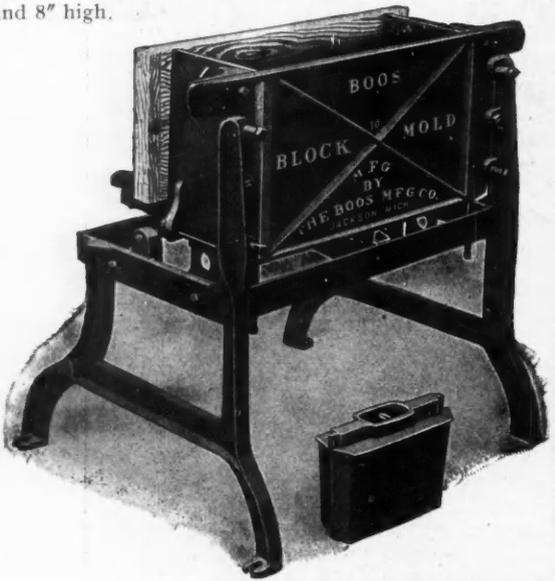
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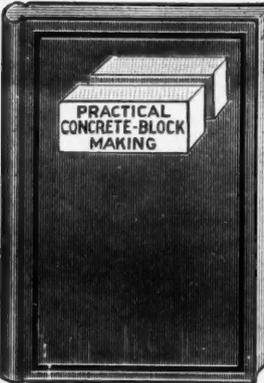
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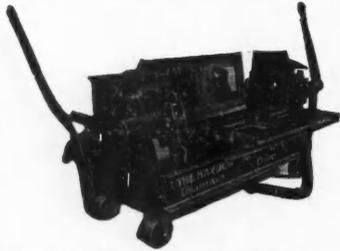
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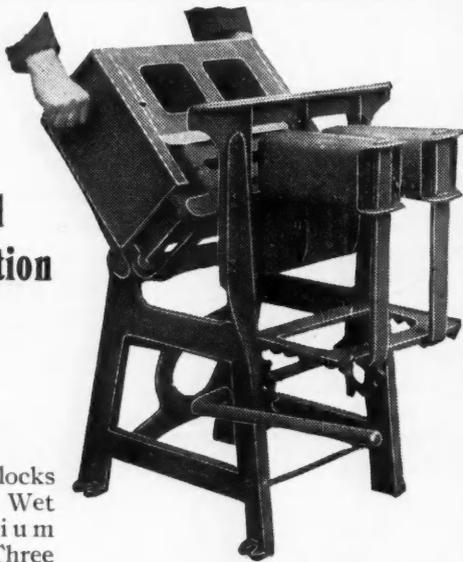
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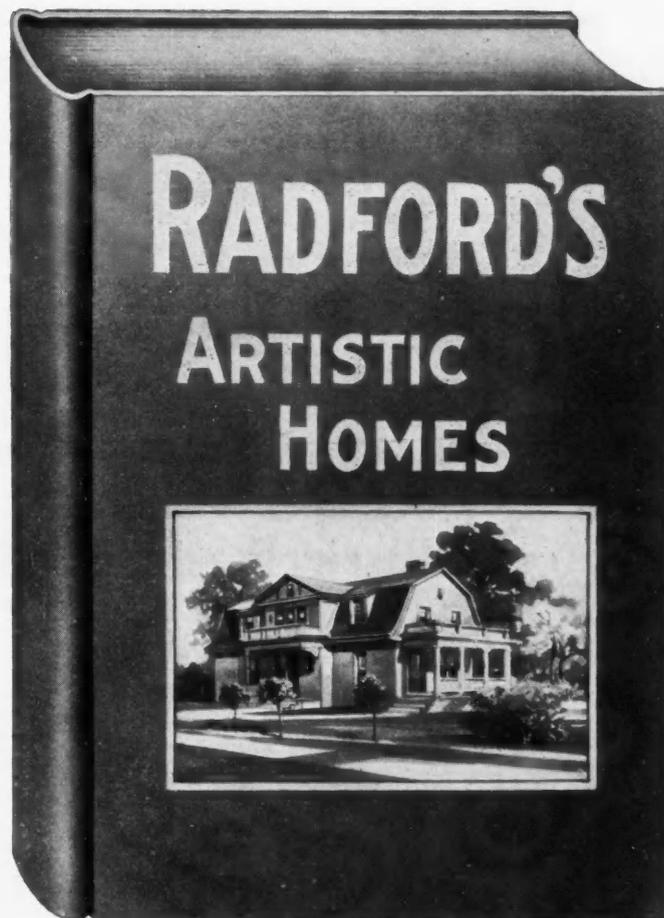
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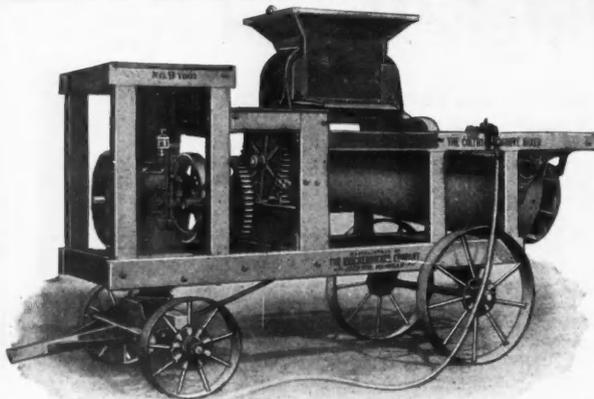
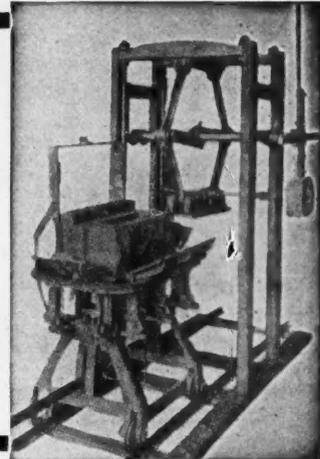
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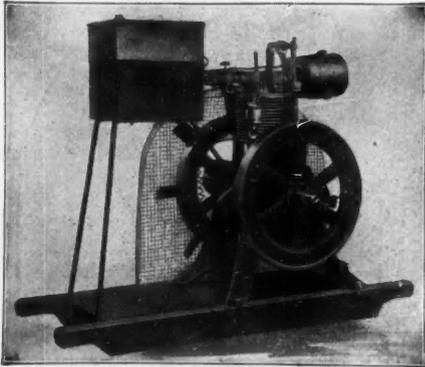
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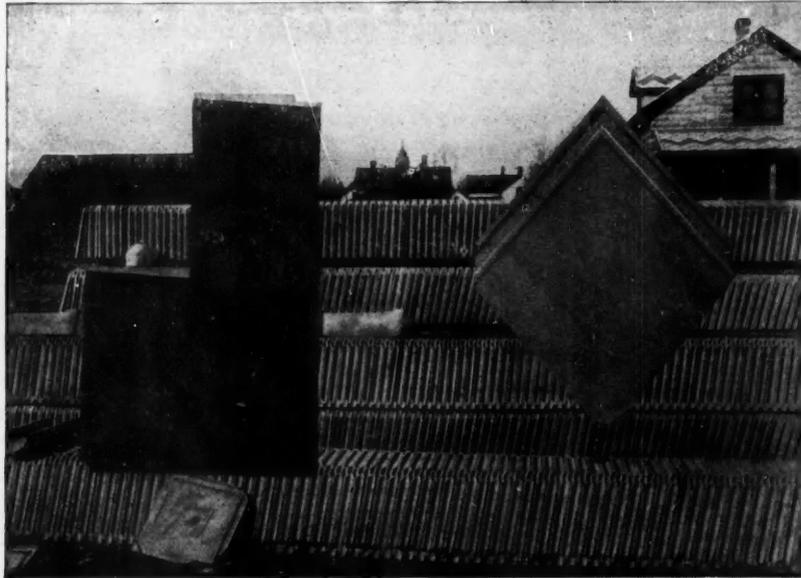
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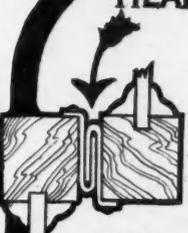
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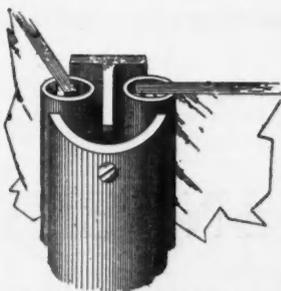
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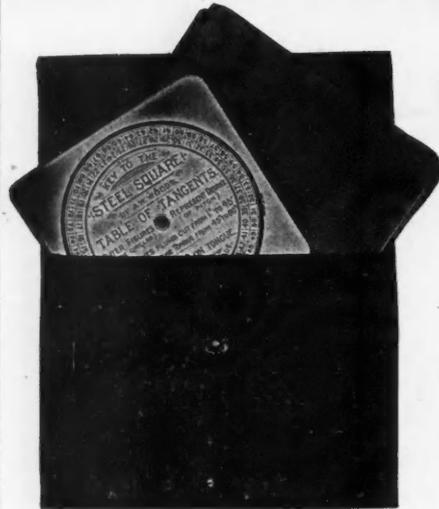
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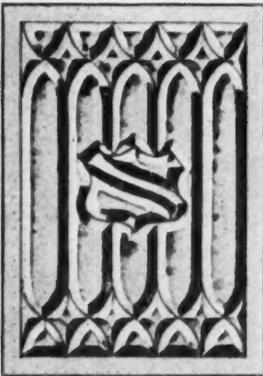
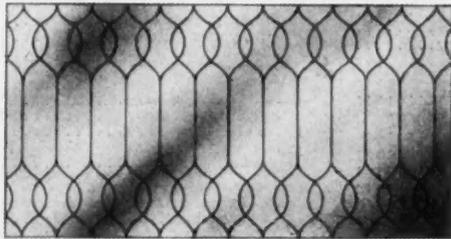
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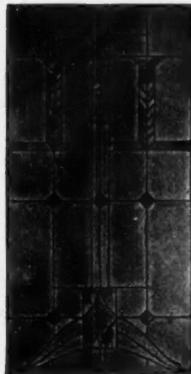
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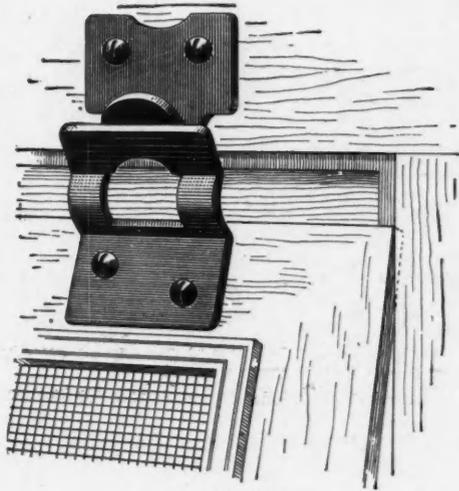
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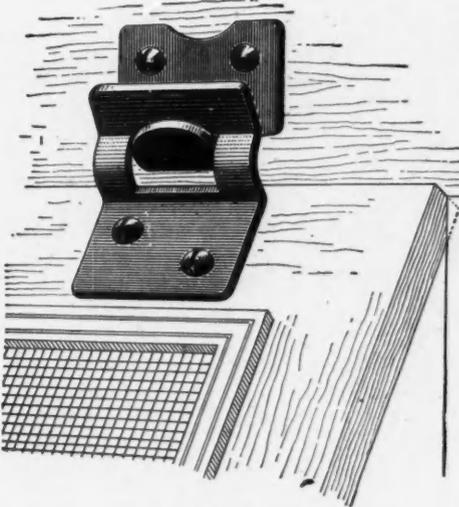
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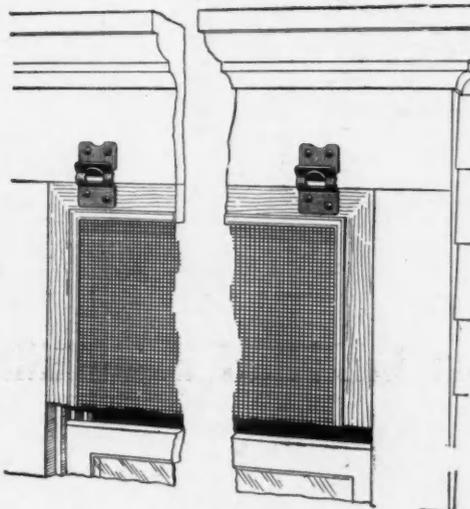
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