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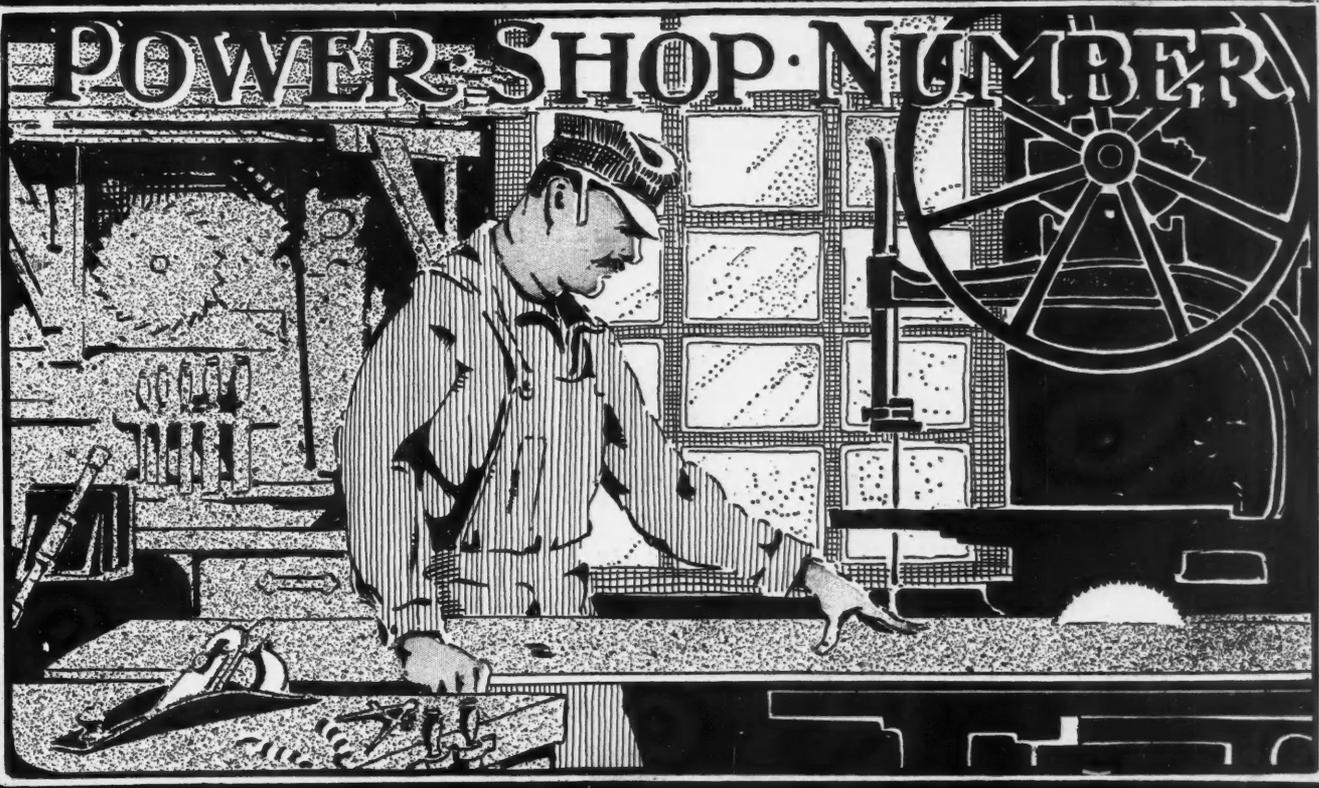
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The Reflections on a Good Saw

are lasting and pleasant. When your saw cuts true to the line—when it sings through its work, rapidly—when its cutting edges hold for days and weeks without refitting—then you realize the pleasures of a really good Saw.

ATKINS SILVER STEEL SAWS

are thoroughly good Saws. The high quality of SILVER STEEL permits it to take a uniform hard, tough temper. The exclusive process of Tempering prevents hard and soft spots. It files readily and takes a keen, sharp cutting edge and holds it. TAPER GROUND—it runs easiest, with least set.

The easiest running, fastest cutting Saws in the World

OUR FREE OFFER: Upon receipt of ten cents, to pay postage, we will forward free of charge a splendid nail apron, our 32 page book called "SAW SENSE" on Saws and Saw Tools and our Time Book with table for figuring wages.

E. C. ATKINS & CO., Inc., Indianapolis, Ind.

"Every Season a Busy Season for BUILDERS"

A Short Talk with Our Subscribers

IS it possible? Will we be able to actually take the winter slackness out of the building industry in the smaller cities and towns, the same as it has been done away with in the big cities?

Do the men want it? The supply people do; that's certain. But do the men on the job—the building mechanics—the carpenters, bricklayers, and all the rest?

"Better Than Snow Balls"

It matters *some* that we work in comfort; but who will say that there isn't just as much comfort at 30 degrees as at 90 for men doing muscular work?

Maybe it is, then, only habit and prejudice that make the rural builder hold back until spring.

Here in Chicago we have pretty good stiff winter weather, part of the time down to zero, but they keep on putting up flat buildings just the same all winter long. The men work in comfort, too, for the contractors have learned how to use salamanders, and how to get the job quickly inclosed.

One man writes us that *he* solves the cold weather building work problem by journeying south every winter! But that doesn't help any—that merely begs the question. The idea is to stick by and keep the wheels of the building industry turning in every locality.

Logical—Will Win By United Efforts

Winter building is logical and reasonable, and good for all concerned. If there can be a united effort by all those connected in any way with the building industry, this winter building proposition will become a fact. Our personal prediction is that every year will see more and more winter building activity, until finally there is no such thing as a dull winter season.

We have been much encouraged during the past week by receiving letters from a large number of the prominent manufacturers in the building field endorsing our winter building campaign. The following from the Stanley Works is typical:

AMERICAN CARPENTER AND BUILDER,

1827 Prairie Ave., Chicago, Ill.

Attention Mr. Bernard L. Johnson, Editor.

Gentlemen:

Your letter of September 18, outlining your "Every Season a Busy Season for Builders" campaign, has just come into our hands. The idea is a fine one and deserves the co-operation of every architect, contractor, and manufacturer. Be assured that you have ours.

As you state, it is largely habit and prejudice that puts a stop to building activities in the winter. Despite the rather severe winter in this section of New England, there were hardly three weeks last winter during which it was necessary for building operations to be suspended; and it is probably a fact that, because of the heavy rains this summer, building operations have been temporarily suspended, in the aggregate, for an equal amount of time.

Logically, a building, and particularly a residence, should be ready for use by the early spring, as spring is the time for moving and getting the house in order.

The result of our advertising with you has proved to us that you number among your subscribers the leading architects and contractors of the country. If you can gain their co-operation in your campaign you will have accomplished an inestimable amount of good.

With best wishes,

THE STANLEY WORKS,

New Britain, Conn., 9/20/16.

A. H. DESSAN,

Advertising Manager.

Don't Miss the November Issue

Every one of our readers is interested in this More-Winter-Building-Work proposition. Don't overlook the PRIZE CONTEST ARTICLES AND LETTERS that are to appear in the November AMERICAN CARPENTER AND BUILDER. If you have any enterprising friends or fellow builders who do not take this magazine, call their attention to this November issue.

Yours for winter work, and more of it.

Editor AMERICAN CARPENTER AND BUILDER.

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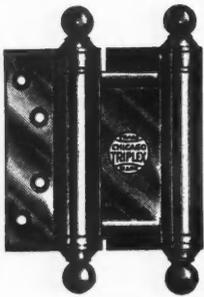
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A SUGGESTION**

Do you specify a spring hinge with distinctive features which will appeal to your client and assure satisfaction to all concerned?



**Chicago "Triplex"
Spring Butts**

offer this advantage to you. The appearance, durability and finish of this article are unsurpassed, and in consideration of prices that are conservative in respect to value, the up-to-date builder cannot afford to risk his reputation for goods that are unsatisfactory.

Send for Catalogue C 32. It illustrates and describes the most complete line of Spring Hinges manufactured.

Chicago Spring Butt Company,

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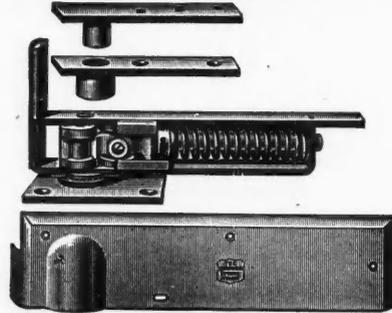


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BOMMER

**Floor Surface Spring Hinge
For Double-Acting and Single-Acting Doors
Release and Holdback Ball Bearing
Alignment Device**

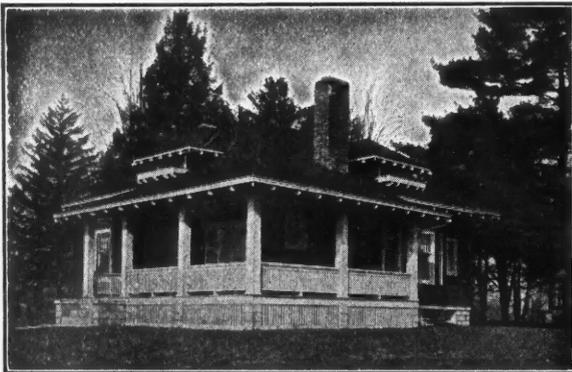
Every moving part of this hinge can be oiled from a single hole on outside of side-plate.



The most durable hinge of its type; holds the door open when swung to 90 degrees at either side. The spring-action can also be entirely released as long as desired so that the door will swing free, without spring-action, in either direction, by inserting a wire nail (when the door is open) into a hole provided in the side plates for that purpose. The spring-action can be restored by withdrawing the nail.

Your Hardware Merchant Can Supply Them

Bommer Bros., Manufacturers Brooklyn, N.Y.



A Bungalow for Permanent Occupancy. Charles E. Anderson, designer, White Plains, N. Y. "The roof is covered with shingles dipped 10' in Cabot's Creosote Shingle Stains; the body is stained a rich brown with Cabot's Creosote Stain."

**You Can Pick Out
the houses that have been stained with
Cabot's Creosote Shingle Stains**

The colors are so soft and rich and lasting that all other stains look cheap and tawdry in comparison. They go farther, last longer, preserve the wood better and are vastly more artistic—and every gallon is guaranteed. Imitation stains smell of kerosene or benzine and are dangerously inflammable. Cabot's Stains are the genuine Creosote, wood-preserving stains, and they make the wood less inflammable.

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You can get Cabot's Stains and Quilt all over the country. Send for samples and names of nearest agents.

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and make wrong cuts, when it is possible for you to be exactly right in figuring and cutting common rafters, hip or valley, jack or cripple rafters, projecting braces, bevels, stairs, towers, columns, circular tanks, silos, etc., with the

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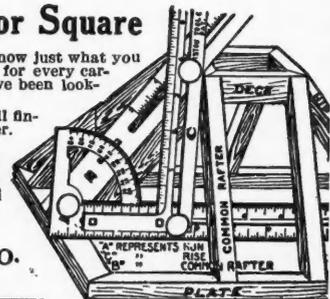
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Made of steel, graduated and well finished. Nothing to get out of order.

The saving in time and lumber will pay for it in one day. You can go about your work with certainty.

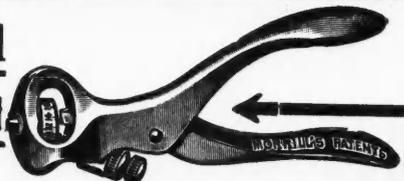
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Worth Much to You

**Morrill
Saw Set**



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CHAS. MORRILL

34 Lafayette Street
NEW YORK



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Circulation Audited and Verified March 27, 1916

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American Carpenter and Builder
Entered as second-class matter July 1, 1905, at the postoffice at Chicago, Ill., under the act of Congress of March 3, 1879.

Published on the first day of each month by
AMERICAN CARPENTER AND BUILDER COMPANY
PUBLICATION OFFICE:
RADFORD BUILDING, 1827 PRAIRIE AVE., CHICAGO
EASTERN OFFICE: 345 FIFTH AVE., NEW YORK CITY

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SUBSCRIPTION RATES
One year, \$2.00; six months, \$1.00; payable always in advance.
Single Copies, 20 cents. Canadian Subscriptions, \$2.50. Foreign Subscriptions, \$3.00.

ADVERTISING RATES
Furnished on application. Advertisements, to insure insertion, should reach our Chicago office not later than the 15th of the month preceding date of publication.

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VOL. XXII October, 1916 No. 1

Winners in Power Shop Contests

ON the nineteen pages following this we present the Power Shop Prize Contest winners, together with some other very interesting power shop photographs and suggestions. We recommend that a close study be made of the methods described and illustrated on these pages. In a great many building communities the power woodworker has paid out. Thousands of contractors and builders are proving every day that the power woodworker is a money-maker and that it increases their business. Undoubtedly there are thousands of other communities where the power woodworker on the job might be introduced just as successfully and where power woodworking shops could be operated to just as great a profit.

This is the age of gas engines and electric motors; and the old, slow, tedious hand methods are losing out.

The readers of the AMERICAN CARPENTER AND BUILDER have come to have the reputation among the machinery and engine manufacturers of being the most enterprising and progressive. They tell us that our readers show an amount of interest in their announcements of labor-saving machinery and equipment that is

really surprising, and that a large number of the inquiries received develop into actual sales. It is gratifying to the editors and publishers of the AMERICAN CARPENTER AND BUILDER to see thru this present collection of power shop articles the ingenious and business-like ways our readers are making use of their power equipment.

The winners in the four prize contests as announced in our August issue, page 35, are as follows:

Contest A. Best Photographs and Layout for Small (Two man) Power Shop—1st prize: CHAS. B. SANDERSON, Secretary Planing Mill of H. C. Kibler, General Contractor, Pittsfield, Ill.; 2nd prize: K. A. McCALL, Crystal Lake, Ill., Local Manager, Wilbur Lumber Co., Inc.

Contest B. Best Photographs and Layout of Large Power Shop or Planing Mill—1st prize: J. D. WALLACE, Proprietor Wallace Pattern-Making Shop, 527 W. Van Buren St., Chicago; 2nd prize: AUG. PALMQUIST, of Palmquist & Co., Contractors and Builders, Lindsborg, Kans.

Contest C. Most Practical Ideas for Establishing and Building up a Power Shop Business in Connection with General Building Work—1st prize: A. E. SIMPSON, Carpenter and Millwork-man, Dublin, Ind.; 2nd prize: C. H. TOELLNER, JR., Carpenter and Builder, Bunceton, Mo.

Contest D. Best Kinks and Methods for Doing Work on Portable Saw Rigs, Variety Woodworkers and Other Light Woodworking Machines—1st prize: EDWARD H. CRUSSELL, Sacramento, Cal.; 2nd prize: JAMES F. HOBART, M. E., Indianapolis, Ind.

First Prize, Contest A—Combination Woodworker the Heart of This Successful Business

UP-TO-DATE EQUIPMENT AND METHODS ENABLE SMALL PITTSFIELD, ILL., SHOP TO TURN OUT PAYING WORK THE YEAR ROUND

By Chas. D. Sanderson

Sec'y. Planing Mill of H. C. Kibler, General Contractor, Pittsfield, Ill.

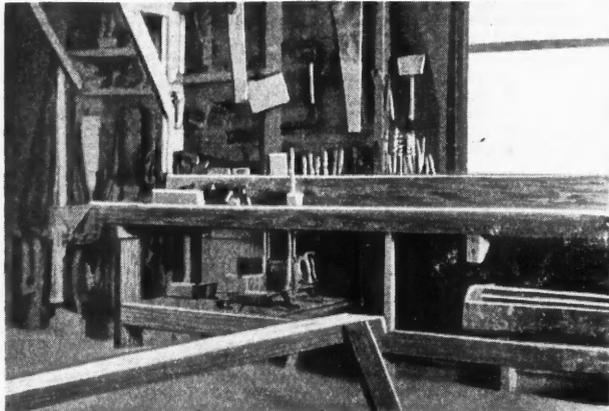
IN March, 1914, we purchased a Sidney "Famous 31" combination woodworking machine, and from that time until now we have not had a single idle day, keeping one man busy every day in the year, and in the summer months we keep from two to four men in the shop besides the outside work.

Am enclosing four photos, one showing a general view of the shop, showing some seats just completed for a local restaurant, one end of same to be fastened to wall and to have stationary tables between. Our Park's 36-inch double drum sander shows in the fore-

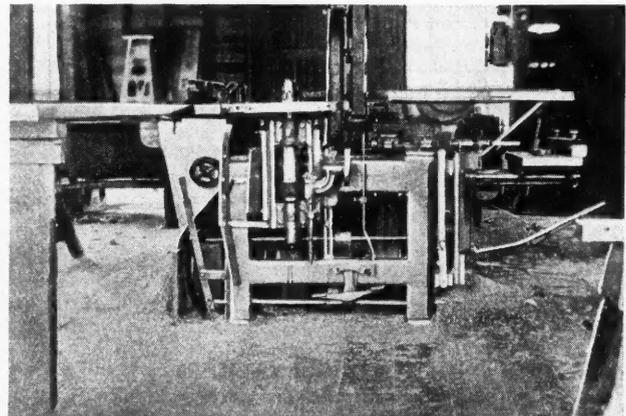
is nicely operated by a 5-horsepower motor, and we can run any three of the machines at the same time. The lathe is to be attached to this same motor, but the swing saw will require another motor.

Another view shows one of our benches, the top of which is made of 1-inch by 2½-inch strips of oak glued and screwed together flatwise. Our benches are equipped with "Richards-Wilcox" quick acting vises, head and tail. We also have a "Stanley" adjustable miter box.

Another view shows a close-up of the front end of



One of the Benches with Tool Rack in the Kibler Planing Mill.



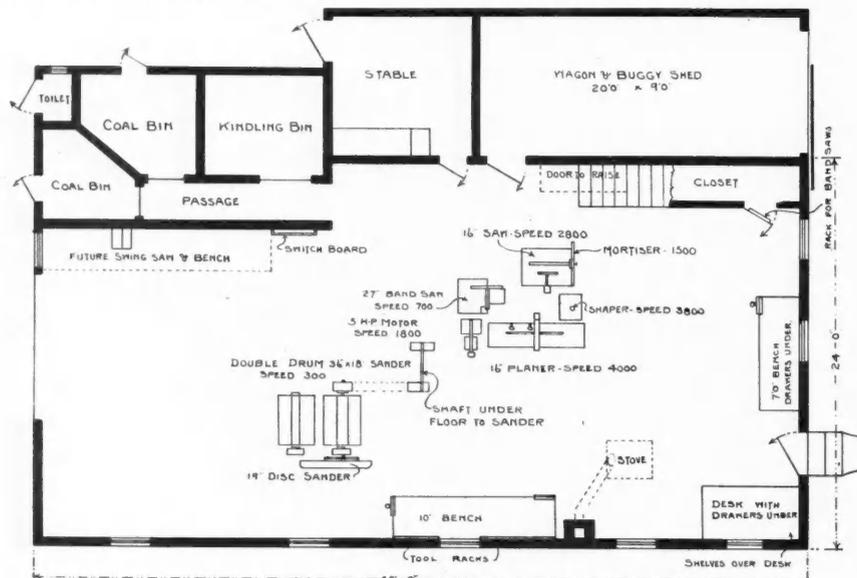
Plenty of Room Around this Machine—Notice Belt Tightener Levers.

ground, and the "Famous 31" in the center of the shop. There are no posts in our building, either upstairs or down, the upper room, our paint shop, is 24 feet by 30 feet by 8 feet high, and the first floor is 24 feet by 48 feet by 9 feet high. We have arranged places for the future installation of a power turning lathe and a swing cut-off saw. Our present equipment

the "Famous 31." If any of the readers are familiar with this machine they will notice two extra levers on this end; they operate belt tighteners on the saw and planer belts, which we rigged up ourselves to take care of the occasional heavy jobs without stalling the machines in the middle of a board. We have the power feed attachment for our 16-inch planer, and we handle

it on the small truck with ball-bearing casters; and a double block and tackle attached to a carrier on a track enables one man easily to hoist, slide and lower feed into place.

The other photo shows our office. The desk is the standing kind and also serves as a drawing board, the top being made of white pine strips. The middle drawer holds our account books and stationery. The top drawer on the right is partitioned off for an indexed letter file, and the other three contain rolled plans and blueprints. The drawers on the left contain machine tools and bits and attachments. Above the

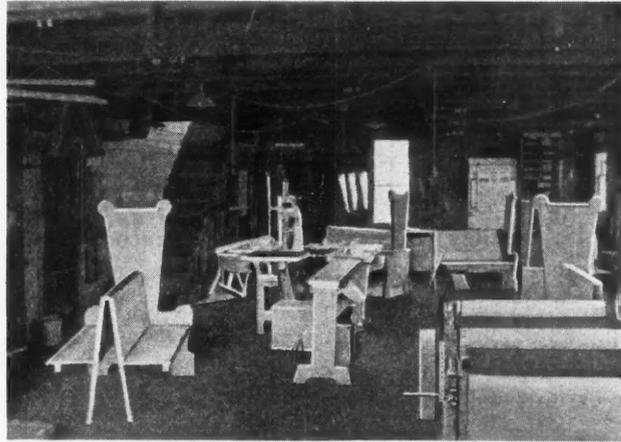


Layout of the H. C. Kibler Planing Mill, Pittsfield, Illinois.

desk on the left shows a part of our classified catalog file, which extends to the ceiling. On the right is a tier of shelves where we keep a stock of screws and small hardware.

The extension tables shown on the ends of the planer tables are our own make, and enable one man to handle long stuff easily; we also have tables for the saw table. The tables are adjustable, the legs being in two pieces with a strip between them for a guide, and are held together by a bolt with a thumb screw.

The shop is lighted by four 100-watt Mazda lights, and we work up until six all winter. Furniture repairing helps to keep things going in the winter time. We make our own sash and doors, and make a specialty of odd millwork, and we find most people would rather pay a little more for odd stuff than send away for it and wait two or three months.



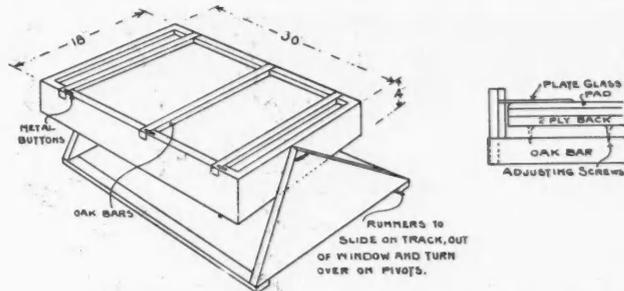
General View of Kibler Shop Showing Some Work Turned Out for a Local Restaurant Man.

amount of plan and specification work to do for others outside our own. Our foreman is also bookkeeper and letter writer for the firm. By having a competent foreman, the boss is left almost entirely free to look after outside work, of which there is always plenty. There are three contractors in the town (population about 3,500), and are all good friends and work well together.

Forest Notes

The annual value of the farm woodlot products of the United States is over \$195,000,000.

Experiments at the Forest Products Laboratory at Madison, Wis., have resulted in the discovery of a method whereby the yields of alcohol and acetate of lime from the destructive distillation of hardwoods have been increased 15 per cent.



A Blueprinting Machine Built and Used in the Kibler Shop which Turns Out Good Work.

H. C. KIBLER PLANING MILL
 GENERAL CONTRACTING AND MILL WORK OFFICE AND MILL, 4 BL'KS EAST OF SQUARE, PITTSFIELD, ILLINOIS.

NAME AND ADDRESS		DATE		REMARKS	
AMOUNT	Hrs.	LABOR	Min.	POWER—KWTS	
Pos.	Article	Thickness	Width	Length	Material B'd Ft.
					Time Hours
					Gen. Dimensions
GENERAL DESCRIPTION OR SKETCHES:					
Credit Space		Date Paid	Total Amount		
Signature					

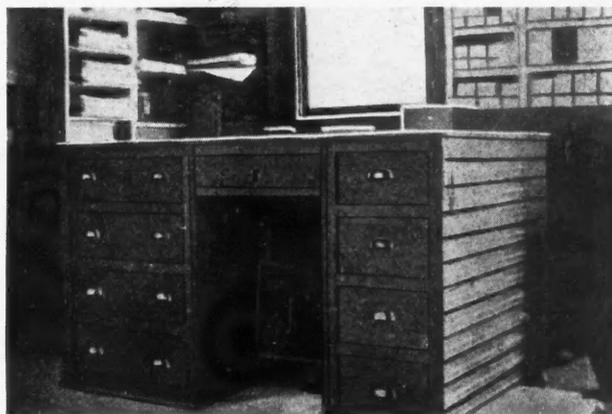
Itemized Account Forms Used in the Kibler Shop. Size of Sheet 7 3/4 by 9 3/4 Inches.

There is a large closet under the stairs where we keep spades, shovels, bars, jacks, etc.

We paint all our ladders white, a new coat every spring keeps them in good shape, and stencil our name on them in black.

Am enclosing a floor plan showing arrangement of shop, also a sheet off the file on which we make out itemized accounts and enter orders. We designed this blank to meet our requirements, and it may interest other readers.

Am sending sketch of our blueprinting machine, our own make, which gives excellent results; and as our shop foreman is a good draftsman, we get a large



Top of Kibler Shop Desk is Made of White Pine Strips and is Used as Drawing Board.

O-Punch Hole

Second Prize, Contest A—Power Saw Rig a Money-Maker in the Retail Lumber Yard

NO YARD NOW COMPLETE WITHOUT ITS POWER COMBINATION WOODWORKER—CONTRACTORS AND BUILDERS GIVEN BETTER SERVICE AND MORE SUITABLE MATERIALS.

By K. A. McCall

Crystal Lake, Ill., Local Manager, Wilbur Lumber Co., Inc.

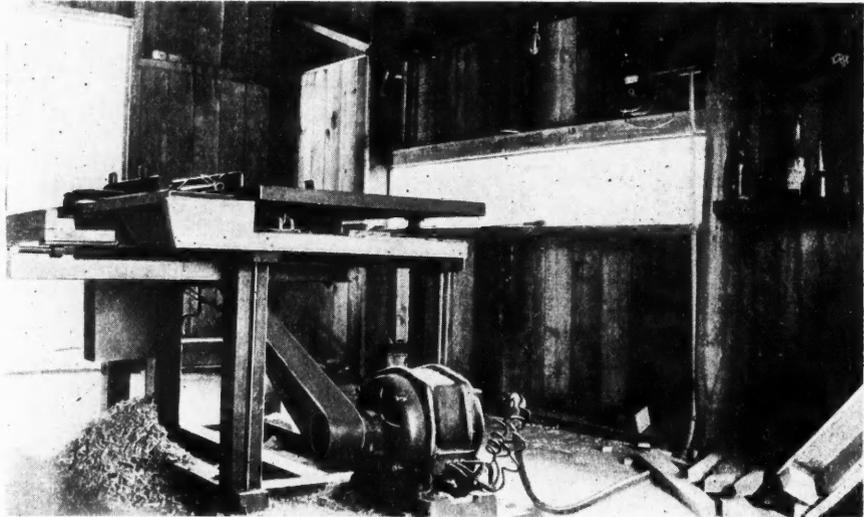
IN these days of keen competition a considerable amount of what has come to be known as "service" is furnished by dealers in a good many lines.

The automobile dealer guarantees a certain amount of free service or care in connection with the sale of each car. In the building field many of the manufacturers of heating plants, for instance, employ an engineer or conduct a complete engineering department that renders free service of a consulting nature to those desiring to use their equipment.

These are examples of service that tends to increase the volume of business, and also to make each business transaction a little more satisfactory than it might otherwise be. It is service that benefits both the salesman and his customer.

A power saw rig in the retail lumber dealer's shed stands for service of this same sort. Progressive lumber dealers in surprising number are taking this up. They realize that if they are to

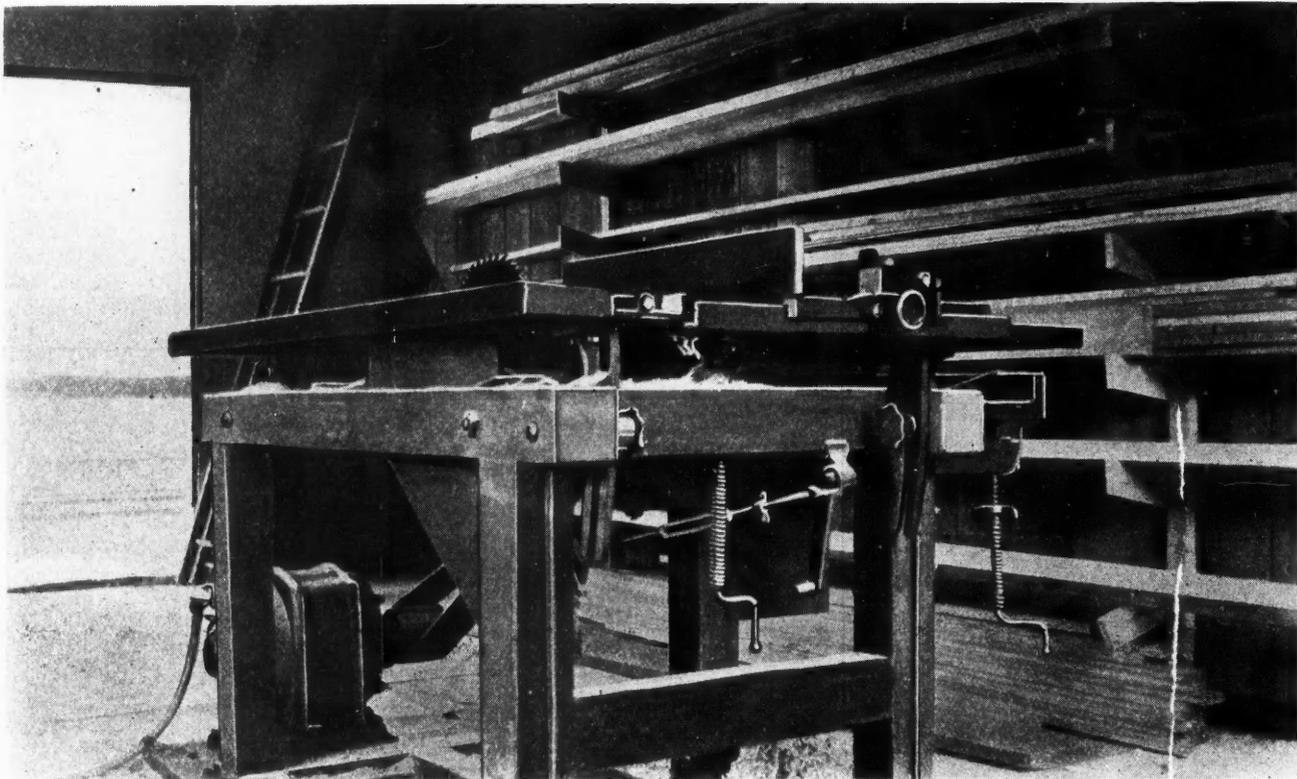
be of fullest benefit to their local carpenters and building contractors, and to the building public generally, they must be prepared to furnish quickly exactly the



The Broad Window Opening is on the Level of the Saw Table, Permitting Long Stock to be Handled Thru.

stock required, and of the required sizes.

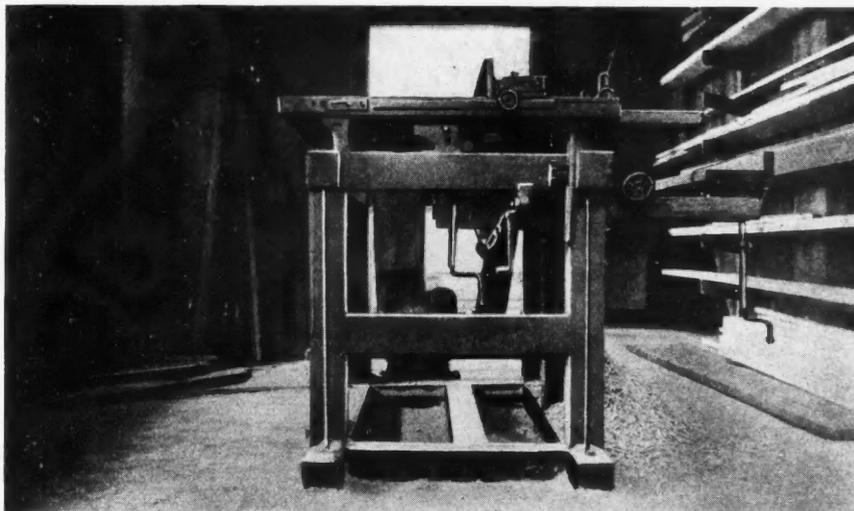
Altho there is no money in working lumber to sizes with the present facilities for buying sized lumber from



Variety Woodworker Driven by Electric Motor in Shop Connected with Wilbur Lumber Co. Retail Lumber Yard at Crystal Lake, Ill. The Shop Measures 9 by 22 Feet. Note Convenient Lumber Rack in the Background.

the mills, yet for a yard that has been established for some time—twenty years or more, as we have—there is always an accumulation of more or less dead stock. With the help of a machine we are able to work this dead stock up into stock for which there is a call. Then on hurry up jobs, where it is necessary, we help our contractors and carpenters get out their window and door frame stock, saw out silo roofs, baluster stock, furring strips, etc. Also, in case of shortage of stock, we are able to get out plain head casings and other plain trim.

This machine of ours is in a room 9 by 22 feet. The machine is placed lengthwise of the room, which has doors at each end so that we are able to handle material up to forty feet in length if necessary. The equipment consists of rip saws, cut-off saws, dado heads, jointer, boring attachment and sander. We can use a fourteen-inch saw on this machine, and are able to joint lumber up to six inches in width.



Wilbur Lumber Co. Shop is Small, 9 by 22 Feet, But a Door in Each End Permits Material 40 Feet Long to be Handled.

If the craze for ready cut houses and barns keeps up, we are ready to co-operate with our builders in the vicinity to send dimension lumber to the job, all cut and fitted. Of course, many contractors have power saw rigs of their own right on the job. However, as lumber dealers, we consider this machine a paying investment, taken as a whole.

Saw Rig Makes Bookcase Colonnade and Other Millwork; Saves \$50 to \$125 on each Job

By D. W. Strong

General Contractor, Bloomingdale, Mich.

I WILL gladly tell about my eveready saw rig and the work that it does, since I always like to recommend a good thing to my friends and brother contractors.

It would take me too long to mention all the money-saving points that are tied up in that little machine. I have had mine I think three years, and it has not cost me one penny for repairs, and it would take a large building to hold all the work that I have put over it.

I built a dwelling last season and made most of the millwork and all of my frames. In fact, it saves me from \$50.00 to \$125.00 on each job.

I will enclose a postal photo of a bookcase colonnade and china closet which I made on the machine.

If one has got an eveready there is nothing wasted. I make use of every piece of wood that will make a strip 2 inches thick and a foot long. Only last fall I sold \$42.00 worth of crates which I made from

pieces which would have gone into kindling wood had it not been for my "mill," as I call it. I figure that my outfit pays for itself several times in a season.



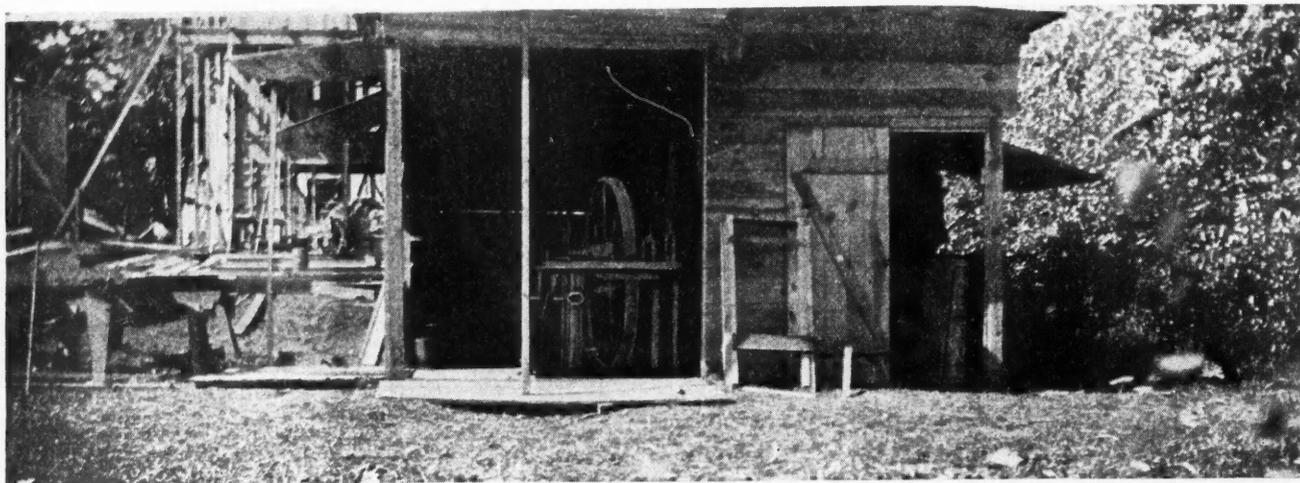
D. W. Strong, General Contractor, Bloomingdale, Mich., and a Fine Looking Bookcase Colonnade and China Closet He Made on His Portable Saw Rig.

Woodworking Machine a Great Help in the Movies

MAKES SHAM BUILDINGS FOR STREET SCENES IN RECORD TIME

By Edw. A. Sueur

Power Stage Carpenter, Whitestone, L. I., N. Y.



Woodworker Set Up in Temporary Shed at Location Where Motion Picture Street Scene is to be Constructed.

THEY are taking moving pictures out here at Whitestone, Long Island, and temporary structures have to be erected in record time. Here are the photos illustrating the use of my woodworking machines in this business. The upper view shows the open-air workshop. Note how the walls open up on hinges—my own idea. At night they are let down and closed. The scene to the right is not a view of Cairo or Benares, but a sham street erected in the middle of the peaceful meadow which you can see below, which shows how it looked before—that is, three weeks ago. They will begin rehearsing in two days—some speed!

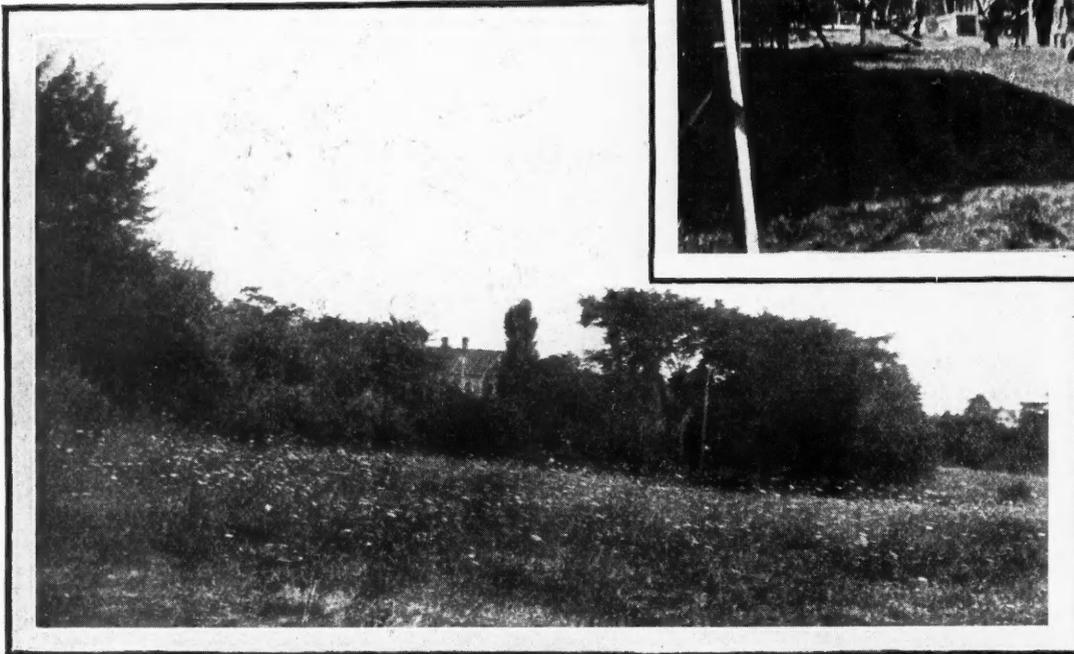
The woodworking machine is a tremendous success,

and makes a big hit with the movie people here.

It cost me \$350. It is worked with a small gasoline motor which I took off my old Knox automobile.



Movie Street Scene Built in Three Weeks.



In Three Weeks' Time From This Peaceful Long Island Meadow to the Congested Street Scene Above. All Lumber for "Stage" Houses Cut on Power Woodworker.

First Prize, Contest B—Individual Electric Motor Drive Proves a Money Maker in Large Pattern Shop

DESCRIPTION, COST DATA AND ILLUSTRATIONS OF SUCCESSFUL CHICAGO POWER CARPENTER SHOP

By J. D. Wallace, M. E., Proprietor

A WOODWORKING shop with all machines driven by individual direct connected motor pays handsome returns in saving of money, time and space. This fact has been fully demonstrated in the pattern shop which is the subject of this article.

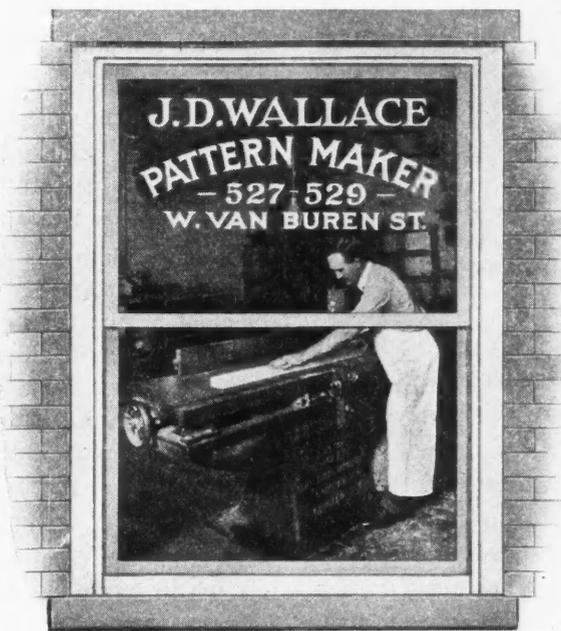
In the planning of this shop the many advantages of individual motor drive which particularly apply to a wood patternshop were carefully considered. The first and most important advantage is that in a pattern shop there are frequent intervals when no machines whatever are being used: at such times the saving of power and wear and tear on the machinery is obvious. Then, if a single machine is needed, it is not necessary to start every machine in the shop. Another advantage lies in the fact that woodworking machines are high speed machines, so that ideal applications of motor drive may be obtained with motors of standard speed. Thus it is possible to dispense with cumbersome counter-shafts and costly belts.

Again, with motor drive it is possible to place the machinery without reference to a fixed line shaft, a consideration which makes for economy of space. With the addition of new equipment, the old may be moved at will from place to place with a trifling installation expense. Practically speaking, the entire equipment is portable.

Reference to the accompanying floor plan will show how valuable this "movability" feature was in this particular shop. Power could have been obtained from the line shaft which is shown extending lengthwise over the jointer, and suggests an interesting comparison which might be made by laying out the equipment with the assumption that it was to be driven from this line shaft.

The north front is on the street and affords very good light. The south end opens on an alley backed by high buildings and the light is good only close to the windows. Provision is made for seven benches and in an emergency three more can be placed.

The machines are placed so that 16-foot stock can be handled without interference. The lumber rack is favorably placed for convenient handling of the lumber from the elevator. The office is made with glass par-



This Shop Looks O. K. from the Outside—Let's Go In.

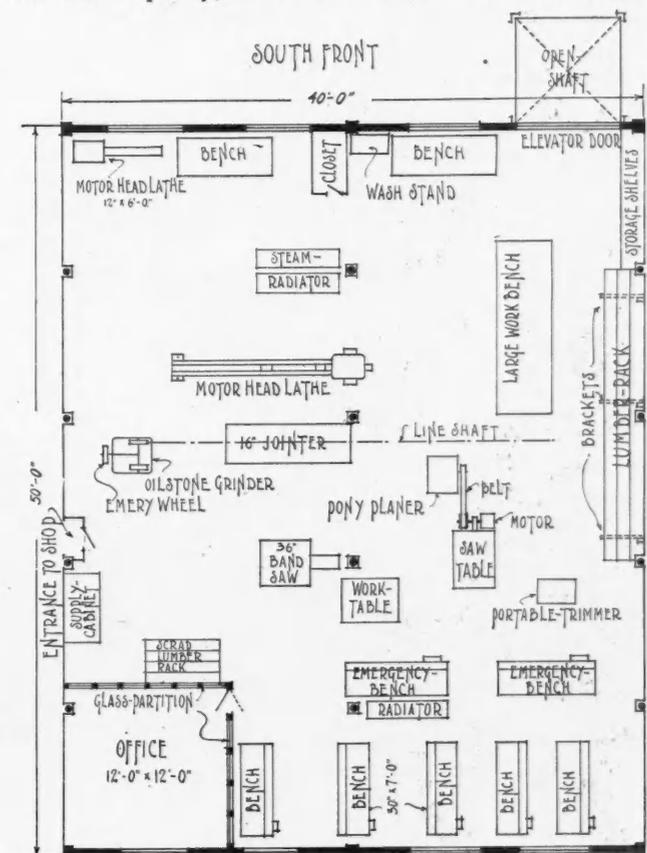
titions which allow a view of every part of the shop.

With the exception of the pony planer (which is a recent acquisition and not in its final place) each machine has its motor attached to it. The power used is 220 volt direct current.

Taking the machines separately, the 36-inch band saw has a 2½-horsepower motor, 450 r.p.m., attached directly to the lower wheel. The starting box is also mounted on the machine at the point where the belt shifter is ordinarily found.

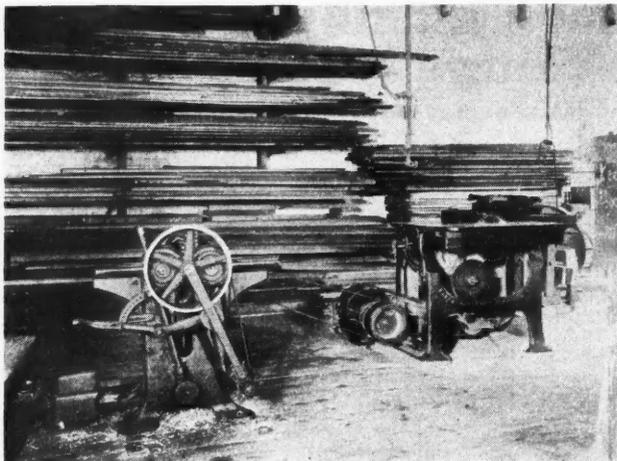
The saw table has a double arbor for rip and cross-cut saws 12 inches diameter, and has a tilting table.

The 3½-horsepower motor and starting box are both fastened to the machine. As a temporary drive for the 16-inch pony planer, an extension was made on the motor pulley, so that both machines are driven



The Wallace Shop is Equipped with Eight Machines Besides the Ten Bench Planers (one for each bench). All Are Electric Motor Driven.

Individual Electric Motor Drive in Large Pattern Shop



Pony Planer and Saw Table Driven by One Motor. Lumber Rack in Background.

by the same motor. There is a suitable belt tension release so that either machine may be operated independently.

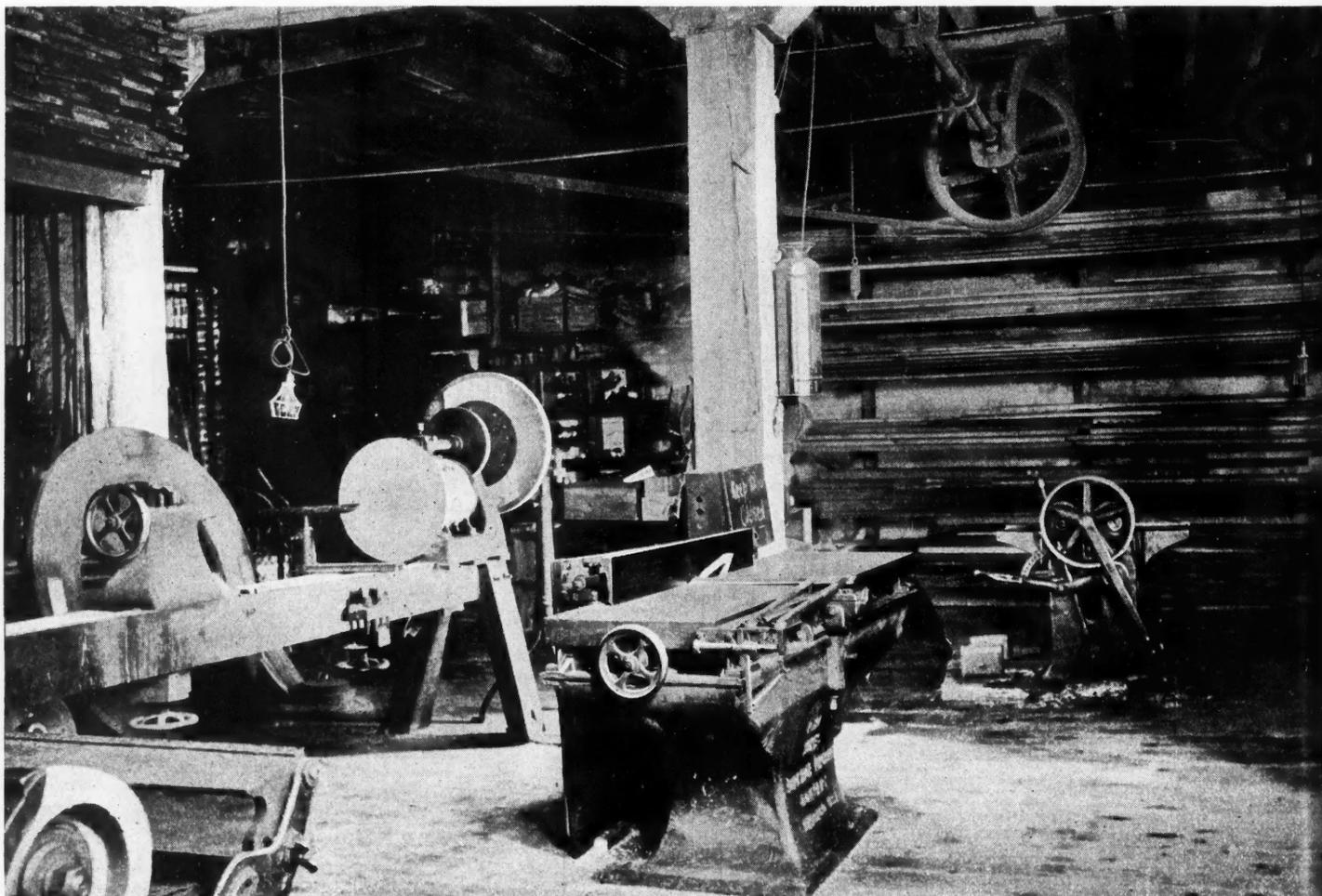
The 16-inch jointer has a 2-horsepower motor hung under the front table on a platform made of channel iron, and is belted to the cutter head, the distance from center to center of pulleys being about 3 feet. This short belt and small motor occasioned many prophecies of failure for this machine, but it has never failed to take the heaviest cuts easily.

The oilstone grinder is operated by 1-horsepower motor connected with a short belt. This machine is provided with an emery wheel revolving at 1800 r.p.m., and two wheels (one coarse and one fine) making about 450 r.p.m. There is also a cone wheel for grinding inside gouges, and a leather stropping wheel which is useful for putting the finishing touches on turning tools.

The immense superiority of this machine over the old-fashioned grindstone is hardly believable until you watch its performance. There are no dull tools in this shop—and that means increased production.

The speed lath has a $\frac{1}{2}$ -horsepower variable speed motor (600 r.p.m. to 3000 r.p.m.) in the place usually occupied by the cone pulley. This lathe takes work up to 12 inches in diameter and 26 inches long. The speed changes are made instantaneously with a rheostat. This feature allows the truing up of unbalanced pieces and square stock at slow speed, and then a quick change to the best speed for finishing.

As it was impossible to buy a satisfactory motor head lathe for turning large work, the writer made one which has a number of unusual and interesting features, some of which are shown in the photos. A $1\frac{1}{2}$ -horsepower variable speed motor (400 to 1200 r.p.m.) was mounted on a special cast iron base, and

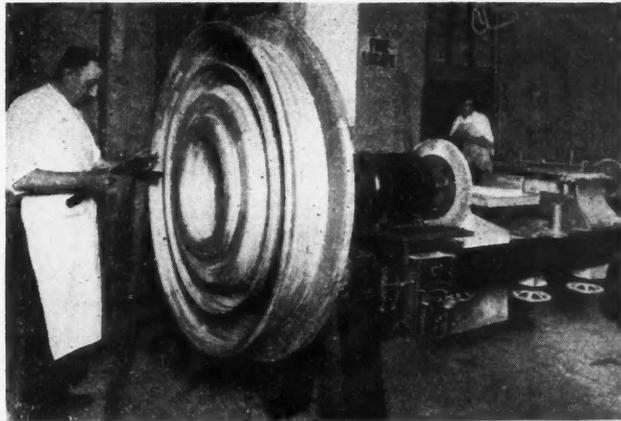


General View of the Wallace Shop Looking East from the Entrance Doorway. At the Extreme Right we see the Scrap Lumber Rack; then Two Benches, Running to the Pony Planer. Next Comes the 16-inch Jointer; and at the Extreme Left is the Big Lathe. All of these Machines are Run by Individual

bearings provided for a separate spindle on top of the motor, which is geared to the motor shaft at 3 to 1 reduction. Thus on the upper spindle speeds from 133 to 400 r.p.m. may be obtained. Speed variations are obtained with rheostat control as in the speed lathe.

The upper spindle is used only for faceplate turning on the outside end of the lathe, and in addition to the advantage of proper speed obtained, the raising of the spindle makes it possible to turn work of larger diameter than the ordinary. The change in direction of the spindle rotation effected by the gear drive, puts the work on the right hand of the workman, both inside and outside, and allows the use of one set of face plates with right hand thread on both inside and outside spindles. This is a point of great superiority over the ordinary "double end" lathe. The bed and legs were made of hard maple and the lathe takes work up to 21 inches in diameter and 8 feet long on the inside, and up to 8 feet in diameter on the outer end.

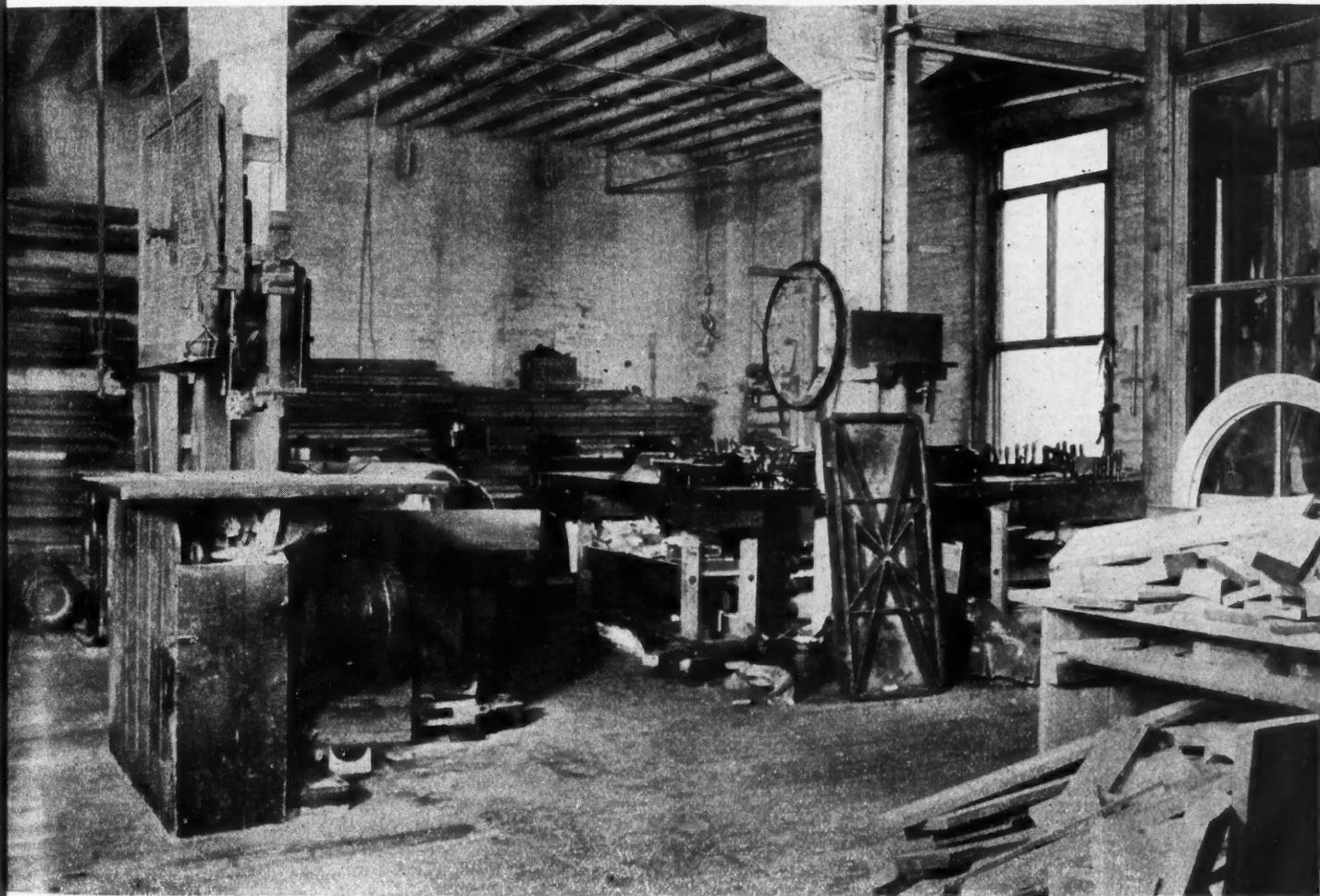
The "open side" lumber rack shown in the photos is of interest because of its convenience. Three birch timbers, 2½ by 8 inches, are run from floor to ceiling, and at proper intervals, 3½ by 1½-inch iron channels are fastened to these beams with two bolts. The channels are given a slight upward tilt to allow



Turning a Large Pattern on a Face Plate; 168 Pieces in the Pattern. Face Plate is 4½ Inches in Diameter.

for sagging when they are loaded. This particular rack holds about 2000 feet of lumber, and its advantages in the limited space are apparent.

The great convenience and saving afforded by individual motor drive as experienced in this shop is directly responsible for the invention, development, and production of the Wallace bench planer, now manufactured in another section of the plant. First one of these bench planers was made for home use without any idea of marketing it; but when the machine was put in service its value was so apparent



Two Benches, Each with Little Bench Planer; Next the 36-inch Band Saw in the Foreground; while back of it is the Saw Table and Motor with Belt Individual Electric Motors at a Cost of Only \$10.00 Per Month for the Entire Shop.



Saw Table and Work Benches. Each Bench is Equipped with a Little Electric Power Bench Planer. Note Lighted Office Partitions Giving Clear View of Shop.

and the enthusiastic comments so numerous that steps were taken to put it on the market. The first lot of ten machines were sold in advance, and since that time the Wallace bench planer has found its way by the score into every corner of the country where there is wood to be planed. These machines are tested out by the patternmakers, who obtain the advantages of having an individual machine, and at the same time make sure that every adjustment is correctly made.

Now in considering this electric motor equipment the thought probably comes to the average reader of the "A. C. & B.," that I had the money to spend, and spent it without considering the return. But, in fact, the reverse was the case. This investment not only paid a handsome dividend, but also paid back the principal in a period of less than five years.

To be specific, there are six motors aggregating 11 horsepower. These motors cost approximately \$625. On each machine there was an average reduction of \$10 in price allowed for the unused countershaft, a total of \$60. There is only 35 feet of belt in the entire shop—a saving of \$75 there. The saving of installation expense can be conservatively estimated at \$5 per machine, a total of \$30.

The landlord offered to supply power from his line shaft at \$20 per month, \$240 per year. The electric power bill was \$68 the first year, \$115 the second year, and has averaged \$10 per month ever since.

Summarizing the tangible saving:

Rebate on Countershafts.....	\$ 60.00
Saving in belting	75.00
Saving in installation	30.00
Saving in power, first year	172.00
Saving in power, second year	125.00
Saving in power, third year	120.00
Saving in power, fourth year	120.00
	<hr/>
	\$702.00

But this tangible saving in dollars is only half the story. Pulleys and belts wear out rapidly, and must be given attention every day. In many cases it costs as much to run a countershaft as it does to run the loaded machine. It takes longer to start a machine with a belt shifter, and the machine wears out sooner.

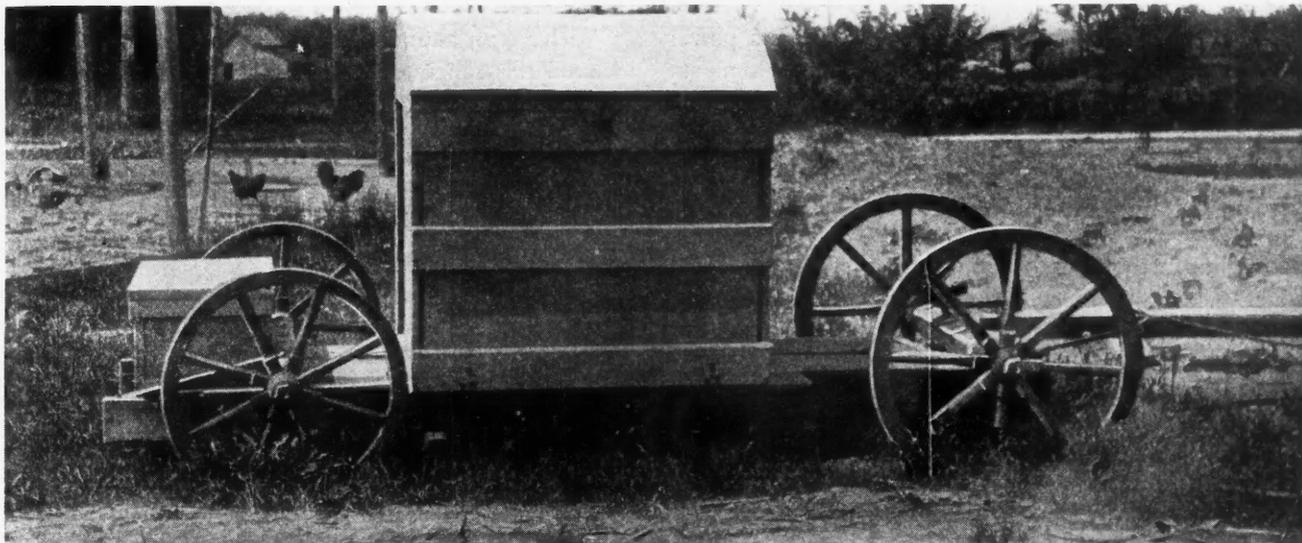
Electric wiring costs nothing for maintenance. As for the motors, in the five years' service the only expense incurred was \$20 for rewinding the armature of the speed lathe (which was injured by accident), a new motor bearing at \$1.75, and less than a dollar for a few rheostat buttons.

Considering all of these details, the individual motor drive in this shop made it possible to utilize the limited space to the very best advantage, effected a saving in power bills large enough to wipe out the investment expense in five years, and made possible an output materially larger than could have been secured with a belt-driven equipment.

Saw Rig Mounted on Wagon Truck and Housed Under Hinged Shelter

By Ben Hulley

Carpenter and Builder, Marcus, Iowa.



Saw Rig Mounted on Underslung Wagon and Completely Inclosed Within Storm-Tight Wooden Shelter. With this Rig Carpenter and Builder Ben Hulley Gets His Power Onto the Job Quickly and Easily.

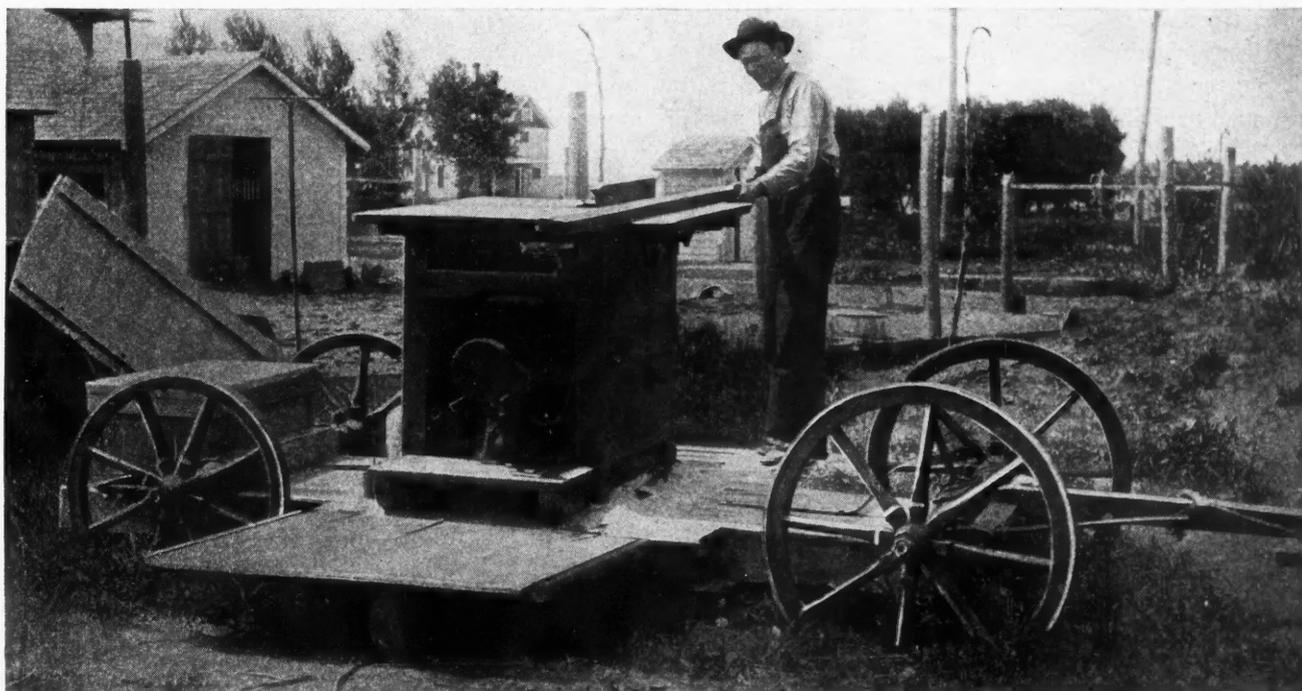
I HAVE my saw rig mounted on a truck as you can see by photographs. I built a house over it which you can see. I lift the top off, let down the two sides, which are hinged at the bottom, and make a runway on each side, lift the ends away, and it is ready for business.

I move it from one job to another, which makes it very handy. The saw alone is worth to me what the

whole rig cost, saying nothing about the other parts which give good service.



Under forest regulations in Colombia, rubber gatherers are required to give the trees a rest period in tapping them for gum. The size, number, and location of the incisions are regulated by law. In the United States similar regulations are in force in the tapping of pines for turpentine on the Florida National Forest.



The Sides of Ben Hulley's Woodworker House Let Down to Make an Extra Broad Working Space. With This Housing the Outfit Never Needs to be Exposed to Rain. Such Careful Treatment Will Keep a Machine in Fine Working Order for Years.

Second Prize, Contest B—Old House Remodeled Makes Good Sized Power Shop for Contractor

PHOTOGRAPHS AND FLOOR PLANS SHOWING ARRANGEMENT OF MACHINERY EQUIPMENT IN LINDSBORG, KANSAS, SHOP.

By Aug. Palmquist

of Palmquist & Co., Contractors and Builders, Lindsborg, Kansas.

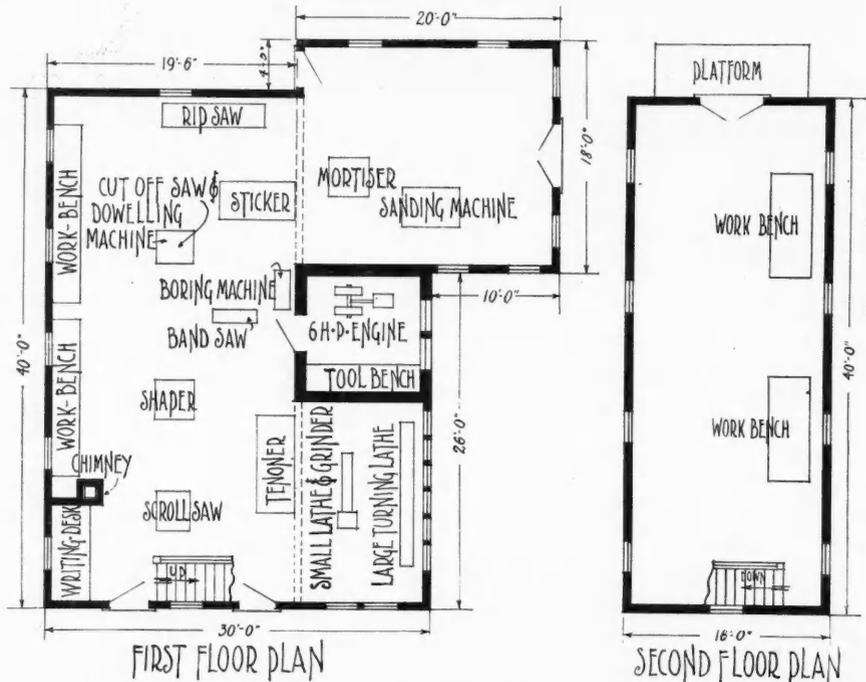
WE make most of our millwork in this power shop. It is snug and dry, and gives plenty of room inside for our machines. The main

part of the building measures 30 by 40 feet on the ground floor; second floor, 16 by 40 feet. A one-story projection at the back adds about 220 square feet to our main floor space. The first floor is used for the machine operations, while on the second floor are two workbenches for lighter work, drafting table, etc.

We have twelve woodworking machines. All are driven from a 6-horsepower gas engine. The machines are those ordinarily used in producing building trim and cabinet work. We think we have them arranged in a logical order, so that no one interferes with any other, and at the same time the work can be put thru to advantage without lost motion. The floor plan sketch shows how these machines are arranged. We have a large turning lathe, a small lathe with tool grinder attachment, a tenoner, shaper, sticker, mortiser, scroll saw, band saw, rip saw, cut-off saw with doweling attachment, a boring machine and sanding machine.

Our engine is in a room by itself, entirely surrounded by 12-inch brick walls, as a fire-safe provision.

We have an abundance of light in this shop. Some idea of the range of work we are handling can be gained from studying the photographs on next page.



Arrangement of Large Two-Story Shop of Palmquist & Co., Lindsborg, Kans.

Insulate Your Shop Walls with Saw Dust

By Chauncey C. Ames, Mayville, N. Dakato

JUST a few words from a constant reader. I notice you are going to have a "Power Shop" number and a "Winter Work" number. Here is a suggestion that we put into practice which might be of

interest to those having shops in the extreme northern climate where the winters are so cold. The average small town carpenter shop is generally very poorly built, and not much better than a shed. During the cold winter months, when most of the work is done in the shop, it is very hard to heat.

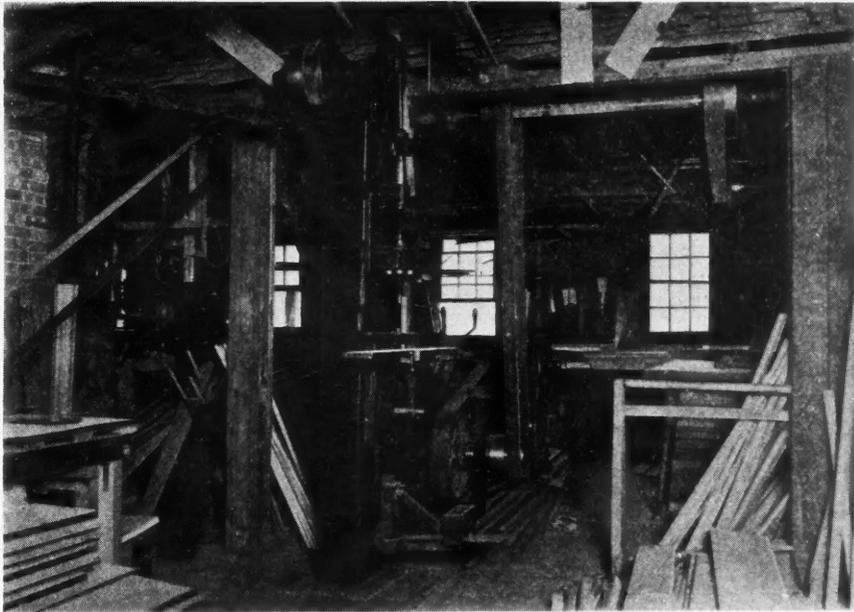
Next to working out in the hot sun on a roof or some place, I hate to work in a cold room with heavy clothes on. Last winter, during January and February, when we had way below zero weather week after week, we had to turn down work because the shop was too cold. Now, in every shop when a lot of



This Old Frame Building Remodeled Makes a Satisfactory Power Shop for Palmquist & Co., Lindsborg, Kans.

work is being turned out there is always a lot of sawdust gathering under the power-driven saws. This is at times kind of hard to get rid of, because it cannot be sold for kindling, like shavings and sticks that accumulate. So we sheathed up the inside of the shop, and as it gathers we shovel it over into the wall and pack it down. I think this will be a great help in keeping the shop warm next winter and save fuel. I intend doing the same thing with the auto shed, so as not to have to drain the car every night in the fall when the frosty nights come.

This is just a suggestion and may be helpful to some of those where winters are as cold as in North Dakota.



Interior View of Palmquist & Co. Power Shop.

✦

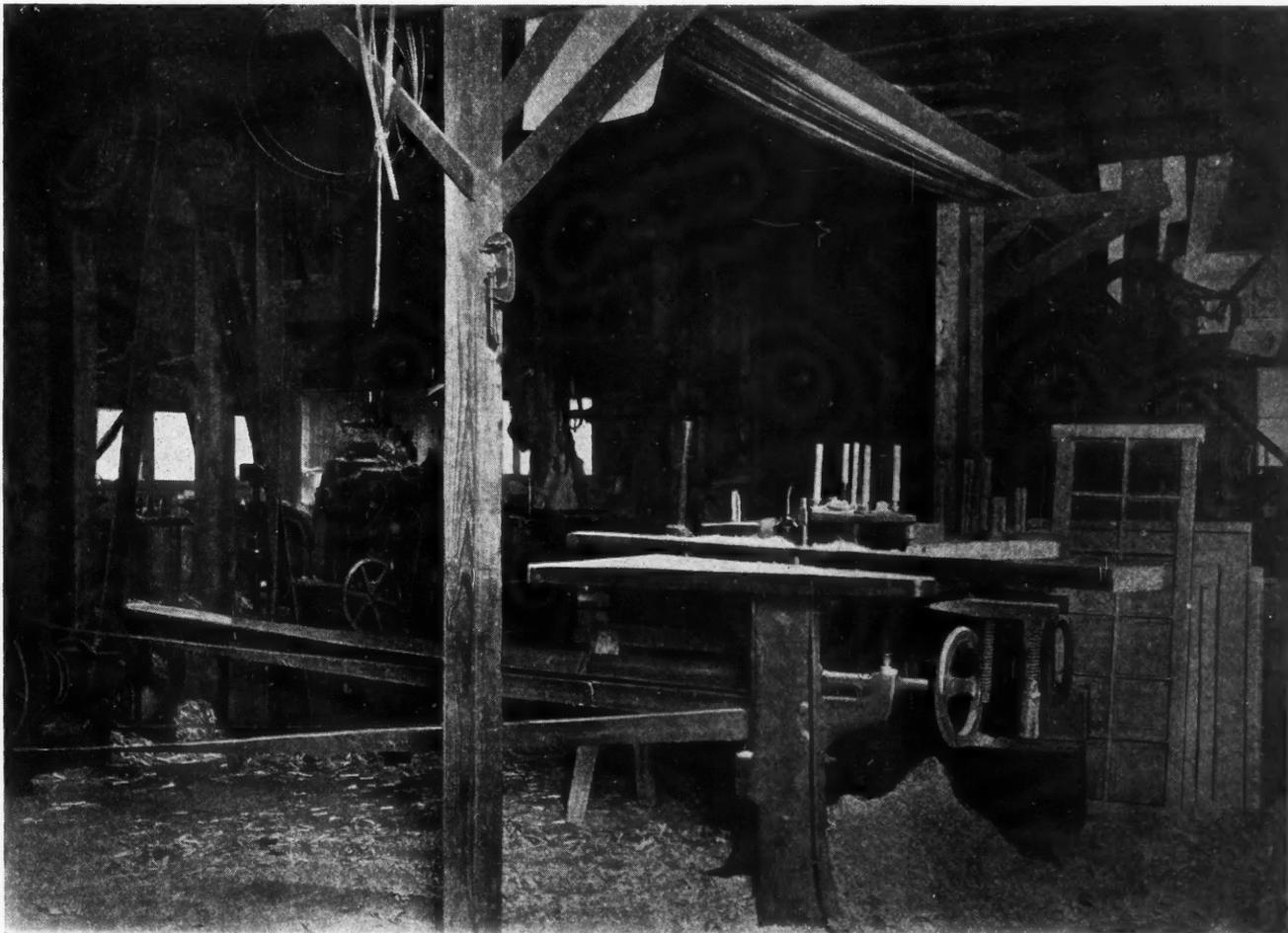
**Shop with Homemade Machines
Two-Man Shop at Westfield, Pa.**

By Wm. H. Lewis, of Wm. H. Lewis & Sons

WE have a two-man shop equipped with individual machines—mostly of our own make. We have a mortiser, planer, sander, boring machine and lathe, also band saw, rip saw and cut-off saw. All are driven

by a gas engine. Our shop measures 30 by 38 feet.

We manufacture vegetable crates, chicken coops, woodwork for saw mills, window frames, door frames, sash, screen doors, writing desks, bookcases, kitchen cabinets, center pieces, etc. Some of our work requires inlaying, overlaying, etc.



Interior of Palmquist & Co. Shop Looking Toward Stairway. Showing Shaper in the Foreground and Tenoner to the Left.

First Prize, Contest C—Building Up Small Power Shop Business

NERVE, NATURAL ABILITY, AND A SMALL INVESTMENT DIRECTED BY ADVERTISING SENSE WIN OUT AT DUBLIN, IND.

By **A. E. Simpson**

Carpenter and Millworkman

I AM writing this, hoping that it may help some of the younger ones who are just starting up in this business. When I was seventeen years of age I began to build my shop, doing it at odd times, nights and mornings while I was working in a drug store. After having it built and the engine installed, I quit the store and went to work in the shop. I have been working in it for nearly three years, and have had plenty of work for every day, being off only on a few holidays.

I made my saw table, sand drum, hollow chisel mortising and boring machines, which did not cost me very much, only for the lumber and a few bearings and castings. I made the patterns for the castings and had them made at the foundry. When I first started I had only a circular saw. At the present time I have seven machines, which are run by a 4-horsepower gasoline engine.

The first year I got out the millwork for seven houses, besides the other small odd jobs, keeping two other men busy part of the time.

I inclose a drawing of my shop showing the arrangement of the machines and engine and benches. I do not believe that anybody could arrange this number of machines any better in this small place, as I have not yet found one machine to be in the way of another.

This is the way I get the business: I first painted a few signs on the front and sides of my shop which cover nearly all the work which I do, such as cabinet and millwork, door and window frames, and sash, picture framing, etc. I painted a large sign and put it up on main street. I also did some advertising in some of the local newspapers and neighboring towns. I make gates and hog houses, on which I stencil my ad. That helps to advertise in the country.

I have taken in several small jobs which I did not make hardly ten cents an hour on, such as furniture repairing. And then some people would kick on the price; but I usually find that they bring larger jobs in the near future, which pay for the smaller ones.

In the drawing you will notice that I have my rip saw and jointer placed in between doors and windows, so that I can handle any length lumber by running it on the outside. The spare time that I have is spent in working up the scrap pieces left over from the big jobs into small articles, such as flower stands, waste baskets, etc., which I find sale for at some time. I make pedestals, medicine cabinets, cedar chests, porch swings, etc., which I try to keep a few of in stock in different finishes and styles. The rest of my spare time is spent in reading the "A. C. & B." and other good building books.



A. E. Simpson, Young Carpenter and Power Shop Cabinet Maker, of Dublin, Ind., Has Built Up a Good Business in a Few Years. His Shop is Well Equipped.



Exterior of A. E. Simpson's Shop and Some Pieces of Work Produced in it.

I also refinish antique furniture at other odd times, which brings in a little extra and helps to advertise the rest of the business.

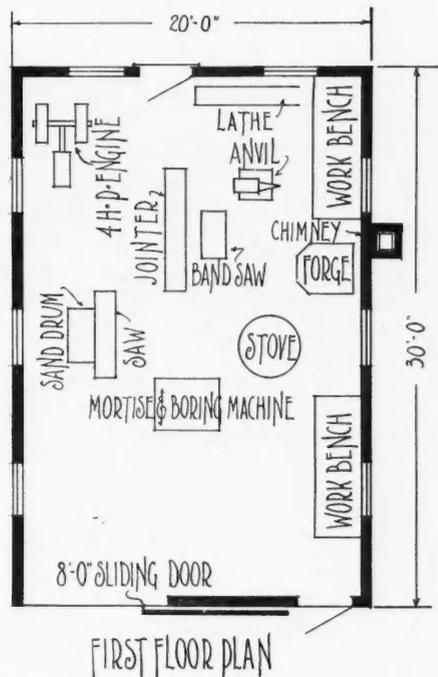
I have a small forge and anvil which I find a great help, as there is hardly a week passes that I do not find some use for them. They save me many trips to the blacksmith shop, as there are many little jobs in the woodwork line that need some iron work done on them. And then the forge comes in handy in melting babbitt for the bearings of the machines, etc.

where I do most of my hand work, and the back part is cement, where my machines and engine are. I have extension tables for my saw and jointer that can be put on in a second, and when not in use they can be folded and hung up on the wall. The windows and doors are screened in, which I consider a great advantage to a shop, as they keep the flies from specking the finish lumber and do not bother a person while at work.

A Billion Bricks—Output Increases in Hudson River Region

Greater New York is the leading common-brick market in the United States, about a billion brick being used there annually. The principal source of this supply is, according to the United States Geological Survey, the Hudson River region, extending on both sides the Hudson from New York to Cohoes, including Bergen County, N. J.; and within the last few years the Raritan River district, Middlesex County, N. J., has sent large quantities of common brick to New York. In 1915 the output of common brick in this region was 960,527,000 brick, valued at \$5,009,065, or \$5.21 per thousand. This was an increase of 72,261,000 brick and \$658,233 and of 31 cents per thousand over 1914. The New York portion of this region marketed 741,568,000 common brick in 1915, valued at \$3,744,548, or \$5.05 per thousand, which was about three-fourths of the quantity and value of the entire region and was an increase of 62,448,000 brick and \$461,149 and of 22 cents per thousand over 1914. Ulster County was the leading county in production and value of common brick, reporting 229,343,000 brick, valued at \$1,110,492, or nearly a third of the output and value of the New York portion of the region, an increase of 42,962,000 brick and \$214,186 over 1914. Dutchess County was second and Rockland County third.

New Jersey's portion of the production of the region was 218,959,000 brick, valued at \$1,264,517, an increase of 9,813,000 brick and \$197,084 compared with 1914. The average price per thousand increased 68 per cent compared with 1914.



Arrangement of A. E. Simpson's Shop Illustrated Above.

The size of my shop is 20 by 30 feet, which gives room for two men to work, but does not leave much room for storage. I use one room of the house for storage of my finest furniture, and the loft of the shop I use for storage of lumber, mouldings, etc. The front floor is wood,

Second Prize, Contest C—Believes in Taking Power Onto the Job

EXPERIENCES IN BARN FRAMING AND IN HOUSE WORK—COST OF OUTFIT

By C. H. Toellner, Jr.

Carpenter and Builder, Bunceton, Mo.

THERE are many builders equipped with a variety of woodworking machinery in a shop. This is all right, provided you have your work close at hand. However, to get the full value of such an equipment, especially for the small contractor, I think he should have a portable outfit which he can take with him on the job where the building is erected.

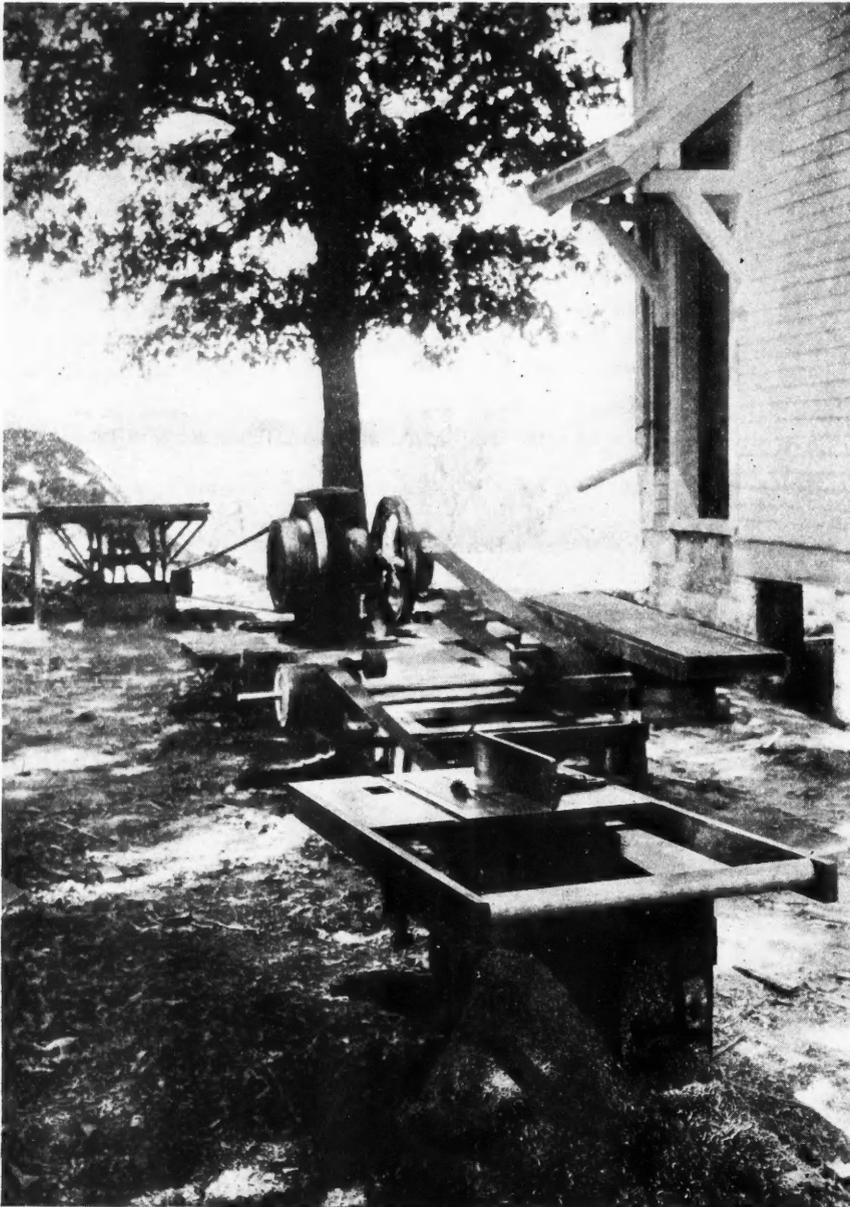
I have an outfit which is portable and can also be set up quickly in a shop for use in winter. I have used this outfit for three years with good satisfaction, and it does away with a lot of hard work. A builder cannot successfully compete with builders so equipped

unless he uses power woodworking machinery.

I have a wagon truck with low iron wheels, on which is mounted a 4-horsepower gasoline engine. The engine has two drive pulleys, one 12-inch, the other 20-inch. The 12-inch drive pulley is belted to a shaft with 8-inch wood pulley on truck. On this same 1¼-inch shaft is built a 16-inch diameter drum sander with 15-inch wide face—6-foot long table. On the other end of shaft is a 10-inch diameter wood pulley with 10-inch face, belted to a type C Tannewitz woodworker with rip and cut-off saws, band saw (not shown in photo), 8-inch planer and boring attachment for light work. From the other 20-inch diameter drive pulley on engine, a Parks cut-off saw with 16-inch diameter saw is driven. The same 20-inch pulley can also be belted to a 10-inch emery wheel on truck to grind tools.

I use the outfit as described for house building. In building barns with mortise frames, I take off the shaft with drum sander, and belt on a boring machine (homemade) that will bore holes 12 inches deep in any size timber up to 12 by 12-in. oak. After the outdoor work is done with, I pull the truck into shed at side of shop, set up the woodworker in shop, connect shaft in shop with shaft on truck, put on belts and am ready for shop work. Loaded on truck, the complete outfit weighs about 2,800 pounds, and is easily drawn by a good team of horses. The cost of outfit is as follows:

Woodworker	\$143.50
Engine truck.....	28.50
Engine, 4-horsepower.....	140.00
Cut-off Saw.....	37.00
Cutter Head, 9 inches diameter..	13.50
Belts	12.00
Extra saws, circular.....	5.00
Emery wheel shaft, etc.....	3.50
Material for sandpaper drum etc.	3.00
Shaft, 1¼ inches diameter, and 2 wood pulleys	5.00
Heavy boring machine material.	12.00
Shaft in shop, pulleys, etc.....	10.00
Bits for boring machine.....	5.00
Miscellaneous items	5.00
Total	\$423.00



Saw Table Hooked Up to Gasoline Engine on a Residence Job of C. H. Toellner, Jr., Bunceton, Mo.



Homemade Boring Machine Mounted on Truck for Heavy Mortise Work on Timber Barn as Used by C. H. Toellner, Jr., Carpenter and Builder, Bunceton, Mo.

First Prize, Contest D—How to Make the Power Woodworker Pay Its Way on the Job

WHAT THE PORTABLE SAW RIG CAN DO ON THE AVERAGE BUILDING JOB AND HOW IT SHOULD BE USED

By Edward H. Crussell

THAT a power woodworker can be used to save money on a large job may be easily proved, especially on such work as reinforced concrete construction, in which there is often a vast amount of form work in short pieces. Whether the woodworker will save money on a smaller job, such as a five-roomed bungalow, will depend more upon the executive in charge of the work than upon the machine.

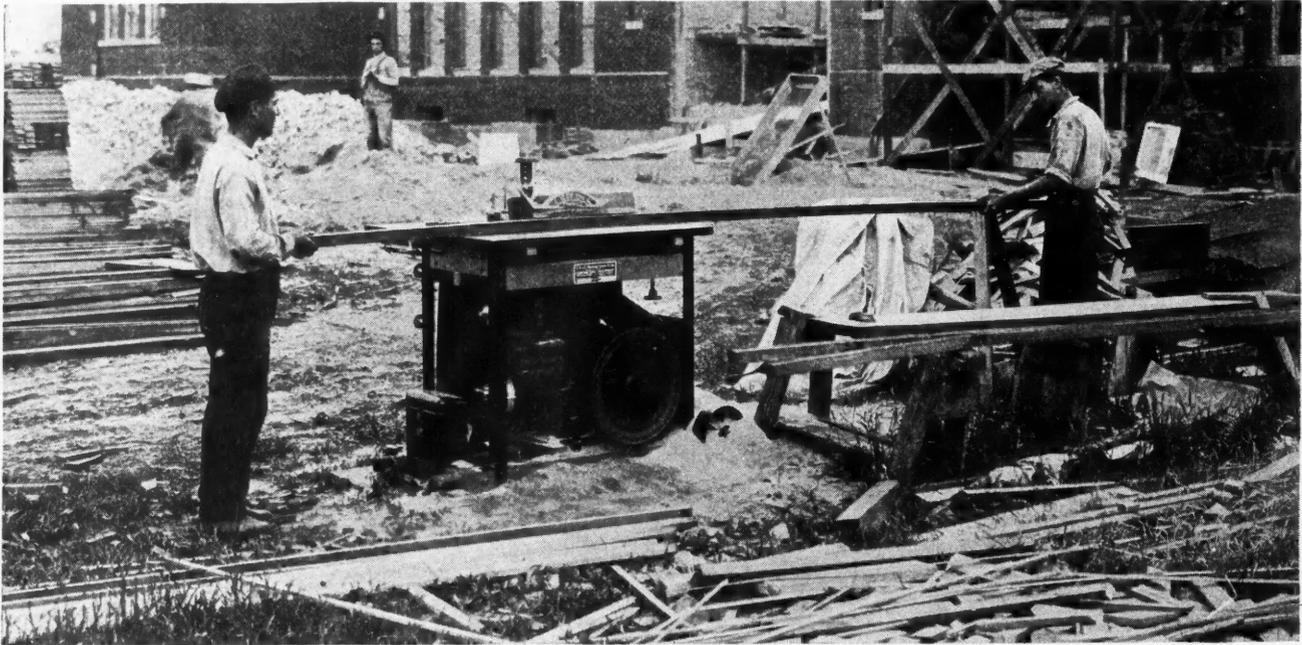
The machine may take the place of several men, but it will require just as much supervision as the men did; moreover, you cannot expect it to look you up on some distant part of the job and tell you it is waiting for something to do.

Many executives, in order to get the most out of a power woodworker, will be compelled to change their entire system and method of procedure. One very important thing needed is a good, energetic workman to have entire charge of the machine. If everyone is allowed to use it, at any time, for any old purpose, it will not be long before we find Tom climbing down off the roof to cut a piece of 1 by 4, Dick coming up from the basement to rip the tongue off 5 feet of ceiling, and Harry coming from the back porch to cut one end off

a piece of screen moulding. If you think the foregoing is exaggerated, just put the woodworker on the job and let everybody run to it, regardless. It will not be long before you arrive at the conclusion that exaggeration in this matter is almost impossible.

No, that's not the way to go at it. If you want to make the machine do its utmost for you, you must plan your work ahead, and plan it more carefully than you have been in the habit of doing. On your first job it will be better for you to make a framing plan for every part of the work; and seeing that this may be done in the evening, or during spare time, and considering what a help it is on the job during the rush hours of the day, it is certainly strange that this method is not more frequently followed by the inexperienced executive.

First, we may make a working drawing of the concrete forms for the foundation. The drawing need be only a rough sketch of the correct shape, but the sizes and measurements should be correctly and plainly marked. The size of the form is never shown on the architect's plan, allowances having to be made for projection of wall, thickness of forms, etc.



A Popular Type of Portable Saw Rig on the Job at the Building of the New Racine, Wis., High School.

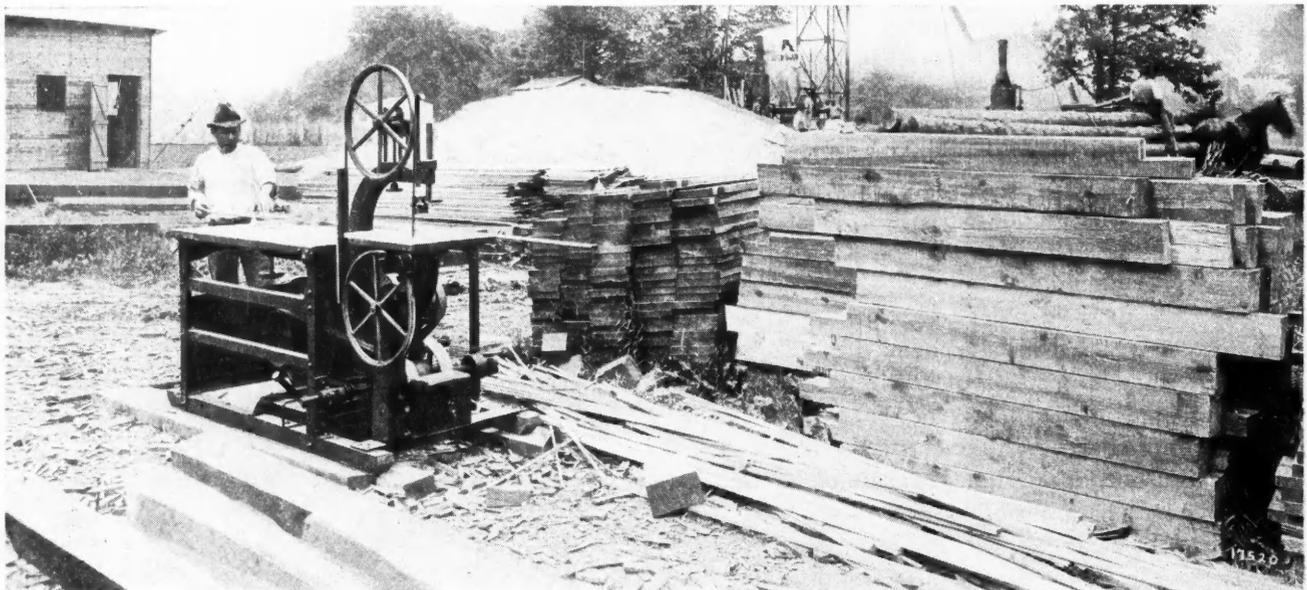
A working plan of the floor joists will show the correct number of pieces, their various lengths and shape, double joists under partitions, headers, trimmers, etc. With the plan at hand and the machine sitting near the pile of joists, the sawyer and an assistant can cut them all in a short time and, as with the forms, the pieces all being cut accurately, the assembling is done more easily than when they are cut by hand.

Herringbone bridging is something that can be handled quite satisfactorily on the woodworker. With the joists correctly spaced, there is no reason why all the bridging (except perhaps the last two pieces) may not be cut to the same pattern.

A framing plan of the studding is the most important of all; it will show the correct number of studs, the number and size of the openings, and give the exact

length of all the pieces, such as door and window headers, window sills and the cripple studs under and over the openings. The studs should be sorted into two piles as they are cut—straight and crooked. The straight one to be used, of course, for the corners and openings; the cripples, headers and other short pieces should also be piled separately, and if the plan is complicated, they may be marked with colored crayon to avoid confusion.

The sections of wall should be nailed together while flat on the floor. If the studding is rough, or sized at the edge only, it is better to leave the cutting of the short studs over the window heads until after the side studs and window header have been nailed in place, the variation in thickness of the window headers making this necessary. The window sill and the studs



Portable Combination Woodworker of an Efficient Type at Work on a Big Concrete Form Job.

under it are nailed together, but are not put into place until after the section of wall has been erected, thus avoiding the necessity of measuring any part of the work once the studs have been cut and the plates marked out. The woodworker should be far enough ahead so that practically all of the studs are cut before assembling is commenced.

The top and bottom cuts of the rafters may be made on the woodworker, but the notch for the plate had, in most cases, better be cut with the hand saw. Both bevels of the shorter jacks may be cut on the machine, usually by making two cuts, the first giving the plumb cut, the second putting on the side bevel.

The beveled ends of the roof boards on a hip roof can be cut before the boards are sent up onto the roof, the remainder of the cutting being left for the hand saw.

Diagonal boarding can be handled economically on the machine, and all short lengths of siding can be cut by the same tool.

Door and window frames can be easily made on the job, but the saving effected will depend somewhat upon

the price you have to pay for raw material, "knock down" frames in some localities being almost as cheap as the B. M. price of the lumber from which they have to be made.

Interior trim can be handled on the woodworker in different ways. One method is to take measurements on a rod, mitre, or otherwise finish one end of the piece and cut it roughly to length. The piece can then be placed in position, an exact measurement made, and the second end finished, by hand or machine, as seems best. It can be easily understood how such work as mitered casing caps on window stools may be handled in this way.

Even in cleaning up at the end of the job, the woodworker may have a part. The scraps that are worth saving may be trimmed to a suitable size, and those that can be of no further use may be cut into firewood, which can be disposed of at the job or stacked up until some more convenient time.

Yes, the power woodworker is a willing servant on the job, but it has no brains, and the operator must have enough for both.

Second Prize, Contest D—Getting Out Chamfer Moulding for Concrete Forms

METHODS USED "ON THE JOB" WITH POWER SAW-TABLE—HOW TO DO THE WORK FASTER AND WITH LESS POWER

By James F. Hobart, M. E.

A LARGE contractor who makes a specialty of concrete bridges is now and then called upon to get out many thousand feet of chamfer moulding. This moulding is used for corners of moulds in which posts, beams and similar shapes are to be poured. The chamfer moulding is nailed into the corners of the form or mould and causes the hardened concrete to show a corner more or less neatly chamfered according to the smoothness of the chamfer mould and the manner in which it was placed in the form.

This contractor had his own little woodworking shop, which was carried around and set up at one job after another, whenever the size of the contract warranted. The shop in question contained a fine iron table circular saw, with tilting top and all the niceties and refinements, including a saw guard which was in use every time the writer visited the shop, which was frequently.

A bandsaw with 30-inch wheels; and a two-wheel emery grinder completed the shop equipment, which was driven by a $7\frac{1}{2}$ -horsepower induction motor. The building was a light wooden affair of 2 by 4-inch studding and matchboard siding, which would be torn down and erected at succeeding contracts. The machinery was placed upon the ground, a timber or two being bedded in the dirt when necessary, to receive a machine or a shaft bearing.

The shop was long and narrow, calling for the

movement of stock lengthwise thru the building, therefore it was necessary to place the band saw shaft at right angles to the circular saw mandrel. This necessitated a "round the corner" belt somewhere; but the mechanic who set up the outfit got rid of the "round the corner" nuisance by an ingenious arrangement of the countershafts.

The band saw counter was about 16 feet long in order to bring the bandsaw well away from the circular. This shaft was located on the ground, or its bearings were thus placed, the overhead of the shop being too light for attaching much shafting thereto. The emery grinder was driven from the bandsaw counter and the grinder ran all the time when the motor was in motion.

As modern electric motors can be located almost anywhere, this one was placed upon a couple of planks supported in turn by the 2 by 4-inch plate of the shop and by scantlings under the other ends of the planks in question. The motor was belted direct to the bandsaw counter and immediately beside the receiving pulley on that shaft, another pulley carried a quarter-turn or "reel" belt which drove the overhead counter of the circular saw. This counter was made fast to a timber placed across the shop, on the plates, for the purpose of carrying the shaft in question. Thus was the "round the corner" drive dispensed with.

At the time of a visit to this shop they were preparing to get out 10,000 linear feet of "chamfer mould-

ing" on a single order for the large bridge at which the shop was located. As shown at A, Fig. 1, the moulding was plain, with one square angle and measured $1\frac{5}{8}$ inches by $1\frac{3}{16}$ inch. The first section of the large order—nearly two miles of moulding—was gotten out, as shown by Fig. 1, the moulding being sawed from $\frac{7}{8}$ -inch boards, which were turned end for end each time a cut was made, the saw table being tilted to 45 degrees, as shown by Fig. 4.

This method of getting out the moulding did not prove very satisfactory, the services of a third man being required to turn the boards before passing them back to the sawyer, the second sawyer having his hands full of attending to the work back of the saw and to taking care of the moulding which had been ripped from the board. The great objection to this method, aside from the rather slow work of running the moulding from thin stock, was that of running the work with a feather edge against the gage or fence.

A feather edge, particularly one of 45 degrees, and produced by a circular saw, from any old stock, cannot always be depended upon to be "all wool and a yard wide." Sometimes the saw dodges a little, the feather edge comes out a bit shy, and the result is a crooked place in the following moulding run from this board.

The next try at this matter was made with $1\frac{1}{4}$ -inch stock, as shown by Fig. 2. This material was ripped

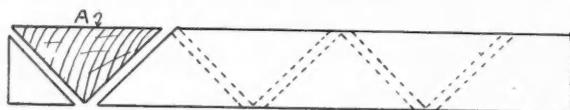


FIG. 1. RIPPING AND TURNING STOCK

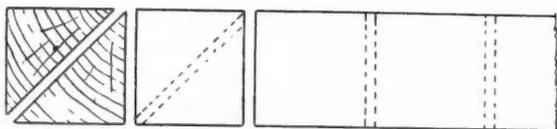


FIG. 2. USING $1\frac{1}{4}$ STOCK

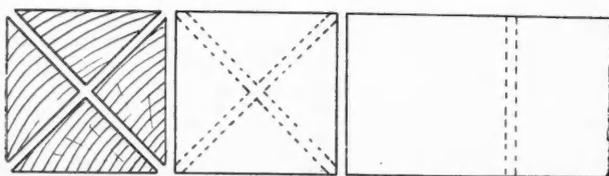


FIG. 3. MAKING FOUR AT ONCE

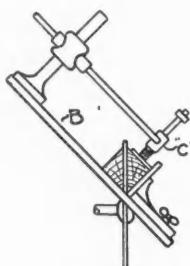


FIG. 4. USING SAW GUARD AT 45 DEGREES

Three Ways of Getting Out Triangular Chamfer Mould. Also How to Set Buzz Saw to Use Less Power.

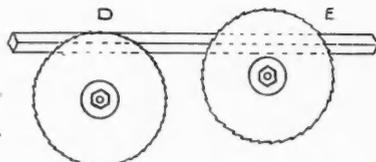


FIG. 5. DECREASING POWER CONSUMED.

up square, then by a second operation was ripped diagonally, and each square formed two pieces of moulding. This method worked pretty well. It permitted the stock to be run with a wide, solid bearing against both fence and saw-table, therefore there was no feather edge fence-running to give trouble.

The worst thing about this method proved to be that of stock. It was hard to obtain $1\frac{1}{4}$ -inch stock, and when it was obtained, the price was almost as great as for 2-inch stock. This being the case, it was determined to use 2-inch stock, which was readily procured, and run as indicated by Fig. 3. The 2-inch stock, which really measured $1\frac{3}{4}$ inches in thickness, was first ripped square, then ripped diagonally twice. After first being split thru their corners, the parts were laid together again and passed a second time over the saw, thus making four pieces of moulding with three cuts of the saw—only three-fourth as much saw work as by the methods shown by Figs. 1 and 2.

Fig. 4 shows the manner which the stock was run after the planks had been ripped square. The saw-table, B, tilted to 45 degrees, and the saw guard is shown diagrammatically in position at C. But at this stage of the work, power troubles began to make themselves felt. The only saw in the shop which was large enough to take the $2\frac{1}{2}$ -inch cut diagonally thru the square pieces was 18 inches in diameter.

The sawyer adjusted this saw so that it barely cut thru the top of the work, as shown at D, Fig. 5, then he found himself short of power and would have to keep stopping to let the saw get up to speed again. This sawyer, like many of his kind, evidently possessed a brow of solid ivory, for he would force the work against the saw at the usual speed, then, when the saw slackened speed, he would stop pushing and wait for the saw to get up to speed again.

The proper way of working in a case of this kind, where the power is insufficient, is to give the work such feed as the saw will carry without slowing down, then keeping that rate of feed. A good deal more work—and better work, too—can be done than by the "shove and wait" method.

How to Decrease the Power Consumed

The attention of the sawyer was called to the fact that he was doing a great deal more saw work than was necessary because of the saw being in the position shown at D, Fig. 5, barely projecting up thru the stock. His attention was called to the fact that by bringing the saw up thru the table as far as possible, to the position shown at E, the length of cut would be reduced from 7 inches to 3, thereby lessening the power required nearly one-half—in fact, all of one-half, for to cut out a thick chip takes a little more power than to cut a thin one—sometimes, not as much power when the difference in direction of cut is considered, the long cut being "slashwise" of the grain—cutting out excelsior-like chips, while the other cut, at E, is

(Continued to page 75.)

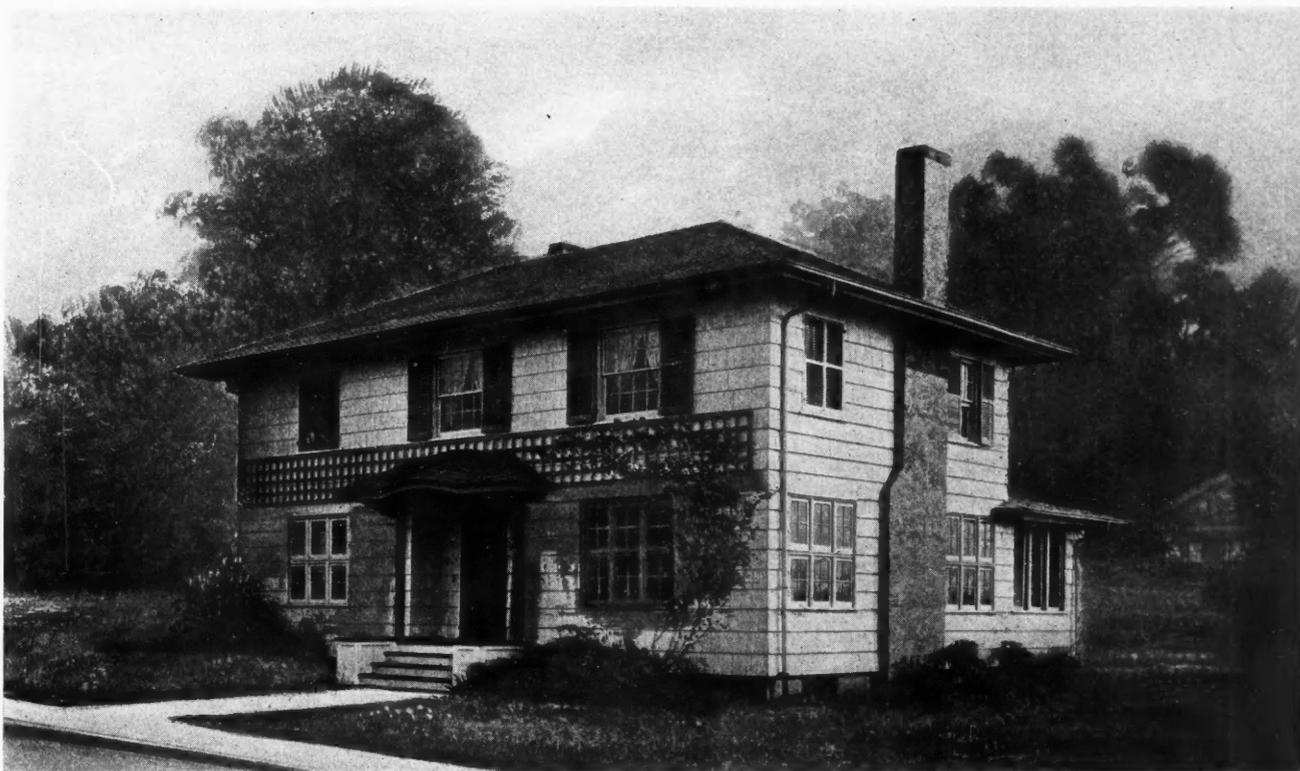
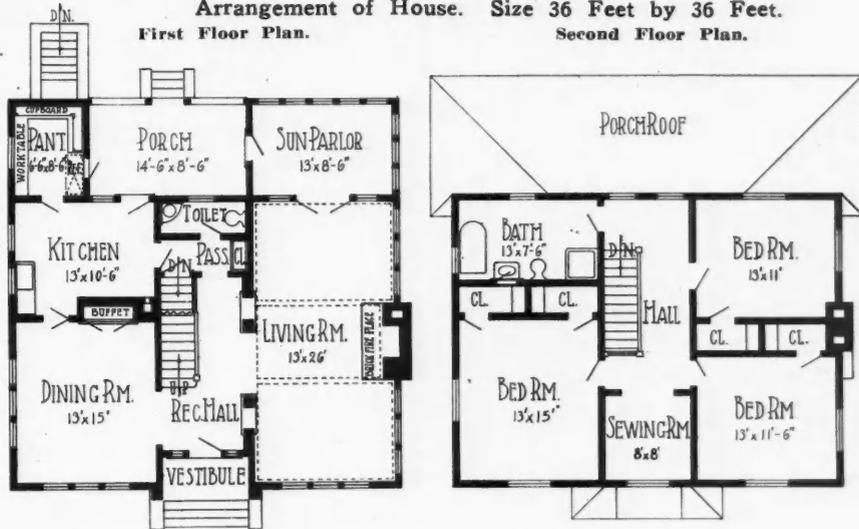


Home of Dutch Colonial Design

This house is finished with shingles having a large exposure to the weather. The chimney is finished with stucco. Novel window sash and shutters emphasize the Colonial effect which is the keynote of the design. When vines have been trained across the long lattice panel, the front of this house will present a striking appearance.

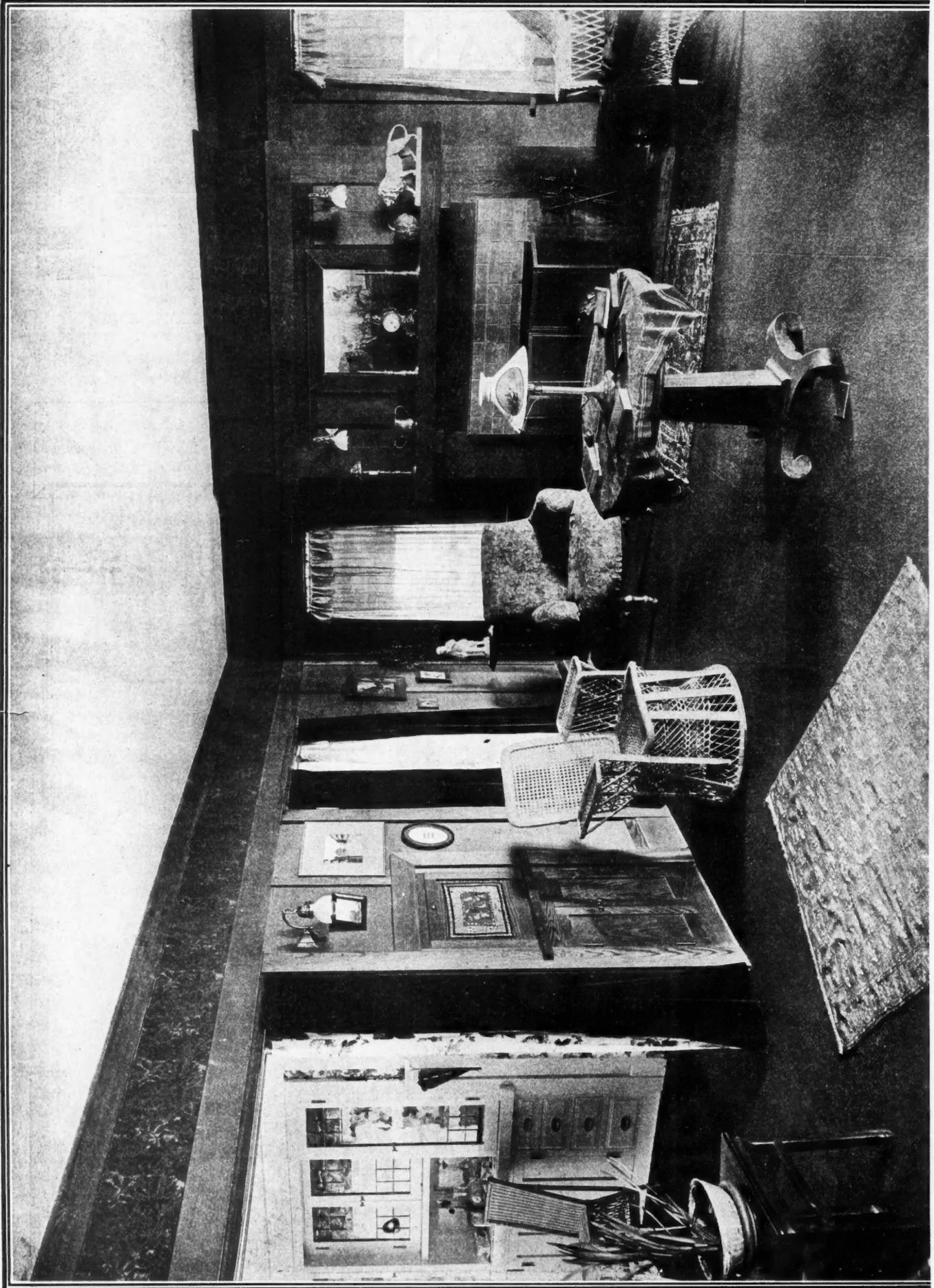
All rooms on the first floor are readily accessible from the hall in the center of the building. The large living room and the pleasant sun parlor at the rear form an excellent combination from the standpoint of year-round comfort. The dining room and kitchen are well arranged and the pantry is a model of convenience. Three bed rooms, a sewing room and the bath occupy the second floor.

Arrangement of House. Size 36 Feet by 36 Feet.
First Floor Plan. Second Floor Plan.



Attractive seven-room house. Size, 36 feet by 36 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$12.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6845.

Guaranteed Building Plans



An Attractive Living Room. The Fireplace is Fitted with a Wood Mantel Finished to Show the Natural Grain of the Wood. Notice China Closet in Dining Room.



House with attached garage. Size, 36 feet 6 inches by 33 feet 6 inches. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$10.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design 6842.

Elegant Stucco House with Garage

The design shown here illustrates the possibility of building a garage as a part of the house, providing a most attractive sun parlor at the same time. The house is built upon a terrace and the driveway leading to the garage is brought straight in at the sidewalk level, allowing only enough slope to provide good drainage.

The entire house and garage are finished in stucco with dark wood trim. Low arch type of construction is used in the porch and all roofs are built as flat as is consistent with good construction. A pergola roof above the sun parlor adds a note of distinction. The entire exterior is impressive and elegant.

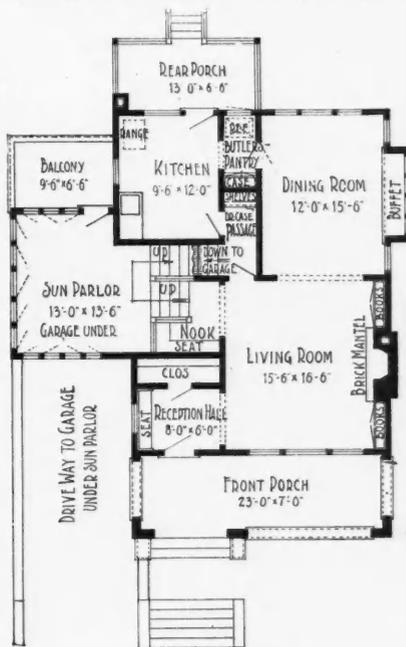
The details of interior finish are fully in keeping with the general excellence of the design, and the room arrangement is all that the particular home-builder could ask for in convenience and elegance. The reception hall is fitted with a seat and has a wide closet handily located. The opening between this hall and the living room is cased. The entire side wall of the house in the living room is occupied by the fireplace and two bookcases. A wide cased opening at the rear of the living room leads to the dining room. The buffet in the latter room is built below four windows

in a square bay. There are five other windows in this room.

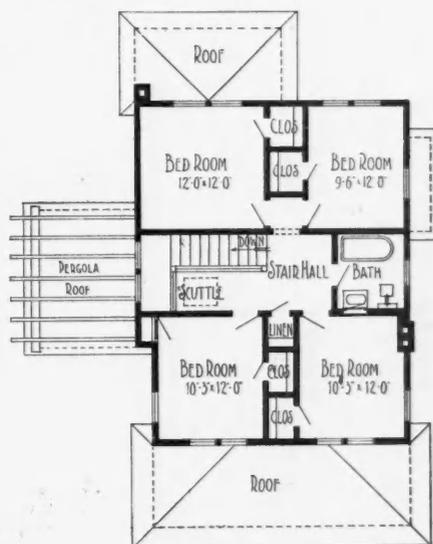
The sun parlor is five steps above the living room and the seat built into the nook just inside the cased opening from the living room is a very pleasant detail. The garage is entered from a passage between the living room and kitchen. Between the kitchen and the dining room is the butler's pantry. The

opening on the kitchen side is cased and on the dining room side there is a double-acting door.

The stair from the sun parlor leads to a stair hall on the second floor. All rooms on this floor open from the hall. There are four bed rooms, all provided with generous closet space and a bath. All rooms are well lighted and full height.



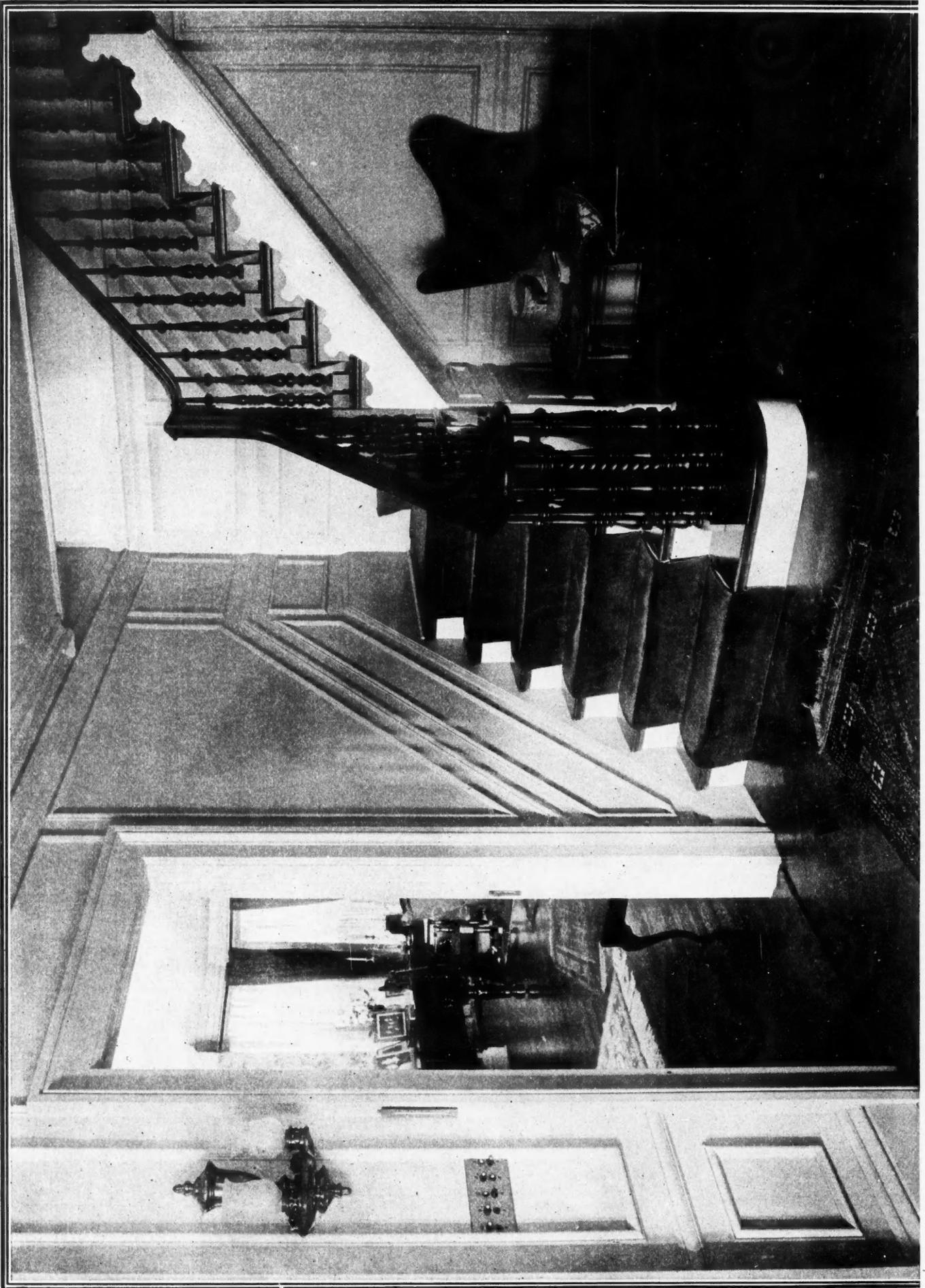
First Floor Plan.



Second Floor Plan.

Arrangement of House. Size 36 Feet 6 Inches by 33 Feet 6 Inches.

Guaranteed Building Plans



A Modern Colonial Reception Hall and Stair with Mahogany Rail Highly Polished. Dark Finished Rail Stands in Pleasing Contrast with the White Finished Walls.

Large Brick and Shingle House for Shallow Lot

Because most city lots are deep and narrow, it is unusual to see a house designed as a city home which has its longer dimension across the front. Aside from some few cases in which it is necessary to cut lots of peculiar shape on account of streets intersecting at sharp angles, the only place where a house with wide front is likely to be used is on a corner lot which offers frontage on two streets. Even if plenty of room is available the usual custom is to build a house with its narrow side to the front even tho such a practice robs the owner of space which might be used as a large front or back lawn and presents the narrow side of the house as the only part that is ever noticed by passers-by.

Design No. 6841 shown here presents an unusually attractive appearance from the street. Since the gable roof is placed with its ridge parallel to the street, the tile covered surface, broken by the dormer with its six square windows, is a prominent feature. The upper floor is finished with shingles while the first floor walls are of brick trimmed with white stone or terra cotta. Details are carefully worked out to produce a nicely balanced appearance. A special feature of the front porch construction

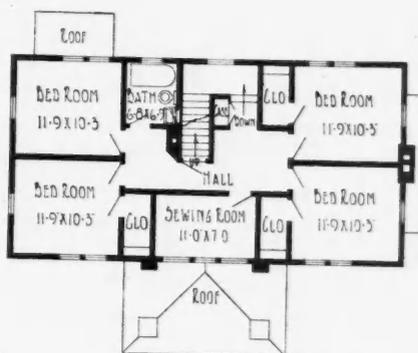
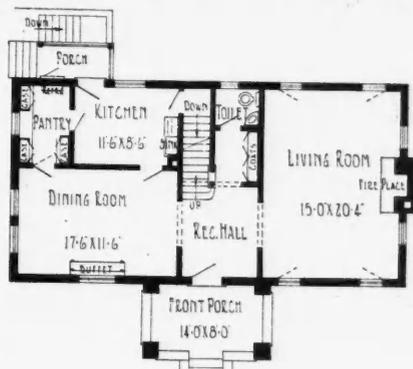
is the manner in which the brick columns are carried up thru the roof and capped with a white stone or terra cotta slab. Ornamental vases may be placed on these columns and flowers planted in them in the summer time will produce a pleasing effect. The canopy over the windows on either side of the chimney is covered with tile similar to that used on the roof.

The front door opens into a reception hall from which cased openings lead to the living room, dining room and back thru a hall to the toilet. The hall has space provided for coats.

The living room occupies the entire end of the house on one side of the reception hall. The fireplace is built

into the center of the wall opposite the hall. This room has two casement windows at each end and two windows on the side. The dining room is on the other side of the hall. A buffet is built under the window in the front wall of the house. Arrangements for serving meals are especially well handled since the dining room may be entered from both the kitchen and the pantry. The latter room is a model of convenience. A wide shelf is built under the window with a case on either side. The refrigerator, which is iced from the rear porch, is handy to this shelf.

Four bed rooms, a sewing room and a bath open from the hall on the second floor.



First Floor Plan.
Second Floor Plan.
Arrangement of House. Size 43 Feet 6 Inches by 22 Feet.



Artistic tile roof house. Size, 43 feet 6 inches by 22 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$10.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6841.

Guaranteed Building Plans

Pleasant Cottage Home

The bungalow shown here is an excellent type of home for the family that takes pride in making the various rooms of the house in which they live as cozy and attractive as possible. Of course, for such a family the house must, in itself, have the qualities of coziness

attraction in the living room. The dining room is well arranged, having a buffet built into the wall opposite the three-window bay.

A double-acting door leads from the dining room into the kitchen. The value of the arrangement of this part of the house will be appreciated by every

since the clothes chute should terminate in this room. The floor of the entire basement should be of concrete which is also an excellent material for the foundation walls. If the entire substructure of the house is made of poured concrete it is certain that the basement will be dry and easy to keep clean.

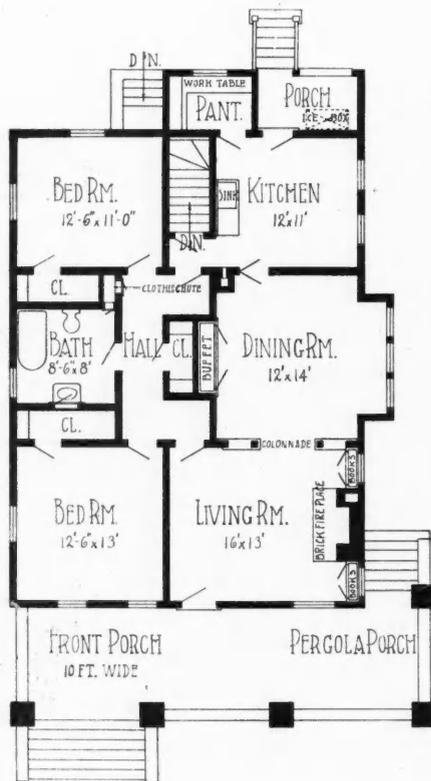


Well arranged bungalow of five rooms. Size, 30 feet by 40 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$7.00 per set. Blueprints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6843.

and attractiveness or no amount of labor will seem to produce just the effect that is desired. The bungalow seems to be the right type, and this particular design has many desirable features from this standpoint.

The walls of the bungalow are plastered white or some light shade of gray. Wood trim is finished dark in contrast to the light walls. A hip roof is used with small dormers having their sides finished with shingles. Brick chimneys are used for the fireplace, furnace and kitchen stove. The porch is very attractive and useful. It is built across the front of the house and extended on one end so that steps along the side of the house make it accessible from the rear. The end of the porch near these steps is built in the pergola style. The general exterior design is simple but very attractive.

With very little effort the rooms of this bungalow may be made exceptionally cozy and home-like. The living room and dining room are joined together with only a colonnade between. These rooms should be finished in somewhat the same style to produce the best effect. The large fireplace with bookcases on each side may be made the center of



Floor Plan of Bungalow. Size 30 Feet by 40 Feet.

housewife. At the rear of the kitchen are the pantry and the rear porch. Both of these may be used to very good advantage in connection with the kitchen. The pantry is fitted with shelves and a work table. A large window furnishes an abundance of light. The refrigerator may be placed on the rear porch and, since it is open on one side only, a great many uses may be found for this porch during the season when the temperature will permit its use.

There are two bed rooms each having a large closet, one at the front of the house and the other at the rear. A hall connects all rooms with the exception of the dining room. There is a closet in the hall which furnishes a handy place in which to keep extra bed clothes. The bath is roomy and well equipped. A special feature in this part of the house is the clothes chute into which openings are made in both the hall and the bath room.

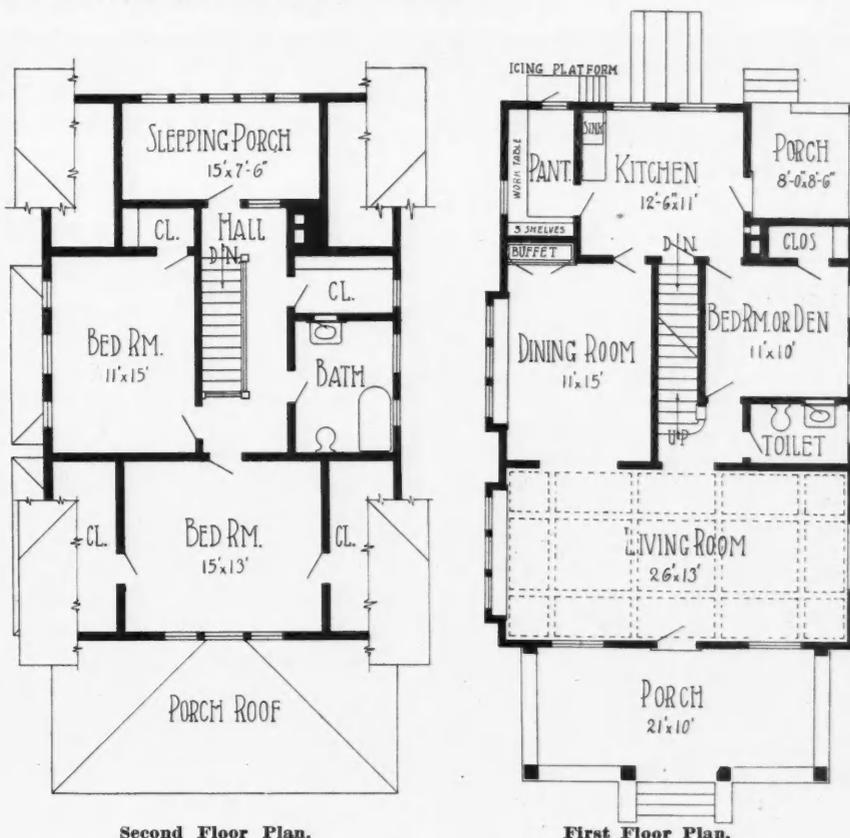
The basement is entered from a nook off the kitchen. It may be made a very useful part of the house. Rooms should be divided off to provide for the furnace, coal bins, vegetable storage and laundry. The location of the laundry is preferably under the rear bed room

Attractive Gambrel Roof House

The exterior design of the seven-room house shown here presents an attractive combination of shingle and beveled siding finish. The shingles are used for the entire upper floor and the porch while the siding furnishes a pleasing balance in the design and brightens the entire house by its effect on the lower portion of the walls. Special features are the distinctive upper sash of the windows above the porch and the wide arches in the porch design.

The living room extends entirely across the width of the house and is finished with exposed timber ceiling construction. A shelf is built into the wall at one end beneath three windows. This room is large and bright, has six windows and is sure to be a pleasant part of the house. Cased openings lead to the stairway and the dining room. The buffet, built with its doors flush with the wall, may be seen from the front door. The dining room is also fitted with three windows having a broad sill similar to that in the living room.

The staircase is attractive and handy with a little hall at the foot. A first floor toilet is provided off this hall.



Second Floor Plan.

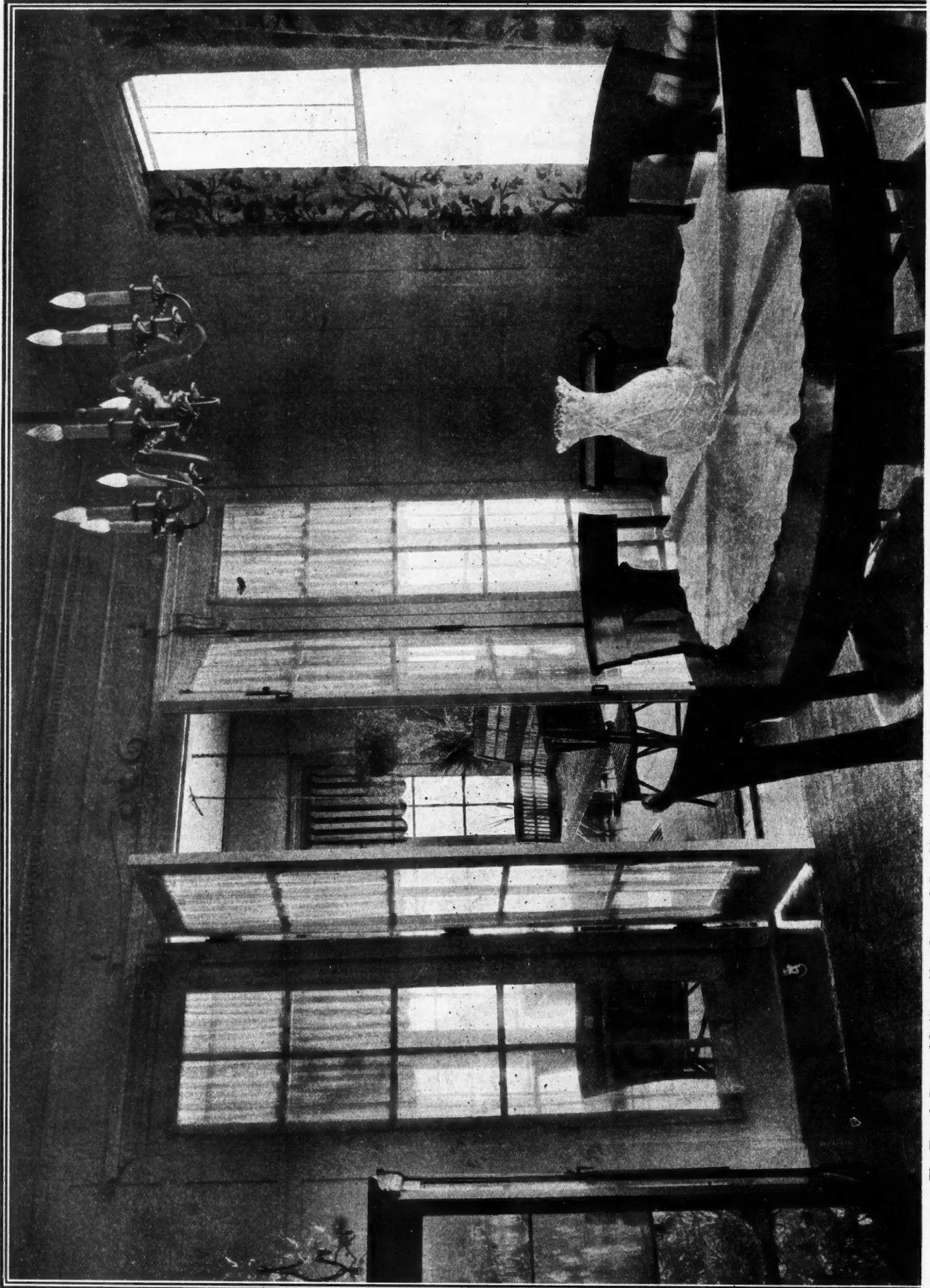
First Floor Plan.

Arrangement of House. Size 27 Feet by 41 Feet.



Home-like Seven-Room House. Size, 27 feet by 41 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$10.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6840.

Guaranteed Building Plans



The French Doors Admit an Abundance of Sunshine Into the Dining Room. The Paneled Wall Finish is Attractive. The Combined Dining Room and Sun Parlor Furnish an Excellent Suggestion.



Attractive Frame House. Size, 24 feet by 33 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$10.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6846.

Well Lighted Home of Six Rooms

A pleasant feature of the house shown here is the exceptionally large number of windows provided. Each room is sure to be bright and cheerful. The house is rather simple in exterior design, being in the main rectangular and having a very simple hip roof without decoration other than the small dormer. The walls are finished in beveled siding laid in the usual manner with the exception of the broad belt which encircles the house just below the sills of the upper floor windows. The porch roof is practically the only portion of the exterior in which any decoration is used. The outer side of the porch roof is supported by three turned wood columns. The simplicity of this house when viewed from the outside is impressive.

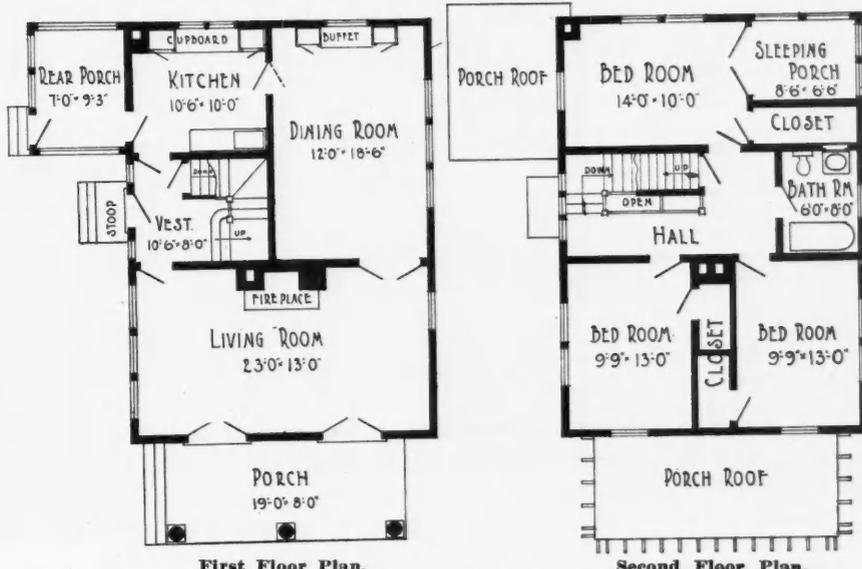
The porch has no rail and the floor is of brick. Two sets of French doors open from the wide living room upon the porch. The fireplace in the living room is built into the wall opposite these doors. In addition to the light which is admitted thru the doors, there are four windows which add to the general cheerfulness of the room. Double doors lead to the dining room which is a large room having four windows. The buffet is built against the wall at the far end of the room.

There is also an entrance into the house by means of a stoop and door leading into a vestibule between the living room and the kitchen. There are two little windows on each side of the door. An attractive staircase is built against the back wall in the little vestibule. Near the kitchen there is a door leading to the basement.

The kitchen is practically square and is fitted to save steps for those who do the work in this part of the house. The cupboard is arranged in such a manner that its central portion is built below

the two windows, making a handy work table where the most light is available. The sink sits handily into the corner of the room opposite the cupboard. The rear porch is essentially another room since it is built as a closed-in porch which may have either screens or glass panel sash fitted into the openings in its walls. This porch will prove to be a very handy addition to the kitchen.

The second floor has a hall in its central part. There are three bedrooms, a sleeping porch and a bath on this floor.



First Floor Plan.
Second Floor Plan.
Arrangement of House. Size, 24 Feet by 33 Feet.

Guaranteed Building Plans



Attractive family house of seven rooms. Size, 26 feet by 43 feet 6 inches. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$8.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6844.

Well Arranged Seven-Room House

The attractiveness of a house which will yield well to a decorative treatment such as that shown here cannot be questioned. The white lower portion in contrast with the upper dark portion is very pleasing and always gives the impression of brightness that goes with well-kept premises. The upper portion of this house is finished with shingles while the lower walls are faced with beveled siding. The porch is built into the house and fitted in a manner which gives it an air of privacy. A set of screens may be used on this porch during the summer time, these to be taken out during the winter and glass windows inserted in their place. The porch will then act as a blanket to protect the front of the house from winter winds.

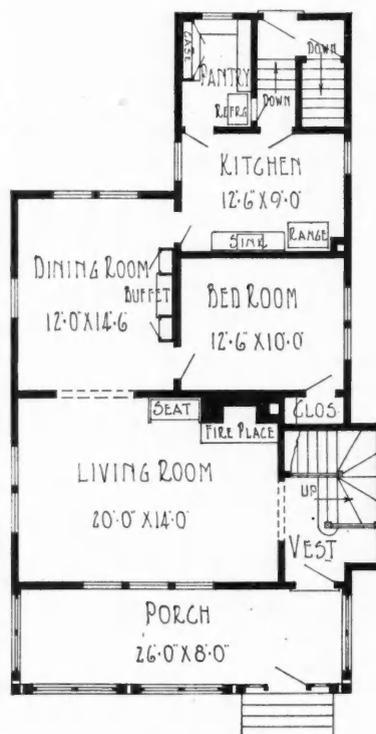
A small vestibule in which the staircase is built has a cased opening into the living room. The fireplace in this room is tucked cozily into a corner and a little seat is built against the wall at one side of it. A cased opening leads back to the dining room which is built into a corner of the house—the ideal situation for this room. A first floor bed room, which would make an excellent den if not needed for other purposes, is entered from the dining room.

The kitchen with its connecting pantry is well arranged to meet the demands of

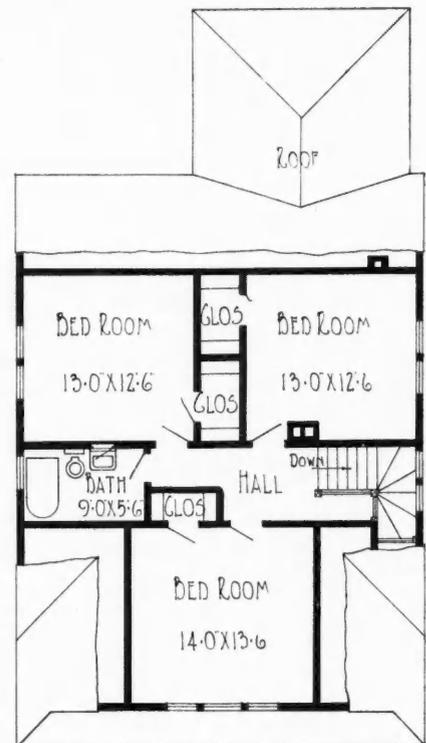
the critical housewife. A work table is built beneath the pantry window and the cupboards are handily located on either side. The refrigerator may be placed in the pantry and an opening is provided so that it is iced from the

landing at the top of the short flight of steps leading from the grade door.

Three very large bed rooms are provided on the second floor. Each has a generous closet fitted with shelves at both ends.

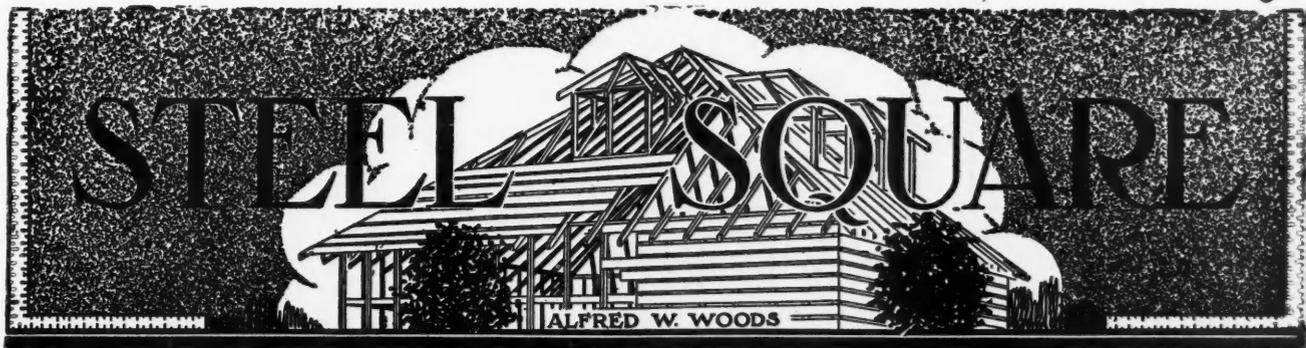


First Floor Plan.



Second Floor Plan.

Arrangement of House. Size 26 Feet by 43 Feet 6 Inches.



Possibilities of the Steel Square

ILLUSTRATING THE USE OF THE STEEL SQUARE IN SOLVING GEOMETRICAL PROBLEMS

By A. W. Woods

WE have been talking so much on roof framing in connection with the steel square, we believe the readers will pardon us if we digress for the next few months into some odd problems solvable by the aid of the steel square. That is, while we will not directly mention roof work, still the principle or ground work for these problems we propose to give will apply equally as well to roof work. We prefer for the next few months to take a sort of rest by applying our remarks to some other things that can be worked out by the aid of the steel square.

So, for our subject this month, we will illustrate some circles in connection with the steel square.

First, we will take the figures on the square that give the polygon miters from the three- to ten-sided polygons; we would like to give more, but this is enough for illustration purposes. We are not going to mention what the figures are to take on the blade, because we have in other articles explained at length what these figures are and how they are obtained.

(See July number of this year for this explanation.)

From the starting point, 12 on the tongue, lay off lines to the respective figures required for the miters, as above mentioned. Then from 6 on the tongue, lay off a perpendicular line, cutting the above-mentioned lines, as shown, and at the intersection of which will be the center for either the inscribed or circumscribed diameter for the polygon when the inscribed diameter is one foot, as illustrated in the triangle.

For the others we have only shown the circumscribed diameters for the respective polygons, because it would so complicate the drawing for further illustration purposes, but what is true of the triangle applies to all the others.

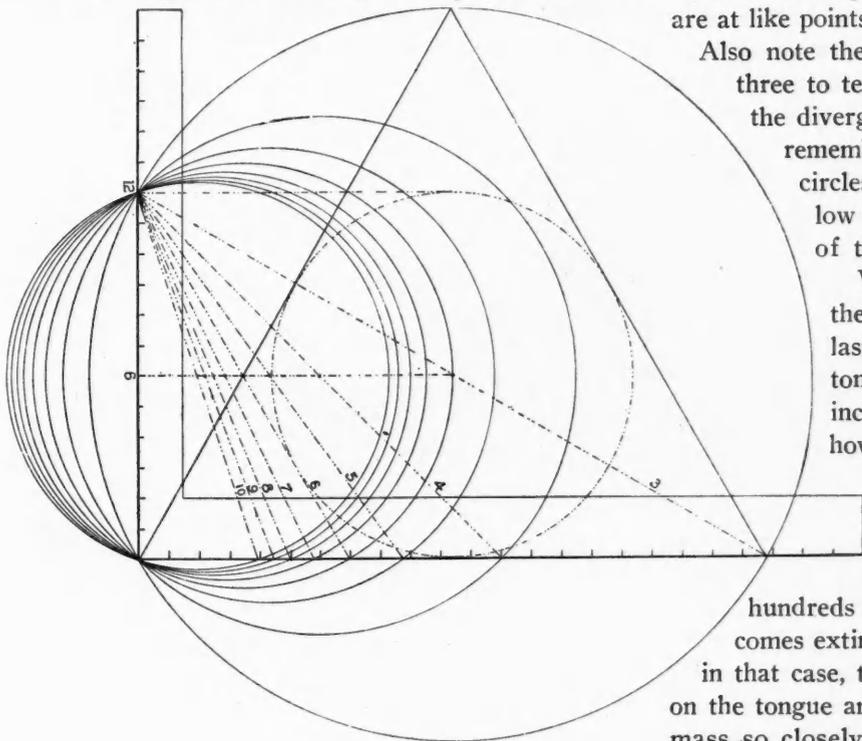
The distance from the heel to the intersecting point of the circumscribed circle with that of the blade represents the length of the side of the polygon when the inside diameter is one foot.

● Note that the circles for the circumscribed diameters touch on the square at three points and two of these are at like points for all of the circles.

Also note the dropping down of the circles from three to ten and note the gradual closing up of the diverging lines from 12 on tongue and just remember that all of the other circumscribed circles for other polygons must fall in below the last one given here and the line of the tongue.

We have only shown the circles for the first eight polygons (3 to 10); the last touches the square at 12 on the tongue, at the heel and at $3.9 = 3 \frac{11}{12}$ inches on the blade; but just imagine how many more of these circles would have to drop in below the last one given! How many? We do not know—we haven't tried to figure it out, but it would run well into the

hundreds before the sides of the polygon becomes extinct and die out in the infinitesimal and in that case, the center of the circle would be at 6 on the tongue and the circles would become a perfect mass so closely would they be.



"Some trap is sure to catch the man or mouse that monkeys with temptation."

—THE MAN FROM THE LUMBER YARD.

When our artist asked us with what kind of bait he should set the trap to catch the avaricious one we told him it must be "Finishing Material." We know of no part of a building so essential for appearance and durability.

We know that in no part is so much false-foolish economy practiced. We know that in no part do our readers, who have as much if not more to do with setting the building standard than any other class of men, need more in education.

We urge each one that has respect for his future success to study this question carefully. We are compiling data on this subject. Our resources are at the command of our readers.

EDITOR.

I AM going to qualify as a mouse trapper. My wife began to tell me of her suspicions several weeks ago. I managed to dodge the job of catching that mouse for several days. But one morning I was called out to the kitchen and shown a number of "cards" that the mouse had left around on the pantry shelves, also some packages of food that had been destroyed by the animal. She, the one I obey, said, "This house is not big enough for me and the mouse; one of us will have to go."

I didn't have any grouch on the mouse, neither did I have any particular affection for it. Besides, it would be inconvenient to have my wife leave, because my brother and his wife were going to spend Labor Day (September 4th) with us and she could entertain them better than the mouse.

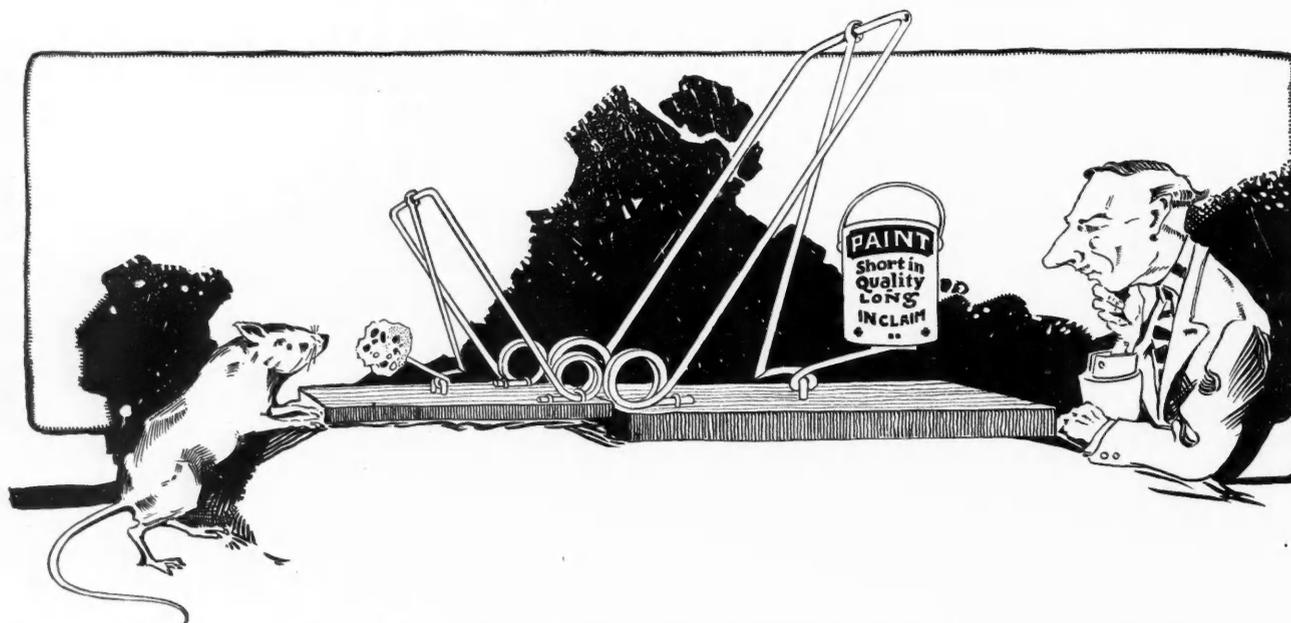
I decided that the mouse would have to go. I set the mouse trap—one of those round traps with five entrances and a choker to each entrance. The trap didn't trap and the mouse kept leaving evidence of its presence. It remembered having been suddenly made an orphan by a contraption like that, and he kept out of it.

How to Catch a Mouse

I found that I couldn't trap the mouse unless I got it in the trap. I was spurred to action by increasing taunts of my wife. I invested five cents in a trap at the nearby hardware store. I baited it just right and made it attractive by placing several crumbs of cheese adjacent. Evidently the samples tasted so good that Mr. Mouse rushed for the bait on the trap. My surmise was good. The trouble had been to get him into the trap. My wife and I have been good friends ever since.

The reason that mouse got into trouble was because it monkeyed with temptation. Some trap is sure to catch the man or mouse that monkeys with temptation. Almost everyone at some time of life thinks he is cute enough to cut corners and get away with it. I've tried it and got caught every time. I am thoroly converted to the proposition that as a man sows so shall he reap, and contrarywise as a man fails to sow so does he not reap.

As the bald spot grows on the top of my head, evidence multiplies that it doesn't pay to take a chance.



There is a Trap Waiting for the Man or Mouse that Monkeys with Temptation—Safety First!—Don't Monkey!

(Our Artist was to have had FINISHING MATERIAL for bait. He says that everyone knows that "Paint" means everything in Finishing Material, which shows how much an artist knows.)

This is a world of law. Let "chance" stay in the dictionary, which is its only safe place.

Learned on a Vacation

I was kept on the grind of my work up until the latter part of August, when I slipped away for a week. I didn't go to Saratoga, for there they dress too much, nor to Atlantic City, where they dress too little—but to my old home town. Nor did I visit my cousin because of economy, for I knew it would cost me more to visit him than if I had gone on a lake trip. My cousin is built that way.

I am mighty glad I made the visit. When you are in a town or family, you don't see the changes. I go back to the old place about every five years. It is like a five reel act at the movies. It gives one an opportunity to see, study and appreciate changes and causes. Since the last visit, my old contractor friend, Anderson, had died.

"Come Clean" Anderson

You remember he was the one who "came clean," no matter what it cost. He had accumulated not only a good property, but what is more valuable a good record, and the full confidence of everyone with whom he had dealings.

I called on some friends who were living in houses he built. These friends knew I had been chummy with the old builder, and took delight in showing me how well everything had stood. It must have delighted the

spirit of the old man to hear the praise of the way his paint was standing up. That was one thing about which he was a crank.

He was wise to his job. Where possible he covered the painting in his general contract. He was generally able to do this because the owner knew from his reputation that when "Come Clean" Anderson had the doing, it was done right without any thought on his part.

Why He Got the Price

Anderson made no bones about charging a good price—people wouldn't value it unless it cost them. He was most always able to show even the most tight-fisted that it was cheaper in the end.

When he didn't take a general contract so as to cover the finishing he generally had enough influence with the owner to see that the finishing was done right. He put it up to him that there was no more sense in having his house built out of good material

with a good hardwood floor, oak trimmings, etc., but botched in the finishing, than in having a pair of patent leather shoes covered with mud.

Influencing a Competitor

When some painter was hungry for work and put in a bid so low that the bait was taken, he would always point out to the painter that the only way he could save his hide was to use a proper spreading paint because he had to pay three dollars for labor to every dollar he paid for material. Occasionally he would strike a smart aleck floater that was in town just long enough to make a stake.

Righteous Indignation

The only time I ever saw him mad enough to swear was when an ultra economical Scotchman had his nephew come out from the city to paint his new house for him. The young fellow first threw on a priming of ochre. It hurt my friend as much as if you had blown red pepper in his eye.

In eighteen months it began to scale off.

Nor was the Scotchman able to have any paint stick until he had had every inch of this ochre coat burned and scraped off so that his new paint could anchor itself in the pores of the wood. He remembered then that the old man had told him that "painting a house is like raising a boy—a bad beginning makes an expensive ending."

Drippings

If the people who have and make money, can't afford to use poor material, how can the poor man afford it?

The Builder who depends most on quality is the most independent.

Poor finishing material eventually penalizes the owner in dollars and the contractor in reputation.

Don't look for sweetness in the garbage can, nor quality under an unknown name.

It is suicidal to hang your reputation on stuff that won't stick.

A building with the wood and metal parts not properly protected is as defenseless as a man of war without proper armor plate.

The first cost of finishing material is never the last cost.

Who says you can't get the price for good material? Watch the contractor who has the reputation and makes the money.

The user of good material works less and earns more.

When the finishing material goes into the pores, becomes a part of the wood, expands and contracts with it, then it is like the postage stamp which sticketh to the end.

The Avaricious Cousin

I don't want to give anyone the painter's colic, but I do want to tell about my cousin. He formerly ran a livery stable, which may be the reason he is of such a suspicious disposition. But that is no reason he should have such an aversion to having any of his town people make any money off of him.

My previous visit was four years ago last July. He had just put up a new barn and was having it painted with a mixture he had bought from a large mail-order house, for \$21.00. He bragged about saving \$10.00 on his paint bill—almost half. He had a bid of \$70.00 for two coats of a well-known paint. He said this was highway robbery.

My wife learned, about a month later, from a letter

written by his wife, that he paid out \$75.00 in wages before his barn was painted. Besides, he had to over-see it.

The Hereafter

Within two years it began to scale in spots. When I was there it had gotten out of the smallpox period into the leprosy stage, and it did look like—(I'll not mention the hot place).

Notwithstanding his narrowness between the eyes, he had prospered and had just completed a public garage of the same size as the livery barn.

I offered to buy the paint for the new garage if he would have the same paint put on the livery barn under a responsible five-year guarantee.

He bit at once. He had several bids to do the work on the garage for \$65.00. The best figure on the barn he could get from a responsible man was \$75.00 for the work without a guarantee, and \$110.00 with a guarantee. The painter said he wouldn't guarantee the work on the barn without burning the entire surface.

Protect the Buyer

I had always known in a superficial way that there is a difference in paints, the same as I know there is a difference between a cotton cloth and a woolen cloth. But I never realized before the injury done and excessive expense incurred by bum finishing material.

My cousin found that it was not only the cost of the stuff in the first place and the extra labor of using it, but the expense of removing it and doing the job right later on, that ate a hole in his purse.

Quality has got to go into paints, or varnishes, or

wood stains, or trouble is sure to come out. When you put onto a house paints that crack and scale; varnishes that blister or soften; stains that fade or run, you do as much violence as when the small boy puts green apples into his stomach.

Such dope will make the reputation of any builder sick.

I will be an enthusiastic advocate of national legislation that will make it impossible to foist such delusion onto the ignorant public.

It is necessary to protect some people against themselves. Simply because he didn't know, doesn't make paint stick to the boards any better.

Who Will Lead?

Of all people that should set themselves firmly against poor finishing material, the builder who takes pride in his calling should lead.

Regardless of design, or workmanship, or material used, no builder can point with pride to a structure that is discredited by poor finishing material.

I place such a building in the same class with the well gowned woman whose hair is unkempt, the delicious meal spoiled by a rank cup of coffee, the anthem jarred by discord. It is the class where the adding of a little brains would perfect a good thing.

Finally, Brother Builders, whatsoever thing is durable, whatsoever thing is strong, whatsoever thing is graceful, whatsoever thing is beautifying, if they be suitable, use these things.

Sincerely yours,

THE MAN FROM THE LUMBER YARD.

Persuasive Pointers from Prominent Paint People

WHAT AUTHORITIES WRITE US REGARDING QUALITY MATERIALS FOR WOOD FINISHING

Have a Frank Talk and Understanding About Price

Cleveland, Ohio.

Editor AMERICAN CARPENTER AND BUILDER:

The finishing of wood is the visible expression of building quality and value. No matter how much time and pains the contractor puts into his building work, if the wood finishing contractor comes along with an inferior varnish, stain, enamel, wax, filler, or whatever the style of finish may be, the value of the work that has gone before is taken away—in fact it is wasted. On the other hand, many a cheap job of woodwork is enhanced by the proper use of good grade finishing materials. Of the two methods the latter is preferable. When you have a specially good job of woodwork, it would be better to keep it in the unfinished or just treat it in its natural state than to mistreat it and spoil it with poor staining or other finishing.

Of course, the desirable thing is a proper combination of the two, and this can only be had when the general contractor and the other contractors doing the work are for the same thing—quality. It is a pity to see a case where a handsome job of oak woodwork is ruined by an amateur wood finisher perhaps, who has never handled a certain kind of a stain and who comes into the house and is given permission to play havoc with his work. The result is generally a fugitive finish, badly smeared, and hiding what natural beauty the wood had at the start.

There is so much literature published by the reputable paint

and varnish houses on the proper treatment of different surfaces, that there seems to be little excuse for a poor finishing job. But even if the property owner himself does not know a stain from an enamel he should have a perfect right to depend on the knowledge and information of his architect, his general contractor and his finishing contractor for the desired results. These craftsmen are in position, and should be expected, to know the intricacies of the paint and varnish business, and must be relied on for the success of the finished work.

You run up against the contractor who says he would like to specify So-and-So's varnishes and stains, or So-and-So's enamel, because he knows they are good, but they are so high priced and he can't get enough money for the job to warrant his using same. This is a mighty short-sighted policy on the part of the contractor, but unfortunately it holds good in many cases to the detriment of all concerned. If such a contractor would get up his courage and demonstrate the difference between finishes to the property owner, the latter would invariably be willing to pay a little more for the assurance of a good job that will, perhaps, stand up three or four years longer and will keep its color much better than the inferior finish. Because there is no disputing the fact that quality finishes, properly applied, by an experienced finishing contractor, mean years more service to the owner, better protection and covering power—finer appearance and, most of all, better satisfaction to the owner.

The trouble is, the contractor fights shy of an open discus-

sion of the price question with the owner. The two should get together on common ground and compare and test different grades of materials. When the contractor thus presents the situation open and above board there is seldom any difficulty afterward.

How is the owner to know that the contractor is using quality materials? The best answer to this is *by the trademark*. There are some paint and varnish manufacturers making extremely high grade paints, varnishes, stains and enamels, and they have sufficient confidence in these products to put their name and trademark on the package for the world to identify them with the goods. It takes courage to do this, and only quality goods will stand the light of advertising. The owner who lets the contractor use various kinds of dope without any name or trademark is running a risk and is getting poor results for his own money. It stands to reason that some of the reputable paint and varnish manufacturers who have been in business a great number of years, and who have built up successes, must know how to make these materials. Given proper application, there is sure to be a successful job.

Of course, when the contractor uses quality materials he makes less profit—that's most always the case, and that is the basic reason why there is so much skimping done in building. It has been a case of the contractor saying "I'll get away with this if I can" instead of saying "What can I do to please my client a little more—how can I build this or finish that a little better?"

The American public is beginning to realize that its greatest safeguard and guarantee in the purchase of anything is advertising. The advertised brands are, as a rule, quality brands, endorsed by a big public, and while they are generally a little higher priced they are worth it. Prices should be measured by years of service and by result rather than by a temporary comparison.

C. M. LEMPERLY,
Advertising Manager The Sherwin-Williams Co.



Wood Finishing Service Stations for Builders

New Milford, Conn.

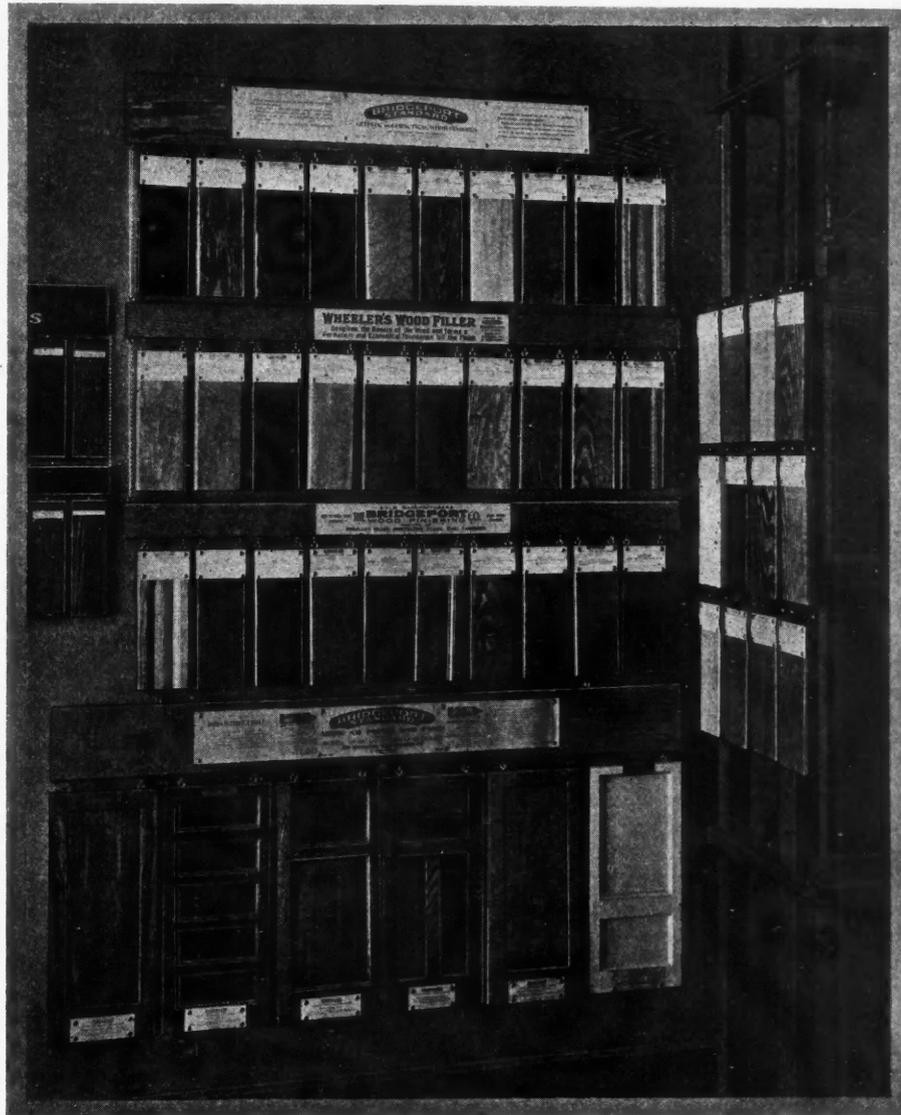
Editor AMERICAN CARPENTER AND BUILDER:

I am wondering how many builders and contractors who read this article fully realize the extent or importance of this subject to the work which they themselves do.

We might say a job is as good as its finish, and that would be quite true, but a good job is many times better if the woodwork shows proper treatment.

This is the day of individuality. The man who builds wants his home distinctive—his woodwork different, and the contractor or builder who can supply this demand is able to create a greater volume of high class work.

To treat this subject in detail embodying specific methods



Service Department Display of Doser-Allen Paint and Glass Co., Indianapolis, Ind. Each Panel is a Full Size Section of House Trim, so that the Customer Can See Exactly What Any Finishing Effect Would Be.

and treatments for the various woods used in building construction would cover pages of type matter. But I am just going to touch the high spots and dwell more particularly on the unusual and effective manner in which our firm is co-operating with the architect, contractor, builder and home owner in placing at their disposal the means of solving all the problems connected with interior finishing.

Every wood has its own type of beauty. This beauty often makes its escape thru improper finishing methods or materials. Sometimes the finishing end is treated as a very ordinary detail and hustled thru without due regard to final results. It is not the fault of the contractor or builder always. Perhaps the finish has been sacrificed for the betterment of some other part of the structure, or the owner is not educated to the value of properly finished woodwork.

But the point that I particularly want to emphasize is the one of *service*, and I will explain.

In important centers thruout the country, centrally located, with leading firms, have been established Service Departments.

Now, when you buy an automobile, naturally the first consideration is the service that goes with it; in fact no matter what you buy nowadays there is always a service connected with its operation or use, and yet no one but the Bridgeport Wood Finishing Co. has ever developed this **Service** idea and made it applicable to wood finishes.

These wood finishing Service Departments contain, not an endless variety of fancy veneered panels, but large specimens of real house trim, real Model Morgan doors and real wall-board, showing hundreds of the very latest tones and color combinations. The effects shown are just as they will appear on the finished job. The assortment is not limited to one finish on each wood, but many.

You can see pine and cypress, extensively used woods, in delicate browns and grays—types of finish never before associated with these woods. Every detail relating to the finishing of interior trim, floors, walls and doors, is practically covered and there are no complicated or expensive processes employed.

The trim is run just as furnished for the average building, finished under ordinary conditions and by ordinary finishes, so that practicability and simplicity have been created and made a part of this work.

It is really surprising, the beautiful and artistic effects that are possible on what are termed the less expensive woods, and certainly no wood need lack attractiveness or individuality if treated as illustrated.

Many contractors and builders are making regular use of these Service Departments. They bring their clients and work out the color scheme for an entire building with the result that nothing but praise is heard on completion of the work. Everyone is satisfied, and you know the saying, "A satisfied customer is the best advertisement."

Our firm imposes no obligation on the use of these Service Departments. The work is purely co-operative without attempted persuasion, the idea being to furnish the most helpful service to all concerned in realization of the best and most economical results.

Any builder or contractor will be cheerfully advised the nearest Service Department where this service is available by writing the Bridgeport Wood Finishing Co., New Milford, Conn.

D. E. BREINIG, Pres.,

The Bridgeport Wood Finishing Co.

Must Explain to Customers Difference Between Good Work and Cheap Work

Boston, Mass.

Editor AMERICAN CARPENTER AND BUILDER:

A builder can only be impressed with the importance of proper wood finishing when he is also impressed with the importance of giving his customers a good job in every respect, such a job as will satisfy his customer, not only at first but permanently, and give the builder a reputation which will bring more orders from the same customer and from others upon the bases of quality. A builder who appreciates the value of figuring on the quality basis instead of shaving to the last penny on cheapness must realize that his wood finishing is of very great importance, because a bad looking job of finish can spoil the entire effect of an otherwise well built house.

The above argument is the only one that we know to make the contractor appreciate the use of good material and stand up for his prices; but he should also understand that he must talk to his customer and point out the difference between cheap work and good work, and show where his work pays. If by keeping quiet on this subject he lets his customer believe that his work is no better than that of his cheap competitor, he will be likely to get discouraged.

A builder can usually overcome the cheap argument and show his customer how wasteful it is by the well known method of figuring the different in cost between high class goods and cheap goods. He can show, for example, if a cheap stain or paint is sold at even as much as 50 cents a gallon less than the thoroly reliable paint, the saving on the whole job would be only a few dollars in material and the labor will cost just as much for the cheap article as for the good one. The cheap one is likely to go to pieces in a short time and the cost of both the material and the labor is

wasted, leaving the owner with a shabby job and a big bill for doing the work over.

MARCH G. BENNETT.

General Manager Samuel Cabot, Inc.

The Best Wins

New York, N. Y.

Editor AMERICAN CARPENTER AND BUILDER:

It seems to us that the way to impress the builder with the importance of proper painting is to point out to him how big a factor appearance really is. On appearance more than any other one thing does an owner base his opinion of all the materials and the workmanship that enter into the construction of a building. In other words, he gets his impressions from what he sees. If a building is well painted, inside and outside, and stays so, it is natural for the owner to be satisfied that everything thruout the building is as it should be. Conversely, if the paint makes a poor appearance from the first or goes bad, the owner is apt to take it for granted that the other materials are all of equally poor quality.

It is purely a matter of good business for a builder to place a satisfied client before undue profits. The very life-blood of building, as well as any other business, is satisfaction, and there is no surer road to satisfaction than the best of materials and the best of workmanship at a reasonable figure.

The builder who does first-class work and sticks to high-grade materials can get a price commensurate with the kind of work that he does. The average owner knows, as well as we do, that the best is the cheapest in the long run. He simply needs to be reminded of the fact by a builder who has the courage to play fair with himself and his client. Thousands of painters, who use Dutch Boy white lead and other high-grade paint, are meeting low-price competition by straight quality talk. The best evidence that it pays is that these men are the most successful by far. Likewise it will profit the builder.

WILLIAM KNUST,

Adv. Dept., National Lead Co.

Short Sighted Economy

Chicago, Ill.

Editor AMERICAN CARPENTER AND BUILDER:

It has been our aim for years to impress upon the architect, builder and the painter the importance of using good materials for interior finish, as there is no doubt they are the cheapest in the end. The trouble comes from various causes. Sometimes the architect specifies an open specification on varnishes and stains. Sometimes the owner desires to obtain the cheapest bid from the contractor; and, accepting the lowest bid, gets work done for so small an amount that the painting contractor cannot use the good material and do good work without losing money. Therefore, when the painting contractor happens to be one who is willing to work any method to make money on the job he will use cheaper materials, cut down the number of coats and in various other ways reduce the cost and also produce a poor finish.

The fact that many fine residences which have been finished with our goods from twenty to twenty-five years still show a good appearance, is proof that it pays to put on the best of varnishes. Other residences we know of have been finished with the cheapest of materials and as soon as the house was sold and the owner moved in, he found he had to refinish.

Really good materials do not cost much more than the poor ones, and the labor of applying is often less for the good materials than for the poor, and in fact labor is the chief cost (not material) anyway. So if the work is to be done over in two or three years' time, the expense for the labor alone far exceeds what the difference for good materials over the poor, in the first place, would have been.

E. A. BROOKS,

Sales Dept., Chicago Varnish Co.



EASY LESSONS IN STAIR BUILDING

Hand Railing Explained

How to Lay Out a Wreath Rail Over a Turn-Out Curve at the Bottom of a Stairway (Continued)

Lesson 4

By Morris Williams

It was shown in the last lesson how to lay out a wreath rail over a turn-out plan curve less than a quadrant at the bottom of a stairway. In this lesson we will show how to lay out a rail over a turn-out curve greater than a quadrant.

In Fig. 18 is shown a plan of the curve and few steps, and in Fig. 19 another plan with the steps differently arranged, the former usually designed for public buildings and the latter for first-class private residential dwellings where abundant stair-case space is available.

The curve as fixed in Fig. 18, besides adding to the width of the stairway, serves also to enhance its ornamental appearance.

In Fig. 19 it serves the purpose of having an unobstructed continued rail at the intersection of two flights instead of a newel post.

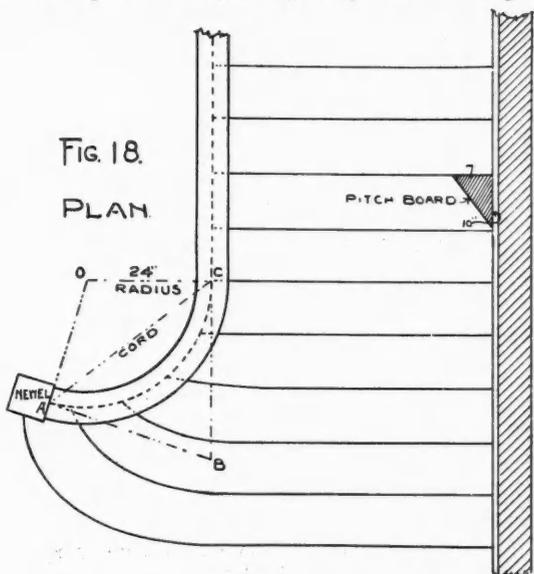
An important item in designing stairways of this kind is to locate the risers within the curve at equal distances and of the same width between as for those of the straight rail adjoining. By such arrangement,

we obtain uniform pitch for the straight rail and the wreath rail, a feature that will greatly lessen the labor items of construction and produce a finished, graceful curvature for the wreath that cannot otherwise be obtained.

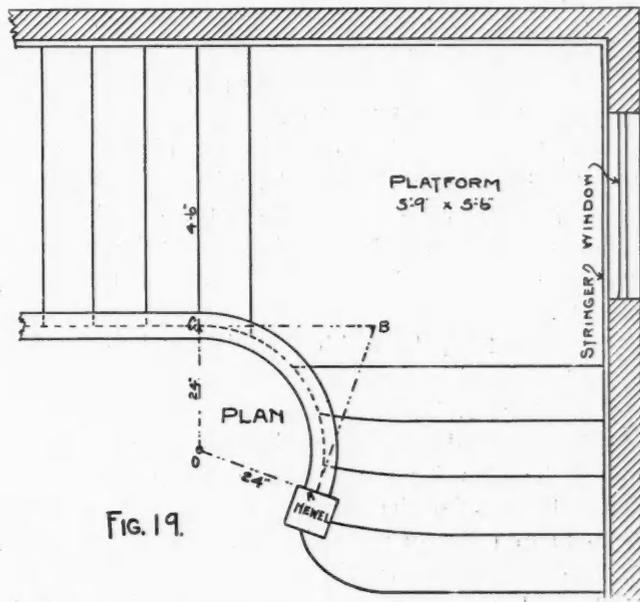
As the custom for such a wreath as this is to have an easement at the bottom end connecting with the newel, I herewith present two different methods to lay out all the required detailed items to construct such a wreath.

The first item, and probably the most important of all, is the template to cut out the material from the plank, known as the "Face Mould." In Fig. 20 it is shown shaded in the form of a section of an ellipse connecting with the straight rail of the adjoining flight, and to have been developed by the pins and string method.

The process of operation is as follows: The point C in the elevation is fixed at the height equal the



Plan of a Curve Greater than a Quadrant and of Few Steps at the Starting of a Stairway.

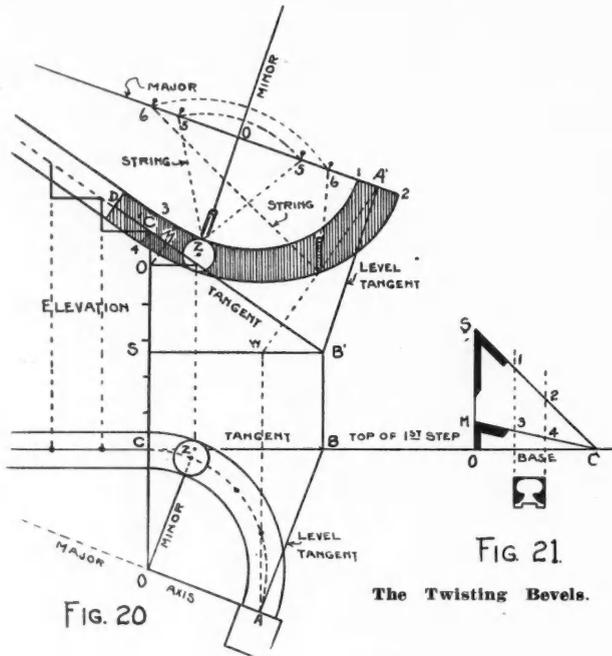


Plan of the Same Curve as in Fig. 18 at the Intersection of Two Flights.

depth of 6 risers above its plan point C, and thru it is drawn the pitch of the straight rail continued to meet a projector from the plan point B in B', thus defining and locating the length and pitch of the face mould tangent C'B'.

To locate the face mould tangent B'A', draw a projector from A in the plan as shown to W, and from W a line square to the tangent C'B'. Cut this line in A' with a line from B' equal in length to the level plan tangent AB, as shown. Make the joint at A square to the tangent A'B' and at D to the tangent B'C'.

To draw the curves, commence in the plan by draw-



Showing How to Lay Out the Face Mould.

ing a line from the center O, as shown, parallel to the level tangent AB. This line will be the plan of the minor axis of the ellipse of which the face mould is a section, the line from O to A being the plan line of the major axis.

To project these two lines to the face mould, draw a line from the minor up to cut the pitch tangent C'B', and therefrom a line parallel with the level tangent A'B'. This line will be the minor axis of the face mould; the major will be a line square to it thru O and A'. Now fix point Z upon the minor at a distance from O equal to the distance from O to Z, shown in the plan, and upon Z draw a circle equal the width of the plane rail, thus determining the width of the face mould at this point.

At the end A', the width is made equal to the distance between 1 and 2, shown upon the long edge of the twisting bevel in Fig. 21.

What we need now is to find where upon the major to fix the pins for the string to sweep the curves. To find them for the inside curve, place the length from O to I shown upon the major in the compass, fix one point upon the minor at the inner edge of the circle, and turn around to cut the major in 5 and 5.

To find them for the outside curve, place in the compass the length shown upon the major from O to 2, fix one point upon the minor at the outer edge of the circle, and turn around to cut the major in 6 and 6. Now tie the string to the pins 5 and 5, stretch it out to the minor where the pencil is shown, and sweep the inside curve around the distance between 3 and 1.

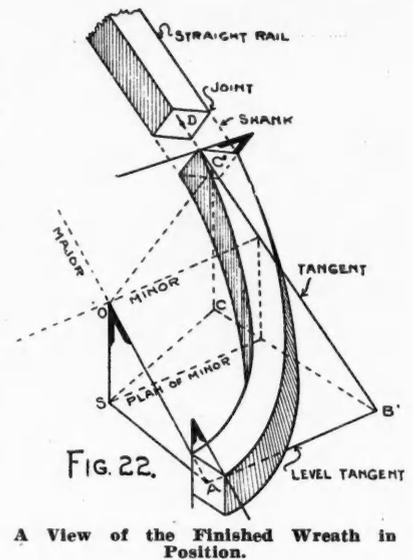
For the outside curve, tie a string to the pins in 6 and 6, and stretch it out to the outer edge of the circle upon the minor, and sweep around the curve between 4 and 2.

The simplest method known to find the twisting bevels is shown in Fig. 21.

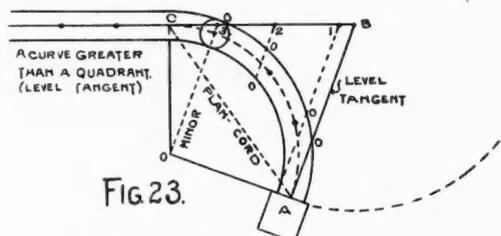
Make the base OC equal to the plan radius OC, Fig. 20, the height OS equal to the height from S to C', Fig. 20, and the height OM equal to the line shown from O to M in the same figure. Bevel S is to be applied to the end A' of the wreath and bevel M to the end D.

The distances between 1-2 and 3-4 upon the long edge of the bevels indicate the width of the face mould at the ends to which the bevels are to be applied.

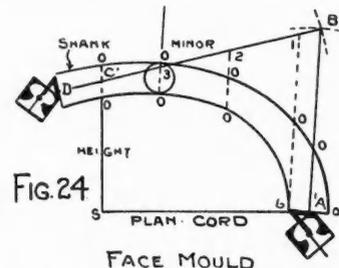
Fig. 22 is a perspective sketch of Fig. 20, showing the rail winding upon the incline plane above its plan from the lowest point A to the highest point C', and is presented here merely to aid the understanding of the operation shown in Fig. 20 to develop the face mould.



A View of the Finished Wreath in Position.



Plan of the Curve and Few Ordinates.



Showing How to Lay Out the Face Mould by Ordinates.

The plan and elevation lines and points in both figures correspond, making it easy to comprehend the "Why" and "Wherefore" for each one.

I cannot emphasize too strongly the importance of having a clear understanding of these figures, because they contain the fundamental operating solution for all handrailing problems of whatever curvature form they may assume. Once they are understood thoroly, other greatly more simplified methods of solutions may easily be employed.

One of such a kind is shown in Figs. 23 and 24.

Figure 23 represents the plan of the rail and few level lines called ordinates crossing it at equal distances as shown from the tangent CB at 1-2-3.

In Fig. 24 we use the same number of level lines, and all we have to do to draw the face mould there shown is to find the points o, o, etc., upon them at distances from the line C'B' corresponding to those shown crossing the plan in Fig. 23 and trace the curves thru each point.

How to find the angle between the tangents C'B' and B'A' in this figure is simply by intersecting the two, as shown by the arcs at B'. Their lengths are shown in Fig. 20.

A more complete explanation of this operation may be found in the last lesson pertaining to Fig. 13, where it is shown how to lay out a face mould for a wreath over a plan curve less than a quadrant.

CORRECTION—I have observed the following mistake in the Third Easy Lesson, which is found in the last sentence in the first column on page 75, as follows:

"The width of the mould at the end, A, is made equal to the distance from 1 to 2, shown upon the bevel, W, in Fig. 13, and at the end, C, equal to the distance shown from 3 to 4 upon bevel X in the same figure."

The correct wording should be as follows:

"The width of the mould at the end, C', is made equal to the distance from 1 to 2 shown upon the bevel, W, in Fig. 14, and at the end, A, equal to the distance shown from 3 to 4 upon bevel X in the same figure."

MORRIS WILLIAMS.



New Roosevelt School at Hazelcrest, Ill.

The first half of a modern four-room school building has just been completed at Hazelcrest, Illinois, a su-



Portion of Roosevelt School at Hazelcrest, Illinois, which has been Finished. G. W. Ashby, Architect.

burh south of Chicago on the Illinois Central. It was designed by G. W. Ashby, Architect, Chicago, Ill. The building is prettily trimmed with cut stone. It is faced with dark reddish brown rough texture brick laid in white mortar.

Eventually there will be two class rooms on each floor. The right half, including one room and hall on each floor, has been built first, and the other half will be added later.

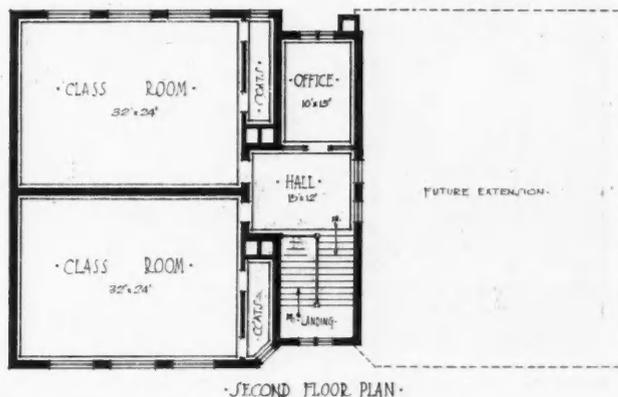
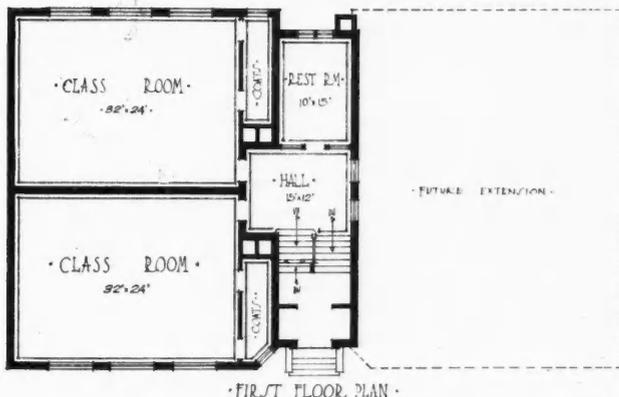


Getting Out Chamfer Moulding

(Continued from page 56.)

crosswise of the grain and the sawdust shows little chips instead of thin shavings and a lot of fine dust.

But the sawyer could not be made to see this point, and continued to "shove and wait" as he forced the strips against the halting saw. Finally one of the engineers came into the shop and began to hurry the sawyer because of the great need for the chamfer moulding. The writer saw the engineer was "up against it," and advised him of the difference in power required between the cuts D and E. The engineer saw the point and had it tried, with the expected results. It was also pointed out to the engineer that the saw belt, which was doing the slipping, was only 3½ inches wide, where it could be 5 inches. A change here gave the saw plenty of power to do the work.



Showing Arrangement of Finished Portion of Roosevelt School and Outline of Future Extension.



Picture Theatre Block with Stores

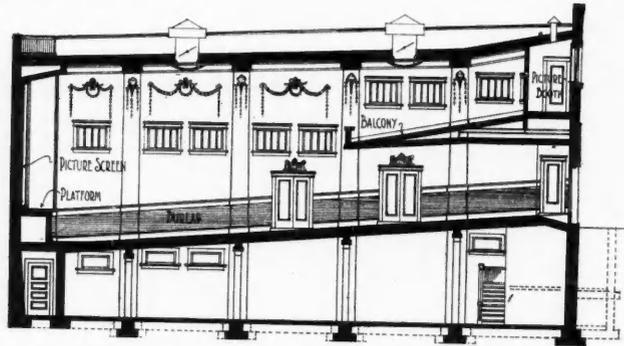
TWELFTH OF A SERIES OF PUBLIC AND COMMERCIAL BUILDINGS—AN IMPRESSIVE, WELL-DESIGNED BUSINESS BLOCK WITH LARGE THEATRE AUDITORIUM AT THE REAR, FOUR STORES IN FRONT WITH LIVING ROOMS OR OFFICES OVER THEM.

THE moving picture rage keeps up with no signs of lessening popularity. A good movie brings the crowds and guarantees profitable business to stores in the immediate vicinity. A combination building with up-to-date large theatre at the rear of the lot and stores in front is accordingly a very safe investment.

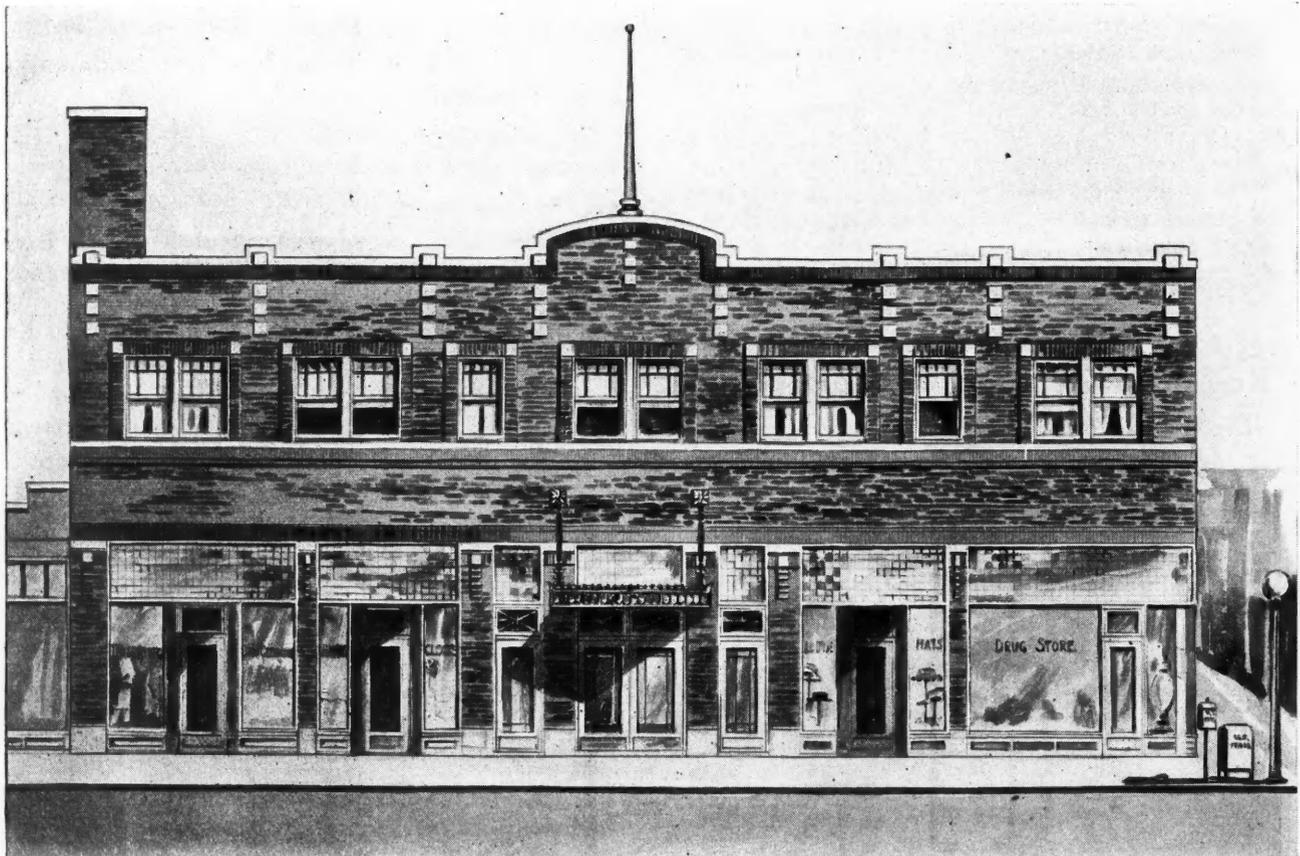
The building illustrated in the accompanying drawings occupies a corner lot, 75 by 100 feet. The theatre has seating capacity of 680 on the main floor, and of 294 in the balcony. Four large stores, together with the theatre entrance are on the street front. Above are six small apartments or office suites.

The basement of the building is arranged for cafeteria or restaurant, barber shop and billiard room, laundry and heating plant.

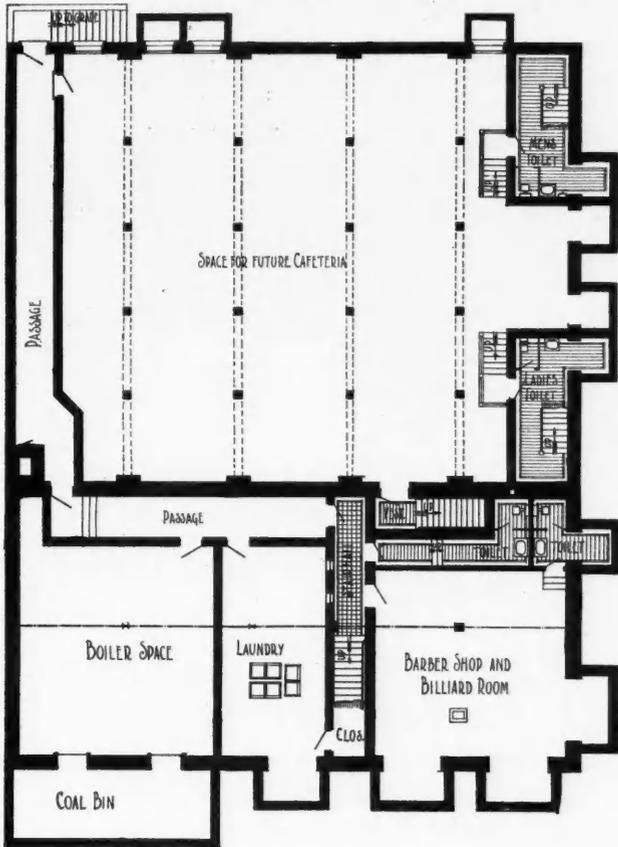
The exterior design is up-to-date, using rough texture face brick and white terra cotta trim. The store fronts are modern, all glass with prism glass transoms above.



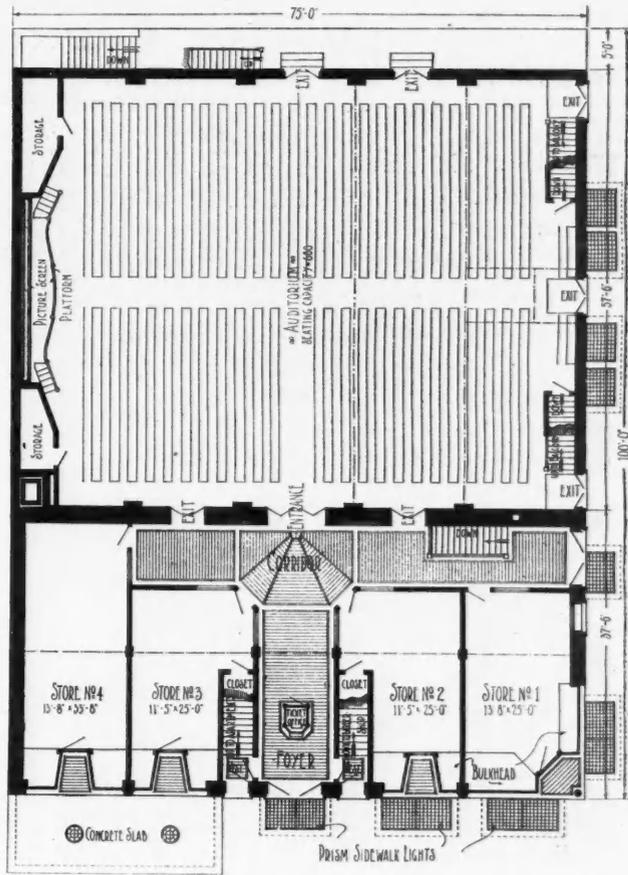
Section Through Theatre Part of Building Showing Slope of Floor and Balcony.



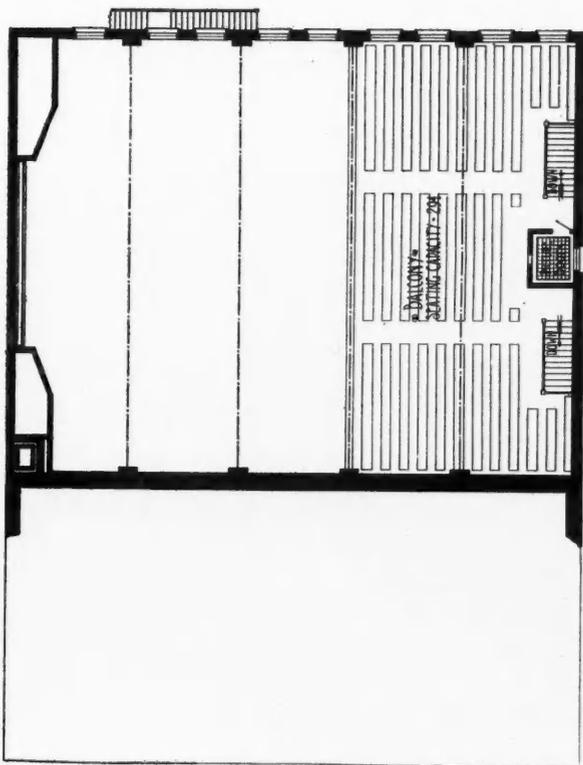
Front Elevation of Modern Moving Picture Business Block. Theatre Entrance at the Center with Two Large Stores on Each Side. Living Rooms or Offices Above. Large Auditorium at the Rear. Design No. 6853.



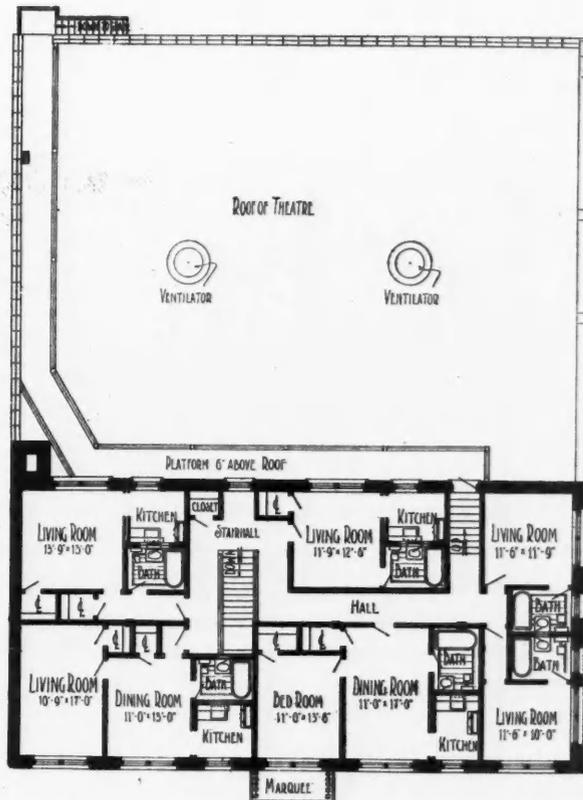
Basement Floor Plan of Building, Providing Cafeteria or Restaurant Space, Barber Shop and Billiard Room, Laundry, Heating Plant, Etc.



Main Floor Plan, Showing Auditorium at Rear and Four Stores and Theatre Entrance at the Front.



Theatre Balcony Plan, Showing Booth for Projecting Lantern.



Second Floor Plan, Showing Arrangement of Six Small Apartments or Office Suites.

FLOOR PLANS OF PICTURE THEATRE BLOCK WITH STORES ILLUSTRATED ON THE OPPOSITE PAGE.

Designs for Factory Office Buildings

STONE, STUCCO AND TILE OFFICE BUILDING OF THE SPARKS MILLING CO., AT ALTON, ILL., PFEIFFENBERGER & SON, OF ALTON, ARCHITECTS.

Photo and Description by Herbert C. Crocker

THIS is the second of a series of three articles on office buildings at Alton, Ill., where officers of industries and civic organizations are co-operating to beautify their town.

A decided Swiss effect was used in the office building of the Sparks Milling Company, one of the largest along the Mississippi river. With the exception of a tile roof to make the structure fireproof it has the general appearance of a Swiss chalet.

This office building is perfectly square, 42 feet and 10 inches on each side. It is a two-story structure, the lower outer wall being of stone and the upper half of stucco. Spanish tile was used for the roof.

The grounds are to be planted with trees and shrubbery. The grounds are enclosed with a stone wall.

The furnishings of the building are far above the usual. Everything on the first floor is in oak and the second floor furniture is mahogany. The concrete floors are covered with rugs of business-like designs and the windows are draped.

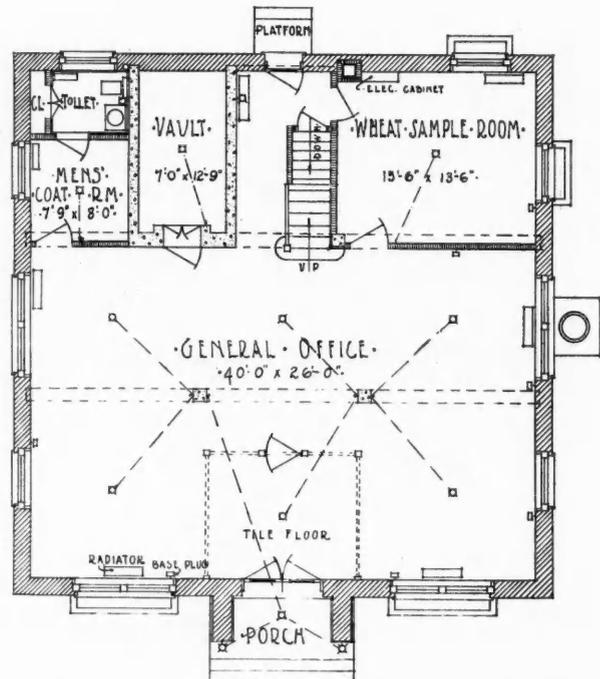
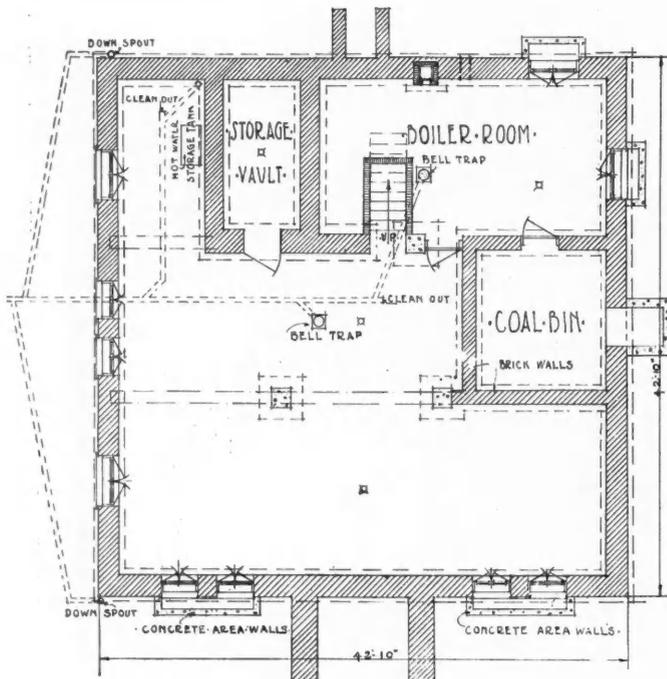
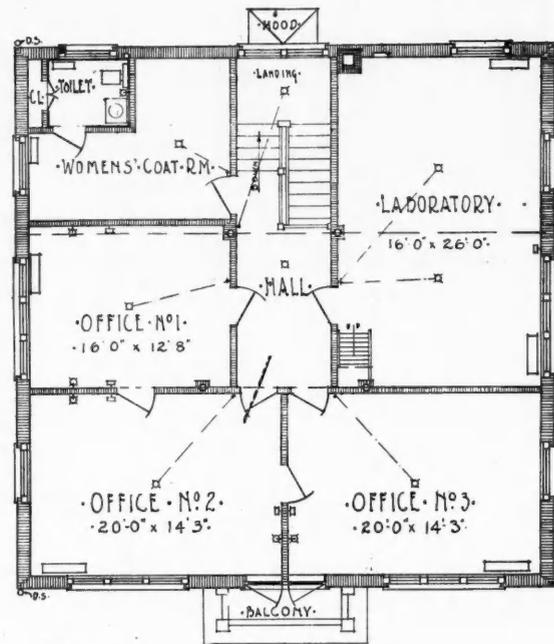
The general office occupies a greater portion of the main floor. To the right of the entrances is the accounting department and necessary desks are arranged on the left. A private telephone exchange is near the entrance and the operator attends customers and visitors.

One corner of the rear is used for a sample room where farmers may talk over their wheat crops and compare grain, or enjoy a cigar. A large vault is near the center and a men's coat room and toilet are in the opposite corner.

The private offices are on the second floor. One is especially arranged for the directors. A coat room and toilet for the women is on the second floor.

A feature of the building is a large laboratory on the second floor. The chemist is supplied with every known device to make daily tests of wheat and flour to secure a perfect grade. Bread is baked each day with electrical appliances. The furnishings for the laboratory cost \$2,000.

The building complete cost approximately \$22,000.



Floor Plans of Sparks Milling Company Office Building, Alton, Ill.— Basement Plan to Left; Main Floor Plan Right; Second Floor Plan Above.



Front Elevation and Photograph of New Office Building of Sparks Milling Company, Alton, Ill., Designed in Swiss Chalet Style, Stone and Cement Plaster Construction, Pfeifferberger & Son, of Alton, Architects.



What Every Architect and
Builder Should Know About
Strength of Materials and the
Design of Safe Construction

Noon Hour Talks by the Boss Carpenter

Talk No. 51. Factory Design

New Series No. 8

THE BOSS TELLS ABOUT THE GENERAL DESIGN OF THE TIMBER WORK IN A SMALL FACTORY

"DURING the past few talks," said the Boss, "we have taken up the principal elements of design which are necessary in determining the sizes of the various members of a structure. Now we will apply these principles to the design of a building of moderate size, so as to show the method of calculation to be followed.

"We will assume that we are to build a small factory 50 feet wide by 100 feet long, and of two stories, each 12 feet high from top of floor to top of floor, with a 10-foot basement. The roof is to be flat, with a pitch of $\frac{1}{2}$ inch per foot of length to secure drainage to the rear of the building. The 50-foot dimension will be the frontage of the building. Assume that this building is to be built in the Central States. Walls will be of brick and basement floor of concrete. A tar and gravel roof will be used.

"The roof plank, floors, girders, beams and posts will be of yellow pine timber of good quality and as well seasoned as can be obtained readily. Wearing surfaces for the floors on the first and second stories will be of $\frac{7}{8}$ -inch maple.

"A general floor plan of this building is shown in Fig. 8A, while Fig. 8B shows a section of the same structure. The main timber girders are supported by steel or cast-iron caps at the columns, and by iron plates built into the masonry at the walls. The smaller beams are supported on top of the girders, and on iron plates at the walls. The posts of the second story rest direct on the cap of the posts below, while those of the basement are placed on iron or steel plates embedded in the concrete foundation.

"The floor and roof planks extend across the beams in the 50-foot direction, while the maple floor is laid at right angles to the underfloor, and lengthwise of the building.

"The posts are spaced so as to divide the width of the building into three spans of about 16 feet each, and the length of the building into three 16-foot spans, and

an 18-foot span at each end. This makes the floor panels either 16 feet by 18 feet, or 16 feet by 16 feet.

"The intermediate beams extend lengthwise the building, and are spaced 4 feet on centers. This allows a beam at the side wall and over the posts, with three beams equally spaced in the length between posts or post and wall.

"If a snow load of 30 pounds per square foot of roof area is assumed for this location, the weight of the roofing and roof framing will bring the allowable load for use in design up to about 40 pounds per square foot of roof area.

"The allowable floor loads will be determined by the kind of work which is to be carried on in the building, or upon the local building ordinance. For ordinary light manufacturing purposes, where no great amount of storage is likely to occur, a load of 125 pounds per square foot of floor area should be enough for the live load. To this live load should be added an amount to take care of the weight of the floor framing and the floor itself in order to make up the total load to be supported. Since we do not know the amount of this dead load per square foot of floor at the present time, we will have to assume an amount. This point may be checked back after the true sizes of the material have been determined. An allowance of 10 pounds per square foot is a fair approximation for this additional weight. This would make the total per square foot of floor about 135 pounds. With the roof and floor loads known, together with the spans of the framing, we can begin the calculation for the sizes of material to be used.

"The size of the end panels of the roof will be 16 feet by 18 feet in size, with the planks laid across the roof beams, which are spaced 4 feet on centers. First we must find the thickness of the roof planks. We will take as a basis a section of roof 1 foot wide and 4 feet long, extending between two roof beams. The allowable uniformly distributed load on this section of roof

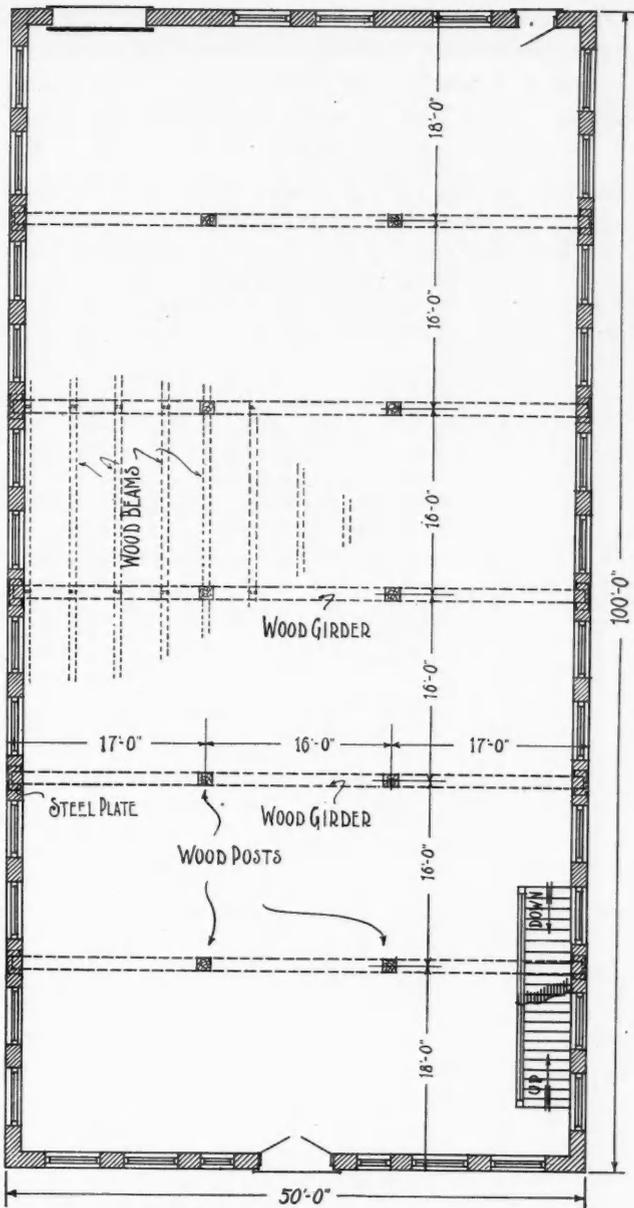


Fig. 8A. Plan Showing Framing of Roof and Floors of Small Factory.

will be 4 times 1 square foot multiplied by 40 pounds per square foot, or 160 pounds. Treating this section as a beam 12 inches wide, t inches thick, and 4 feet long, we will apply our beam formula for a rectangular cross-section and uniformly distributed load.

$$\frac{pl}{e} = M = \frac{1}{8} Wl$$

where p is the unit bending strength of the timber in pounds per square inch; I is the moment of inertia for a rectangular cross-section ($1/12 \times$ breadth in inches \times the cube of the depth or vertical thickness in inches); e is one-half the vertical depth or thickness in inches; W is the total uniformly distributed load on the beam or member in pounds, and l is the length between supports in inches.

“Recent tests have shown that a unit bending stress of 1,300 pounds per square inch may be used with a

good grade of ‘sound’ yellow pine. This will be the value of p in our formula.

“Filling in the formula given above with the values as given in the paragraphs above, we have

$$\frac{1,300 \times 1/12 \times 12 \times t^3}{\frac{1}{2}t} = \frac{1}{8} \times 160 \times 4 \times 12$$

Solving for t , we find that boards $7/8$ inch in thickness will be of sufficient strength to carry the load, but owing to the deflection or sag which is likely to occur in such thin material on so great a span between beams, a much stiffer roof will result if planks about $1\frac{1}{2}$ inches to $1\frac{3}{8}$ inches in thickness are used. This point may be determined by solving for the deflection d in the formula

$$d = \frac{5}{384} \frac{WF^3}{EI}$$

where $E = 1,500,000$ pounds per square inch and all other quantities are as explained above. We will use the thicker planks.

“Next, we will find the size of the roof beams which are to support these planks. Since we do not know any dimension of these beams except the length, we will assume that they are to be twice as high or deep vertically as they are wide across the top. We will use a good grade of ‘dense’ yellow pine for these beams, with a unit working stress in bending of 1,600 pounds per square inch. The length in the end spans will be 18 feet, and each beam will support a panel of roof 4 feet wide and 18 feet long, or 72 square feet. This area is loaded with 40 pounds per square foot, or with a total load of 2,880 pounds uniformly distributed along the length of the beam.

“The same general formula which we used above for finding the thickness of the roof planks will apply in finding the depth of this beam, except that we will put in $1/2t$ for the breadth of the beam instead of 12 inches, which was used as breadth in the previous solution.

“Filling in the beam formula, we have

$$\frac{1,600 \times \frac{1}{12} \times \frac{t}{2} \times t^3}{\frac{t}{2}} = \frac{1}{8} \times 2,880 \times 18 \times 12$$

$$\text{or, } t^3 = 600, \text{ approximately.}$$

This gives a value of t between 8 inches and 9 inches. Since an 8-inch depth is not large enough, the nearest even size of timber which could be used would be a 6-inch by 10-inch beam, altho this does not give the proportion of breadth equals one-half the height or depth. The 10-inch dimension should be placed vertical.

“To see the amount of deflection in one of these beams, we will fill in the formula for deflection given above.

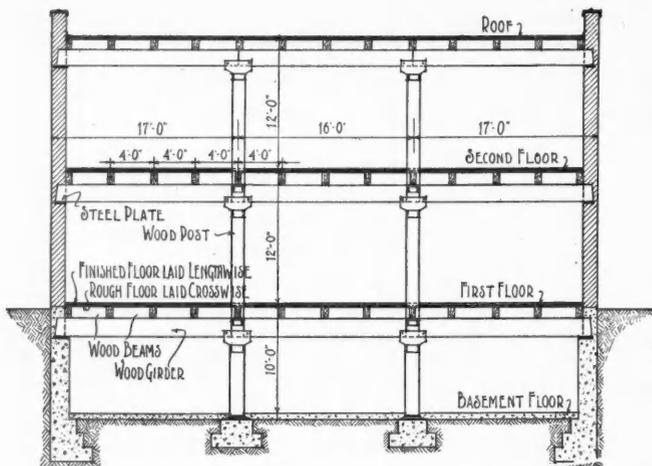


Fig. 8B. Section of Building Shown in Fig. 8A.

$$d = \frac{5 \times 2,880 \times 18 \times 12 \times 18 \times 12 \times 18 \times 12}{384 \times 1,500,000 \times 1/12 \times 6 \times 10 \times 10 \times 10} = .50 \text{ inch.}$$

Since this is only 1/2 inch in a length of 18 feet, the deflection is not excessive, and a 6-inch by 10-inch beam will do for use in all parts of the roof. If this size of beam is safe for use on a span of 18 feet, it surely will be safe on a span of 16 feet.

"The main girders which support these roof beams as shown in the floor plan, Fig. 8A, carry the load from the ends of two sets of beams in different panels. Each set of beams brings one-half of its panel load to the girder. The set in an 18-foot by 16-foot panel brings one-half the load on 18 x 16, or 288 square feet of roof loaded with 40 pounds per square foot, or a load of 5,760 pounds. The set of beams in a 16-foot by 16-foot panel in a similar way brings 5,120 pounds to the girder, making a total load of 10,880 pounds. Altho this load is applied at the middle and quarter points of the length of the girder, no great error will result by assuming that it is distributed uniformly along the length of the girder. Again using 'dense' yellow pine of a bending strength equal to 1,600 pounds per square inch, and assuming a width of top of girder equal to 10 inches, we have for a girder 16 feet long:

$$\frac{pI}{e} = \frac{1}{8} Wl$$

$$\frac{1,600 \times 1/12 \times 10 \times t^3}{2} = \frac{1}{8} \times 10,880 \times 16 \times 12$$

$t = 10 \text{ inches, approximately.}$

Since these timbers do not run full size, it will be better to use girders 10 inches by 12 inches in size with the 12-inch dimension vertical. These girders should also be tested by the deflection formula given above.

"Next time," said the Boss, "we will continue the calculations of this building and figure the thickness of floors and size of the members used in the floor framing."



Owner of Building Must Pay for Three Quarter Inch Strip

The State Supreme Court of Pennsylvania has approved a verdict of the Court of Common Pleas in a novel case brought by the owner of a lot against the owner of adjoining property for payment for a strip of ground 6 3/8 inches wide, which it was claimed was used in connection with the erection of a 3-story building.

In the trial before the lower court it was shown that while the building in question, at Greensburg, overhung the lot to the extent of 6 3/8 inches, as noted, above the surface, yet at the surface of the ground it extended over the line only 3/4 inch. In this, the testimony given indicated that the building extended this distance (3/4 inch) at the foundation both at the surface and at the bottom, and for the entire depth of the lot, 100 feet; this overlap, it was stated, increased slightly in width all the way back to the rear line of the building.

The court held that the width at the front line, 3/4 inches, should be considered as the distance of overlap, and accordingly rendered a verdict for payment of this amount of ground. This decision is sustained by the Supreme Court.

L. R. W. ALLISON,
Newark, N. J.



A Bay-Window Sideboard

Designed by Ralph W. Ermeling, Architect.

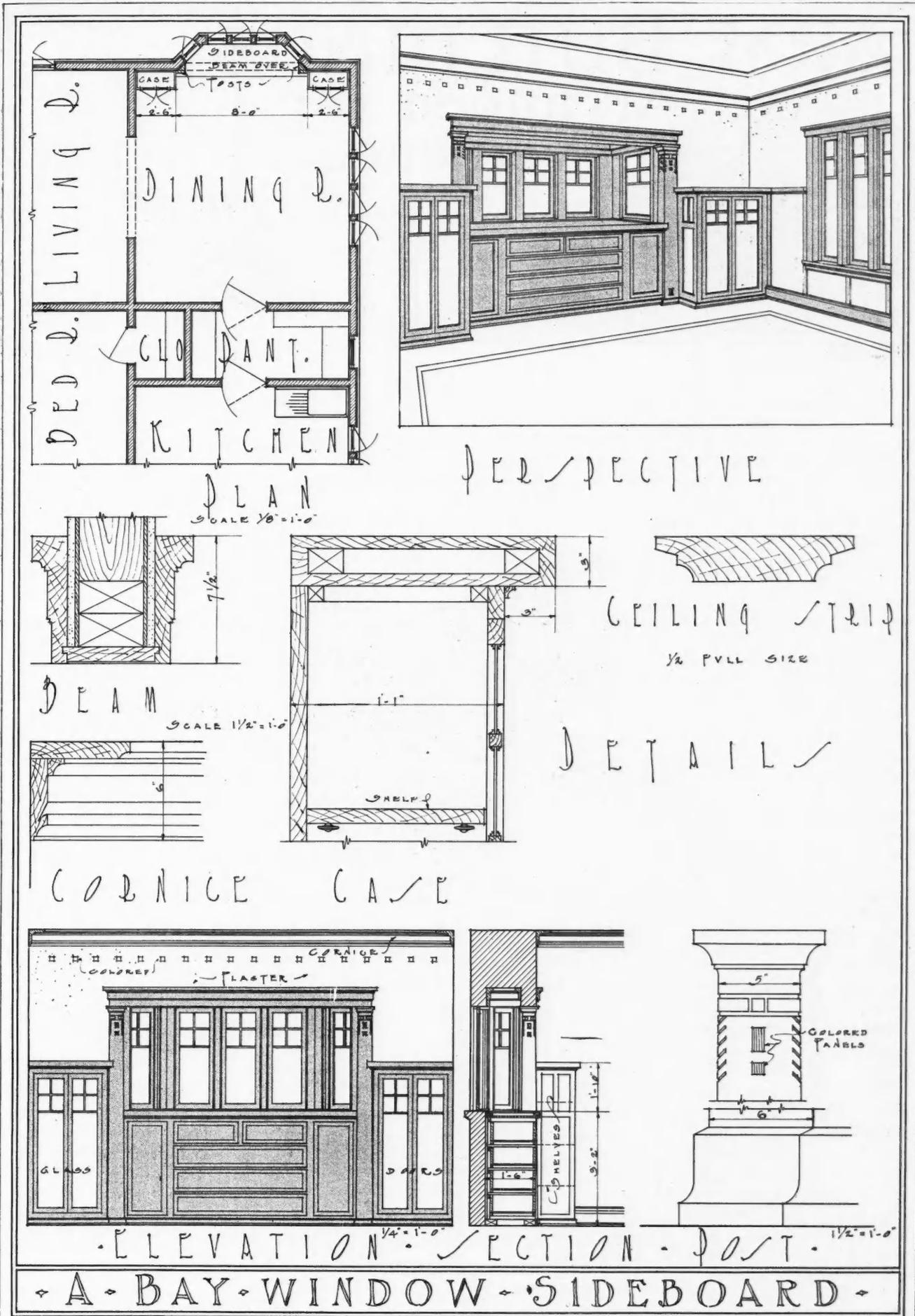
THE detail plate on the opposite page shows a treatment for one end of a dining room at the corner of a house. It connects with the living room with a broad cased opening. The kitchen is separated from the dining room by the pantry. This is also convenient as a serving room.

This bay window treatment, if placed at the other side of the room in place of the large window, would make an agreeable architectural feature as seen from the living room.

The windows are of the casement type, opening outward, as this arrangement usually provides a more weatherproof protection. The bay itself gives a pretty English effect, and the broad shelf over the drawers is used as the regular sideboard top. There is ample drawer space and the small triangular closets at the sides of the drawers are shelved, and useful to the tidy housekeeper as storage space for a thousand and one things.

The china closets at the sides are glazed for the display of china and glass, or may be solid doors, as desired.

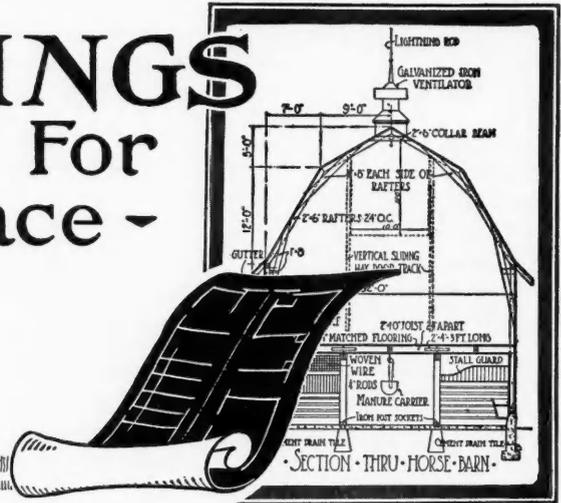
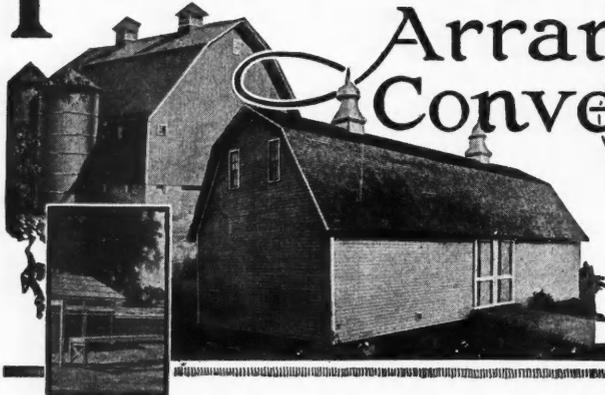
The detail of the top of the pilasters may be different slightly from the conventional kind of millwork, but they are simple in construction. Spots of color used judiciously in this detail will work up well with the scheme of interior decoration of the room.



Perspective Sketch, Plan, Elevation and Construction Details of Special Bay Window Sideboard for a Corner Dining Room, Designed by Ralph W. Ermeling, Architect.

FARM BUILDINGS

Arranged For Convenience



Small Farm Smoke House

Farm smoke houses are not so common as they were years ago, but farm cured meats are just as appetizing.

Plans for a small farm smoke house for family use is shown in Design A318. It is 8x10 feet in size on the ground and is 8 feet high to the plates.

There is a concrete foundation wall, which raises the double 2x4 sill a foot or so above the ground. Between the foundation walls there is a floor of earth made level and even.

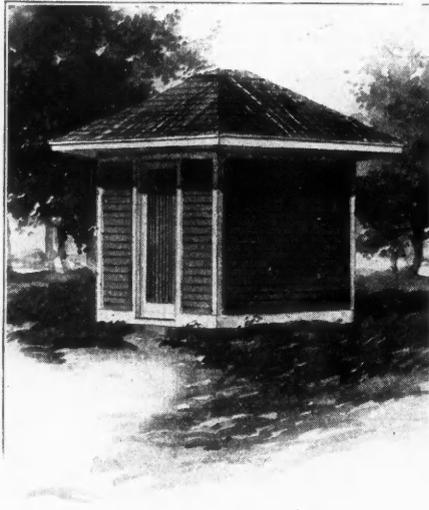
The house is well built of 2x4 studing, covered with building paper and drop siding outside. Inside the walls and rafters are covered with building paper and matched ceiling. The sills are embedded in soft mortar on top of the concrete foundation walls, which is troweled up against the edges of the sills both inside and outside. The door is made to fit well against the jambs and door sill.

All this protection is taken to keep out light and air, because smoked meat requires little or no air, and a perfectly dark place discourages flies and other insects. It is important to place the building in the shade to avoid the direct heat of the sun. Under a large shade tree is the best situation for a smoke house.

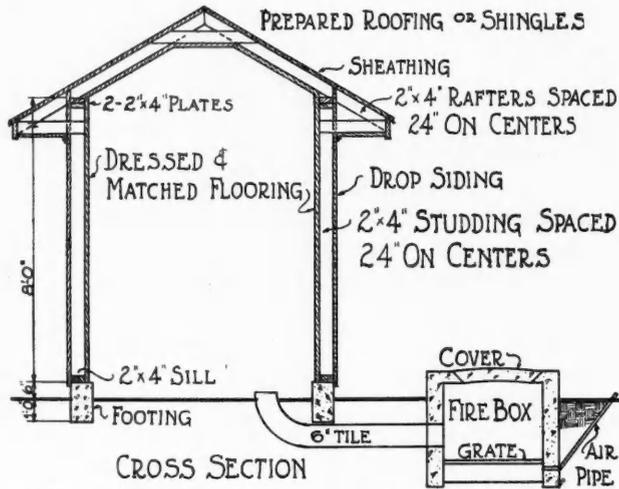
The plan provides for a separate fire box to ensure cool smoke and no chance of burning down the house. An outside fire box works better when it is placed down hill from the smoke house, with the smoke pipe laid at an angle of 30 degrees, or steeper. The fire box is made of concrete, with a tight fitting cover, usually beveled to fit the opening. Not much air is required for fire to make smoke. When the fire gets well started the air may

be shut off from the front, because generally enough air will slide down the inclined flue from the smoke house.

There should be ventilation thru the top of the fire box for the escape of gas. A little experience in manipulating a fire box is necessary to get the best results.



Farm Smoke House. Design No. A318.



CROSS SECTION
Section View Showing Construction of Farm Smoke House with Outside Fire Box.

A great deal depends on the way the house is built whether the meat can be left hanging after being smoked or not. Some farmers practice lighting a fire once a week to produce a little smoke to kill any insects that might find their way into the smoke house. Others are particular to cover the smoked meat with paper and cloth soon after it is sufficiently smoked.

Cloth keeps insects from crawling thru the creases of the paper and the paper prevents insects from stinging the meat thru the cloth. If the practice of raising a little smoke occasionally is followed, then the first smoking may be milder than when the meat is to be finished at once and wrapped for protection.



Stable and Barn for Herefords

A small barn built for a young Hereford breeder is shown in Design A333 on the next page. It is 32 feet in width and 42 feet in length, designed to stable the farm horses in one end and to hold a small herd of Herefords in the beef cattle end of the barn.

There are stalls and stanchions for the cattle but they are used at feeding time only. There are old sheds at one side of the barnyard where the cattle spend a great deal of their time in mild weather, but the stable is used regularly at feeding time and at night in cold weather because it makes possible the compounding of rations suitable for animals of different ages. Also some of the Hereford cows are pretty fair milkers. Besides raising their calves the farmer gets considerable milk for house use.

One of the advantages in a

small herd is the opportunity of giving individual attention to each animal. Also the handling of the animals keeps them tame. The fact is well known that tame cattle do better than those that are less carefully managed.

It is the intention of the owner to extend the barn endwise out from the cow stable department to make a large shed where the cattle may be turned out from the stalls and fed during the day in racks.

The silo is not yet built but it will soon form an important factor in the feeding operations of this live stock farm.

The extension of the building to form a covered barnyard will work all right in this case, because the cow stable is so thoroughly lighted by windows from both sides. Also the cows face out, so the manure may be easily removed from the center alley by driving the manure spreader thru from the west end of the barn and driving out under the covered

shed. With this object in view the barn was placed a considerable distance from the other farm buildings as a sort of nucleus around which to build a modern up-to-date beef cattle department in what is already a well diversified system of farming.

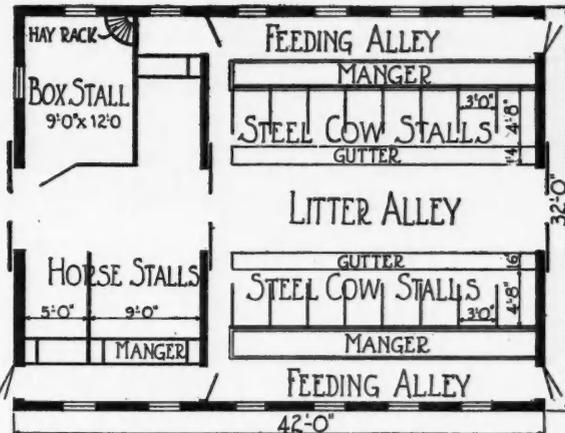
The present stable is built to accommodate 16 head of cattle in the stanchions, which will probably be sufficient

for some time. The younger stock will be penned off in small lots, each pen holding animals graded to size. It is the intention to treat the calves and cows to the best accommodations the farm affords. The young stock that are growing will be just as carefully fed and housed, but they will be given more freedom and exercise.



Study up on Ventilation

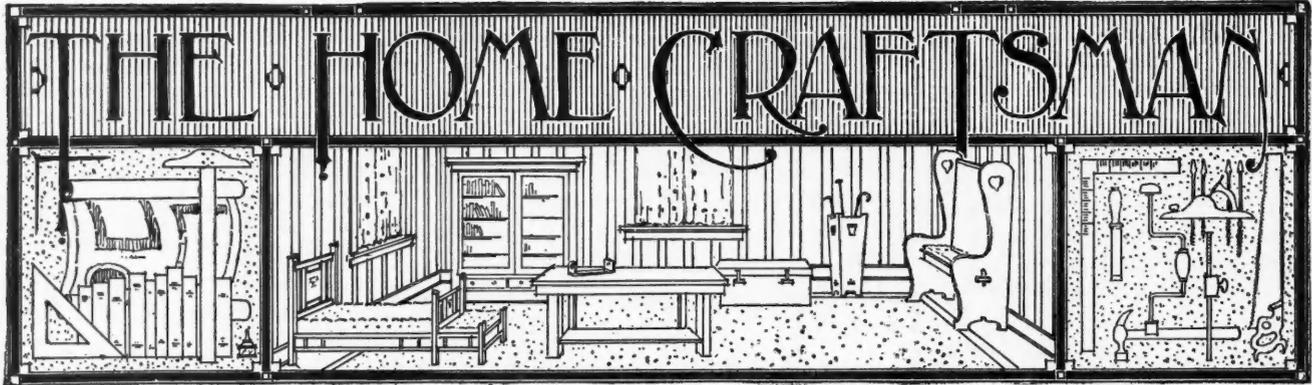
Before starting to built, put a little time on the study of ventilation. Read up on the circulation of warm air. Don't depend on others, because they might not understand the particular conditions you are dealing with. It is well enough to ask advice, but get information from different sources, so that you may be able to sift the quality of your instructions sufficiently to keep the grain and discard the chaff. Don't blindly copy a stable that some one else has built, without carefully considering whether or not it fits your requirements.



Floor Plan of Barn No. A333.



A common-sense small barn, size 42 by 32 feet, stabling sixteen cows and four horses. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$6.00 per set. When ordering, ask for Design No. A333.



A Homecraft Piano Bench, Taboret and Trellis

WORKING DRAWINGS AND DIRECTIONS FOR MAKING THESE USEFUL, GOOD-LOOKING PIECES OF FURNITURE—
A UNIQUE IDEA IN A PLANT TRELLIS.

By **George E. Chandler**

Supervisor of Manual Training, Rochester, Minn., High School

THE three articles illustrated are rather exceptional in their simplicity and yet present a decidedly attractive appearance when finished. The first of these is a combined piano bench and music cabinet. The frame is made with a bottom and the cover is hinged, which forms a convenient place for keeping music. The second of these—the taboret—is

an attractive addition to almost any room. An interesting feature of this piece is the keyed and dadoed construction, which makes it easily “knocked down” for storage or moving. The third piece—the trellis—is useful wherever tall or climbing plants are kept. It is shown here because of its extreme simplicity.

Construction of Piano Bench

The material best suited to the bench will depend upon the finish of the piano. For an oak finish, oak of course should be used; for a mahogany or rosewood finish, birch or maple may be used, while for a walnut finish, butternut will take a suitable stain.

The following pieces will be needed:

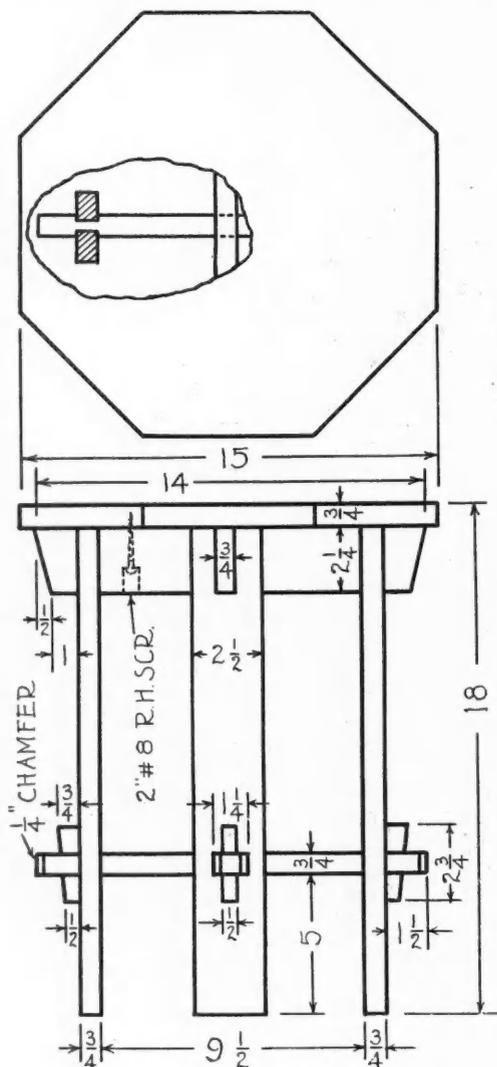
STOCK BILL FOR PIANO BENCH, GIVING FINISHED SIZES.

- Cover—1 piece $\frac{7}{8}$ by $15\frac{1}{2}$ by 40.
- Posts—4 pieces $1\frac{3}{4}$ to $1\frac{3}{4}$ by $18\frac{3}{4}$ (one 1-inch tenon).
- Frame—2 pieces $\frac{3}{4}$ by 4 by $37\frac{3}{4}$.
2 pieces $\frac{3}{4}$ by 4 by $13\frac{1}{2}$.
- Lower Rail—2 pieces $1\frac{3}{4}$ by $1\frac{3}{4}$ by $13\frac{1}{2}$.
- Stretcher—1 piece $\frac{3}{4}$ by 4 by $35\frac{1}{8}$ (two $\frac{7}{8}$ -inch tenons).
- Blocks—4 pieces $\frac{5}{8}$ by $1\frac{1}{2}$ by $1\frac{1}{2}$.
- Bottom—1 piece $\frac{5}{16}$ by 12 by $36\frac{1}{4}$ (Wallboard).
2 pieces $\frac{3}{8}$ by $\frac{3}{8}$ by $33\frac{3}{8}$.
2 pieces $\frac{3}{8}$ by $\frac{3}{8}$ by $9\frac{3}{8}$.
- Hardware—1 pair $\frac{3}{4}$ by $2\frac{1}{2}$ nickel plated butts.
16 $1\frac{1}{2}$ -inch No. 10 F. H. Screws.

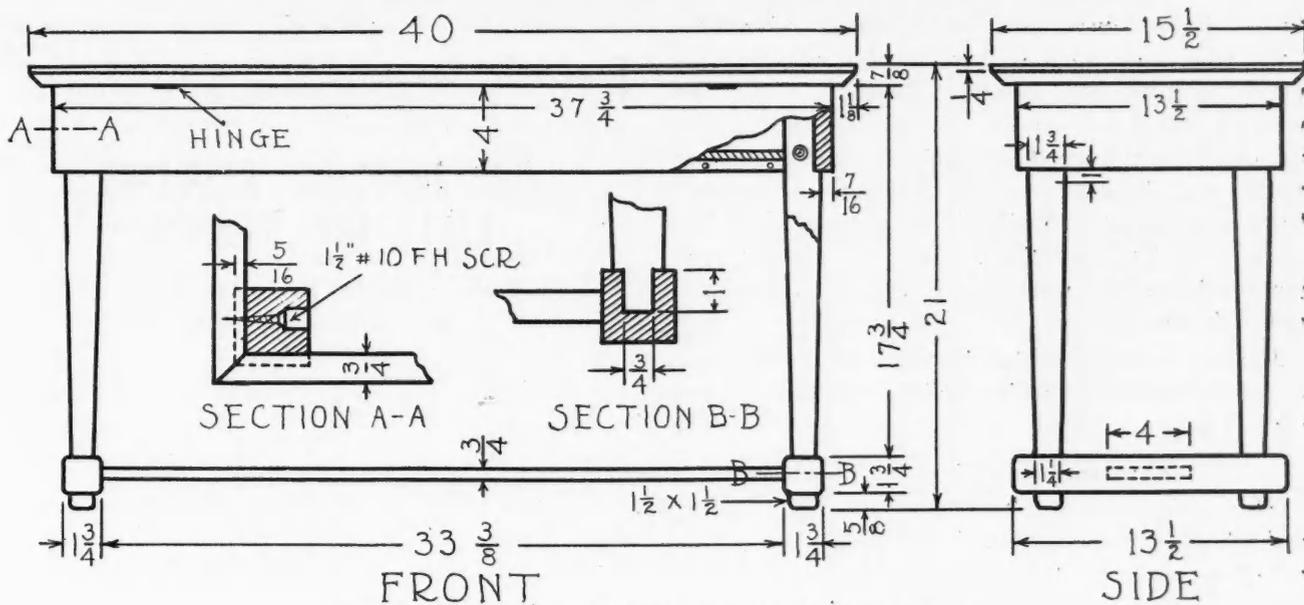
The top of each of the posts is cut away on two sides, leaving a $\frac{5}{16}$ -inch shoulder on which the frame rests. The taper on the legs begins 1 inch below the bottom of the frame, as shown in the side view. The frame or box is made with mitered corners held with corrugated metal fasteners. It is well to make the frame first, glue the posts into position and then insert the screws as shown—two from each side of the post.

How to Finish the Piano Bench

The manner of finishing will depend largely upon the kind of wood used and the finish of the piano it is desired to match. Prepared stains can be obtained for almost any finish. It would be well, of course, to try the stain on a piece of waste stock first. It should be



Detail Showing Construction of Taboret.



Construction Details of a Strong and Serviceable Piano Bench.

kept in mind that shellac and varnish always tend to lighten the effect of the stain. For the finished surface a thin coat of shellac and three coats of varnish are the most satisfactory. The last coat of varnish may be left gloss or rubbed down with pumice stone and oil. Wax, of course, may be used in place of the varnish.

Construction of Taboret

Oak or chestnut is a suitable material. The following pieces will be needed:

STOCK BILL FOR TABORET, GIVING FINISHED SIZES.

Top—1 piece 3/4 by 15 by 15.

Legs—4 pieces 3/4 by 2 1/2 by 17 1/4.

Top Crosslap—2 pieces 3/4 by 2 1/4 by 14.

Bottom Crosslap—2 pieces 3/4 by 2 1/2 by 14.

Keys—4 pieces 1/2 by 3/4 by 2 3/4.

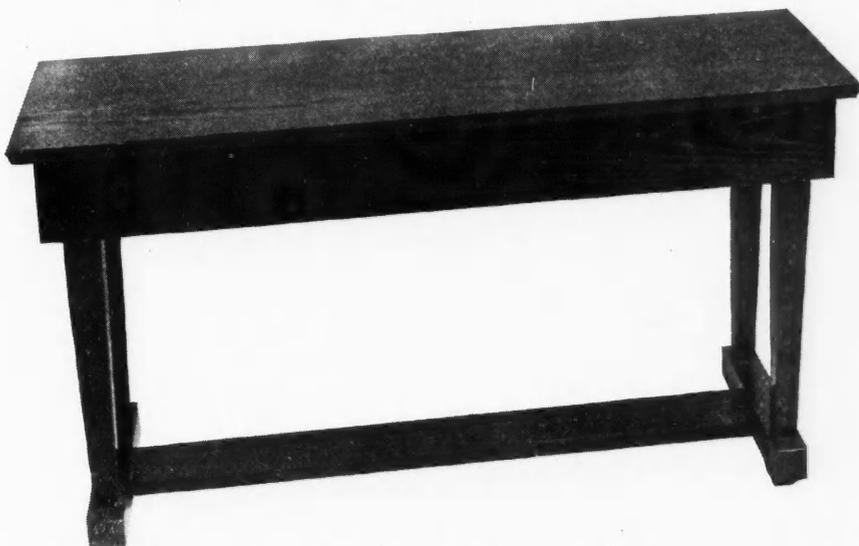
Hardware—4 2-inch No. 8 R. H. Screws.

The top and bottom cross pieces are merely half lap joints. The legs are jointed to the top cross piece by means of a dado joint.

How to Finish the Taboret

The taboret as shown in the photo was "fumed" by

placing under an inverted barrel in which there was an exposed dish of ammonia. The ammonia fumes act on the tannic acid in the oak and produce a uni-



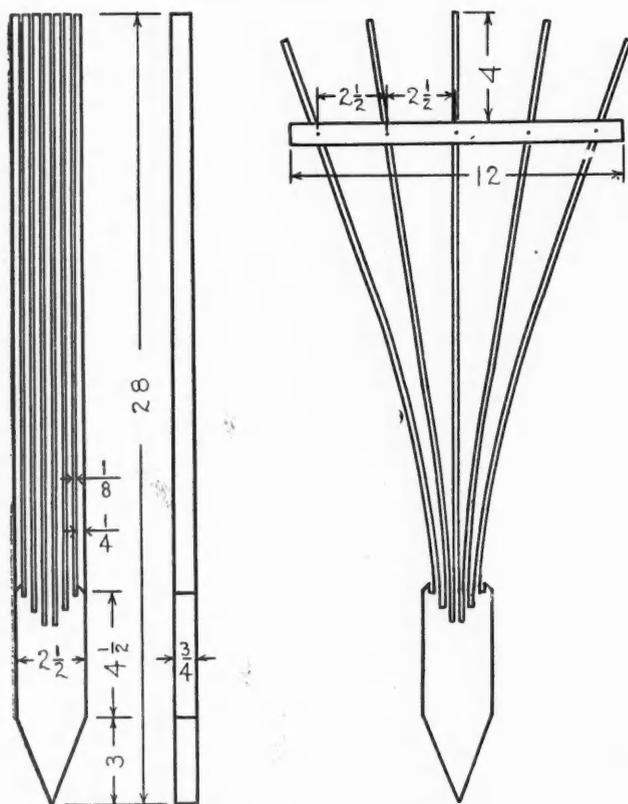
The Finished Piano Bench, Taboret and Plant Trellis. The Taboret Has a Fumed Oak Finish Produced by Ammonia Fumes.

form rich nut brown color. At the end of 24 hours the color was found to have penetrated nearly thru the wood. It is possible to produce almost the same effect with a "fumed oak stain." The stain, however, does not penetrate the wood as deeply as do the ammonia fumes, and the accidental slivering of a corner will leave a "white edge" which the fuming will not. Because of the large airtight vat required, ammonia fuming for homecraft work is more practical for small rather than large pieces.

If after fuming a darker brown is required, a coat of boiled linseed oil may be applied. No further finish is needed.

Construction of Plant Trellis

This project came to the writer's attention in a normal school, where it was used as a test problem in the use of the rip-saw—a well chosen one, too. Basswood



Showing Construction of Plant Trellis.

is perhaps the best material. One piece $\frac{1}{4}$ by $2\frac{1}{2}$ by 28 will be needed. The strips are $\frac{1}{4}$ inch thick, while $\frac{1}{8}$ inch is allowed for the saw kerf. The only requirement here is straight sawing. Gage lines should of course be used. The two outside strips are cut off as shown and form the two cross pieces.

In spreading the strips the center one should be nailed first, using $\frac{3}{4}$ -inch light brads. The alternate sides may then be nailed. The additional depth of the saw kerf on the inside relieves the tendency to crack at this point.

The trellis may be left in the white, stained or painted, as desired.

Fire!

IT will soon be time to start the winter fires. Every year at this time the newspapers are filled with material such as this:

FIRE DESTROYS RESIDENCE EARLY THIS MORNING

Family of John Doe Barely Have Time to Escape From Burning Home Before Roof Collapses

Fire starting from a defective flue totally destroyed the residence of John Doe this morning. The blaze was discovered at four o'clock this morning and the strong wind soon fanned the fire beyond control. The family barely had time to escape before the roof collapsed. Very little of the household goods could be saved.

If you were the architect or the builder of this house, would your conscience be clear?

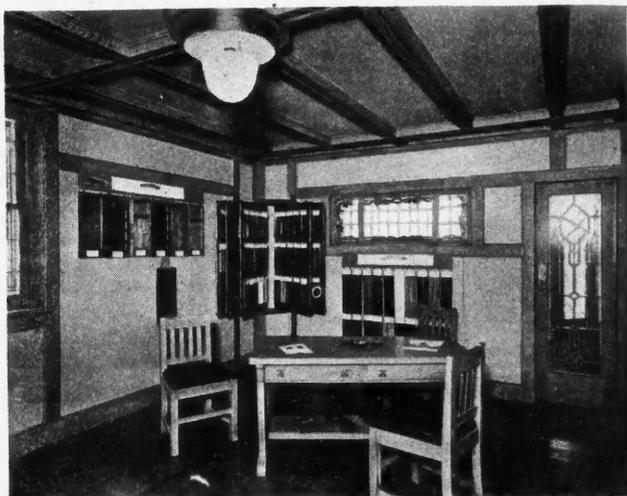
Perhaps you say the house was built fully in accordance with the usual practice, and that your responsibility was terminated upon the completion of the contract. So it was, legally, but if you happen to live in a community where ordinances are not in force to demand the proper construction of chimneys, do you feel justified in taking advantage of the fact in order to save a very small expense in construction?

Architects and builders who are not working in communities which have in force an ordinance to provide for the safe construction of chimneys, flues and fireplaces should pride themselves in their rigid adherence to the specifications of some good ordinance relating to this subject which some other more enlightened community has in force.

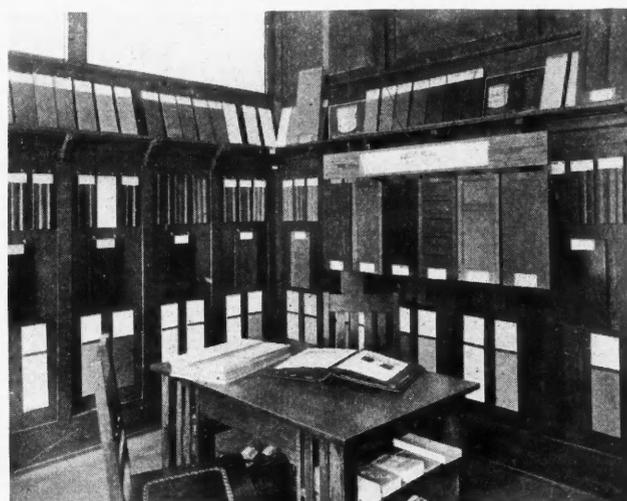
It is surprising to note that the reports and bulletins of the various State Fire Marshals establish the average number of fires due to defective chimneys at very nearly 20 per cent. It is not only surprising—it is disgraceful. If all chimneys were to be built with fire clay flue lining this fire loss due to defective chimneys would be reduced to practically nothing. The fact that fire clay flue lining will successfully reduce fire loss is testified to by the fact that a clause specifying this material is included in essentially every ordinance which has ever been passed to control chimney, flue and fireplace construction.

The two photographs on page 92 tell the story of one man's experience. His chimney was built without flue lining, and the floor joist (shown badly charred) was set against the brick work of the chimney. One morning at five o'clock when the thermometer stood at eight degrees below zero, the house was found to be in a mass of flames. The firemen took the family out of the blazing building thru a window. If this chimney had been built with a fire clay flue lining, the slamming of doors could not have loosened the brick which fell inside of the chimney and exposed the woodwork to the flames.

(Continued to page 92.)



E. F. HOOPER & CO., TRENTON, N. J.



M. L. WILCOX CO., TOLEDO, OHIO

Bridgeport Standard Service for Contractors and Builders

The finishing of a building is less than five per cent of the entire cost. Think of it! Yet what a vast amount of beautiful woodwork is spoiled through improper finishing. When you consider how vitally this affects your reputation, also the sales and rental value of the building from your client's standpoint — isn't the matter worthy of proper attention?

And here is where Bridgeport Standard fits in. It enables you to produce proper results, without additional cost.

As an example of what this Service means contrast the two cases cited below:

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"The job was the talk of the town and had many visitors; all were of the same voice in high praise of the appearance of the trim. Mr. Edwards received such a tempting offer for the house that he has sold it and purchased property near this job on which he is to erect another house."

The matter of finish was taken for granted in this case:

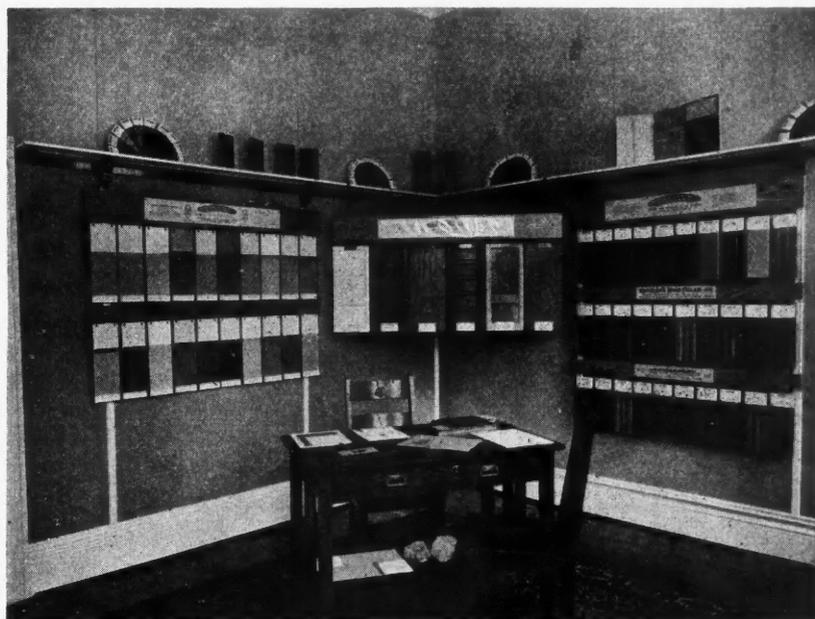
"The stain was applied over birch, and it faded out to a golden oak in three weeks' time. The architect had ——— superintendent down there, and they then sent on an aniline toner to go over this as a color varnish, which they claimed would last, but this faded out in three days' time. They are now using a pigment toner which closes up the grain and makes a very unsatisfactory job."

Illustrations of Typical Bridgeport Standard Service Departments

We have established Service Departments in leading cities throughout the country, where the contractor and builder may see all the latest effects on real House Trim, Model Morgan Doors and Wall Board.

We have some new effects in soft, subdued browns and grays which are applicable to such woods as pine and cypress. They have made a "hit" wherever shown. If you are interested, write us for carton showing these effects.

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 78 W. Lake Street
 Boston Service Dept.
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J. L. PHELPS WALL PAPER & PAINT CO., ROCHESTER, N. Y.

MODERN STORE FRONTS

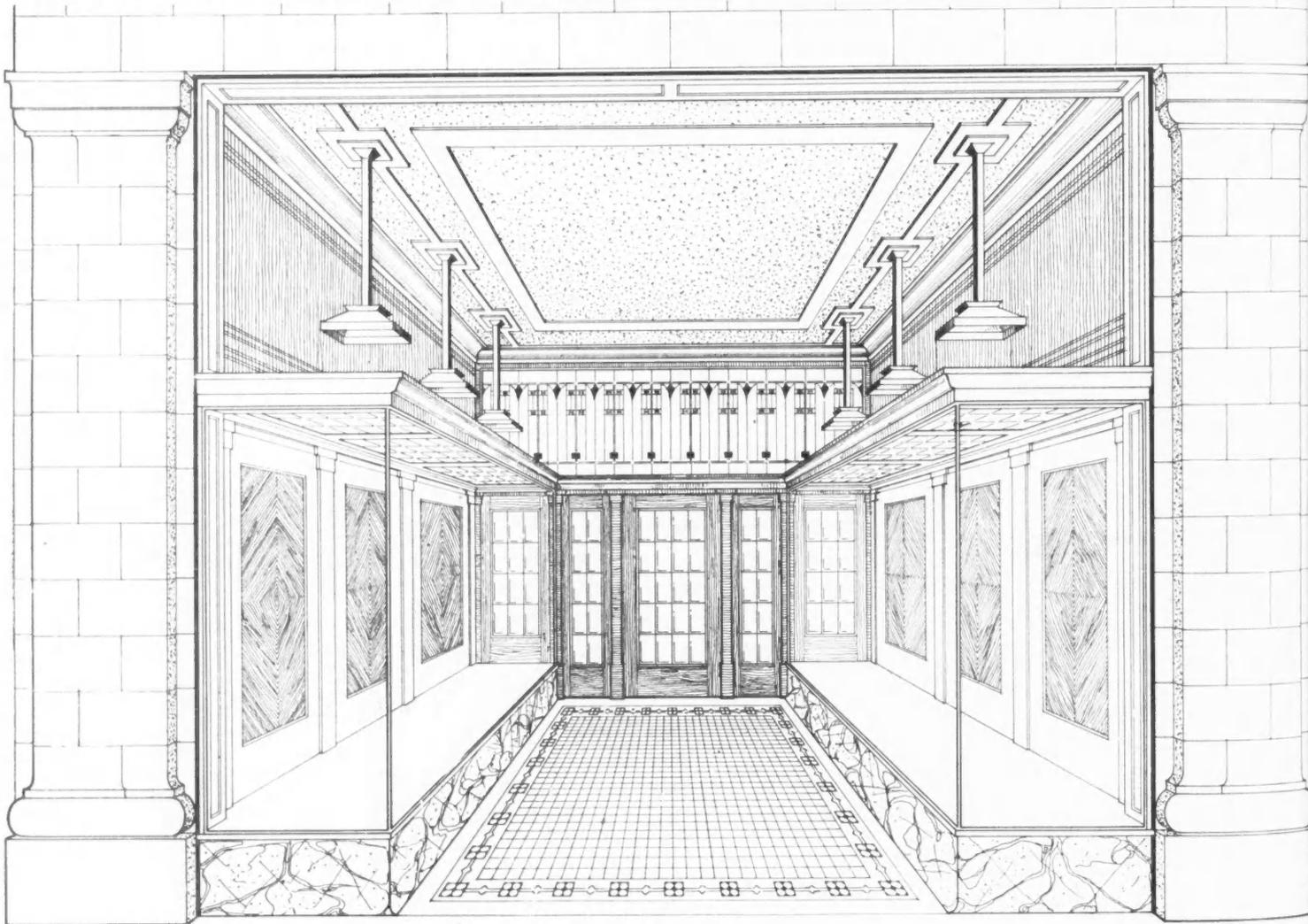
Their Design and Construction

By
Francis J. Plym, President
 of KAWNEER MFG. CO., NILES MICH.




IN 17 PARTS, PART 9. (SEE FEBRUARY, MARCH, APRIL, MAY, JUNE, JULY, AUGUST AND SEPTEMBER ISSUES FOR OTHER DETAILS.)

NOTE: Mr. Plym desires this Department to be of greatest practical benefit to contractors and builders. He will gladly answer letters of inquiry, giving any special store front information desired. He has also prepared a very instructive illustrated booklet on modern store fronts which he will mail free of charge to any architect, contractor or builder desiring a copy. Under this heading is appearing a series of 17 typical store front designs, also a series of 17 plates, of half size details of Kawneer store front construction.



TYPE N°80

TYPICAL ELEVATION OF MILLINERY STORE

COPYRIGHTED BY KAWNEER MFG. CO.

THE elevation above shows a very good design of a Millinery Store Front which type is known as an "inverted type." It is designed along mission lines, clean-cut and quite novel in its general make-up.

The lighting arrangement is something of special interest; fixtures are placed over each window, throwing their light through the glass roof, which is built over each window.

A certain kind of glass adapted for this purpose is used to diffuse the rays. In this way a mellow, pleasant light is thrown over the display. The windows are running parallel with a good sized vestibule in the center. An art glass panel of attractive design is used in the back of the front.

The ceiling is paneled and the fields stuccoed. A tile floor made of square tiles, together with an ornamental border, completes the design.

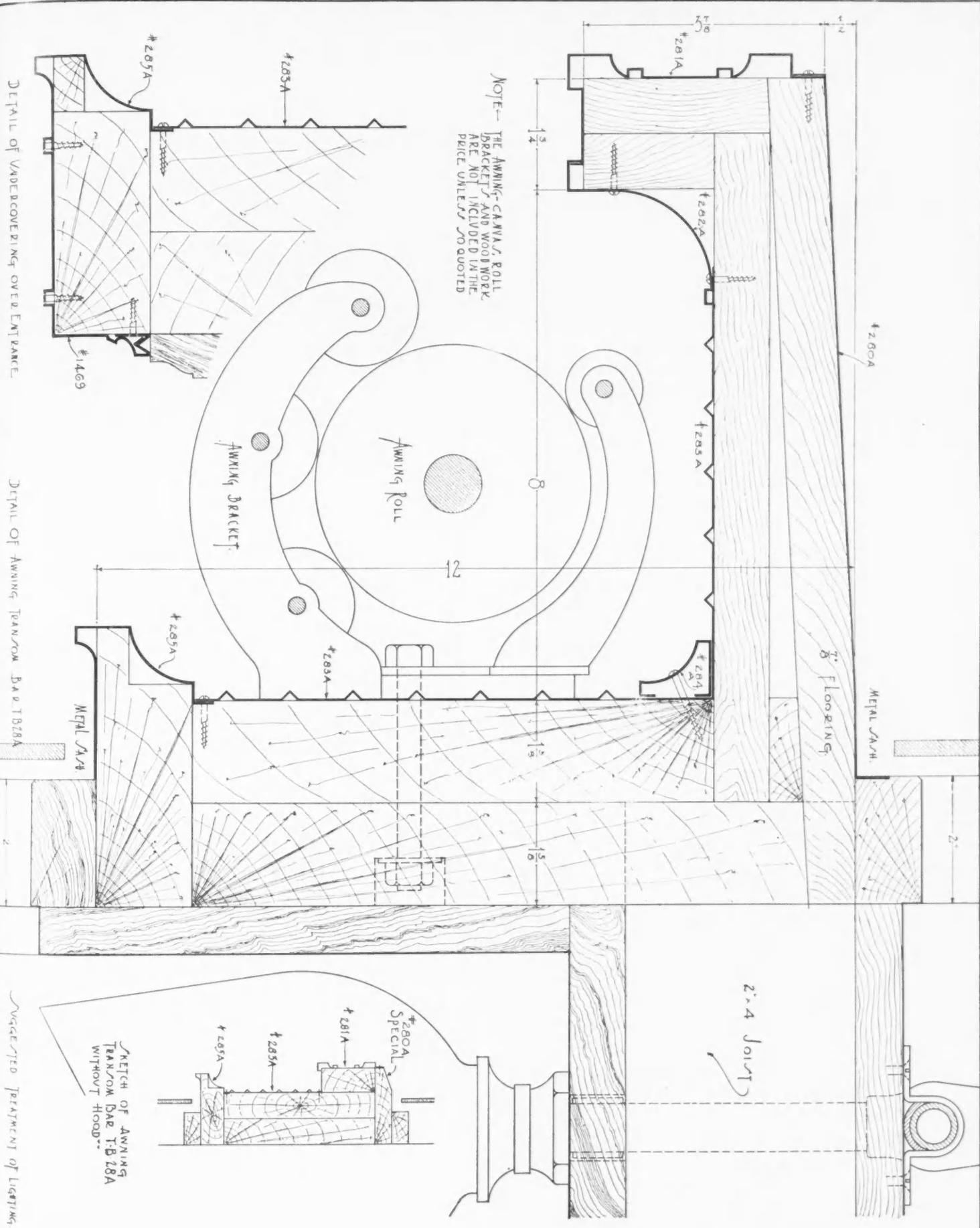
DETAIL OF VADE COVERING OVER ENTRANCE

DETAIL OF AWNING TRANSOM BAR 1818A

2

VEGETATED TREATMENT OF LIGHTING

PLAT



NOTE— THE AWNING-CANVALS, ROLL BRACKET'S AND WOOD WORK ARE NOT INCLUDED IN THE PRICE UNLESS SO QUOTED

DETAIL OF WADECOVERING OVER ENTRANCE

DETAIL OF AWNING TRANSON BAR T.B. 288A

SKETCH OF AWNING TRANSON BAR T.B. 288A WITHOUT HOOD

PLATE No. 9



KAWNEER MFG. CO. — NILES, MICH.
MANUFACTURERS OF KAWNEER PATENTED STORE FRONT CONSTRUCTION.

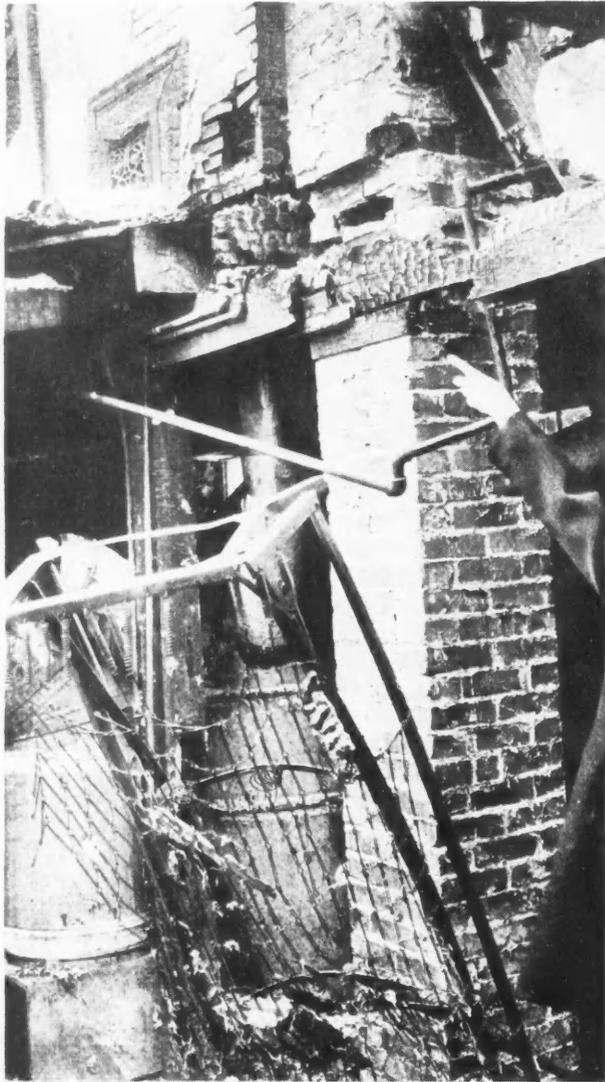


Kawneer
STORE FRONTS

Safety in Chimney Construction

The second photograph shows the result which the lesson by Experience had upon this man. The architect or builder could have prevented the loss and danger by specifying and installing a fire clay flue lining.

All chimneys in frame buildings for stoves, fireplaces or furnaces should be well and securely built from the ground up. Chimneys built upon wooden brackets should not be tolerated. The top of the chimney should be extended above the roof at least 3 feet for flat roofs and 2 feet above the ridge of peak roofs. The walls of chimneys should be of brick at least 8 inches in thickness, or of brick 4 inches thick and lined continuously with well burned clay or terra cotta pipe. In case the fireplace is built of stone, the thickness should be 12 inches and the inside or fire surface should be lined with fire brick. Beginning with the foundation, the brick or stone work should be laid in cement mortar up to the first floor, and thence to a point where chimney protrudes thru the roof of the building, the brick work may be laid in good lime or fire clay mortar, and from the roof to the top of the chimney the brickwork should be laid in cement mortar. All joints should be struck smooth on the inside



The First Chimney Was Unlined and the Floor Joist Was Set Into the Brickwork.



Result of Lessons by Experience—He Uses Clay Flue Lining.

except when lined with burnt clay or terra cotta. Division walls between two or more separate flues should be 4 inches thick.

No wooden casing, furring nor lath shall be placed closer than 2 inches from the chimney except that wooden mantels, floors and base boards, when protected by some fire-resisting material, may come in contact with plaster covering the chimney. Wooden beams should be placed clear of chimneys.

All fireplaces and chimney breasts should be built with trimmer arches to support hearths. The arches should be made of brick, stone, burnt clay or concrete with a length of not less than the width of the chimney breast and a width of at least 20 inches measured from the face of the chimney breast. Wooden centering should be removed after plastering the ceiling underneath.

Architects and builders cannot be too careful in designing and building chimneys. Since there is little or no saving in actual cost of construction to cause anyone to neglect proper precaution, and there is so much gained in reduced fire risk and danger, there is no reason why the properly constructed fire clay lined chimney should not be universally adopted.

Woods and Their Uses

ALL woods have certain uses for which they are especially adapted by reason of the peculiar qualities and characteristics which nature has given them; and on their proper selection for these uses, hinges the whole problem of economy in wood construction.

Three centuries of experience in this country have demonstrated that no other wood lasts so long or gives such satisfactory service as

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for outside finish lumber — siding and corner boards; window sash, frames and casings; outside doors, door frames and casings; outside blinds; all exposed porch and balcony lumber; cornice boards, brackets, ornaments and mouldings; and other outside requirements, *not* including shingles.

If the lumber dealers supplying your clients are at any time unable to furnish it, we should appreciate the opportunity of being helpful to you in securing it.

A Free Magazine for Contractors

We are now publishing a bi-monthly architectural magazine, every issue of which is full of valuable and helpful information for contractors and builders. If you would like this magazine, write us and we will be pleased to place your name on our mailing list.

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CORRESPONDENCE



Questions Answered and Ideas Exchanged.

Our Readers are Requested and Urged to Make Free Use of These Columns for the Discussion of all Questions of Interest to Carpenters and Builders

Bro. Hicks Doesn't Think Much of Licenses

To the Editor:

Omaha, Neb.

Mr. S. C. Sanders would like to hear some of the ideas of others on the question of licensing carpenters and contractors. Well, if he does, here goes. First, let it be understood that I am opposed to licenses in any form or description.

I hereby challenge the whole world to show where there has ever been a license of any kind imposed upon the people that it could not be traced right down to a mere scheme on the part of a few individuals to raise money for some certain purpose; to run someone out of business, or to keep others out.

The dear public is never asking for these licenses. They never ask that such and such a business be licensed. It is always done by a few officials at the suggestion of a few

who, on the pretense of benefiting the dear public, seek to put someone out of business and a barrier in the way of those who are seeking to earn an honest living in an honest way.

Licenses are only enacted into laws by politicians too lazy to do an honest day's work themselves, so they fleece it out of others in any way they can scheme up. The license scheme offers an easy chance for them to get hold of more money to spend, and it matters not what poor fellow worker they hold up with a license.

Let the poor Jackleg live. He has the same right to live as anybody. Give him a boost, he may need it more than the other fellow. Any kind of a Jackleg is preferable to individuals that scheme to put somebody out of work or to place laws in the way to hinder people from making a living.

(Continued to page 95.)



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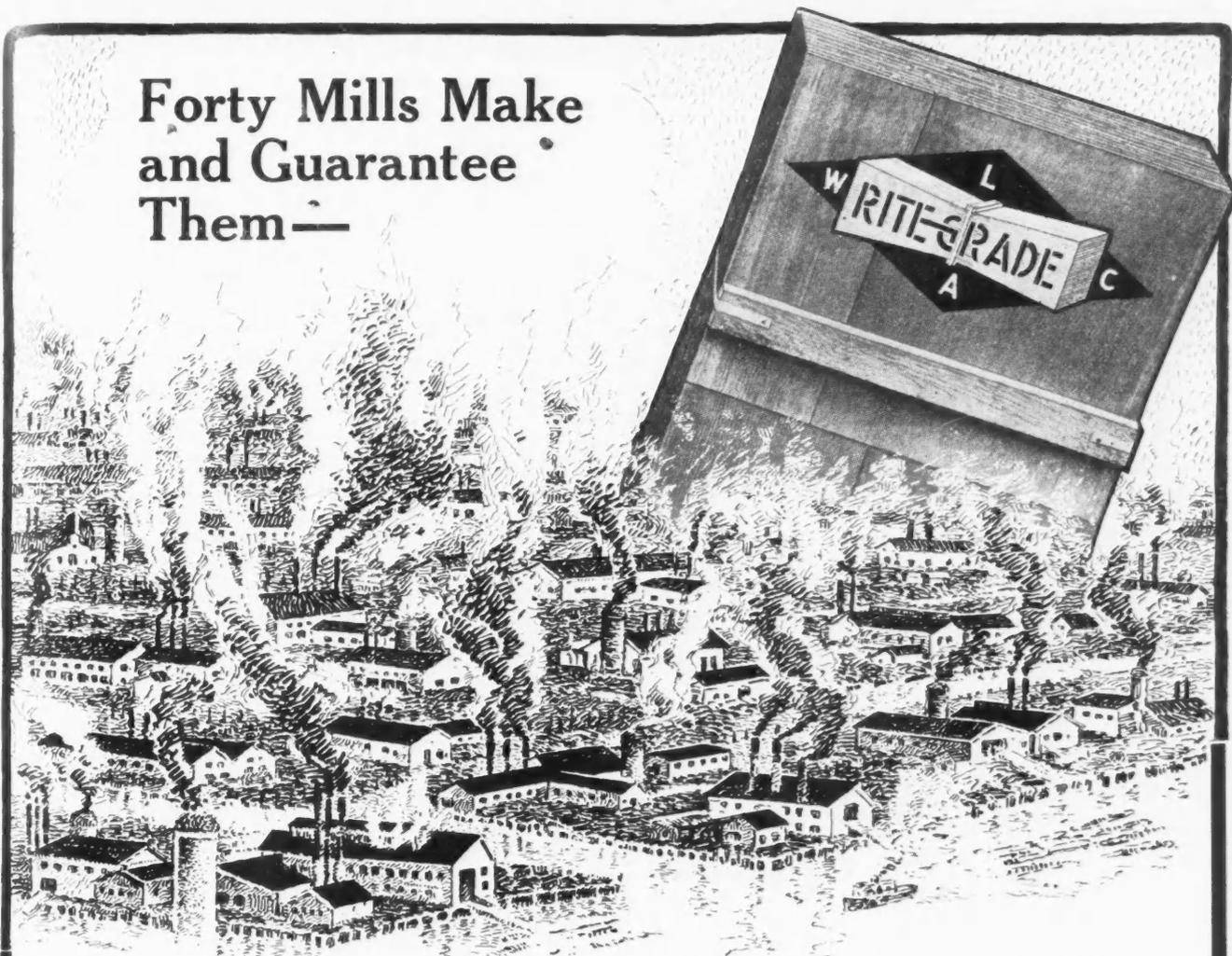
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For further information write

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COVERS
THE CONTINENT

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J-M Transite Asbestos Shingles meet this demand, affording a roof that is safe, sightly, and in the highest degree durable. These shingles satisfy—they CAN'T burn, won't warp, rot, or split, are easy to lay, free from repair expense, and as cheap, if not cheaper, than any other fire-proof roofing on the market. They represent a profitable investment for your customers—for you they are certain builders of bigger business.

You owe it to yourself to get the details. Why delay? A line to the nearest J-M Branch will put your name on the mailing list, and show you the way to expand profits.

J-M Transite Asbestos Shingles are examined, approved, and labeled by the Underwriters' Laboratories, Inc., under the direction of the National Board of Fire Underwriters. Laid American method they are given Class "B" rating; laid French method they are given Class "C" rating.



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Jacklegs make good when given a chance, but the license fiend, watch him; keep your hand on your pocketbook whenever you hear of his wonderful proposals for the benefit of the dear public.

I. P. HICKS.



Wants Eastern Style Houses

To the Editor:

Lilly, Pa.

As you ask for criticism and suggestions, will say I would like to see more in your magazine about eastern style of dwellings.

C. C. STENGER.



Canvas Canopy for Row Boat

To the Editor:

Gloversville, N. Y.

I have a flat bottom row boat, made of seasoned pine, 16 feet long, sides 14 inches deep, pointed at each end, 3 feet across the top in widest portion, on which I am desirous of placing a top or canopy to be supported by four uprights which are easily removed. I would like some suggestions as to how to build the frame so it will be light and durable and also how to keep the canvas from sagging between the bows. Top to be round at ends and convex over top.

C. R. W.

Answer—The framework for a canopy suitable for a row boat may be constructed as shown in the diagram on page 98. Three wooden cross members hold the ¼-inch by 3-inch strip in place and the light metal ribs stiffen the frame as well as furnish a support for the canvas cover. In addition, two wires are stretched tight across the top of the center cross member, a slot being cut in this member so that the wires will not touch the canvas, and fastened to the frame near the end braces. These wires pass under the metal ribs. A metal strip is screwed to the center of each end cross member and extended in a slight curve to the ends of the frame. These strips prevent the canvas from sagging at the ends.

The canvas is held to the frame by a strip ½-inch by 3 inches, screwed to the frame. The screws are fitted with window stop washers and are staggered in three lines along the frame strip, as shown in the diagram. The canvas for the top of the canopy should be obtained in one piece and must be fitted at the ends by cutting out wedge-shaped pieces. The canvas for the fringe should be in a strip and is fastened to the frame under the portion of the cover which projects over the edge. In order to insure a tight joint, the cover should project over the edge to the bottom of the outside strip. Fringe and cover may be tacked in place before the outside strip is attached. A liberal use of white lead in the joint will insure a water-tight fit.

The frame is supported by four upright wooden rods 1 inch in diameter. All fittings may easily be made of scraps of sheet iron and short lengths of gas pipe. The rods are riveted to the upper brackets and slide thru the side brackets into the sockets on the floor of the boat.

The canvas should be treated with linseed oil and a coat or two of good paint. This will stiffen it sufficiently so that the sagging will not be excessive. It is impossible, however, to prevent the canvas from sagging unless a support is furnished at all points, such as a cover of tin placed beneath it.

The height of the canopy should be as small as possible, since the higher it is placed the less stable the boat will be. The position should be governed by the height of the seats, since the canopy must not interfere with the people sitting in the boat. Three feet from the top of the seats to the bottom of the fringe is about right.

Side curtains hooked to the inside of the frame and fastened to the outside of the rail of the boat would fit the craft for rainy weather. Transparent windows should be fitted in the curtains and flaps made for the oars.

EDITOR.

(Continued to page 98.)

This "Kellastone" Stucco was Applied in Freezing Weather

IT'S simply this: That **Kellastone** is the only stucco in existence that can be successfully applied in cold, freezing weather with the absolute assurance that it will not crack, fall or break off. Kellastone is immune to expansion and contraction due to temperature changes. Whatever the temperature, the perfect result is the same. This is because it is mixed with a chemical solution instead of water.

KELLASTONE IMPERISHABLE STUCCO

It is not affected by normal settling of walls. It bonds perfectly with stone, wood, tile, brick or other building material—there'll be no cracks or breaks around door and window casings.

Kellastone overcomes normal stresses—defies climate, moisture, rain, fire and the lapse of time and preserves its new appearance for years. It may be applied in all the finishes obtainable with any other stucco, and, in addition, it is the only stucco that can be successfully dry dashed, producing granite and marble effects.

Kellastone is used by the U. S. Govt., and on big buildings, hospitals, schools, railroads and finest homes everywhere.



Kellastone Composition Flooring solves the flooring problem. It has no seams, cracks or joints, deadens sound and wears indefinitely. Superior to concrete, tile, wood or other flooring. Used in factories, shops, schools, public buildings, homes.

You ought to know more about wonderful Kellastone. Write today.

The National Kellastone Co., 504 Association Bldg., Chicago, Illinois



Owner's dining room in 2-flat building of Wm. J. Strom, 7616 Rogers Ave., Chicago.
An attractive example of the wise use of **birch**.

Permanent Satisfaction

Intrimming with "Beautiful **birch**" there is not only the satisfaction of giving your customer what he ought to have and of doing a good and profitable job in a wood which ranks with the imported hardwoods; there is also the satisfaction of making a permanently satisfied owner who will be a standing advertisement for YOU. For "Beautiful **birch**" has a beauty that wears well. The longer you live with it the better you like it.

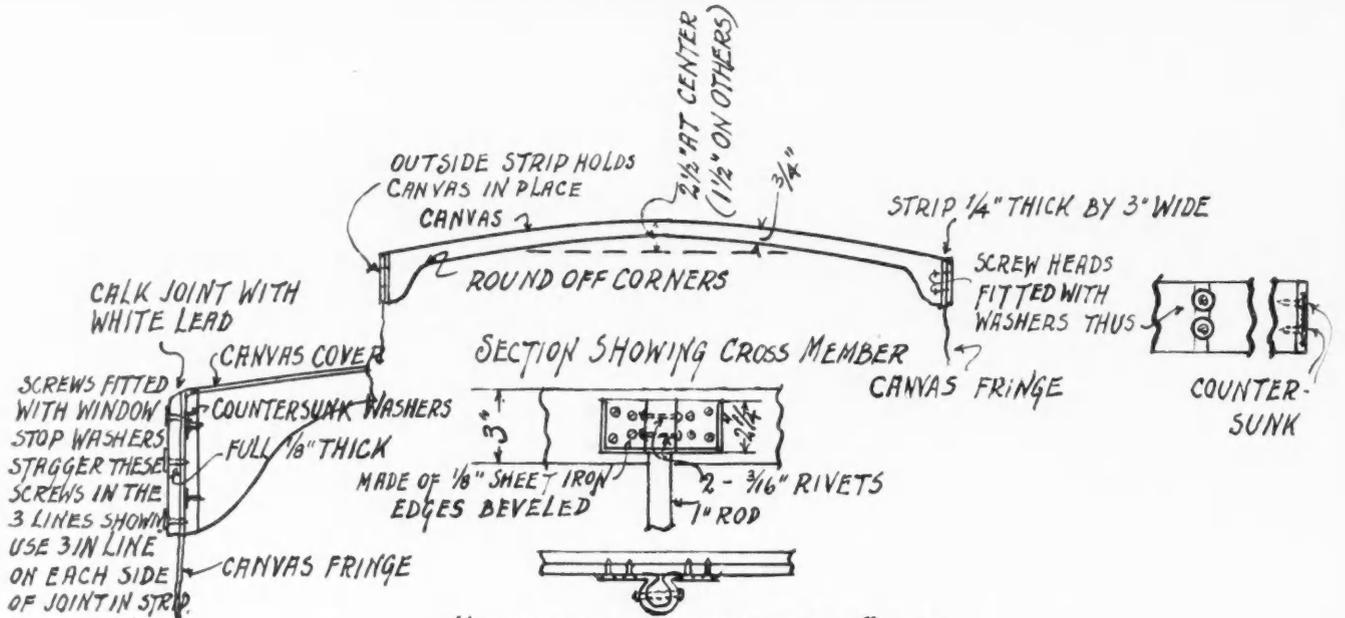
FREE: For your convenience in showing the stunning effects possible in "Beautiful **birch**" we will gladly send you a set of finished panels and a handsome illustrated book.

The Northern Hemlock & Hardwood Manufacturers' Association

Offices, 201 F. R. A. Building

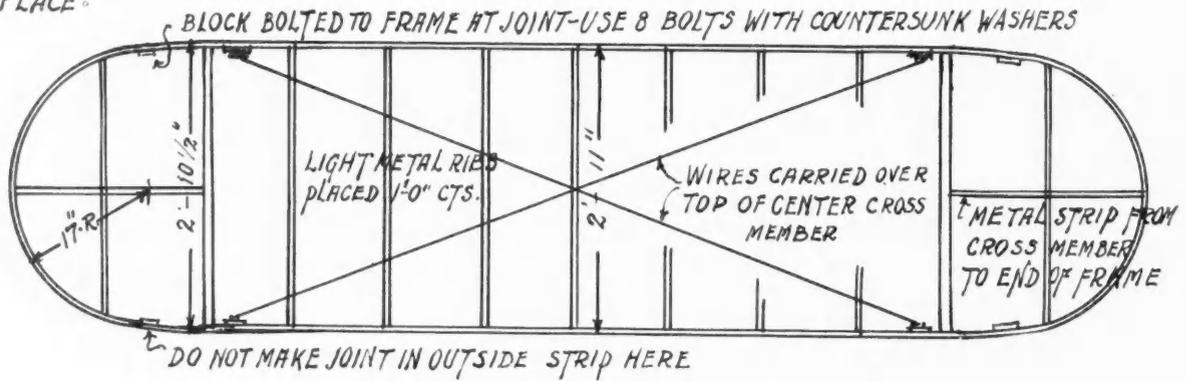
Oshkosh, Wisconsin

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

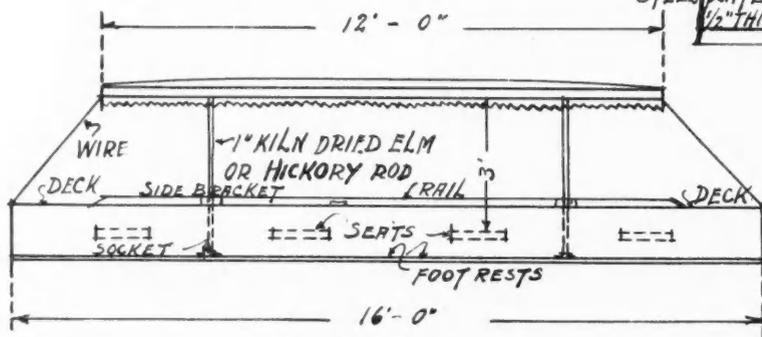
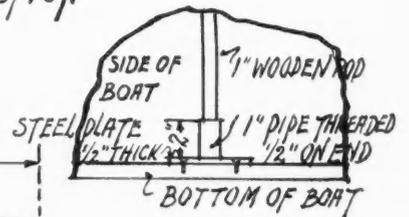
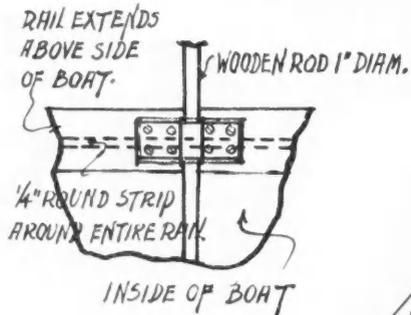


METHOD OF SECURING CANVAS IN PLACE.

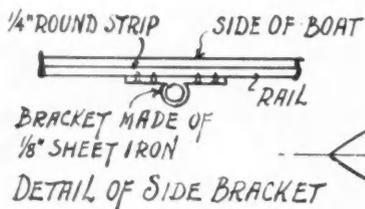
METHOD OF SECURING RODS TO FRAME



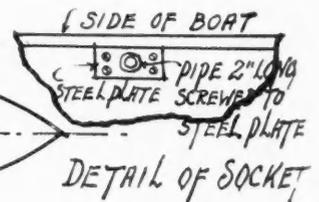
DETAIL SHOWING FRAME CONSTRUCTION



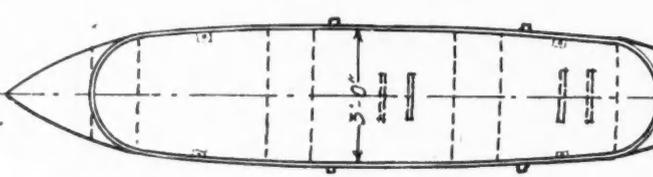
SIDE ELEVATION



DETAIL OF SIDE BRACKET



DETAIL OF SOCKET



ASSUMED SHAPE OF BOAT

A Big Advertising Campaign That Helps YOU!

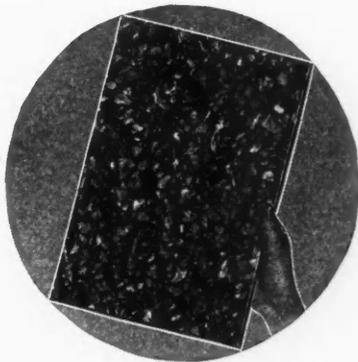
During the second week in October thousands of Roofers, Contractors, Carpenters and Dealers all over the country will have an especially effective help in getting *more business*. October 9th to 14th is to be *Re-Roofing Week*, when all of our Asphalt Shingle advertising will be concentrated on urging house owners to replace their leaky roofs with a new, long life *Asphalt Shingle* roofing.

National Re-roofing Week—October 9 to 14 Re-roof Your Home With Asphalt Shingles

This is the time when most people are ready to put their roofs in shape for the winter---the time when you can get a splendid lot of business--- *if you go after it*. This campaign will make it easier for you---will help you get twice as much business for the same effort.

October 9th is also National Fire Prevention Day. The newspapers and magazines will contain many articles urging the use of fireproof building materials. All this will help, because *Asphalt Shingles* make the fire-resistant roofing that is recommended by so many Fire Chiefs and Building Commissioners. Sparks and burning embers are harmless upon them. So here is an additional argument that will be very effective in gaining you many an order at this time when people are also thinking of fire protection.

Prepare now to push your *Asphalt Shingle* business during *Re-Roofing Week*. Make sure that you have a plentiful supply on hand to take care of the business that will be created. Tell your customers the advantages of *Asphalt Shingles* and connect up with the powerful effect of our national advertising during *Re-Roofing Week*.



If you mail a letter to several house owners whose roofs need attention, or call upon them, or call them up on the telephone, you will probably find them ready to tell you to go ahead with a new, leakless *Asphalt Shingle* roof. Our advertising will make the sale ready for you to close.

ASPHALT SHINGLE PUBLICITY BUREAU, 955 Marquette Bldg., Chicago

Simple Screen Making

To the Editor: Carrizozo, N. Mex.
I noticed that two of your readers disagree as to how to stretch screen wire.

As a boomer carpenter I haven't space in my tool box to carry bolts and windlasses and bench taps, so I take two 2 by 4's a little longer than my screen frames and place them on two saw benches leaving them just the width of screen between outer edges; then I take two strips of wood and place across them, one at each end of screen; next cut a notch in two pieces of say 1 by 2; the thickness of 2 by 4 plus thickness of screen frame. Press frame down tight on 2 by 4's a little longer than my screen frames and place them proceed with the tacks. A piece of wood too thick at ends of screen will bend the frame, so some judgment must be used to keep frames straight.

I make a few dozen every once in a while and hear no complaints.

I admire the "A. C. & B.," and especially "The Man From the Lumber Yard."
J. P. FOSTER.

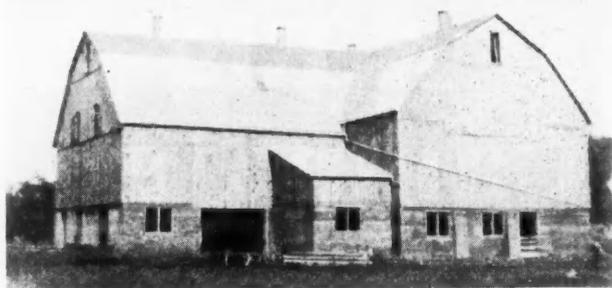


Canadian Heavy Timber Barn

To the Editor: Berlin, Ont., Canada.
I am sending you two pictures of a barn we have built in Welland Co., Ont. This barn is built of heavy timber framing, the main barn being 40 by 66 feet, and the shed 40 by 47 feet. One special feature of this barn is that there are no posts in the basement of the shed. You will notice in the photo of the frame that the truss braces against the posts sit on the stringer beams. These are of oak, 47 feet long and 12 inches square. The post and beams are bolted together. The barn is covered with metal shingles.

This barn is built for Andrew Sider, Stevensville, Ont., by the Gingrich Construction Company of Hespeler, Ont.

A. F. GINGRICH.



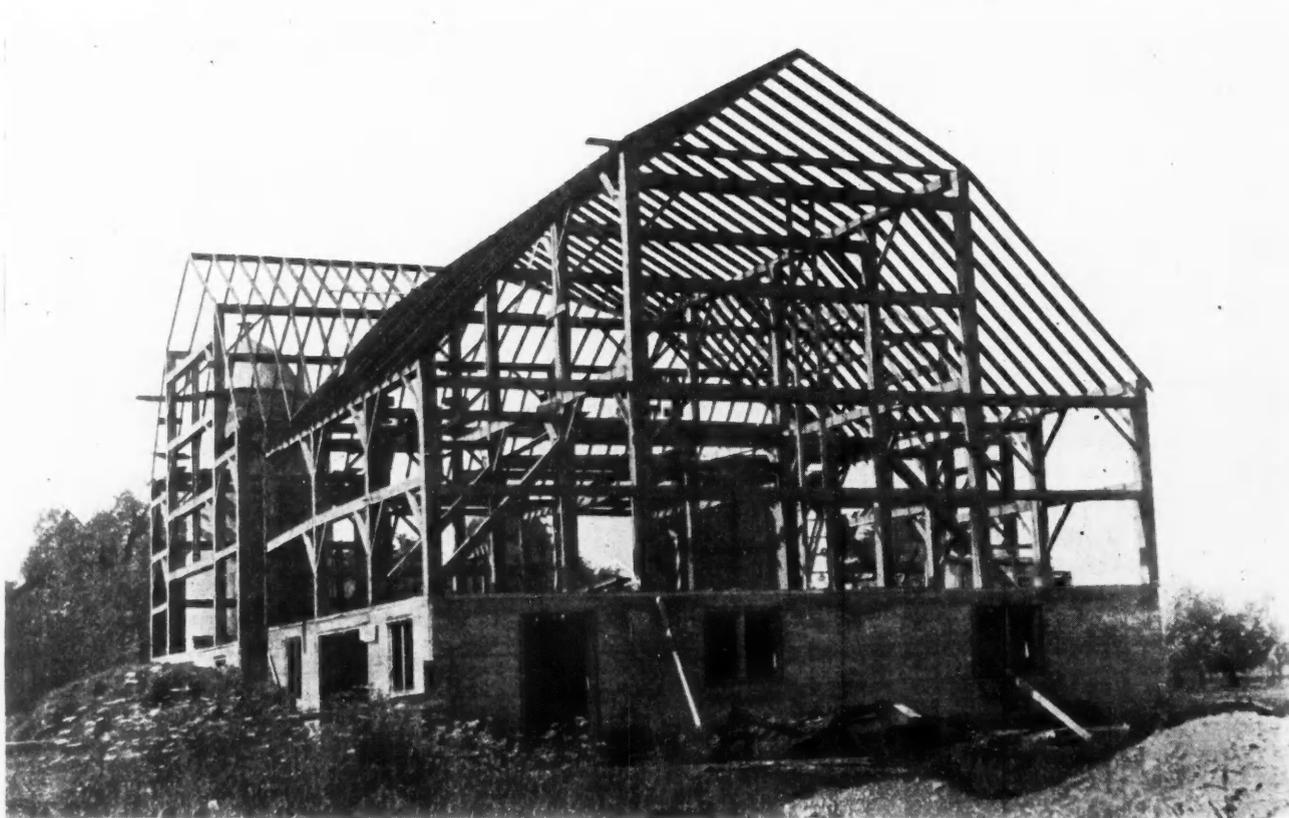
The Finished Barn in Welland Co., Ont.

Can't See How the Owner Loses

To the Editor: Chatfield, Minn.
After reading the article in the last issue, "Fees for the Privilege of Estimating," I cannot resist but to give my opinion in regard to same, and trust that you may allow it the space in the AMERICAN CARPENTER AND BUILDER columns. This being the first time asking for space in your up-to-date paper, I am willing to admit that I do not possess any great talent or ability as a writer. However, my twenty-seven years of actual service as contractor and builder does not permit me to remain silent, and not express my views in regard to the above mentioned article in the August number.

The statement that the owner is always the heaviest looser is absolutely incorrect; nor is the architect. From my long experience I find that the bidder is the only looser, and no one else; in fact, both owner and architect are benefitted at the expense of the poor builder. This I am willing to prove, and there can be no dispute about it, for the things I am going to mention not only existed a few years ago, but are in full force today.

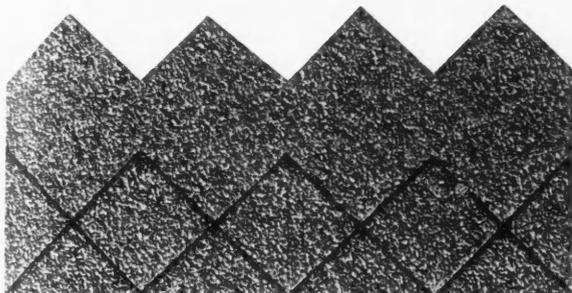
In the first place, I would like to know how the owner or
(Continued to page 102.)



Framing of Heavy Timber Barn. Illustrated Above. Built by the Gingrich Construction Company of Hespeler, Ont.

EVERLASTINGLY GOOD!

That's the biggest point to remember about FLEX-A-TILE Asphalt Slab Shingles.



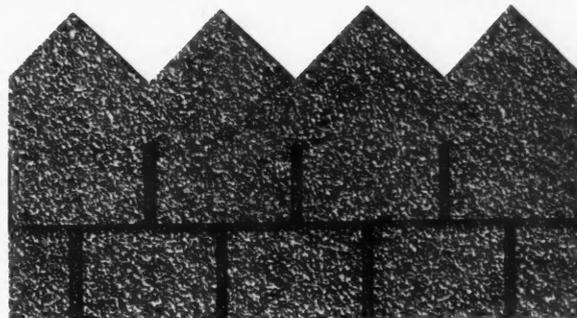
*FLEX-A-TILE Diamond Point Slab,
Laid in American Diamond Style*

More important than their actual, immediate saving in material, labor, nails and freight is this proved fact: *they are the most enduring roofing on the market.*

If you want a reputation as a builder whose work *lasts*—who has customers come to him instead of he going to them—roof *permanently* with

FLEX-A-TILE Asphalt Slab Shingles

All Flex-A-Tile Shingles are made with the same exacting, scientific care that has made the name "Heppes" standard in asphalt roofing.



*FLEX-A-TILE Reversible Slab
laid in American Shingle Style*

Pure wool felt is saturated with twice its weight of high-melt, oil-free asphalt; over this we lay a coating of tough, rubber-like gilsonite, and into this is compressed under tons of pressure the beautiful crushed slate or granite surfacing. The result is a shingle that wears like iron—cannot rot, rust, split or curl, and only grows richer in color with age.

SAVES { 50% in Labor
35% in Freight
38% in Nails

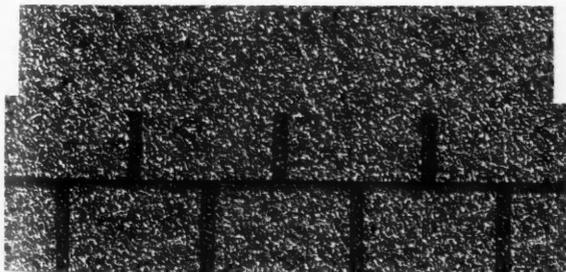
No time is wasted in chalklining—Flex-A-Tile Slabs automatically space and gauge themselves. Only five nails are needed for every four shingles. Their shape means less weight and consequently less freight.

Send for a Free Sample

You must see these shingles in their actual colors of red and green to realize their beauty. Just drop us a line mentioning your business and we will forward liberal samples, prices and complete information.

Good Agencies Still Open

Many localities still need a live agent to gather in the profits from selling Flex-A-Tile products. Write and secure the facts on our proposition. Write *today*.



*FLEX-A-TILE Style 4 Slab
laid in American Shingle Style*

THE HEPPES COMPANY

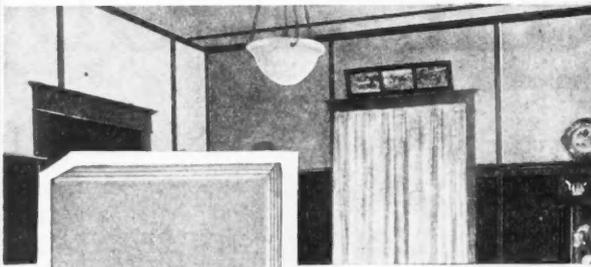
Dept. J, 1010 Kilbourne Ave., Chicago, Ill.

Flex-A-Tile Roll Shingle

Utility Board

No-Tar Asphalt Paint

Other Guaranteed Heppes Products



Durable, sound-proof, sanitary, fire-resisting and moisture-proof.

Roberds Ideal Wall-Board

Ideal in Cost, Service and Appearance

IT can be installed at just about one-half the cost of plaster and lath; in comparison with other wall boards it is from ten to twenty per cent lower in price, and fifty per cent more satisfactory.

And it is durable, sound-proof, sanitary, fire-resisting and weather-proof. Will not chip, crack or fall off, and the blow of a hammer will not hurt it. Easy to keep clean, and offers the greatest resistance to heat and cold.

The grained appearance of the Ideal gives the most artistic and pleasing effects that can be secured in interior decoration. The walls can be papered, painted, tinted or paneled to good advantage.

Write for our catalogs, describing the uses of Roberds Ideal Wall-Board.

The Roberds Mfg. Co.
100 Spencer Ave. Marion, Ind.

the architect can be losers in advertising for bids for any structure of an individual or any public work. I put up as my claim that both parties are benefitted at the expense of the bidder, for he is obliged to pay the fees for the privilege to estimate, furnish certified checks of unreasonable amount, spend a number of days making such an estimate, paying out his hard earned money for postage, interest and all the necessary traveling expenses. All this he must do in order to gain the privilege of making the estimate, and letting others see how near he can hit the low water mark, thus giving information to the owner of where and by whom he, the owner, can get the most labor performed and material furnished for the least money. This certainly can't be any loss to the owner. In a case as you mention, where eighteen bidders were invited to give estimates, nine times out of ten, I think the owner loses his head and awards the contract to parties who in due time compel the owner to become a loser.

Now, let us see how the architect is a loser when advertising for bids. In the first place, he receives regular compensations for all actual services rendered from the owner, and that is not all. He, the architect, receives a certain percentage from every manufacturing firm when he specifies their goods and when their goods are used in the construction of the building; and still in most cases where the successful builder is not one of his gang, he dares not forget the architect with a little tip in order to prevent rupture between them. Many architects are even bold enough to condemn the material, compel the builder to tear out even good work, sometimes even for a slight error, because you were not the party that he wanted to do the job, and because you were not liberal enough to share with him as he demanded.

I presume this will be a rather large lump for some of those guilty ones to swallow, however, those are the facts. My intention is not to run the architects down in this case; however, I wanted to show who the losers are when the owner advertises for bids. The time is nearing that a law will be passed so that the burden of estimating will fall on someone else besides the poor contractor, and I hope it will fall on the owner, especially when he invites eighteen contractors to furnish proposals on one single job.

Great success to all my competitors and readers of the AMERICAN CARPENTER AND BUILDER.

A. PAVLISH,
Contractor and Builder.

NOTE—Nevertheless, we do maintain that it is the owner who pays. Don't you—and every other builder who makes a bid—add a certain percentage to cover your cost of doing business? You certainly ought to. And so isn't every bid received, *even the low one*, just that much higher than it would need to be if such an expensive system of bidding were not in vogue? Yes, the owner pays all right—tho he doesn't know it.

EDITOR.



Quality the Only Sound Business Policy

Philadelphia, Pa.

Editor AMERICAN CARPENTER AND BUILDER:

In many cases it is difficult to convince the builder that it pays in the end to use quality paints and varnishes. This condition of affairs is undoubtedly due, in part, to intense competition and also to the fact that a large percentage of the properties are sold by the builder shortly after they are finished. Many builders feel that if they can get a paint or varnish which will look well when applied, the question of service or durability is not pertinent to their end of the job, and they leave that end of the matter for the purchaser to worry about after the sale is consummated.

Of course, such a policy is decidedly in error because a

(Continued to page 104.)

Through a Terrific Fire **UNBURNED**



Everything Destroyed But **Cornell-Wood-Board**

A fierce fire in the lumber yard district of Amsterdam, N. Y. (August 18, 1916)—a fire which consumed lumber like so much tinder, melted metal work into shapeless masses and left nothing but the stone foundations of the buildings, **did not burn the dealer's stock of Cornell-Wood-Board.**

The photograph shown above is conclusive evidence.

In this photograph the panels of Cornell-Wood-Board are shown just as they appeared after the fire had burned itself out. The building in which this Cornell-Wood-Board was piled was completely destroyed.

Cornell-Wood-Board was on the second floor of the building, unprotected from the ravages of the flames—yet it was all that was left of the entire stock and the building. The boards were burned and charred for a few inches around the edges. A few were charred deeper, but not destroyed.

We do not claim that Cornell-Wood-Board is absolutely fire-proof, but we do maintain that **it is far less inflammable than other building materials of wood or wood composition.** The facts presented here may be verified by writing to the Mohawk Lumber Co. of Amsterdam, N. Y.

It will pay you to investigate the many superiorities of Cornell-Wood-Board. Write for a sample and complete information on our Exclusive Agency Plan.

Mention the American Carpenter and Builder when you write.

Cornell Wood Products Company

C. O. FRISBIE, President

Dept. C. B., 173-175 W. Jackson Blvd., Chicago. Mills: Cornell, Wis.

job done by a builder becomes in a way an advertisement for him, and that advertisement will be of positive or negative value in strict proportion to the way the work stands up and the service which is given.

Not only do we feel that the quality policy is the only sound one to pursue, but we ourselves have adhered strictly to that policy, and the large volume of business which we enjoy, can be traced mainly to the fact that our goods do give the maximum amount of service and satisfaction to our trade. This means that when a customer of ours is again in the market he naturally favors us with his business and, at the same time, he does not hesitate to praise and recommend our goods among his friends.

This policy has been followed by our company since the foundation of the business in 1793. If an individual or a concern expects to be in business for only a short while, leaving out the moral end of the question, he could probably get by with selling inferior goods at a long profit. At the same time, we are convinced from the manufacturers' standpoint that the only sound business policy is to make and sell goods of proven quality at a fair profit and get the repeat orders. On the average, it costs very heavily to land the first order, and it is the repeat order which makes the profits.



Display of Regular House Trim, Miniature Morgan Doors, and Panels of Wall Board in Service Department of the J. L. Phelps Wall Paper and Paint Co., Rochester, N. Y.

Surely the same situation applies with builders, or with any other trade. As to the best method to pursue to convince the builder of the soundness of the above argument, it is hard to lay down any hard and fast plans. Our method has been to try to keep our goods before the trade and to endeavor to get them to test our products—at the same time submitting evidence as to some of the places where our goods have been used for many years, producing the finest kind of results and actually saving money by decreasing the number of paintings which are necessary.

In any event, it is a long, hard game. It simply means

(Continued to page 106.)



There's a Job for YOU In every attic in your town

Ask any house owner in your town whether he is proud of his attic. He will tell you "NO". You can convert it into bright, livable rooms, clean, available storage space and pleasant play rooms for the children with

CAREY
Ceil-Board
SUPERSEDES PLASTER FOR WALLS AND CEILINGS

Explain this to your customers. Tell them you can do this without inconvenience to them. Carey Ceil-Board comes to the job all ready to be nailed to the studding. It is clean, light and attractive. Can be furnished to suit individual tastes. For wainscoting and paneled walls we supply Ceil-Board in natural grain hardwood finish at slight additional cost.

Write Today for Price-Lists and Samples

THE PHILIP CAREY COMPANY
1021 Wayne Ave., Lockland, Cincinnati, Ohio






"You can't expect Beaver Board results unless this trade-mark is on the back of the board you buy."

"Beaver-Boarding" is a Carpenter's Job

Get that idea.
"Beaver-Boarding" is a carpenter's job. Not a job for the plasterer or paper hanger. Every Beaver Board room or alteration means work for the carpenter or carpenter-contractor that he wouldn't get if lath and plaster were used instead. And it means, too, a more satisfactory job for the owner—a neater job, one that is done more quickly, and that will last almost indefinitely. Nothing goes into Beaver Board but pure wood fibre. It's reconstructed lumber—seamless and knotless. Works up splendidly. Ask us about our free design and decoration service.

THE BEAVER BOARD COMPANIES
568 Beaver Road Buffalo, N. Y.
Branches in Principal Cities



"Neponset is my middle name, and this shingle is my card. And let me tell you, it is *some* drawing card, too."

My Neponset "card" draws two distinct classes of people into my store---those who can afford shingles of the finest slate, but prefer Neponset Twin Shingles because they have the beauty of slate, they wear like slate and cost much less; and those who know the Neponset Twin Shingles are not only beautiful to look at, but give one hundred cents' worth of dependable service for every dollar invested.

So you see my business on

NEPONSET TWIN SHINGLES

is brisk. I have an argument "that holds water" that I successfully use on the man who owns a "seven passenger eight" and the fellow who doesn't.

In other words I can convince any man that Neponset Twin Shingles are unquestionably the best shingle value on the market today. The people in my town come to me with their roofing problems and I solve them with Neponset Twin Shingles. That's why I am successful.

If you try perhaps you can become the Neponset Man in your Town.

Send the coupon today for information about the shingle that looks like slate, and possesses many of the advantages of slate, yet which costs no more when laid than good wood shingles. Address

BIRD & SON (Established 1795) Dept. C **East Walpole, Mass.**

New York Washington
Chicago: 1434 Monadnock Building Canadian Office and Plant: Hamilton, Ont.

NEPONSET WALL BOARD For Walls and Ceilings

NATIONAL Roofing Week

October 9th to 16th is to be known as Roofing Week all over the country.

The combined efforts of thousands of merchants, carpenters, builders and manufacturers is sure to create business.

Get into line. Couple your store with our national advertising and you'll feel the effects of National Roofing Week in more business. Write us for our plans to help you get your share.

BIRD & SON
Dept. C
East Walpole, Mass.

Below is a picture of an attic room made cozy and warm with Neponset Wall Boards---another of the famous Bird products.



BIRD & SON, Est. 1795, Dept. C, East Walpole, Mass.

Please send me information about Neponset Shingles and Neponset Wall Board. Also a copy of your book "Repairing and Building." This request does not obligate me in any way.



Name

Address

**Send
This
Coupon
Today**

NORTH CAROLINA PINE

Give Them Hardwood Effects Without the Hardwood Cost

The average home-owner today desires floors with a hardwood appearance, yet many cannot afford genuine hardwood.

Here is a particularly profitable field which you can successfully develop if you specify

North Carolina Pine

"The Wood Universal"

With this wood you can furnish a floor that will look as well, finish as well and wear practically as well as hardwood at a much lower cost and a greater profit to you.

Judged from any viewpoint—strength, durability, beauty of grain or susceptibility to finish—it cannot be equaled at the price.

Your customer will be more than pleased with its results and you will gain a prestige of permanent value through its recommendation.

Our New Reference Book is Yours for the Asking

Just write us today and we'll send you a most valuable Reference Book on North Carolina Pine. It shows the artistic effects possible for interiors and gives a description of its worth for every building purpose. Ask for Book A.

North Carolina Pine Association
Norfolk, Virginia



that the builder must be convinced as to the soundness of a business principle which seems to us to really admit of no argument.

ROBERT W. SAMPLE,

District Sales Manager Harrison Bros. & Co., Inc.

Difference in Cost of Good Painting Materials Very Small Percentage of Painting Cost

Philadelphia, Pa.

Editor AMERICAN CARPENTER AND BUILDER:

The necessity for both paints and varnishes for both outside and inside use is beyond question. There is no one who will deny that fact. The present cost of building materials makes it imperative that they be preserved for the longest possible length of time after the building is erected. No one will state that this result can be accomplished with the use of inferior products. Impartial tests during the period of many years have shown up the fallacy of using inferior paints and varnishes. Instead of being an aid to the preservation of the surface painted, they are an actual harm.

For outside use, it requires a paint of long life, large covering capacity and a product that will leave the surface in proper condition for repainting when such becomes necessary. Cheap and inferior mixed paints, as well as lead and oil, do not give the requisite service, allowing moisture to penetrate the coating and attack the lumber beneath. In fact, they do not in any way meet the conditions required for a good, exterior paint coating, and when repainting becomes necessary, it requires a good deal of preparatory work, the labor of which is costly, to put the surface in condition for a new paint coating.

The wear on tinted gloss paint is so gradual and so uniform, that when repainting finally is required, there is very little, if any preparation needed to put the surface in proper condition.

While we refer to tinted gloss paint, the same facts apply to most any trade-marked, advertised brand of paint on the market today.

If sufficient money is expended for the product to guarantee its being of high quality, there is little chance of procuring a product that will not give the required service.

The same remarks apply to paints and varnishes for interior use. When you figure that the labor amounts to two-thirds of the entire painting cost, the difference in price of good products over poor ones is very small and a few cents or dollars expended in this way will be offset a dozen times by the added durability and satisfaction derived from their use.

Anyone interested in building a house will readily see the wisdom of these arguments.

ROY C. SHEELER,

Asst. Adv. Mgr., John Lucas & Co., Inc.

High Prices Obtained as Easily as Low

Providence, R. I.

Editor AMERICAN CARPENTER AND BUILDER:

Our business is confined to the New England States, where wooden structures still are built to a great extent, and it has been one of the hardest tasks in the selling of paint to convince the owners of property to keep the exterior properly painted as the best and cheapest kind of insurance against decay.

The questions which you ask, however, are the very questions which we are asking ourselves and are the subject of innumerable sales conferences with our men, and are, we are sorry to say, still unanswered. The reputable manufacturer of paints, as you probably know, is today making better paint than ever before and is all the time talking quality and protection with price a secondary matter. We have felt, until

(Continued to page 108.)



MODERN GARAGES

GARAGE owners who do a first class business and make good profits attract the autoist's trade by building distinctive and inviting fronts of Midland enamel terra cotta.

MIDLAND TERRA COTTA COMPANY

1515 LUMBER EXCH.
CHICAGO, ILLINOIS





Seven rooms, bath and basement, to cost about \$3,500.00
Aymar Embury, II, Architect, New York City
Our new Home Builder's Book shows the plan. Ask for it

White Enamel Does Not Yellow on ARKANSAS SOFT PINE

This is a non-resinous wood of fine grain and lustrous texture, possessing well-balanced absorbing qualities which insure a finished enameled surface of sustained color, lustre and "life." Because of the absence of pitch the white lead undercoating is applied directly to the wood without the necessity of preliminary shellacing. This method insures both a uniform absorption of the first coat and definitely avoids any tendency towards raised grain on the part of the wood itself.

Because of an abundant supply, Arkansas Soft Pine is readily obtainable and at a price notably less than that of rarer woods frequently recommended for this treatment. Upon its merits therefore, together with the advantage of moderate cost the wood is coming more and more into favor as an interior trim, not only for apartments and moderate priced houses, but for substantial homes as well.

White enameled and stained samples free on request. If you have not received your copy of our Architects' Manual, let us know. Address Dept. D.

*Arkansas Soft Pine is Trade Marked
and sold by dealers. See that yours
supplies it. He can.*

Arkansas Soft Pine Bureau
Little Rock, Arkansas



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

within a year, that the manufacturers have been at fault to a certain extent in keeping their suggested re-sale prices too low and affording but a small profit to the jobber or dealer. With the tremendous advances in raw materials, there have been numerous advances in the price of paints and, we believe that all find that the higher prices are just as easily obtained as the low prices which formerly ruled, and in consequence, there is a little better profit for the dealer, which naturally stimulates his desire to dispose of more paint.

The second question is still a harder one to answer, and we are not at all certain but that in many cases the contractor lacks backbone, as you suggest. In our business, the great trouble is more often with the architect who specifies without any definite knowledge about the goods and practically allows the use of material which is decidedly inferior. We have spent quite some time, thru personal interviews, correspondence and other methods in trying to educate the architect, who feels that he is building a structure which he hopes will add to his reputation as a designer and builder, that it is extremely short-sighted policy for him to complete the work with a poor coat of paint outside and inside, which, failing in its functions, will discredit the architect's work quicker than anything else.

H. J. GREENE,
Manager Oliver Johnson & Co., Inc.



Surprising Ignorance About Shellac

New York, N. Y.

Editor AMERICAN CARPENTER AND BUILDER:

We have noticed for years and years that the architect is always sure to specify exactly the grade and quality of paints, brushes and enamels which he wants to be used, but when it comes to the shellac part of the specification, he simply specifies "shellac."

One would think that shellac varnishes are sold in but one variety or grade so that "shellac" would seem to be all inclusive. It so happens, however, that there can be different weights of pure shellac besides all kinds of adulterated shellacs.

An example of the ignorance of the painters is often evidenced by the fact that bids are accepted on grain alcohol shellacs at prices way below the cost of grain alcohol. Even painters, contractors and builders are apt to write in for quotations on "shellac" without informing us whether they care to have it pure or adulterated, or whether they wish it heavy in body or not.

It is just as important for a contractor or builder to use good shellac as it is for him to use good paints. Cheap shellacs do not dry fast, do not wear as long nor give as good surface as undercoating.

RUDOLPH ZINSSER,
Wm. Zinsser & Co., Inc.



Another Screen Stretcher

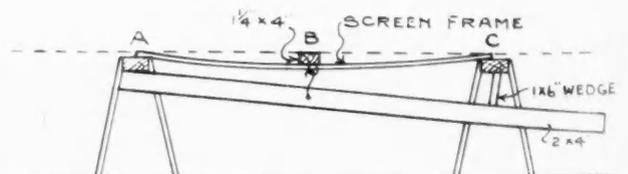
To the Editor:

Alexis, Ill.

Have been reading in the August "A. C. & B." an article on stretching screen wire, and would like to submit my pet method of doing same.

Equipment consists as follows: Two trestles; one piece of 2 by 4 inch about 7 feet long with a screw hook in edge 3

(Continued to page 110.)



Wedge Holds 2" x 4" Down Until Screen is Secured at A and C.



-meets all demands --
Vulcanite

Ornamental Roofing and Shingles

Economy. Vulcanite Roofing requires neither paint nor stain, saves in the first cost, and costs nothing after it is applied.

Beauty. Vulcanite comes in rolls and shingles in a pleasing variety of patterns, that can be worked into any number of artistic finishes.

Durability. Vulcanite is made by imbedding naturally colored crushed granite in an asphalt covering—practically a granite roofing.

Fire-and-Weatherproof. Vulcanite will withstand sun, rain and fire and all weather conditions; and will materially decrease insurance premium.

We would like to send you our catalogs and samples, and show you how you can use Vulcanite to boost your business and increase your profits.

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**Patent-Vulcanite
 Roofing-Company
 Chicago, Ill.**

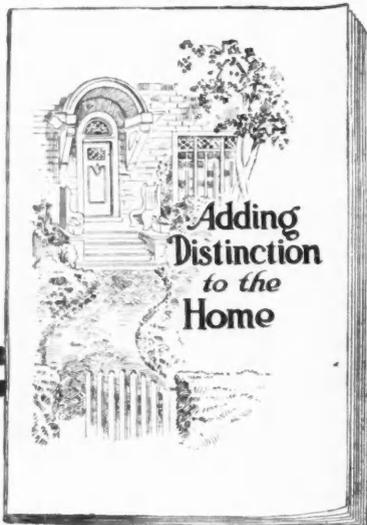
French Doors Mirror Doors Front Doors

This is the time of year when people are improving their homes.

Our new book, "*Adding Distinction to the Home*," offers valuable suggestions for home improvements and shows a big variety of attractive designs in Morgan French Doors, Mirror Doors and Front Doors.

It will prove of immense help to you in interesting home owners and builders at this time and securing their business. Write for this book now. It's FREE.

Morgan Sash & Door Co.
Dept. A-23, Chicago



Write for this FREE Book

Morgan Co.
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Baltimore

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6 E. 39th Street
New York, N.Y.

Morgan Sash &
Door Co.
Detroit, Mich.

Displays of Morgan
Model Doors in All
Principal Cities —
Ask Us Where.

feet from end; one piece 1¼ by 4-inch hard wood, with hook in center; one wedge made from any old piece of 1 by 6-inch, tapered to size required.

Lay frame on trestles, screen side up, with head of frame resting on one and sill on the other. Next, lay 1¼ by 4-inch piece across frame near middle rail. Pass 2 by 4-inch under trestle and hook 2 by 4-inch and 1¼ by 4-inch together, as per sketch. Push down on 2 by 4-inch until A B C are in line, and put wedge under trestle to secure position. Cut wire correct length and nail at each end, being careful to keep it as wide as it can be stretched with the fingers.

After both ends are securely nailed, release 2 by 4-inch, slide 1¼ by 4-inch to side until end will pass under screen frame and carefully draw it out and wire will be tight as a fiddle string. Lay frame on bench and nail edges in the usual way.

GAMBREL.



Indian Situation in Oklahoma

To the Editor:

Pawhuska, Okla.

Together with my renewal to AMERICAN CARPENTER AND BUILDER I am sending a kodak view of the country home of Mr. Charles Brave, a full blood Osage Indian, recently contracted thru the Osage agency and built on Mr. Brave's homestead, eight miles northwest of Pawhuska, Okla. This house, consisting of six rooms, is built of best material thru-



Type of the Modern Indian's Wigwam.

out; has, at convenient distance, a spacious up-to-date barn; and is but a fair sample of the many buildings these Indians are erecting, as the individual members of the tribe come into possession of their trust funds, which amount to \$3,800. The land allotment consists of 559 acres to each Indian, 160 of which is the homestead restricted from sale and the remainder is surplus.

The wealth of each Indian is estimated at \$40,000, which at the present time is being largely increased by royalties on oil and gas. The annuity is made in regular quarterly payments ranging from \$75 to \$500 per capita. In August of this year a special payment arising from the sale of oil and gas leases, amounting to \$922 per capita, was made to the adult members, the minors' shares being held in trust by the Interior Department until the age of twenty-one.

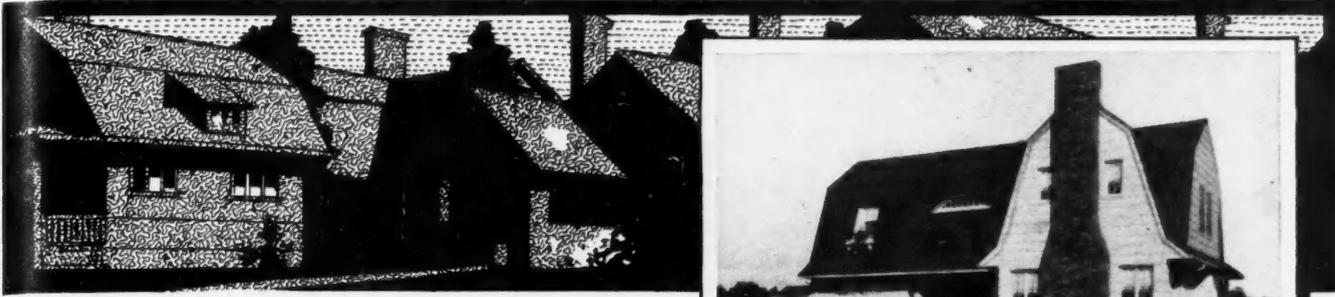
If you care to publish the picture, I trust you may be able to glean from this information something of interest to the many readers of AMERICAN CARPENTER AND BUILDER.

A. M. DOCKUM.

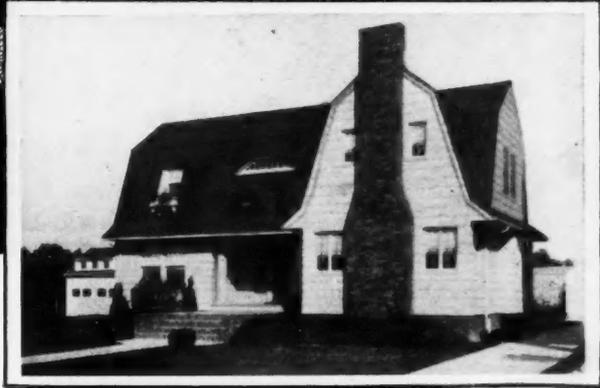


Curiosity

"And what is that," asked the sweet young thing, who was being shown the Baldwin Locomotive Works, pointing with her dainty parasol. "That," said her guide "is an engine boiler." "And why do they boil engines," the sweet young thing asked innocently. "To make the engine tender," replied her resourceful guide.—W. B. McGee.



-from a Modest Home to a Skyscraper-



Residence of E. C. Soper, Cleveland, Ohio. J. H. Newson, Architect

- and in all kinds of buildings, Churches, Auditoriums, Hospitals, Theatres, etc., you can build better walls by using

Hydrated Lime Plaster

For Scratch and Brown Coats

-Makes better walls by providing better conditions of acoustics. Hydrated Lime Plaster not only prevents sound transmission but also prevents sound reflection. Quiet conditions in the home result from using this plaster.

Hydrated Lime Plaster makes straight walls. It is a slower setting plaster and allows the plasterer time to float the walls to straight and even surfaces. It eliminates buckling of wood lath. It contains nothing that

will destroy decorations of any kind, and costs no more than other plaster.

Hydrated Lime Plaster being a non-conductor of sound, together with the other desirable features mentioned, makes it specifically serve the needs peculiar to home construction.

That you may investigate this plaster at greater length we have prepared a booklet explaining the above points in full, as well as many others equally important.

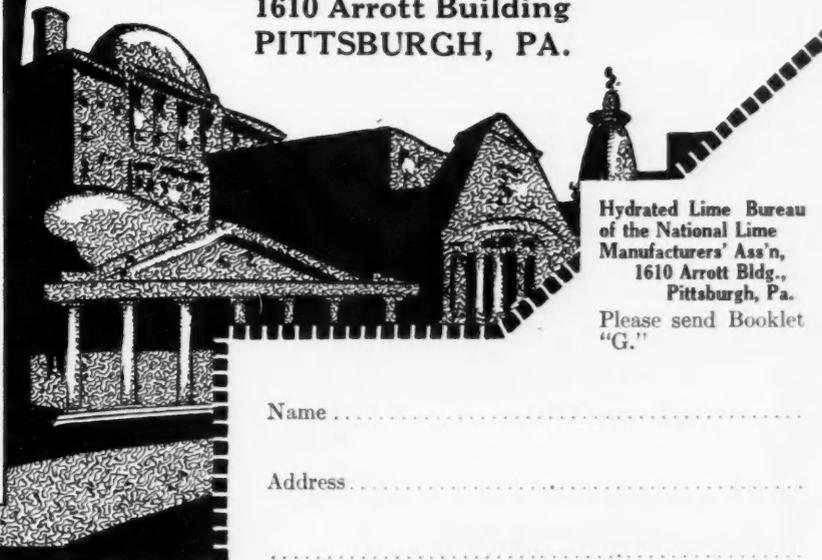
You are welcome to a copy together with the Hydrated Lime Plaster Specifications. Simply send us the coupon below for booklet "G."

*Second National Bank Bldg., Toledo, Ohio
D. H. Burnham & Co., Architects, Chicago*



HYDRATED LIME BUREAU of the National Lime Manufacturers' Association

1610 Arrott Building
PITTSBURGH, PA.

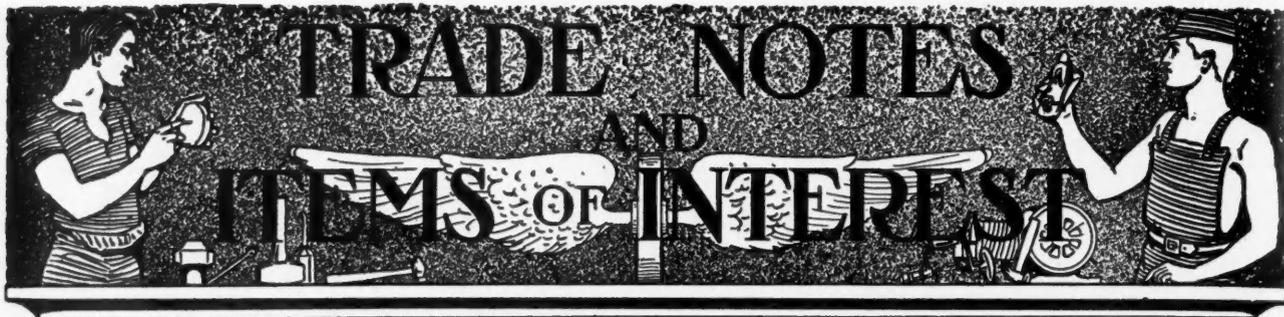


Hydrated Lime Bureau
of the National Lime
Manufacturers' Ass'n,
1610 Arrott Bldg.,
Pittsburgh, Pa.

Please send Booklet
"G."

Name

Address



THROUGH this department the Editors aim to keep builders, contractors, carpenters and architects in touch with what their friends, the manufacturers, are doing for them in new or improved tools and machinery, methods and materials—pertaining to building. These items are offered here as interesting information for our readers; they are not advertising. Take full advantage of the Bargains offered. Write for catalogs and booklets, and become thoroly familiar with these Improvements and New Goods.

Large Advertising on Re-Roofing Week

ASPHALT SHINGLE ASSOCIATION HELPING THE CONTRACTORS AND CARPENTERS WITH SPECIAL SALES EFFORTS.

IN October, when the average house owner is speculating as to whether his roof will last thru another winter, is a good time to talk re-roofing. The early fall rains, leaking thru to the ceilings below, are powerful persuaders to convince the man with a leaky roof that he needs to do something, and do it quickly.

That is why the week of October 9th to 14th has been chosen as "Re-roofing Week" by the Asphalt Shingle Publicity Bureau, who will feature it with large space sales appeals in the leading magazines, and who are urging contractors to help get their share of the business to be created thereby. Such leading papers as the *Cosmopolitan*, *Collier's*

Weekly, *Literary Digest*, *Christian Herald* and the *Saturday Evening Post* will be used.

Many of the principal makers of asphalt shingles who are members of the Bureau will join in with the work by using similar space in the magazines and newspapers, all urging the repairing of the house with asphalt shingles and suggesting the use of their own particular brands. In addition, many hundreds of thousands of letters, circulars and other forms of advertising matter will be mailed to house owners by the various manufacturers, dealers and carpenters and contractors, and widespread publicity will be given to this sales "push."

(Continued to page 114.)

**You'll be proud to say "I installed
DELCO-LIGHT"**

Delco-Light is so universal in its application to the needs of the suburban or rural resident that it is unwise to build a house *anywhere* without wiring it for electricity. Delco-Light is a complete electric plant—simple, compact, economical. Furnishes ample current for light and power—trouble proof and easy to operate.

Ask for the booklet
Price Complete \$275 f. o. b.
With Batteries Dayton

The Domestic Engineering Company, Dayton, Ohio
Distributors in all principal cities



Modern Construction of Small Town and Country Homes Requires the Installation of Carbide Lighting and Cooking Plants

Ask the good woman who cooks on a Carbide range and lights her home with Carbide lights--- She will tell you that Union Carbide is doing more for country home folks and country home life than any discovery or invention of this age.

She will tell you that her Carbide range has added to her health and happiness by shortening her kitchen hours and by making her cooking a much simpler and easier task.

She will tell you that the range is a practical duplicate of her city cousin's gas range and that she turns the fire off and on with a twist of her wrist—saving all the time and doing away with all the bother and dirt connected with handling fuel and ashes.

She will tell you that all these advantages are the biggest kind of a help towards keeping both herself and her kitchen clean and cool during hot weather months.

She will tell you that her Carbide lights in every room and out on the porch are the cleanest, whitest and most beautiful lights in the world.

She will tell you, too, that all these lights are equipped with "friction igniters" to "light up" instantly with the pull of a little ornamental brass wire rod.

She will tell you that the handsome bronze and brass fixtures and the brilliancy of the light itself has doubled the attractiveness and beauty of her home.

You must ask, too, the man of the house about Union Carbide itself.

He will tell you that in weight and bulk Union Carbide is quite like coal—that he gets his supply at factory prices, and that he gets it direct from the company's warehouse in his district.

He will tell you that his Union Carbide comes in blue and gray 22 inch—hundred pound "drums" (cans)—easy to handle, easy to store.

He will tell you that he keeps a six months' or a year's supply on hand in a corner of his barn or shed.

He will tell you that he, himself, not only comes in for his share of the benefits of the range in the kitchen and the lights in the home but he has his own Carbide lights throughout his barns and in the center of the yard around about—big brilliant ball lights operated the same as the house lights without matches.

He will tell you also that the double benefits of both lighting and cooking make Union Carbide by far the most economical and desirable lighting and cooking service for country homes.

And he will tell you that the best proof that this is all so is the fact that he is only one of over 300,000 country home users to whom we now supply Union Carbide in the little blue and gray drums.

Building contractors can well afford to recommend the installation of a Carbide Lighting and Cooking plant in every new small town or country home. Many contractors are now making a splendid profit acting as agents for Carbide Plant Manufacturers. Send this coupon for our handsome advertising booklets giving complete information—with many illustrations.

Union Carbide Sales Company, Dept 28

New York City Chicago, Ill. San Francisco, Cal.
42nd St. Building Peoples Gas Building Kohl Building

 Union Carbide Sales Company Dept. 28
 New York Chicago San Francisco

 Send me your advertising literature.
 Name
 Address

 (1)

Bargain for the Contractor

Let me send my offer on this "Contractor's Typewriter"

It is a visible writer—just the machine you need—specially designed to meet the exacting requirements of your business.

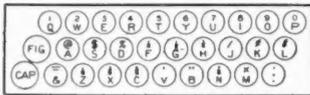
It is easy to operate, you can learn to operate it in 10 minutes.

It requires no care, it will do your work for a lifetime. We guarantee it. It is the latest Model 5, with inbuilt Tabulator and Back-spacer.

This Contractor's and Material Man's Model has Keyboard arrangement as shown below.



No. 5 OLIVER



Note carefully not only the fractions and figures, but characters used in Bills of Material, etc., are all on one shift, such combinations as: "400' $\frac{3}{4}$ x 4 x 16' @ \$30.00 = \$12.00" reproduced with one operation of the shift key.

The automatic tabulator makes this exacting work as easy as letter writing. Just press the button and the paper automatically glides to the correct spot so that quantities group themselves under quantities, dimensions under dimensions, prices under prices, etc.

Think of the enormous advantage of the typewritten estimate. Think of the enormous saving of tedious labor. Then remember that this special Contractor's Model is also ideal for ordinary correspondence and the many other uses to which a typewriter can be put.

Free Trial—Nothing Down

My offer is to send this typewriter to you, that you may decide by actual trial whether or not you desire it. No advance payment is required and you assume no obligation.

Cut Price—Terms 13c a Day

I will make you an extremely low price on this machine. A price that has never been made on a typewriter of this quality.

No advance payment is required. If you decide to keep the typewriter, you can pay a little each month, about 13 pennies a day.

No interest, no extra charges, no chattel mortgages, no red tape—everything is made easy.

Get This Free Information

It will not cost you anything to learn about this offer. Just send your name and address and I will send you full particulars. No salesman will call on you, you will not be urged to buy.

Do it now. I have but a limited number of these "Contractor's Model" of the Oliver, and if you have any need for a typewriter do not neglect to send for this best of all typewriter offers. A coupon is attached for your convenience. For your own advantage mail it today.

Yours very truly,

Typewriters Distributing Syndicate
Dept. 3137 1510 Wabash Ave., Chicago

Mail this for All the Facts

Typewriters Distributing Syndicate,
Dept. 3137, 1510 Wabash Ave., Chicago.

Gentlemen: With the understanding that I am not purchasing anything or obligating myself in any way, you may send me your bargain offer on "Contractor's Model Oliver."

Name

Address

The principal sales appeal advanced will be to stop repair costs on the old roofing by re-roofing entire with asphalt shingles, "The Roof that *Stays Young*," and which does not need frequent repairs and upkeep. And as October 9th is celebrated as Fire Prevention Day all over the country, a considerable amount of favorable attention can be secured therefrom, because of asphalt shingles' well known fire resisting qualities.

Carpenters, contractors and roofers are freely invited to take advantage of this advertising and merchandising if they are applying asphalt shingles, which are sold by dealers in almost every city. Among the ways in which they can cooperate and secure especial benefit therefrom is to write letters to, or call up house owners who have bad roofs, and ask them if they would not like a new, leakless asphalt shingle roofing applied during "Re-roofing Week." A little sales effort, especially while this advertising is being run, should result in an excellent amount of extra orders for every contractor who joins in.



Kissel Plant Enlarged

The Kissel Motor Car Company is adding two more buildings to its plant at Hartford, Wis. When these are finished more than 60,000 square feet of floor space will have been completed during 1916. Still further expansion plans are under way.



Avoid the Screen Rush

There is no screen factory of any importance in the country that does not refuse good orders for screens each spring. There is no screen factory which is not hurried and worried trying to take care of its business during the spring rush.

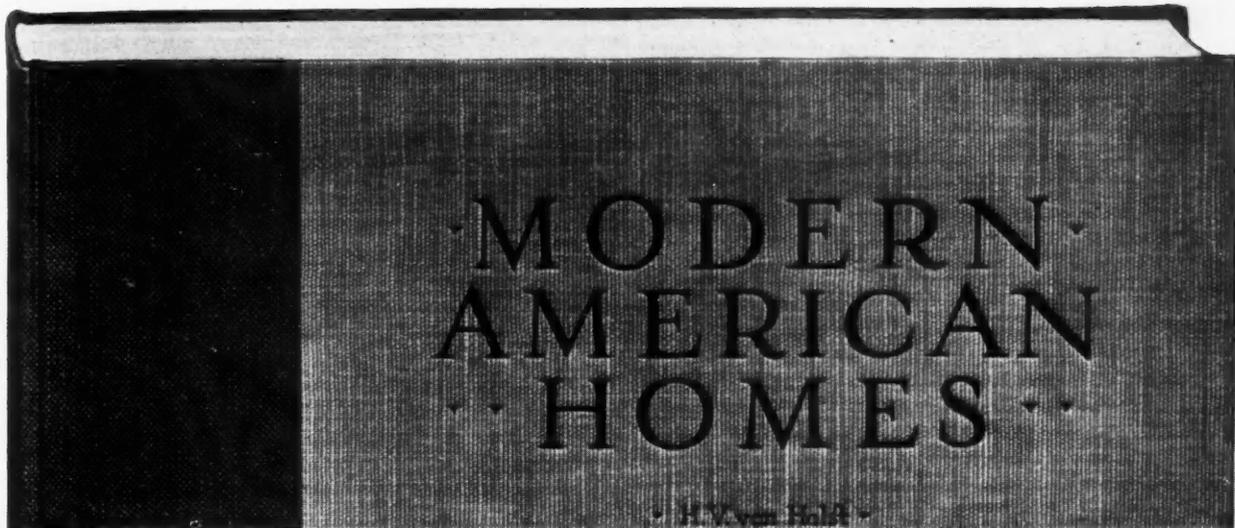
What is the result? Tardy deliveries, disappointed customers, hurried work, less careful inspection, less durable screens and higher cost. If a screen manufacturer were to equip a factory big enough to take care of the spring orders as fast as they come in, his equipment would be practically idle half of the year.

What is the remedy? The people who have bought screens two or three times know very well what it is; but the average man only buys screens once—if he buys good ones—and he learns the remedy only when it is too late.

Fly screens should be ordered in the fall or early winter for spring delivery. Every manufacturer gives preference to the customer who orders in this way. If there are any concessions in prices or preference in materials, this customer gets them. Each coat of paint has plenty of time to dry, there is time for careful work and a rigid inspection. Shipment is made on the exact date ordered, and payment may be made at the usual time in the spring.

The Standard Screen Company, 1848-58 Hastings Street, Chicago, has one of the largest and best equipped factories in the West, devoted entirely to made-to-order screen work. On account of the extensive equipment necessary and the immense output of this factory (which amounts to nearly a half million screens annually), they can make better screens and make them cheaper than small factories with incomplete equipment. Some screens hardly last two years—some last twenty. Some screens are clumsy and conspicuous—some look neat and stylish. "The best is always the cheapest in the end," and this applies just as much to screens as to anything else.

Contractors and material dealers who wish to add to their income during the winter season will do well to write to the above-named company for prices and information.



NEW PLAN BOOK FREE

Modern American Homes is the most complete and up-to-date plan book in America. It contains plans and specifications for 168 different structures, including excellent exterior and interior views, detailed estimates, etc., city, suburban and country homes, bungalows and summer cottages. Just the up-to-the-minute plans that you need in your business. It contains 224 pages, 9½ by 12¾ inches, and 426 illustrations. And for a limited time we will give it away absolutely free to every purchaser of the newly revised Cyclopaedia of Architecture, Carpentry and Building. Now read—

A New 1916 Edition Cyclopaedia of Architecture, Carpentry and Building

It covers everything from cottages to skyscrapers—from plans to complete structure. It includes wood, stone, steel and re-inforced construction, estimating and contracting; a study of the Greek and Roman orders; interior finishing and decorating; lighting and sanitation. The work of 40 experts—and it can be depended upon. Every line written in plain, easily understood English.

Ten large volumes are handsomely bound in half-black Morocco, gold stamped and contain 4,760 7 by 10-inch pages, 4,000 illustrations, full-page plates, building plans, diagrams, etc. Hundreds of valuable tables and formulas carefully indexed so that all about Carpentry is always at your finger tips.

Read Them Seven Days

We will send you the complete set and the new plan book on your simple request. Read them—use them—study them for seven full days, then decide if you can afford to be without them. If you think you can get along without them, send them back at our expense. If you want to keep them, send only \$2.00 after the seven days' trial, and then—

50c a Week

Yes, only \$2.00 a month is all you need to pay for this complete library of money-making, business-building books. And they are sent to you prepaid.

SEND NO MONEY—JUST THE COUPON

No, do not send us a single penny. Just put your name and address on the coupon and we shall send you the complete 10 volumes of the 1916 edition of the Cyclopaedia of Architecture, Carpentry and Building, along with the free plan

Consulting Service Free

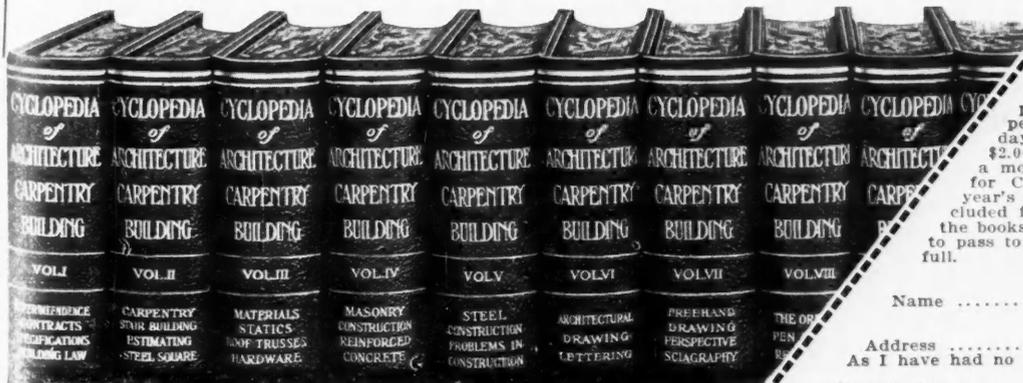
In addition to the new book of plans, we also give free with each set of The Cyclopaedia of Architecture, Carpentry and Building a year's consulting membership in the American Technical Society. Through this service you have the assistance of the most expert architects, structural engineers and draftsmen in America. They are no farther from you than the nearest mail-box. They stand ready to solve your perplexing problem, to offer suggestions, point out the things you should avoid. And this service is rendered for a full year without extra charge.

book. Don't pay us anything until after you have read and examined them for seven full days. The Consulting membership alone is worth many times the very cost of the books. Act now. Send the coupon.

Partial Table of Contents

Mechanical, free-hand, prospective and architectural drawing, lettering, pen and ink rendering, the orders, superintendent, strength of materials, masonry, re-inforced concrete, carpentry, steel square, stair building, hardware, steel construction, roof trusses, practical problems, excavating, contracts, specifications, building law, sanitation, sheet metal work, electric wiring and lighting.

AMERICAN TECHNICAL SOCIETY, Dept. R-1757 Chicago, U. S. A.



American Technical Society, Dept. R-1757, Chicago, U. S. A.

Please send me the free plan book and also Cyclopaedia of Architecture, Carpentry and Building, for seven days' examination. I will send \$2.00 within seven days and \$2.00 a month until I have paid \$24.80 for Cyclopaedia. (Plan Book and year's consulting membership included free), or notify you and hold the books subject to your order. Title to pass to me when amount is paid in full.

Name

Address

As I have had no previous dealings with you, I refer you to

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Let's All Boost Fall Painting—Now

Many scientists are of the opinion that the Gulf Stream has moved somewhat, and that as a consequence the seasons of the year are gradually changing. The Gulf Stream is blamed for almost as many things as the European War, but whether it is guilty in this case or not, it is certain that the spring painting season of 1916 was knocked out of all semblance to a real normal painting period. A steady stream from the skies during April, May and June held up the spring rush so radically that if we are to have a painting season at all this year, it will come in the fall.

In view of this fact, the painter should prepare for fall this year as never before. His advertising should be exceptionally strong, and should be prepared with the idea constantly in mind that the vast majority of those jobs which were to be done in the spring have been postponed. Unless he does this, a large amount of postponed work will slip over into next year, for most house owners will feel that it makes little difference when they paint, and will be inclined to defer their work until next spring.

There are many good reasons which the painter can use to convince people of the folly of postponement. To begin with, October and November are ideal months for painting. During these months, the surfaces of all buildings are drier than they are in the spring, since it takes a long time for the moisture and dampness absorbed during the winter to get out, especially on those sides of buildings least exposed to the sun. The winter often leaves leaks along the cornices, eaves and sills, allowing the water to seep thru behind the siding, a menace to the paint on the outside, to plaster on the inside and to the soundness of the wood itself. The summer sun gradually dries this moisture.

Too, there are few showers in the fall, obviating the necessity of a continual rush to get jobs finished between

rains. The air in the fall is practically free of bugs, gnats, moths, pollen from flowers and many other dust particles abounding in the spring and summer which often seriously interfere with the painter's work.

The house owner who defers his painting this fall is like the captain of a leaky boat who takes his vessel thru many storms before having it repaired, rather than have it fixed before he encounters the storms. Such a house owner takes his unpainted building thru the stormiest time of the year when it most needs the protection of the paint. The painter can convince him of the absurdity of such a practice by telling him that the fall is the time to caulk and putty and mend the cracks and joints preparatory to applying a good coat of paint; that the house so reinforced is ready to withstand the late rains, the fogs, the frosts, the snows, the piercing winter blasts; and that the wood is thus preserved from rotting, the plaster from falling off, and the rooms from becoming damp and unhealthy.

The painter who goes after this postponed work, armed with these arguments, will find that it is not yet too late to do a full year's work.

Like an engineer who finally makes up lost time, the painter who begins now to plan a *real* fall painting campaign, will yet finish the year "on schedule."—*The Dutch Boy Painter.*



Wood Hardware Specialties

The older readers of the AMERICAN CARPENTER AND BUILDER will need no introduction to the line of goods which, until recently, was placed on the market by the R. Bliss Manufacturing Company. This company, which has since been succeeded by J. H. O'Neil, Jr., at 525 Main Street, Pawtucket, Rhode Island, was organized more than eighty years ago and during the period since their organization have estab-

(Continued to page 118.)

Every Door

Hung on Three Butts

Gives Maximum Service

Specify this way on your next job.

Write for Arch. Cat. F

McKINNEY MFG. CO.

PITTSBURGH



A RCHITECTURE isn't everything. When a man enthuses over his new house or garage, it isn't usually the "beauty of line" to which he points with pride. It's the convenience and perfection of the equipment.

Stanley Garage Hardware

is the perfect finish for garage doors---always looks well, works well and wears well.

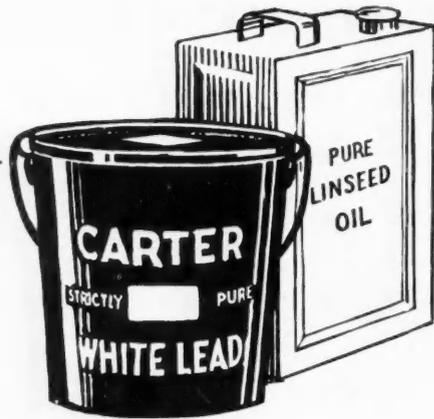
The Stanley Garage Door Holder, illustrated above, is an arm of steel that locks the door securely open against the heaviest gusts, so that it cannot slam against the incoming or outgoing car. Such thoughtful provisions will add to the business of the builder who is responsible for their installation.

Write today for illustrated booklet "A" on Stanley Garage Hardware

Stanley Works
New Britain, Conn., U.S.A.

NEW YORK
100 Lafayette Street

CHICAGO
73 East Lake Street



What About the PRIMING COAT?

Twenty years ago nearly everyone thought that it did not matter what kind of paint was used for the priming coat, as nobody would ever see it. Much yellow ochre was used because it was cheap.

The owners of those houses are still burning and scraping the paint off in order to get down to the clean wood and prime it with pure lead and oil.

Using an ochre primer is a "pennywise, pound foolish" policy. Perhaps \$1.87 can be saved on a painting contract, but some time it is going to cost somebody \$18.70 or more to get that paint off.

The most important coat of paint on a house is the priming coat. Unless a firm foundation is provided everything that is put on top of it is going to come off. There is nothing more reliable than Carter White Lead mixed rather thin with linseed oil and turpentine. It is so fine that it anchors securely in the pores of the lumber. It repels moisture instead of absorbing it. It is elastic and will contract and expand with changes of temperature without cracking and scaling.

Construction costs are figured very closely these days. While two coats of paint cannot be expected to wear as well as three, on some kinds of lumber two coats of Carter White Lead look and last remarkably well because of its excellent covering qualities. If you are going to save, save on the labor, not on the material.

When you want to know the details of painting, the Carter Paint Calculator will interest you. The price is 25 cents, but it will be sent to any contractor or architect with our compliments on request.

Carter White Lead Co.
West Pullman Station "B"
CHICAGO, ILL.

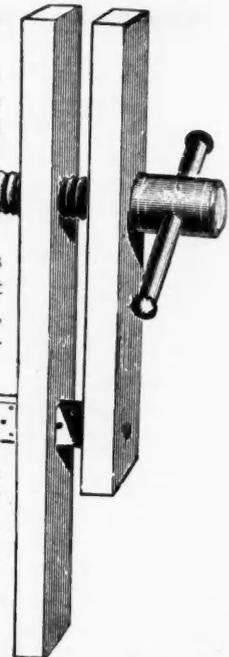
lished a reputation well known to those interested in the field.

The new organization is carrying on the business with much the same line of goods which has been associated with the name of the original concern for a number of years. Some of the principal articles are hand and bench screws, cabinet and pianoforte makers' clamps, chisel, brad-awl, auger and file handles; hickory and lignum-vitae carpenters' and carvers' mallets; ring mallets, bookbinders' presses and plows; brass and iron foundry flash clamps; belt clamps; mill supplies in wood and miscellaneous goods, especially in the wood turning line.

The illustration shows a carvers' or carpenters' vise made by this company.

It is furnished in various sizes, depending upon the use to which it is to be put. The screws are made of hickory 1 3/4, 2 and 2 3/8 inches in diameter. All readers are familiar with this type of vise.

Those who have not been advised as to the changes which have been made in the line of goods which was formerly marketed by the R. Bliss Manufacturing Company, should address J. H. O'Neil, Jr., at 525 Main Street, Pawtucket, Rhode Island, for complete information in regard to the list of articles manufactured by the new firm.

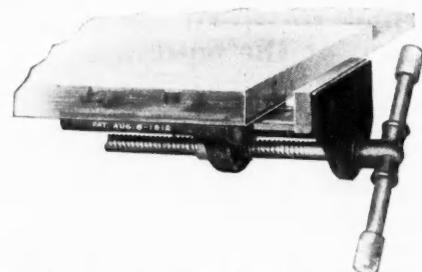


The Bliss Carpenter's Vise.

The Bemis Standard Vise

The vise shown in the illustration, altho designed to meet the demand for a satisfactory low priced vise for manual training benches, is perfectly adapted to the needs of any contractor or builder within the limits of its capacity. The jaws of this vise are 2 inches by 8 inches and the vise will open 8 inches. Its construction is simple and it is perfectly capable of standing the strain which is often incident to the type of work which it is designed to do. Working parts are of iron and the jaw is protected with wood.

This is not a "quick-acting" vise, but it is fitted with a continuous, fast running double-thread steel screw, making it very simple and positive in action. When a dog is required



The Bemis Standard Vise (Patented).

to hold the work on top of the bench, it is so placed that every pin in the bench top is easily accessible for adjustment. The handle is placed low enough so that it may be turned without interfering with work that may overhang the vise.

This vise is made by A. L. Bemis, 71 Commercial Street, Worcester, Mass., who also makes a complete line of benches for carpenters, cabinet makers and manual training schools.

(Trade Notes Dept. Continued to page 122.)

On the Level—Absolutely

**GODELL
PRATT**
1500 GOOD TOOLS



OVER forty-five years' reputation stands back of the old reliable **Stratton Levels**. It was only fitting that when this sturdy business passed into other hands it came under the Goodell-Pratt banner, entrusting its name and handiwork to a house that would carry on the good work. All Stratton Levels come under the Goodell-Pratt brand name. You can't buy them any other way. The superiority and accuracy of these levels are unquestioned. Every glass is rigidly tested—they **must** be accurate. Lumber parts are thoroughly kiln-dried. Every brass bound level is made to withstand moisture. We plane all sections of sectional levels twice before putting them together.

We are real "finicky" in making Stratton Levels. We pride ourselves on maintaining their well-known accuracy. We have styles and sizes to meet every demand—all under the Goodell-Pratt name.

Write today for "The Story of the Stratton Level."

Goodell-Pratt Company

Greenfield, Mass.

The Goodell-Pratt Line includes:

Hacksaws
Saw Sets
Gauges

Punches
Micrometers

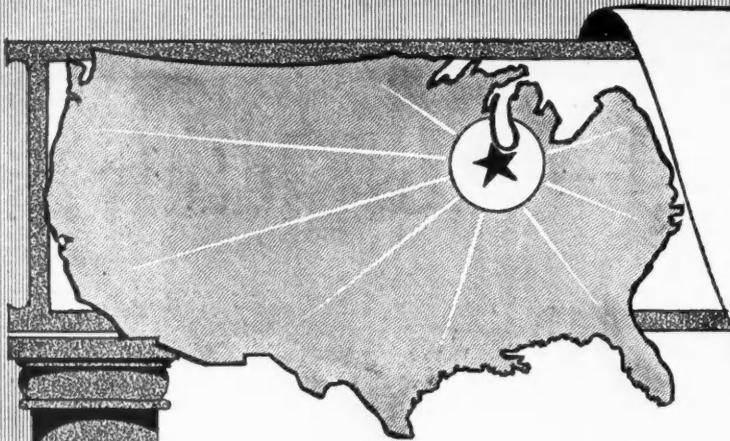
Grinders
Vises

Drills
Levels

Lathes
Bit-Braces

Calipers
Squares





Look Before You Build

Get the habit of writing to us in regarding to your building wants. This exhibit is a regular clearing-house of building information—the market where you can do your buying to the best advantage.

We Are Saving Builders Thousands of Dollars

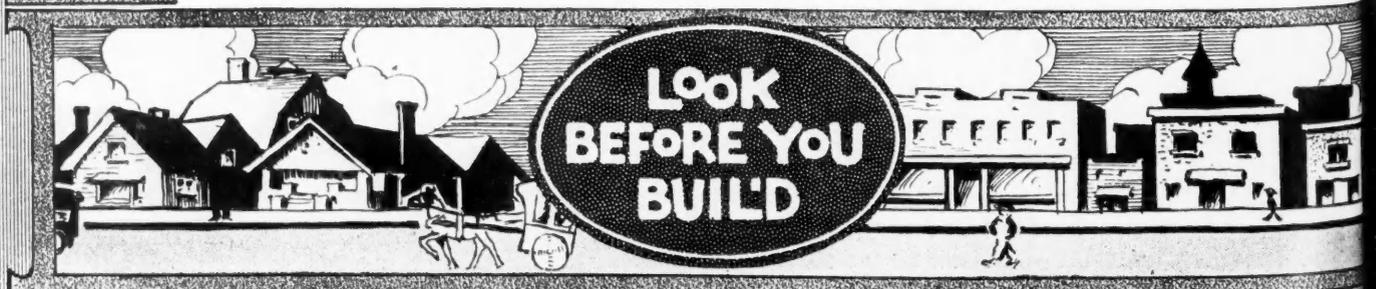
HUNDREDS of builders, architects and contractors are visiting Chicago's great **Building Material Exhibit** every day.

They recognize its unique value—have found by personal experience that they can save not only time but hard cash by coming to the **Exhibit**, where they can see the actual products they need—compare various makes side by side—pick the best for their purpose—secure the lowest figure without loss of valuable time—and be **sure** that it is the lowest.

They do all this at this vast Building Exposition—why not **you?**

Over 200 elaborate and interesting displays by America's leading manufacturers of building material and equipment. This great permanent **Exhibit** is one of the showplaces of Chicago—worth coming far to see. For those who cannot come we have a special market-investigation Service. Send us your plans and we will secure bids on any material or equipment for you without charge. Write us today.

BUILDING MATERIAL EXHIBIT, Entire Second Floor, Insurance Exchange
CHICAGO, ILL.



Look Before You Build

Here is your opportunity. Under one roof and on one floor all your building wants can be supplied. Here you can get in direct touch with the manufacturer and effect big sales.



Let Us Show You Where You Can Save Money on All of Your Building Materials—Send Coupon Today

This huge permanent building material exhibit is established primarily for your benefit. Here 200 manufacturers have come together under one roof—condensed their business into 200 intensely interesting displays, and invite you—for your own profit—to come and see and learn.

As a builder you are invited to make our beautiful display rooms your Chicago headquarters. We are here for that purpose. If you cannot come to Chicago yourself, get acquainted with us by mail, and let us be your Chicago representative. This service will cost you nothing, and will add materially to your financial welfare.

BUILDING MATERIAL EXHIBIT
Insurance Exchange
CHICAGO

Gentlemen:—I am in the market for the following Please put me in touch with manufacturers.

.....
.....

Name.....

Street.....

Town..... State.....

BUILDING MATERIAL EXHIBIT, Entire Second Floor, Insurance Exchange
CHICAGO, ILL.

**LOOK
BEFORE YOU
BUILD**

TYPEWRITER SENSATION



Free Trial

Use as You Pay

Only \$2.50 a month until the low total price of \$48.80 is paid, and the machine is yours.

This is absolutely the most generous typewriter offer ever made. Do not rent a machine when you can pay \$2.50 a month and own one. Think of it—Buying a \$100.00 machine for \$48.80. Cash price, \$45.45. Never before has anything like this been attempted.

Standard Visible L. C. SMITH

Perfect machines, Standard size. Keyboard of Standard Universal arrangement writing 84 characters—universally used in teaching the touch system. The entire line of writing completely visible at all times, has the tabulator, the two color ribbon, with automatic reverse, the back spacer, ball bearing type bars, ball bearing carriage action, ball bearing shift action, in fact every late style feature and modern operating convenience. Comes to you with everything complete; tools, cover, operating book and instructions, ribbon, practice paper—nothing extra to buy. You cannot imagine the perfection of this beautiful reconstructed typewriter until you have seen it. I have sold several thousand of these perfect latest style Model No. 2 machines at this bargain price, and every one of these thousands of satisfied customers had this beautiful, strictly up-to-date machine on five days' free trial before deciding to buy it. I will send it to you F. O. B. Chicago for five days' free trial. It will sell itself, but if you are not satisfied that this is the greatest typewriter you ever saw, you can return it at my expense. You won't want to return it after you try it—you cannot equal this wonderful value anywhere.

You Take No Risk—Put In Your Order Now

When the typewriter arrives, deposit with the express agent \$8.80, and take the machine for five days' trial. If you are convinced that it is the best typewriter you ever saw, keep it and send me \$2.50 a month until our bargain price of \$48.80 is paid. If you don't want it, return it to the express agent, receive your \$8.80 and return the machine to me. I will pay the return express charges. This machine is guaranteed just as if you paid \$100.00 for it. It is standard. Over one hundred thousand people own and use these typewriters and think them the best ever manufactured. The supply at this price is very limited, the price will probably be raised when my next advertisement appears, so don't delay. Fill in the coupon today—mail to me—the typewriter will be shipped promptly. There is no red tape. I employ no solicitors—no collectors—no chattel mortgage. It is simply understood that I retain title to the machine until the full \$48.80 is paid. You cannot lose. It is the greatest typewriter opportunity you will ever have. Do not send me one cent. Get the coupon in the mails today—sure.

HARRY A. SMITH, 721, 231 N. Fifth Avenue, Chicago

H. A. SMITH, 721, 231 N. Fifth Ave., Chicago, Ill. Ship me a No. 2 L. C. Smith F. O. B. Chicago, as described in this advertisement. I will pay you the \$40.00 balance of the SPECIAL \$48.80 purchase price at the rate of \$2.50 per month. The title to remain in you until fully paid for. It is understood that I have five days in which to examine and try the typewriter. If I choose not to keep it I will carefully repack it and return it to the express agent. It is understood that you give the standard guarantee for one year.

NAME
ADDRESS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

“How to File a Hand Saw”

Has it not been a fact that the training of the hand to properly and efficiently do manual work is one of the chief factors responsible for the advance made in civilized countries during the past quarter of a century? Is there not an even more extensive field before the youth of today? The opportunity exists to make the doing of certain kinds of manual work an art in itself.

The Simonds Saw Manufacturing Company believes in promoting and encouraging the study of woodworking. During the last school year this encouragement took definite form in the awarding of 228 prizes to boys who in or out of manual training schools made of wood some useful or ingenious article of special merit. This year the Simonds Company, believing that the care of tools is a first essential to the woodworker, has prepared and is distributing a 16-page booklet, “How to File a Hand Saw.” The text matter is conveniently arranged in five lessons suitable for class room work. Copies of this book may be obtained by anyone especially interested in the subject of manual or vocational training by addressing Simonds Mfg. Co., Fitchburg, Mass.



No-Set Mitre Box Saw

A special feature of the Honeycomb mitre box, made by the Rockford Mitre Box Company of Rockford, Illinois, is the patented no-set saw shown in the illustration. This saw is furnished with all Honeycomb mitre boxes and can also be used in any standard make of mitre box.

The no-set saw is ground from a plate of steel equal in thickness to the ordinary set of a mitre box saw, then reduced to the standard size so as to fit the saw guides, leaving the first 3/8-inch equal in thickness to the setting required to clear the blade freely. The advantage of this construction lies in the fact that a saw cannot be set as uniformly as it can be ground. By grinding the thickness of the cutting edge of the saw to the correct value instead of using the standard thickness of blade and setting the teeth, the saw is made to push easier, cut more exactly and leave a smoother cut. Furthermore, the addition of three gauges to the thickness of the blade at the place where the greatest strain comes



This Mitre Box Saw Does Not Have to Be Set.

in cutting, greatly stiffens the saw and increases its durability. There is less vibration and no sawdust binding.

These saws are cold hand hammered out of 20 gauge stock and have 12 teeth to the inch. They are made by experienced mechanics and are guaranteed to give satisfaction. In addition to the no-set saws and the Honeycomb mitre boxes, this company also manufactures Honeycomb metal cutting mitre boxes, Star mitre machines, Star joining vises, woodworkers' glue clamps and other useful high grade devices.

Anyone interested in this kind of equipment may obtain full particulars from the Rockford Mitre Box Company, Rockford, Illinois.



“The Koehring” Mixer

The above is the title of a little pamphlet published periodically by the Koehring Machine Company at Milwaukee, Wisconsin. It is styled “A Periodical of Pluck—A Magazine of Enthusiasm,” and the August-September issue lives up to its purpose. Its twenty pages are filled with good thoughts

(Continued to page 124.)

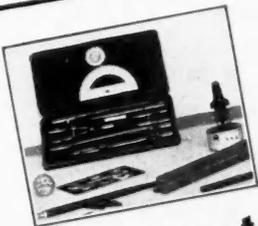
STUDY AT HOME

By "Chicago Tech." New, Quick, Easy Way

BUILDERS' COURSE

**For Carpenters, Bricklayers, Foremen, Superintendents,
Contractors and all men in the Building Lines**

This old-established college helps the man who has never had the chance to get a first-class knowledge of Building, Plans, Specifications, Estimating, Contracting, etc. Chicago's foremost architects, estimators, contractors, will be your teachers. If you cannot attend the day and evening classes of the college, you can get the same instruction, under the same instructors, by the "Chicago Tech." **Home-Study Course.**



**This Elegant \$15
Outfit and all
Blue-Print FREE
Plans
to our Students
with instructions in
Plan Reading, Esti-
mating, Drawing,
etc. Here's your
chance—grasp it.**

**Plan Reading
Estimating
Contracting
Specifications
Architectural
Drawing
etc., etc.**

No books to buy

**All Blue-Print
Plans FREE**



CHARLES W. MOREY
President of the College
and Head of a Large Chicago Firm of
Engineers and Contractors

You know you must have a complete knowledge of plans and specifications if you are to do big things. The successful Foreman, Superintendent, Contractor **MUST KNOW.** He must be able to estimate closely and correctly. You can master these subjects in a very short time in your own home. Your spare time is enough. Any man can save the cost of the course on one job alone. Hundreds of men in the building trades do this very thing every year. You can. Will you?

This is a Practical Course for Practical Men. Your instructors are Chicago's foremost experts in their respective lines. **THEY** prepare your work. **THEY** examine and approve your work. We send you actual blue-print plans of buildings now being built or recently completed. Think of the work you have had to pass up because you did not know **HOW.** Think of the **OPPORTUNITIES** training will give you. Act right now. Don't delay—write today for full information. The coupon offers an easy way, mark and mail **NOW.**

CHICAGO TECHNICAL COLLEGE

1017 Lake View Building, Chicago, Ill.

Mark "X" opposite work in which you are interested. Without obligation on you we will send full information.

- | | |
|---|--|
| <input type="checkbox"/> Architectural Drafting | <input type="checkbox"/> Building Superintendence |
| <input type="checkbox"/> Builders' Course | <input type="checkbox"/> Structural Steel Drafting |
| <input type="checkbox"/> Estimating | <input type="checkbox"/> Sheet Metal Drafting |
| <input type="checkbox"/> Plan Reading | <input type="checkbox"/> Reinforced Concrete |
| <input type="checkbox"/> House Planning | <input type="checkbox"/> Machine Drafting |
| <input type="checkbox"/> General Contracting | <input type="checkbox"/> Surveying |

(1017)

Name _____

Address _____

Town _____ State _____

College or Home-Study Course _____

and valuable information. Psychologists tell us that the spirit of play is inherent in human nature. All of us know the benefit which may be derived by relaxation at the end of the day's work, but many of us have other things to do when we should like to relieve our minds of the thoughts of labor.

There is one means, however, of obtaining real refreshment without wasting time: This consists in reading the thoughts of enthusiastic people who have the ability to analyze the things in Life which the ordinary person must, thru force of circumstances, overlook. It is the abundance of refreshing material of this nature, intermingled with the more tangible facts of the concrete industry contained in this little house organ, which establishes its value.

Copies may be obtained from the Koehring Machine Company, Milwaukee, Wisconsin.

An Opportunity for Country Builders

The farm house and the village store and houses are no longer forced to pass the evening darkness with the feeble aid of the old kerosene lamp. And in this fact lies the possibility of generous profits for the country builder. Farmers and residents of small towns not having established community lighting facilities are now taking advantage of the modern methods of providing what, when once used, becomes almost an absolute necessity—a safe and adequate lighting system. Some of the manufacturers of farm lighting plants have shown their wisdom in selecting the country builder as the man best fitted to handle the business of selling and installing these systems.

The Jenne Acetylene Gas Machine Company is one of these firms. Their acetylene light plant consists of a generator which is installed outside the building in the ground, with pipe connections to all rooms. The portion of the plant which is

outside of the building is constructed of steel and reinforced concrete, insuring long life. The satisfaction which may be expected of one of these plants is indicated by the fifteen-year guarantee which goes with every installation. Simplicity and efficiency are marked characteristics of the Jenne acetylene light plant. In operation the system needs very little attention, the smallest plant providing light for a long period without recharging. An ingenious device is included in the design which makes it possible to dump a reserve supply of carbide into the generator in addition to the main charge, thus providing the user with light at all times.

The installation of these plants may be worked into the regular building business of the country builder as well as taken up as a side line. In either case the profits of the salesman and the installation man are both offered to the man who takes up the proposition. Full particulars may be had of the Jenne Acetylene Gas Machine Company, 313 Traction Terminal Bldg., Indianapolis, Indiana.

A Practical and Inexpensive Sander

One of the problems that the small shop owner has always had to contend with has been that of finishing his work.

To do this by hand ate up too much of his profits.

The ideal sanding machine for the small shop is the belt sander because of its ability to do so many different kinds of sanding.

Heretofore, however, most belt sanders have been so expensive as to preclude their use in the carpenter and builder's shop.

A new machine has recently appeared on the market that seems to combine all of the practical value of the higher priced machines, but which in construction has been so sim-

(Continued to page 126.)

WAREHOUSE
HUMBOLDT AND BRECKENRIDGE
AND N. C. R. R.
PHONE, WALNUT 760

A. R. RUTLEDGE
WHOLESALE
BUILDERS SUPPLIES
1450 PENOBSCOT BLDG.
DETROIT August 30, 1916.

OFFICE
PHONE, CADILLAC 3457

Northwestern Expanded Metal Co.,
Old Colony Bldg.,
Chicago.

Gentlemen:-

Some few days ago, a foreigner from the outlaying districts brought in to us a card of introduction which you furnished with your advertising.

We have supplied him with 700 yds of metal lath, and we are writing this letter, feeling that you would be glad to trace direct results of your advertising.

Yours very truly,

A. R. Rutledge

**Send Today
for Booklet 33**

Important!—

The approval of the public relieves you of the responsibility of making a recommendation. Why not insist upon "KNO-BURN" and take advantage of the public good will that our advertising has created?

Kno-Burn
TRADE MARK
Expanded Metal Lath

North Western Expanded Metal Company
Manufacturers All Kinds of Expanded Metal

903 Old Colony Building CHICAGO, ILLINOIS

A Sensible, Safe Construction

Almetal
STORE FRONTS

FOR 27 years we've been at your service—and we believe by working with Architects and Contractors on thousands of Store Fronts—of practically every type—we are competent to work with you.

During the wonderful development of Store Fronts we never have attempted to market a "freak" construction—we've "kept both feet on the ground" with the result of a universal confidence in our products.

"Almetal" construction is our latest achievement. It's born of experience—practical, sensible, easy to install, efficient, and moderate in price.

The ordinary carpenter can install "Almetal" Store Front construction. Experienced mechanics aren't necessary. "Almetal" sash, for instance, is as easy to install as wood-stops, and just as safe.

The heavy-gauge copper and the creosote-dipped blocks, which protect the glass, are permanent.

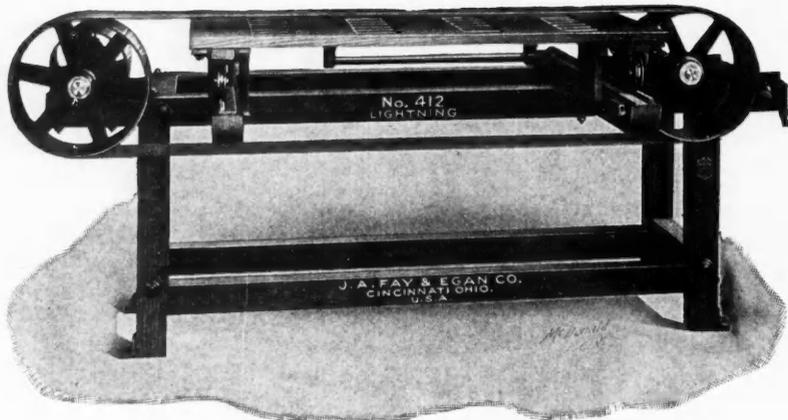
If you haven't "Almetal" details on file, we will gladly send a set. A card will do—no obligation.

Detroit Show Case Co.

(We also make the well-known Pets construction)

491 W. Fort Street Detroit, Michigan





The J. A. Fay & Egan Co. No. 412-A Belt Sander.

plified that it can be sold at a price within the reach of any shop owner.

This machine illustrated herewith is Model No. 412, and is made by J. A. Fay & Egan Co., Cincinnati, Ohio.

As can readily be seen, it is a wood frame machine carrying an 8-inch sand belt. Large, flat work is placed on the table, which travels back and forth on rollers, and it has a very easy, simple and quick operation to get the finest kind of finish on any large surface.

The extreme flexibility of the belt makes it possible to sand moulded work by using a hand block cut to form from the pattern to be sanded.

The belt can be reversed on the pulley and inside of curved work can be sanded over one of the end drums.

The great possibilities of this machine will quickly be recognized by our readers, and those who are interested are invited to get into touch with J. A. Fay & Egan Co., 545-565 W. Front St., Cincinnati, Ohio.

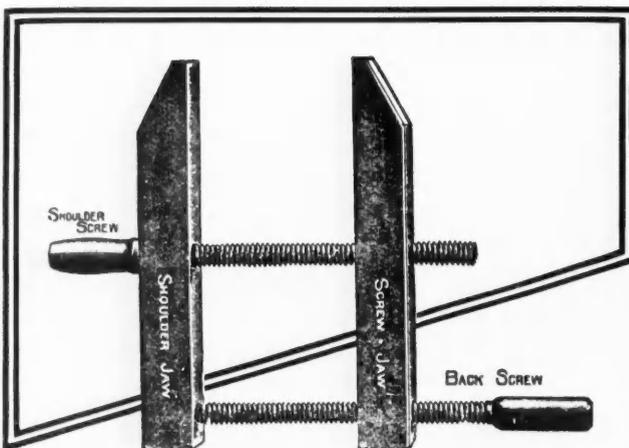
Eliminating a Long Standing Evil

The problem of sewage disposal has long been one which has received insufficient attention in districts where the lack of a municipal or a community water supply has made the installation of a water-cleansed sewer system impossible. It now seems incredible that the rural district home should continue to be deprived of the convenience of an adequate sewage disposal system or that country schools or other rural meeting houses should be allowed to exist without sanitary and modern installations for the comfort and convenience of the public. Chemical systems have now been perfected to such a degree that their performance parallels water systems.

The Wolverine chemical tank systems, made by the Dail Steel Products Company, of Lansing, Mich., are very carefully constructed along scientific lines, and are finished in a manner which is becoming to their use in high-grade surroundings. The birch wood or oak seats are made in four pieces, securely bolted together and elegantly finished. Special spring bar hinges are used, which automatically close the seat when the bowl is not in use. Rubber gaskets are used on the under side of the seat and cover to make the bowl practically air tight. The bowl is made of the same high quality vitrous china as is used in expensive water systems, and it is given a special shape which makes it easily kept clean.

Ventilation is very effective, the method consisting in the use of one 45-degree elbow at the back of the bowl, connected to the vent pipe leading to the roof. A special anti-back draft suction ventilator is used to cap the vent pipe, or connection may be made with a chimney.

(Continued to page 128.)



Clamps Of All Descriptions

For 84 years we have been the leaders in the quality Hand Screw on the market and every clamp or other product of our manufacture will stand the quality test equally well.

Light, strong and durable are the attributes of our goods.

Write for Catalog

J. H. O'NEIL, Jr.

Successor to

R. Bliss Manufacturing Co.
525 Main Street Pawtucket, R. I.



ARTISTIC HOMES

A book of 280 (8 x 11 inch) pages showing perspective views and floor plans of 250 artistic modern homes. A large variety of designs are given so as to meet the taste of the majority of home builders. There are artistic houses for people of moderate means and others for the more wealthy, but in every case the design is made with reference to comfort and economy.

Every design shown has been made by best architects in the world, who have made a study of home architecture and that alone.

Price \$1.00 Postpaid

American Carpenter and Builder
1827 to 1833 Prairie Avenue, Chicago, Ill.

"I Would Certainly Advise Anyone Interested in Cement Products to Take Up the Manufacture of the Norwalk Vault."—W. H. W., Mt. Vernon, Ohio

As practical contractors we can testify profits on vaults are several per cent above any other cement work.

W. M. C., Columbus, Ga.

The Norwalk has practically driven all other vaults out of Philadelphia market—300% increase in business in four years.

B. T. L., Philadelphia, Pa.

Probably yields more profit for investment than anything I make; income from few sales is small but helps in year's business.

W. C. H., Eugene, Ore.

50% more profit than other cement products.

E. D. R., Streator, Ill.

It is the best money maker I have.

J. B. W., Hagerstown, Md.

I think the profit this year will be 100%. I know the Norwalk Vault is the best of any cement product.

J. M., Bunker Hill, Ill.

Practically no comparison other cement products with Norwalk Vault as money maker.

P. & H., Johnston City, Ill.

I certainly would advise a friend to invest; if I had the money I'd take more territory myself.

I. T. C., Concord, N. H.

2000% increase in business in less than ten years.

G. P. & Con. Co.

I find more money and less work in the vault business.

H. B., Westboro, Mo.

Molds have given perfect satisfaction and my dealings with you equally so.

A. C., Coshocton, Ohio.

Your dealings with me always prompt, courteous, and considerate.

F. A. S., Albany, N. Y.

The Norwalk Vault is lighter to handle, takes less material, and is only vault that is what it is guaranteed to be.

A. F. C., Fitzgerald, Ga.

Norwalk Vault is the best concrete product I know of.

H. M. W., South Omaha, Neb.

Not the least comparison with Norwalk Vault in profits on any other product I make.

C. C. Stephan.

We consider vault business best part of our business, when fully developed.

W. G., Logansport, Ind.

From 200 to 300% greater profit than on other cement work.

J. D. B., Los Angeles, Cal.

No comparison at all for profits. The Norwalk Vault is the best thing I have.

C. A., Capac, Mich.

Best profit maker on market.

H. M. S., Springfield, Mo.

Best side line we have.

A. W. W., South Paris, Me.

FROM one to ten years' experience is represented in these opinions. Already more than half the United States has been taken over by local manufacturers, and the list is growing every week. Only one man can have the Norwalk franchise in any given place, and only he gets in on the ground floor of a coming great national industry. Is your territory still open? If so, there is still an opportunity for a man with a little capital and lots of energy to build up a substantial business of his own. Naturally we cannot guarantee the size of the profits—that depends on the man himself—but our new sales plan does enable a six months' trial with a strict limitation to any possible loss. But this is simply as a matter of good faith—we aren't looking for men who expect to fail. If you can do what other men have done, might it not pay you to look into this—especially as it is primarily a Winter business? A post card will bring full particulars—no obligations whatever. Address

THE NORWALK VAULT COMPANY
 71 Prospect Street - - - - - NORWALK, OHIO

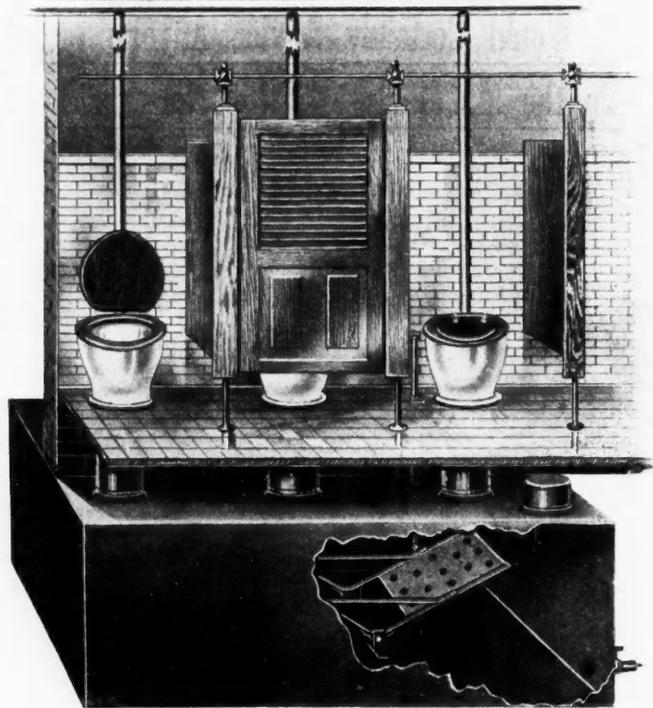
A square tank is used, since it is very easily installed, and when once placed cannot get out of position. The standard tanks are made of Keystone Copper Steel, a scientific alloy of copper and high grade steel which has exceptional rust-resisting qualities. Acetylene welded corners make the tank strong and rigid. The chemical used in the tank is an odorless dry powder. It is a strong disinfectant and caustic which liquefies all organic matter in the sewage and sterilizes it at the same time.

No matter how powerful the chemical, the liquefying process is claimed to be not complete unless there is agitation. The Wolverine tank is fitted with a compound fan agitator which is simple and easy to operate and which stirs the contents of the tank most effectively.

The bowl is usually placed on the first floor, and the tank may be either suspended from the floor joists, set on a platform or the cellar floor, placed in a pit beneath a room without cellar, or under a closed-in porch. The tank may be fitted to empty into a cellar drain, if one is available, into a pit filled with stone or rubbish, into pails to be carried away or, if the tank is at a low level, it may be fitted with a pump which will raise the residue into pails or barrels. The bowl may be installed on the second floor if it is placed in such a position that the large tube leading to the tank may be carried down in the corner or at the side of the room below.

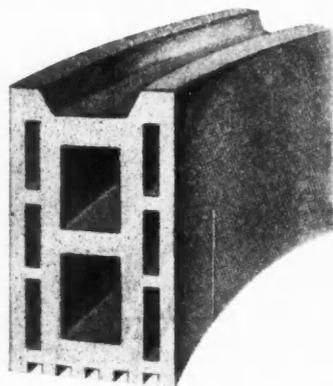
Various multiple systems for village schools, factories, town halls, clubs, and other such buildings are provided which afford the advantages of water systems and make easy the discontinuance of the disreputable practice of using filthy outside toilets.

The Dail Steel Products Company, of Lansing, Mich., are offering to contractors and builders an agency proposition



Multiple Installation of Dail Steel Products Co. Chemical Closets.

which provides a very attractive profit from the sale and installation of these Wolverine outfits. Those interested in such a proposition should ask this company for details and more complete descriptions of the various closets.



**Do Business While
Others Are Sitting
by the Stove.**

**Get out and sell Crop
Insurance in the**

**KALAMAZOO
GLAZED TILE
SILOS**

impervious to moisture. You save the farmer cost in the movement from kiln to cars thence to home town, then you save in handling. Get the Early-in-the-Year proposition, which carries savings to the buyer in many ways.

Our Co-operative plan enables you to secure farmer's order in winter and finish silo in good season in summer. Why? Because you can show the farmer how he can save money by buying silo in winter. He can draw blocks when not busy. Price is F. O. B. cars home town, settlement on arrival. Forty-two years of satisfactory service enables us to do this.

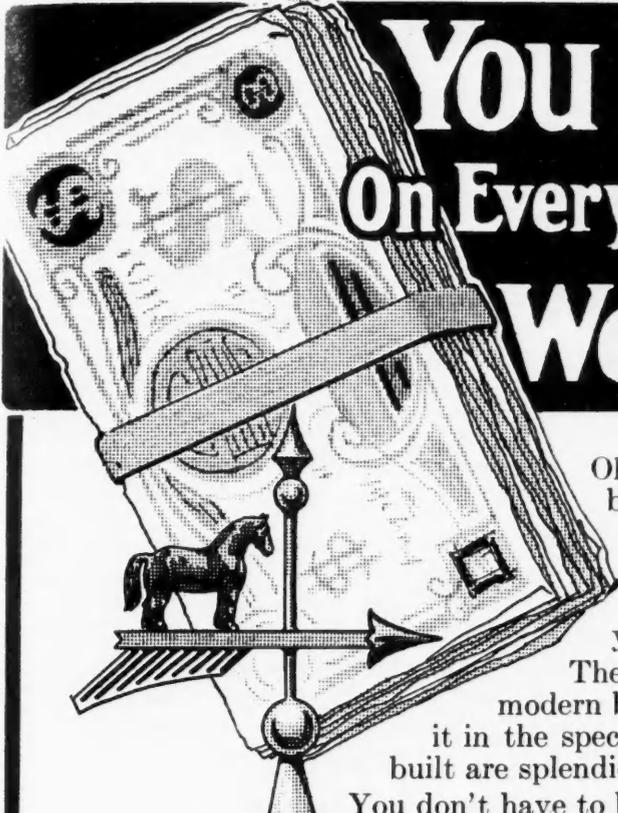
Any alert man who is anxious to keep busy should not fail to investigate our proposition.

Our terms are more than liberal, and we see that the right man gets started right.

But remember we want only *one* man in every district. Better write today. Address Agent's Dept. 48.

Kalamazoo Silo Feeding and Investment Co.
Kalamazoo, Michigan





You Lost Money On Every Barn Job Last Year and We Can Prove It

Oh, yes! You made your regular profit for building the barn, the same as every carpenter-contractor does.

But did you get paid for a *cupola*? If you didn't you lost money on the job because you failed to make all possible profit.

The cupola is an accepted feature of every modern barn. You should have no trouble including it in the specifications. Those whose barns are already built are splendid prospects.

You don't have to be a sheet metal worker to install

Buckeye Cupolas

Useful as well as Ornamental

because it's about as easy a carpentering job as you ever tackled. Just nail two timbers and put in four bolts.

The Buckeye Cupola is built by experts and ventilates in the only scientific way. It takes in fresh air at the bottom and expels foul air at the top.

It ventilates without draft regardless of wind. Proof against rain, snow or nesting birds.

Made of heavy galvanized steel, it can't twist or buckle. Both you and your customers will be pleased with the Buckeye. It is the one ventilator that provides plenty of fresh air under all conditions.

Write For Our Offer

Let us prove to you that we can help you make a handsome extra profit. Our advertising in farm papers is creating a healthy demand. You make money supplying it.

We have an interesting offer for contracting-carpenters. Write for details. No cost or obligation.

THE THOMAS & ARMSTRONG CO.

121 Union St. LONDON, OHIO

The "Bracket" Electric Mortiser

Any shop which is wired for electric lights may be equipped with a high grade mortiser which may be put in operation in little more time than it takes to set up the machine. The "Bracket" hollow-chisel electric mortiser is ready to do business as soon as the motor can be connected to the power circuit thru an ordinary lamp socket.

The hollow-chisel bit of this mortiser is direct connected to an electric motor, making the machine a complete power mortiser in itself. The motor is constructed by the General Electric Company and it is designed to run at 3600 R.P.M., the motor being mounted on ball bearings with the shaft in a vertical position. The high speed of the bit cuts the chips very fine and its special construction enables it to very rapidly elevate the chips thru the chisel and discharge them thru two

large openings. It is claimed that this machine eliminates "burnt" bits and "split" chisels completely.

Any size mortise may be obtained by moving the work along on the table and overlapping the cuts. Because the hollow-chisel bit does not crowd nor crush the stock, a mortise as large as $\frac{3}{8}$ inch in $\frac{3}{4}$ -inch stock may be used. This machine will handle a hollow-chisel as small as $\frac{1}{4}$ inch. It will operate successfully in such woods as spruce, yellow pine, cypress and fir, which are ordinarily considered difficult to work in this way.

The table of the mortiser is readily adjustable. It may be tilted, and it has a vertical adjustment range of 12 inches. Odd shaped pieces are easily handled, a feature which gives the machine special value in furniture work.

A machine of this kind is a valuable part of the wood working shop equipment and since it is portable it may be operated anywhere that the right kind of current is available. Complete information in regard to the range of work which may be performed on the machine and other details of interest to wood-workers in general may be obtained from Warren W. Morse, exclusive sales agent, Hopkins, Minn.

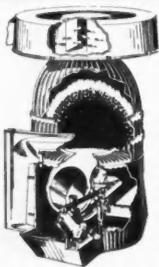


Buck Brothers Lose Valuable Man

Mr. Richard W. Proctor, son of the proprietor of Buck Brothers, edge tool manufacturers, Millbury, Massachusetts, passed away at his father's summer home at Falmouth Heights, Massachusetts, on August 20, 1916, after a short illness of little over two months.

Mr. Richard Proctor associated himself with his father about eleven years ago, and had advanced by strict attention to business to be superintendent and manager.

Mr. Proctor was well known to the hardware trade, especially in New York City, where he visited several times a year.



"From Overfed to UNDERFEED"

Over 35,000 furnace and boiler users have changed from the old-fashioned top feed—always "overfed"—to The Williamson New-Feed UNDERFEED. Fuel saving of $\frac{1}{2}$ to $\frac{1}{3}$ is guaranteed.

Get Free Book Now

A postal brings illustrated book to any carpenter, builder or contractor. Write that card today—learn how you can guarantee your customers big fuel savings by recommending the UNDERFEED.



The Williamson Heater Co.
67 Fifth Ave. Cincinnati, O.

"Father of them All"



The Great Bell

The Original Pipeless Furnace

We have thousands in use. Sizes, styles, and prices to suit all, \$38.00 to \$94.00.

This furnace will heat any one or two-story building in the most efficient manner; with the least effort, and the lowest relative cost. It is made for the building where a furnace is needed, but where the cost has been prohibitive.

Our methods of production and sales have reduced the cost so low that no builder can afford to overlook our proposition.

Write for our catalogs, describing the various styles, prices and specifications of the Great Bell Furnace. We guarantee them to be and do all we claim for them in both catalog and correspondence.

American Bell & Foundry Company, Northville, MICH.

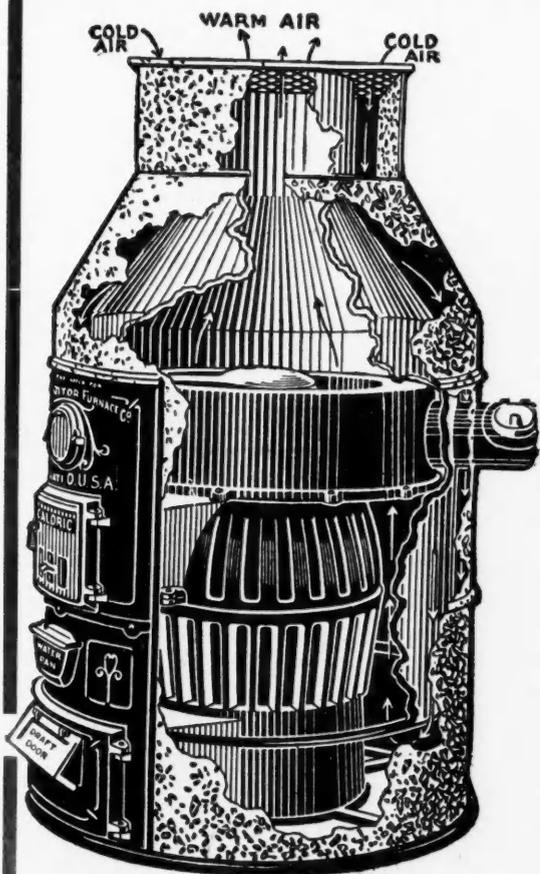
Read! Think! Act!

Here Is Extra Profit Dangling Before Your Eyes

Every house needs heating arrangements. Most houses put in some kind of a furnace. Why not make this profit in addition to what you make building or remodeling the house?

It's practically velvet because you have to take the time anyhow to talk to your customers about the building or remodeling job. Kill two profit birds with one stone.

The Caloric is the logical furnace for you to handle because there are no pipes to figure on and only one register to install. You don't have to be an expert to put in the



PIPELESS CALORIC FURNACE

TRADE MARK

The Original Patented Pipeless Furnace

It heats homes of any size—also churches and schools. Burns coal, coke or wood and is guaranteed to save 35% of the fuel.

You can put it in any house, new or old, because you don't have to mutilate the house by cutting a lot of holes for pipes and registers. It does not heat the cellar because our specially patented triple casing insulated with air spaces sends the warmed air directly into the rooms of the house.

This is the Furnace Your Customers Are Demanding

They want a furnace that is easy and inexpensive to install and costs little to operate.

They do not wish to spend money experimenting. The Caloric is guaranteed by a 97-year old company.

We help you with a full-fledged advertising campaign which makes Caloric a familiar name.

Why not investigate this extra money opportunity? It costs you nothing to get the facts—binds you to nothing. Just send us your name and let us tell you all about our **special proposition** to carpenter contractors.

THE CALORIC GUARANTEE

WE GUARANTEE the Caloric Patented Pipeless Furnace, when properly installed, will heat almost any house, church building, schoolhouse or store. If the furnace is in any way other than satisfactory will make satisfactory adjustment without further cost to you or your customers. The Caloric firepot is guaranteed for five years.

The Monitor Stove & Range Co. 4319 Gest Street Cincinnati, Ohio

National Re-Roofing Week

If builders, carpenters, and dealers in building material co-operate to center the public attention on National Re-Roofing Week, as suggested by the advertisement of Messrs. Bird & Son, the results cannot fail to be beneficial.

These plans are comprehensive and cover the whole country. We publish this note as an additional reminder, in order that all possible force may be brought to bear in order to help out this excellent movement.

Our Traveling Men

By Simonds Saws

The work our traveling men must do,
May never have appeal to you.
One hundredth of our population
Are chosen for his occupation.
Chosen? By what tests and why?
By guess, and by the will to try;
Thrown in the stream to swim or die.

This traveling force a million strong
Speeds the nation's trade along;
Making the towns and getting away,
Traveling by night and working by day.
Do these men appreciate
Their power to make the laws of state,
Or hotel prices regulate?

A million men of intellect,
Going from mill to store,
Could help elect, create respect.
Change thought the country o'er.
Then should arrange to meet *en bloc*;
Construct a platform like a rock:
One that would withstand a shock.

These hurrying men on orders bent
May strive for human betterment.
They have the secret in possession,
Of how to raise their own profession.
Well organized, they can declare
What president shall take the chair,
When salesmen plan to put him there.

Salesmen excel among mankind
As students of the human mind.
They read the soul's depth thru the eye,
Divine the truth, detect the lie.
They read the sense of look and tone,
Of every little smile or frown,
And take the orders for their renown.

Molders of mind and circumstance,
Salesmanship is more than chance;
To know themselves, their business too,
Calling for manhood thru and thru,
Getting together to understand
The Nation's needs, the great demand,
Which now appears on every hand.

America must lead the world,
Not with arms and flags unfurled,
But in arts that peace has made,
Finance, manufacture, trade.
Prosperity will come to all
When traveling men shall hear the call
And band together to fight or fall.

—The "Buzz."

Learn to Be a Draftsman and Draw Your Own Plans

By means of these two books the contractor, builder or carpenter can advance by easy steps from the first principles of drafting room practice to the complete work of an architect's office, including drawing to scale, tracing, detailing, lettering, rendering, designing, etc. He can combine the work of the architect and builder. He will learn not only how to plan the structure, but how to lay out the work, specify the materials and finish, make the contracts, and take complete charge. A complete set of plans with every dimension, all sizes of windows, doors, etc., is shown in these books. This serves as a guide as it shows the process from the preliminary sketch to the finished plan.

Radford's "**Mechanical Drawing**" is a book of 272 pages, with 165 illustrations, and a supplement showing perspective views and floor plans of 41 brick, cement and frame residences.

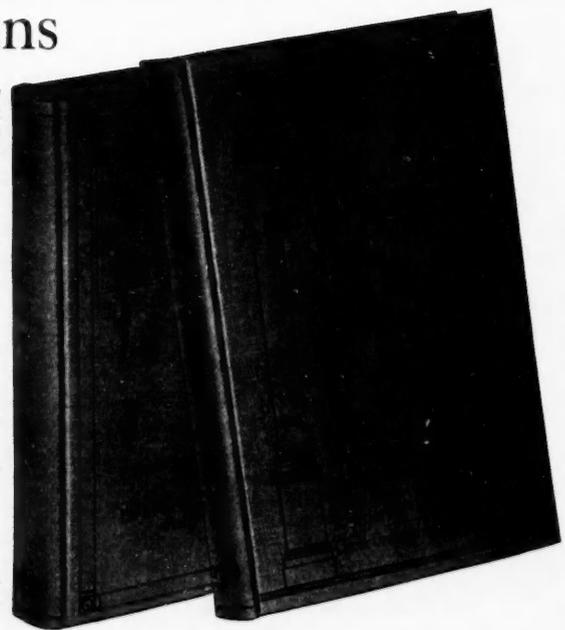
Radford's "**Architectural Drawing**" is a book of 304 pages, with 147 illustrations and a supplement showing perspective views and floor plans of 41 brick, cement and frame residences.

Each book is printed on high-grade paper, bound in cloth, is 6x9 inches and has a beautiful illuminated cover.

Don't Depend on Another Man's Brains

Develop your own ideas. Be in a position where you can work a customer's hazy suggestions into a tastefully arranged, complete plan, showing all dimensions.

One of these books and a year's subscription to the American Carpenter and Builder for only \$2.00, the regular price of the magazine alone. Both volumes and a year's subscription for \$3.00.



American Carpenter and Builder

1827 Prairie Ave., Chicago

CITY COMFORTS IN THE COUNTRY

THE NEW MYERS WAY

THE OLD WAY

MYERS HYDRO-PNEUMATIC HAND AND POWER PUMPS

ONE OF OUR MANY TYPES. **SOLVE THE PROBLEM** CAN BE INSTALLED ANYWHERE IN BASEMENT, YARD ETC.

Why not make the farm and suburban home a place of comfort? Make it a real home by installing labor-saving conveniences. A good water supply system will bring countless comforts and make life brighter.

Myers Hydro-Pneumatic Water Supply Systems

have brought city comforts to the country. The pumps are made in many styles and sizes, and there is a suitable type for every installation. The pressure tank can be placed where most convenient and be absolutely free from contamination. Where electric power is available the electric pumps are most convenient, for they can be controlled by an automatic switch.

Write for catalog and learn the Myers Way of living in comfort.

F. E. MYERS & BRO., 360 Orange Street Ashland, Ohio
ASHLAND PUMP AND HAY TOOL WORKS

A CHEERFUL ENGINE

It Will Do Anything

You can use the "NEW WAY" All Purpose Engine any place, any time and on any kind of a job. It is the most practical and adaptable engine made. On account of its light weight, owing to the absence of cumbersome water cooling devices, the engine is easily moved from one place to another and is instantly and easily attached wherever power is needed.

The "New Way" "GOES AND GOES RIGHT"

It is the wizard of all gas engines

The Points That Make It Better

Lightest operating weight of any engine made.	High grade automobile carburetor.
Direct cooled — no water — no extra weight. This is an important feature.	Multiple disc clutch pulley.
Built upon the reliable four-cycle principle.	Splash oil system.
Faultless jump-spark ignition.	Enclosed, dust-proof, oil-tight, hinged crank case.
High-tension built-in magneto.	Adjustable brackets attaching engine to any binder, potato digger or manure spreader can be furnished.
Throttle governed.	Easy to understand — simple to operate.
Drop forged steel connecting rod and crank shaft.	

The "NEW WAY" is guaranteed to give satisfactory and continuous service for life.

Made in 1 to 12 H. P.

Send for Catalog

The "New Way" Motor Company
 25 Pine Street LANSING, MICHIGAN

New Municipal Pier, Chicago, on which Novo Engines and Outfits were used.

NO LAMP NO FAN NO FREEZING TROUBLE

NOVO

REG. U.S. PAT. OFF. **ENGINES and OUTFITS**

On the Biggest Jobs You Find NOVO Outfits

This great municipal pier, at Chicago, runs out into Lake Michigan half a mile. There, and on other big, important jobs, Novo Outfits have done the construction work at a big saving over steam and electricity.

What is it, do you think, that puts Novo Engines and Outfits on the pay roll of contractors on these big jobs?

They have discovered the advantages of Standardized Power. They save money by having one man look after all the outfits on a job. They save in transportation costs, because they have only light Novo Outfits to move, instead of heavy boilers, engines, etc. They are not troubled with city regulations on steam boilers.

Standardized Power can come only through gasoline engines. In fact, it has come now through Novo. That's why batteries of Novos are working on the biggest undertakings in the country.

Novo Engines have been adopted as standard equipment by 8 out of every 10 concrete mixer manufacturers. There are over 75 different Novo Outfits, all portable, comprising Hoists, Pumps, Air Compressors, Saw Rigs. Find out what Standardized Power would mean in your business.

Book—"Reliable Power"—Free

If you will write for it on your letterhead we will send this book free. It shows why Novo has become the Power Standard.

Novo Engines are furnished to operate on gasoline, kerosene, alcohol or distillate.

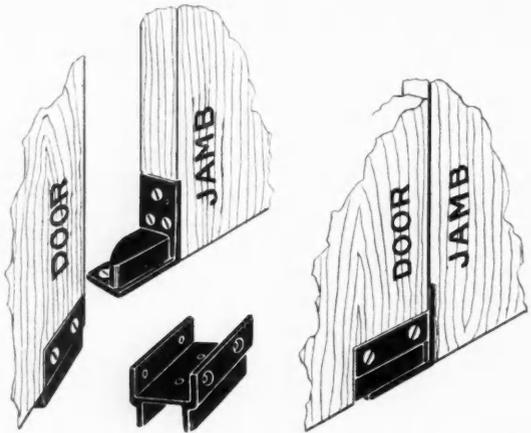
NOVO ENGINE CO.
 Clarence E. Bement, Sec. & Gen. Mgr
 441 Willow Street, Lansing, Michigan

Chicago Office: Lytton Bldg. Minneapolis Office: 517-519 N. Third Street

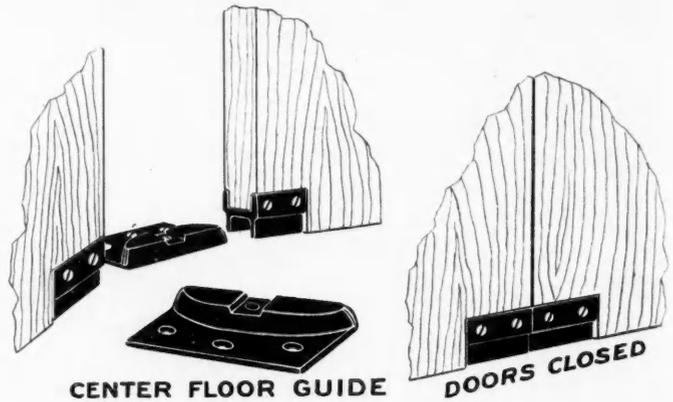
Figure 270—Novo Air Compressor on Hand Truck.

Figure 194—Novo Saw Rig.

Figure 1457—Novo Single Drum Type "T" Hoisting Outfit—3-15 H. P.



These Illustrations Show Guide Used with Single Set of Folding Doors.



These Illustrations Show Guide as Used for Double Pair of Folding Doors.

Topping's Folding Garage Door Hanger, Showing Floor Guides.

Garage Door Equipment

An advertisement in the February, 1916, issue of the AMERICAN CARPENTER AND BUILDER announced the Topping's Folding Garage Door Hanger Sets. The Safety Door Hanger Company of Ashland, Ohio, makers of this garage door equipment, began to make shipments of the door hanger sets in

April. Since that time the equipment has become more and more popular, and these sets have been installed in practically every state in the Union. In June another announcement presented a most valuable and ingenious addition to the set in the form of door and floor guides, which are peculiarly adapted to this type of sliding folding door, and which hold the doors firmly in the closed position.

The illustrations show how the door and floor guides are applied to both a double pair of folding doors and to a single set of folding doors. The door guides are screwed firmly to the lower corner of the door and have two lugs projecting downward with their lower edges flush with the bottom of the door. These lugs engage with the floor guides when the door is closed. The floor guide for the double door set is a plate having a raised surface shaped in such a way that as the door is closed, the lugs of the door guide will first engage with the nose of the raised surface and will then be forced further along the floor guide until the widening raised surface has filled the space between the lugs, holding the door firmly in place. The floor guide for the single door set is made to operate upon the same principle, but it is fitted with a vertical plate which is screwed to the jamb.

Complete information in regard to Topping's Folding Garage Door Hangers and Guides may be obtained from the Safety Door Hanger Company, 246 East 4th Street, Ashland, Ohio.

Carpenters Wanted

Make money all year—get the exclusive agency for Akron Lighting Systems, portable and street lamps and lanterns.

Write Today

AKRON Independent Lighting Systems
Supply gasoline under pressure through hollow wire to lamps all over the house, and to gasoline stove. Our system is absolutely safe.
Sheds a soft, steady, brilliant, white light of high candle power. Makes the home attractive and reading a greater pleasure. Better and cheaper than any other illumination.
Complete line of "Akron" portable and street lamps and lanterns. Latest types; latest improvements; safe and simple construction; 15 years of success.

Agents Wanted
in unoccupied territory. Handy demonstration outfit. Our proposition to live hustlers cannot be beat. Write for catalog and terms. Akron Gas Lamp Co., 833 So. High St., Akron, O.

My Big Factory Output Makes WITTE Prices Low

ED. H. WITTE

SO far as actual engine value is concerned, I would be justified in charging double the present prices for WITTE Engines. Great factory efficiency and selling direct from factory to user makes these prices possible.

I would rather manufacture 10,000 engines a year at a profit of one dollar each, than only 1000 engines at \$10 each, or 100 at \$100 profit each. Every engine I sell helps sell others.

It has been proven that quantity production makes production cost low. I could not build WITTE engines so good if I built only hundreds while I build thousands. A man, for example, who turns fly wheels all day can do a quicker job and better job than if he worked at it only a half hour each day and then ran a truck or swept the floor and worked on pistons the rest of the time. In the big WITTE factory, a man becomes an expert in making his particular part of the engine. My actual cost for high quality engine parts is from 1/3 to 1/2 what many others pay. My own private gas well to furnish power helps hold cost down.

WITTE Engines require only one-tenth of one gallon of fuel per horse-power per hour; develop from 30 to 50 percent surplus power over rating. Made in 2, 3, 4, 6, 8, 12, 16 and 22 H.P., sizes in different styles, as ordered to operate on Kerosene, Gasoline, Naphtha, Distillate or Gas, also in stationary, hand portable, portable and saw-rig. 90-Days' Trial; 5-Year Guarantee. Cash or Terms. Write today for big free book, "How to Judge Engines."—Ed. H. Witte.

WITTE ENGINE WORKS,
1772 Oakland Ave., Kansas City, Mo.
1772 Empire Bldg., Pittsburg, Pa.

GET THIS BIG BOOK FREE
HOW TO JUDGE ENGINES
Witte

Hand Power Elevators

A new manufacturer in the dumbwaiter field is George Beveridge, 72 Division Ave., Brooklyn, N. Y. Mr. Beveridge has been connected with firms in this line for a number of years, and is now in a position to furnish dumbwaiters and hand power elevators in any style. Carpenters and builders are asked to obtain his prices before buying elsewhere.

Mr. Blake Must Be a Contractor

"I drove my Kissel All-Year Car all last winter, not missing a single day," says H. M. Blake, of Minneapolis.

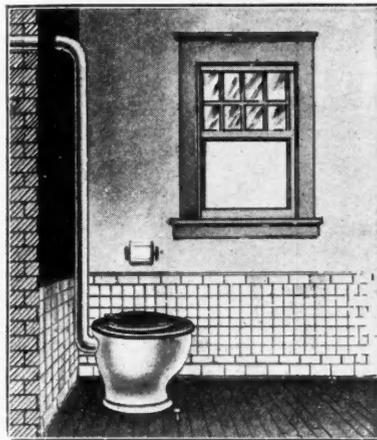
"The car was not kept in a heated garage and was left standing in front of my office thruout the coldest days—once the thermometer was 40 below zero. Yet the car never failed to start and to run properly."

**Easy to Sell—
Easy to Install—
Wolverine Closets**

Greatest sanitary invention ever offered village communities. And it's not an experiment. It has been proven successful in thousands of homes, schools, factories, churches, etc.

A contractor can sell this closet by merely suggesting it and describing its obvious advantages over the demoralizing unhealthy out-houses.

We guarantee this closet to be absolutely satisfactory in every way; and can make an attractive offer to one reliable builder in every town to act as our agent. The closet is guaranteed. You merely suggest it, and secure a good profit on every sale.



Now is the time to write for our proposition before the winter sets in. Wolverine Closets overcome the dread of winter.

Dail Steel Products Company
Lansing, Mich.



Contractor Agents Make Big Money!

Every country home, church, school and store, old as well as new, needs a JENNE Lighting Plant. Oil lamps, with their soot and smoke and smell, their trouble, inconvenience and danger, no longer satisfy intelligent people. Lighting plants installed inside the house are always dangerous and seldom efficient. This is why our contractor agents are coining money selling the

JENNE ACETYLENE LIGHT PLANT

"Sunlight from a Cistern"

Installed outside the house in the ground with pipe connections to every room, this system is absolutely safe. Its construction of steel and reinforced concrete (patented) appeals to everyone, for it makes the plant practically everlasting. The careful design, liberal dimensions, and the simplicity of the JENNE make it most economical and dependable.

It is easy to install. It is guaranteed for 15 years.

The modern JENNE System has NONE of the trouble, inconvenience and danger of other lighting systems, be they acetylene, electric, gasoline or kerosene, and it has all their advantages. There are no "come backs" when you install a JENNE. Thousands in use and every JENNE user is a booster.

Passed by the National Board of Fire Underwriters.

Will you act as our salesman? We sell a complete, guaranteed lighting system; we carry the account; we offer terms that will suit your customers; we pay you a liberal commission.

Write for our Contractor Agent Proposition at once

The Jenne Acetylene Gas Machine Co.

313 TRACTION TERMINAL BLDG., INDIANAPOLIS, INDIANA



Mr. Builder: Increase Your Income Right Now—This Month

Here's something right in your line—a Chemical Closet that you can sell to a home builder cheaper than a wooden privy and make a bigger profit for yourself. Here's something you can sell at odd times or turn over to your son or your foreman to sell.



RO-SAN Chemical Closet

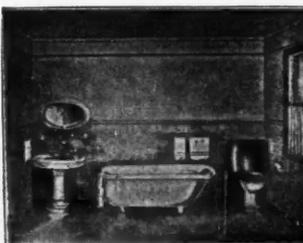
An absolutely sanitary, odorless indoor closet that may be placed anywhere in the house. Abolishes the germ breeding out-door vault. A comfort and a convenience when there is no sewer connection. Germs killed by chemical. Easily emptied as the ash pit of a stove.

AGENTS WANTED

We want one live carpenter contractor in each town to act as our agent. Hundreds of builders are selling these fixtures. Good profits for little work. We help you sell them. Write today for complete details.

ROWE SANITARY MFG. CO.
1001 Sixth Street Detroit, Mich.
Ask about the Ro-San Washstand. Hot and cold running water without plumbing.

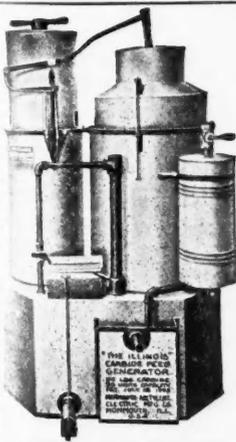
Plumbing, Heating and Pneumatic Waterworks Supplies at Wholesale



When in the market for Plumbing, Heating and Pneumatic Waterworks Supplies and you wish to **Save 20 to 40%**

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

B. B. KAROL, 800-802 S. Kedzie Ave., Chicago, Ill.



Lighting Systems that are Safe, Simple, Reliable and Efficient

Illinois and Monmouth Pit Generators

represent the pinnacle of Perfection in Lighting Systems. Their convenience and fine lighting facilities are appreciated by every rural resident. They are very easy to sell and yield you a handsome profit. We give Carpenters and Builders special Prices and Discounts and help them close sales by sending all prospects, handsome booklets and literature showing the desirability of our Generators.

Simply send us the names of persons who might be interested; we'll work together and you act as our direct agent installing and selling them. In the meantime learn more about Illinois and Monmouth Generators by reading over our Catalogue and Proposition—Write

Monmouth Acetylene-Electric Manufacturing Co.
Dept. AB. MONMOUTH, ILL.

Comfort Indoor Closet Odorless Sanitary Germ-Proof

No Sewer, No Waterworks, No Plumbing Needed. This modern home necessity is fast taking the place of the unsightly, unhealthy, inconvenient out-house in the back yard. Thousands now in use and all giving complete satisfaction. Can be put wherever convenient in the house. No odor whatever. Gives city convenience in the country or town.

Cost Less Than Out-House

Anybody can afford one. Saves those cold night trips out-of-doors. Impossible to get same amount of comfort for the money another way. Sold on 30 days' trial and under sworn guarantee to refund all money if not entirely satisfactory. Send for description and prices today. Be fair to your family.

AGENTS MAKE BIG MONEY EASILY

Comfort Indoor Closets sell themselves as fast as people understand about them. Contractors and carpenters are making big money by merely suggesting this closet. Write for details of our exclusive agency offer. Send postal now before somebody else gets your territory.

Comfort Chemical Closet Co., 310 Factory Bldg., Toledo, Ohio



*It's the beauty of the
enamel that distinguishes
KOHLER SINKS*

KOHLER enamel is accepted as the *highest expression of excellence* in the enameled art. It imparts conspicuous *elegance* to every KOHLER Bath Tub, Lavatory and Sink. The hygienic *one-piece* construction of KOHLER Sinks gives them added value.

KOHLER WARE

*is of unvarying quality—always
the highest*

No matter what the *pattern* of a KOHLER product may be, its *quality* is sure to be *the best*.

Special manufacturing economies enable us to put *extra value* and beauty into KOHLER WARE without making the prices prohibitive.

KOHLER Bath Tubs, Lavatories and Sinks are specified for houses and apartments of all classes. These products have the *elegance* that makes them suitable for the most elaborate homes. At the same time they are available for inexpensive houses and bungalows.

Write for our interesting book, "KOHLER OF KOHLER." It will give you some new ideas about Enameled Plumbing Ware.

"It's in the Kohler Enamel"

KOHLER CO.
Founded 1873
Kohler, Wis. U.S.A.

BRANCHES

Boston	Detroit	Houston
New York	Chicago	San Francisco
Philadelphia	Indianapolis	Los Angeles
Atlanta	St. Paul	Seattle
Pittsburgh	St. Louis	London

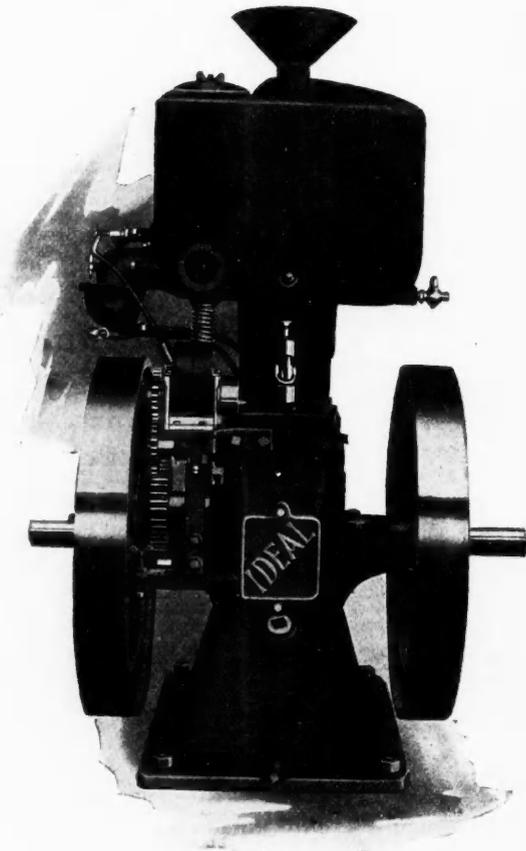
Plate K1007—KOHLER
enameled one-piece sink, with
right-hand drain board.



Built To Do Hard Dirty Work

The Ideal engine illustrated is known all over the world for its simple design and high grade workmanship. It can be found in all sections of the country operating concrete mixers, contractors' hoists, mud and water pumps, and other contractors' machinery. It is also furnishing power for several thousand spray pumps and is favorably known wherever fruit is grown.

The contractor is learning that there is as much difference between gasoline engines as other machinery. They have found from experience that there are cheap engines on the market that are cheap only in initial cost, but very expensive when it comes to operating expense. They can soon figure this expense after a shut down of several hours with 12 or

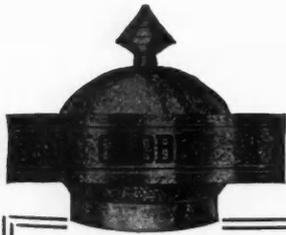


The Ideal Gas Engine.

15 men standing around on the job. The Ideal engine may cost a little more on the start, but is much cheaper when the total expense is counted up.

The Ideal engine is a contractors' engine. It was designed and is manufactured for hard, dirty work day after day, with a minimum expense and a maximum capacity. It is a good engine for your mixer, pump, sawing outfit or shop. It has one feature that costs more money, but is well worth all it costs, and this is an absolutely tight crank case that keeps the dirt and grit out of the cylinder and away from the piston and rings, that are the vital parts of any gasoline engine. It is frost proof, dirt proof, and as near fool proof engine as can be made.

The Ideal Engine Company, Lansing, Michigan, manufacture a complete line of engines in sizes from 2 to 10 horsepower. They will gladly mail you their general catalog, telling you more about Ideal engines and their line of contractors' equipment.



Storm-proof

"Globe" Ventilators are so constructed that rain or snow *cannot* enter, and no weather condition can impair their effective operation. Back drafts are impossible and they make the most effective chimney-cowls. Send for sizes and prices to Dept. F.

Globe Ventilator Co., Troy, N. Y.

GET ALL THE PROFIT

Shipped
Ready to
Install

Easy to
Erect



Your reputation and future orders depend upon the equipment you recommend. Don't take a chance. Get the present and future profit by recommending and equipping the barns you build with

O-K Cupolas

Every one you erect adds to your reputation. They solve the barn ventilation problem and sell themselves. **O-K Cupolas** are neat in appearance. Bird, storm, rust and rot proof. Made of heavy galvanized steel. Cost no more than the ordinary kind.

Special Prices to Contractors and Builders where we are not represented

Write for full particulars on this and other money-making specialties.

Phillip Bernard Co.
2400 Floyd Ave. Sioux City, Iowa



Merchant's Metal "Gothic" Shingles

Made of Sheet Metal, light in weight, fire and storm proof, perfectly reliable, durable and also ornamental. Designed for Bungalows, Cottages, Churches, Railroad Stations, etc. Send for prices.

Fire Retarding "Star" Ventilators

With Patented Gravity Damper

Provide good ventilation and prevent spread of flames upward through the roof. No down draughts. Storm proof, durable and attractive. Manufactured in Galvanized Steel, Galvanized Iron, Sheet Copper.

Evans "Almetl" Fire Doors and Shutters
"Merchant's Old Method" Roofing Tin

Merchant & Evans Co.

New York Philadelphia Chicago
Baltimore Cleveland St. Louis
Atlanta Wheeling Kansas City

Wool Staff Used for Weather-Proofing

The illustrations show clearly what Wool Staff is and how it is used. The use of this material furnishes an excellent



Applying the Wool Staff.

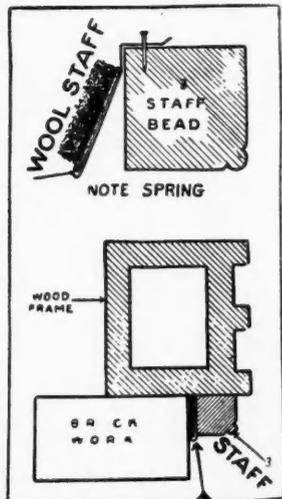
method of calking windows. It may be used on either old or new work. Wool Staff is made from strips of metal, either copper, zinc or galvanized iron, formed in an angle as shown in the illustration, to which is attached a strip of sheep skin with long wool. This strip of metal is tacked on the staff bead and when nailed in position the long wool is tightly compressed be-

tween the staff bead and the mason work, making a permanent air-tight and weather-proof joint.

When the Wool Staff is put in place before the wall is laid the mortar adheres to the wool and makes a better joint than when put on after the wall is finished. It may be used with either wood or metal frames. Stock length of the strips is three feet, but there is no waste, since all short lengths may be utilized, the wool overlapping to form perfect joints.

This material is manufactured by the Kohler Die and Specialty Company of DeKalb, Illinois. This company is looking for progressive contractors and builders to represent them throughout the country.

All readers who are interested in this agency proposition may obtain a sample of Wool Staff and full particulars by addressing this company at DeKalb, Illinois.



THE WOOL STAFF APPLIED

Section Thru Window Joint.

Royal Ventilators



Farmers know the value of ventilation. Put **Royal Ventilators** on every barn you build and you have done your best. They give satisfaction and please clients. The **Royal** will stand any strain; proof against storms, leaks, birds and insects; exerts a steady up-pull on foul air and introduces fresh air without down-draft. Double Cone an efficient feature.

Made for every purpose. Will please in construction, appearance, efficiency and price. Send for our Catalog.

ROYAL VENTILATOR CO.
417 Locust St. Philadelphia, Pa.



There's the Ventilators to Install On All Your Farm Buildings!

Willis Ventilators will ventilate any building most efficiently. 25 years of good ventilating experience back of them. Made of the best grades of sheet metal—scientifically constructed—they represent the best obtainable in ventilators.

Write for the *Willis Catalog*

It describes other Willis Sheet Metal Products, including Skylights, Fireproof Doors and Windows bearing the Underwriter's Label, Canopies, Metal Ceilings, etc., in fact everything in Sheet Metal Building Materials. A copy of this catalog will be mailed to you upon request.

WILLIS MANUFACTURING CO. Dept. B Galesburg, Illinois



Style No. 264



Style No. 99



Gale Ventilators

For Barns, Chicken Houses, Creameries, Granaries or any other buildings that need perfect ventilation.

Made of the best material on scientific principles, pays for itself in a short time by preserving property.

Your customer wants the best ventilator for his money. Suggest the Gale and he'll get it.

Write for our New Catalog and Special Contractors' Offer

Galesburg Sheet Metal Works
Galesburg, Illinois

CHIEF ALL-STEEL CUPOLA

New-improved, scientifically designed ventilating cupola for all buildings. Up-to-date in design, material and construction. Used and approved on hundreds of farms. Made of heavily galvanized steel with base strongly braced. Can't rust, rot, or blow off. Absolutely storm-proof and bird's-nest proof.

Easy to Install—Sure to Please Your Customers

Chief Cupola saves time and labor installing—base bolts directly to roof and cupola bolts to the base. Only six bolts needed. Meets all requirements—insures adequate ventilation—satisfies all users. Write for full description, prices, etc.

Shrauger & Johnson Co.

430 Walnut Street, Atlantic, Iowa



Ventilation is a Necessity

Tip-Top Ventilators

(Double Diaphragm)

are an economy. They are differently and better constructed than others.

Our descriptive matter will explain why, and will furnish you with some straight-to-the-point facts and figures to help you convince your customers. Send for this information today and also ask for our co-operative plan.

Anderson Mfg. Co.

Des Moines, Iowa

Manufacturers of "Tip-Top" Ventilators, "Tip-Top" Sanitary Cistern Filters, Anderson Water and Light, and Conductor, "Tip-Top" More Sun Windows.



Monitor Cupolas

BUILT TO VENTILATE

Proof against wind, weather and birds. Made of the best grade of galvanized steel, the Monitor will not rust, crack or dry out.

It will circulate more air than a wooden cupola twice its size, and looks twice as good.

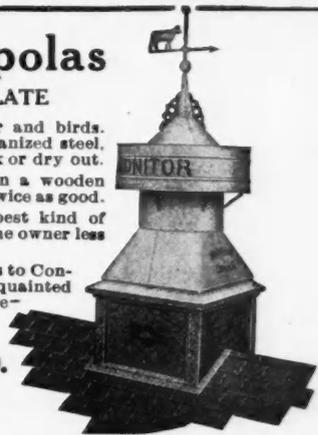
Always on the job with the best kind of service, the Monitor will cost the owner less every day it is in use.

Write for our special discounts to Contractors and Builders. Get acquainted with the cupola that will make the most money for you.

B. F. Lichty & Sons Co.

Station A

WATERLOO, IOWA



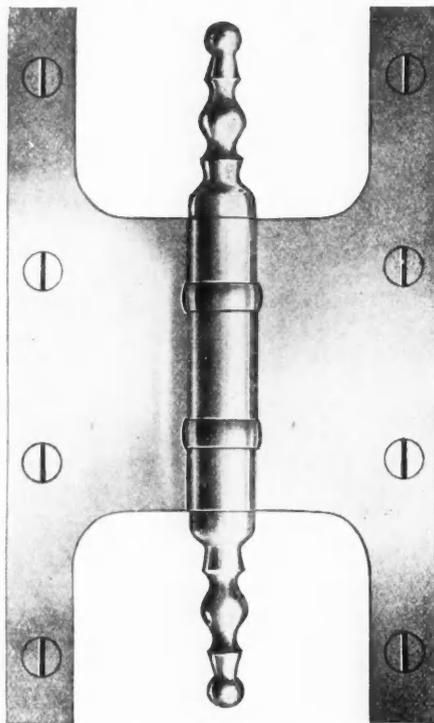
Stanley Wrought Steel "Paumelle"

The Stanley Works, New Britain, Conn., has recently added a "Paumelle" to its large line of ball bearing butts.

"Paumelle" (pronounced Pum-ell) is French for hinge, and this design of butts, unlike most other types of builders' hardware, originated abroad.

The long leaves are mortised in the jamb, and are made narrow for a light, or French door.

Because of the artistic effect of the barrel, and the steeple tip, this type of butt is being used on doors of stock thickness. The gauge of the metal and the strength of the butt are such that it is just as serviceable as the standard type of butts.



Stanley Paumelle for French Doors.

No. 5345 has a long throw. It is made in two sizes—7½ by 3½ and 7½ by 4½. The dimensions are measured over all, first the length of the butt leaf and then the extreme width of the open Paumelles.

This butt is finished in all standard Stanley finishes, and is packed one pair in a box with screws.



Easily Built Hall Clocks

A beautiful oak or mahogany hall clock is a valuable addition to the furniture of any home. It is now possible to obtain knock-down parts for several very attractive hall clock cases. This enables the man with few tools to easily construct a beautiful hall clock for his home.

The American Cuckoo Clock Company of Philadelphia has announced that they will furnish free blueprints for the construction of four of their designs to be used in connection with movements purchased from the company. This offer presents the opportunity of utilizing spare time to very good advantage. The designs consist of one quartered oak case and three mahogany cases. The oak case is of the Mission style, 17 inches wide, 6 feet high and 13 inches deep. Case No. 91 is of mahogany, 7 feet 2 inches high, 23 inches wide and 13 inches deep. Case No. 92 is 7 feet 1 inch high, 22 inches wide and 13 inches deep. Mahogany case No. 94 is 7 feet 6 inches high, 25 inches wide and 14½ inches deep. Each of these clocks is easily constructed from the parts, and the blueprints enable any man who does any construction work from working drawings to understand the construction of the various designs.

Readers of the AMERICAN CARPENTER AND BUILDER who desire complete information in regard to hall clocks should communicate with the American Cuckoo Clock Company of Philadelphia, Pennsylvania.

Our Free Plans Will Help You—

Meadows
TRADE MARK REGISTERED

Don't figure on any crib or granary without consulting our Free Plans. They will show you how to get greatest capacity at least expense by installing Meadows Inside Stationary Cup Elevators.

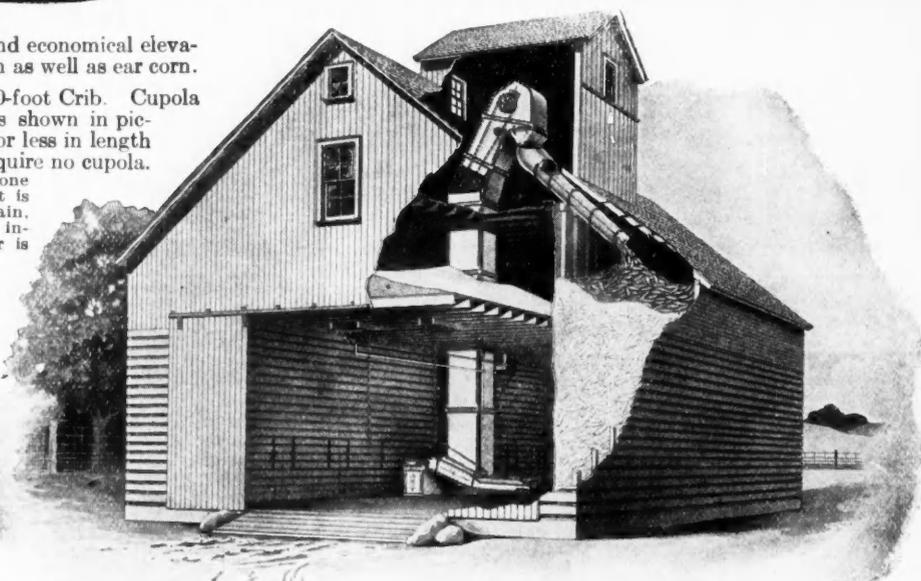
The most convenient and economical elevators, carrying small grain as well as ear corn.

The picture shows a 40-foot Crib. Cupola need not be as large as shown in picture; and cribs 36 feet or less in length with half-pitch roofs require no cupola.

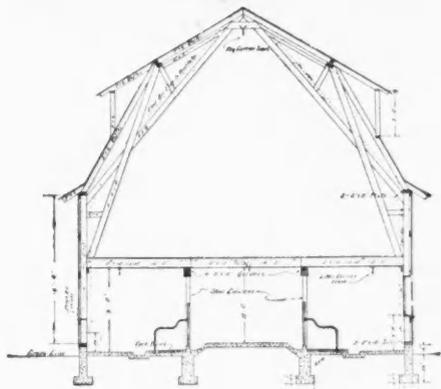
Elevator is confined to one side of driveway. No pit is necessary for dumping grain, just a hole 16 inches deep into which boot of elevator is set. The wagon jack is entirely overhead, fastened to the joists.

But write in today for our free Crib and Granary plans, catalogs and large posters telling all about our outfits and their application. Valuable information for the builder, and writing for it obligates you in no way.

**Meadows
Mfg. Co.**
Pontiac, Illinois



Building a Barn



CONTRACTORS can obtain a large working drawing of the above cut, this being sent free of charge. Merely mail us the names of parties who expect to build or remodel barns.

Porter barn equipment, haying tools or barn door hangers are recommended by practical men because of the reliable and simple construction, which means efficient service.

Ask for latest catalogue No. 62—just out

J. E. Porter Company
620 Fremont St. Ottawa, Ill.

The Book Behind the Barn

Get Your Copy of the "JAMESWAY"

is this "Jamesway"—which is declared a *text* book by barn experts, containing the details of dairy barn construction, equipment, etc.

JAMES Barn Plan Service

is a leading feature of the book. It will be a great help to any man who builds barns—will enable you to do your own building skill to our special barn knowledge. Owners will be pleased, your business will increase. Because one JAMES barn in a neighborhood soon means others. You can get this book by sending us names of men for whom you expect to build dairy barns.

JAMES MFG. CO.
Dept. D. E. 75 Cane Street Ft. Atkinson, Wis.
Elmira, N. Y.

Going up?

AGE 30—\$1800 AGE 40—\$3500 AGE 50—\$5000

AGE 20—\$600 AGE 30—\$700 AGE 40—\$800 AGE 50—\$500

-or down?

HERE is your future charted for you, based on the actual average earnings of trained and untrained men.

Which way will you go? You'll either go *up*, through *training*, to a position that means good money and more comforts as the years go by, or you'll go *down*, through *lack* of training, into the ranks of the poorly paid.

It rests entirely with you which way you go. You can make or break your own future. And *now* is the time to decide. Not next year, not next month, but *now*. You can go up if you want to. You can *get* the training that will command a trained man's salary. The International Correspondence Schools have helped hundreds of thousands of men to qualify for advancement. Let them show *you* how *you* can prepare yourself, in your own home, for the position you want in the work you like best.

At least, find out what the I. C. S. can do for you, by marking and mailing this coupon. It will be the first step upward. Choose your future from this list, then get this coupon into the mail today.

I. C. S.
Box 8135,
Scranton, Pa.

TEAR OUT HERE

INTERNATIONAL CORRESPONDENCE SCHOOLS

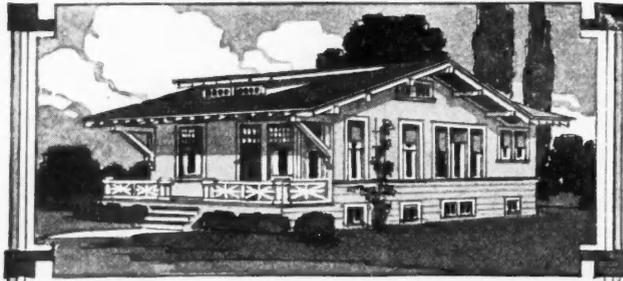
Box 8135, SCRANTON, PA.

Explain, without obligating me, how I can qualify for the position, or in the subject, before which I mark X.

- | | |
|---|--|
| <input type="checkbox"/> ARCHITECT | <input type="checkbox"/> Law for Contractors |
| <input type="checkbox"/> Architectural Draftsman | <input type="checkbox"/> BUSINESS (Complete) |
| <input type="checkbox"/> Contractor and Builder | <input type="checkbox"/> BOOKKEEPER |
| <input type="checkbox"/> Building Foreman | <input type="checkbox"/> Stenographer and Typist |
| <input type="checkbox"/> Concrete Builder | <input type="checkbox"/> Higher Accounting |
| <input type="checkbox"/> Plumber and Steam Fitter | <input type="checkbox"/> GOOD ENGLISH |
| <input type="checkbox"/> Heating and Ventilation | <input type="checkbox"/> Common School Subjects |
| <input type="checkbox"/> Plumbing Inspector | <input type="checkbox"/> Mathematics |
| <input type="checkbox"/> Foreman Plumber | <input type="checkbox"/> SALESMANSHIP |
| <input type="checkbox"/> CIVIL ENGINEER | <input type="checkbox"/> ADVERTISING MAN |
| <input type="checkbox"/> Surveying and Mapping | <input type="checkbox"/> Window Trimmer |
| <input type="checkbox"/> Structural Engineer | <input type="checkbox"/> Show Card Writer |
| <input type="checkbox"/> Structural Draftsman | <input type="checkbox"/> CIVIL SERVICE |
| <input type="checkbox"/> ELECTRICAL ENGINEER | <input type="checkbox"/> Railway Mail Clerk |
| <input type="checkbox"/> Electric Lighting | <input type="checkbox"/> AGRICULTURE |
| <input type="checkbox"/> Electric Wiring | <input type="checkbox"/> Poultry Raising |
| <input type="checkbox"/> Electric Car Running | <input type="checkbox"/> MINE FOREMAN OR ENGR |
| <input type="checkbox"/> MECHANICAL ENGINEER | <input type="checkbox"/> Metallurgist or Prospector |
| <input type="checkbox"/> Mechanical Draftsman | <input type="checkbox"/> Chemical Eng'r <input type="checkbox"/> Spanlah |
| <input type="checkbox"/> Shop Practice | <input type="checkbox"/> Gas Engineer <input type="checkbox"/> German |
| <input type="checkbox"/> Sheet Metal Worker | <input type="checkbox"/> AUTOMOBILES <input type="checkbox"/> French |
| <input type="checkbox"/> STATIONARY ENGINEER | <input type="checkbox"/> Auto Repairing <input type="checkbox"/> Italian |

Name _____
Occupation & Employer _____
Street and No. _____
City _____ State _____

If name of Course you want is not in this list, write it below.



Insurance Against Delays

You can depend upon the delivery dates you arrange with Curtis dealers. Our "On-Time Service" enables you to get every cent of the profit that is in fast work.

1866 CURTIS WOODWORK

"The Permanent Furniture for Your Home"

We do all the fitting and all the finishing work that can be done on materials at the factory. All house bills are sanded. It costs you \$50 to use 75 cents' worth of sandpaper.

You can be sure of a satisfied client if you recommend Curtis Woodwork. The standardized materials do away with trouble.

Write today and let us tell you all about Curtis Woodwork and "On-Time Service." You cannot afford to overlook its advantages. Address

THE CURTIS COMPANIES

Service Bureau

1406-1506 S. Second St., Clinton, Iowa

Manufacturing and Distributing Plants at

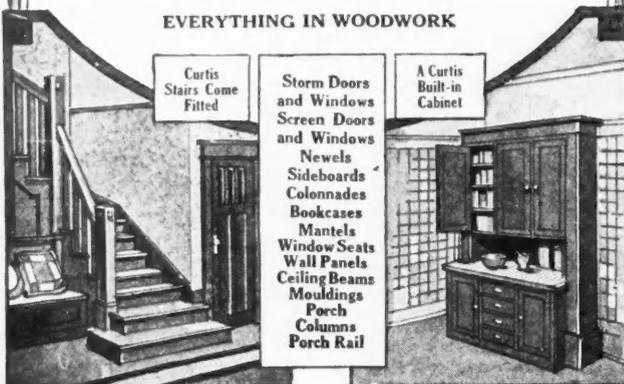
Clinton, Iowa	Sioux City, Iowa	Wausau, Wis.
Oklahoma City	Minneapolis	Chicago
Detroit	Topeka, Kan.	Lincoln, Neb.

Eastern Offices at Pittsburgh and Washington

The Makers of Curtis Woodwork Guarantee Complete Satisfaction to its Users

"We're not satisfied unless you are"

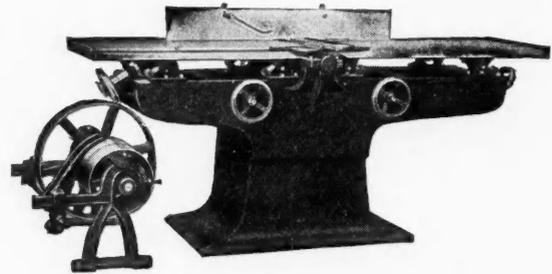
EVERYTHING IN WOODWORK



Silver's Band Saws and Jointers

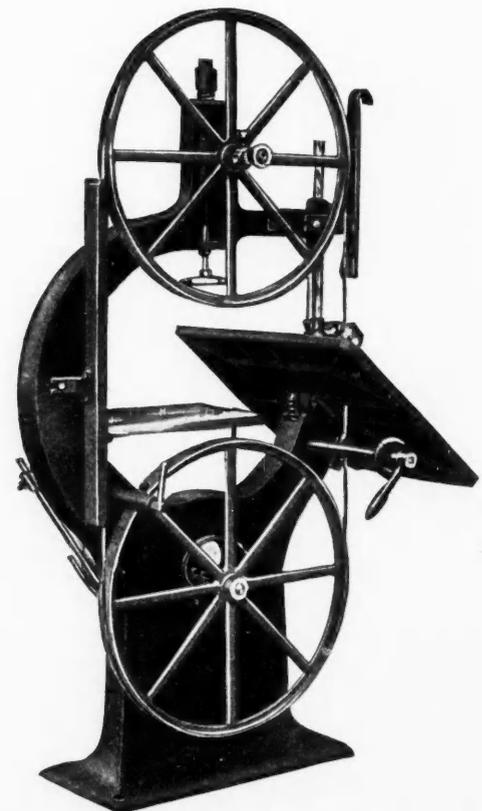
The accompanying illustrations show one of the four sizes of improved band saws built by the Silver Manufacturing Company, Salem, Ohio, also one of their new jointers or buzz planers.

Silver's band saws are made with 20, 26, 32 and 36-inch wheels. The 20-inch machines are made for foot power or



Silver's Jointers Are Made in Five Sizes.

belt power, or a combination of the two. The 32 and 36-inch sizes are furnished with wood rim wheels when desired. The regular wheels are of iron. The patterns are new and include the latest improvements with many special features. The handsome frame rests on the floor at all sides, thus adding strength and solidity and insuring cleanliness around the machine. The saws have patented device for tilting the table for angle sawing by which a turn of the hand wheel loosens or rigidly fastens the table at any desired angle up to 45 degrees. A belt shifter is included that can be used either above or below the pulley, making the shift a certainty no matter from what direction the power is applied.



Silver's Band Saws Are Made With 20, 26, 32, and 36-Inch Wheels.

This shifter is within easy reach of operator's left hand, and can be instantly fastened where desired by a turn of a thumb screw. The operator can adjust the upper wheel from

(Continued to page 144.)

QUICK ACTING  SELF LOCKING

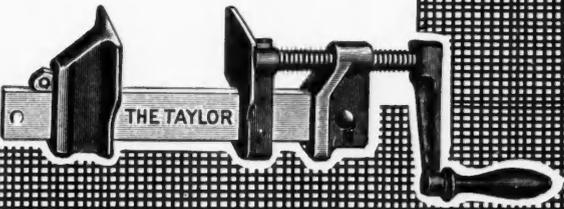
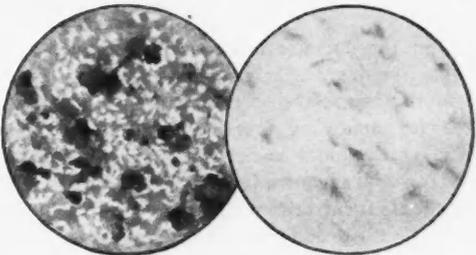
Clamps

**An Investment
Not an Expense**

The quickest and strongest clamps made. That's why they're the standard in U. S. Government Works and in such concerns as General Electric Co., Singer Sewing Machine Co., Victor Talking Machine Co., etc.

We can PROVE it in your own shop. Write today.

James L. Taylor Mfg. Co.
Poughkeepsie, N. Y.

Ordinary concrete, uncoated, showing its porous character. Concrete weatherproofed with Bay State Coating.

Building for Beauty

To fully realize the possibilities of concrete and stucco, you should know the ideal effects which are get-able with

Bay State *Brick and Cement* Coating

This Coating overcomes the dull blue-gray of concrete. It gives a permanent finish in white or tint. It doesn't sacrifice the distinctive texture of concrete.

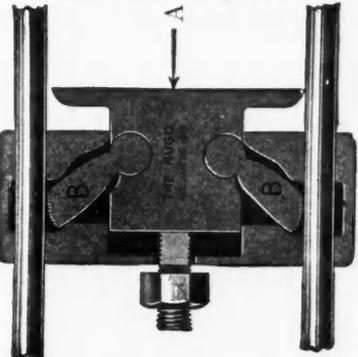
Also—Bay State Coating makes an absolutely weather-proof wall. Rain can't seep through the pores.

Architects and builders in all parts of the country have tested this, the original Bay State Coating. We'll be glad to pass along what they say of it. Write for booklet 30.

Or, test it yourself—we will send you a sample can of the original Bay State Coating free for the asking. Say what tint you prefer.

 **WADSWORTH, HOWLAND & CO., Inc.**
Paint and Varnish Makers
Boston, Mass.
New York Office: Architects' Building

Double Bar Locking Device



No Springs to break—No Wedges to stick

A New Clamp—The HUGO

Single and Double Bar Steel Clamps

FOR PRICE LISTS AND DISCOUNTS WRITE SALES OFFICE

The Norfolk Manufacturing Co.

Factory, Norfolk, Conn. Sales Office, 101 Milk St., Boston, Mass.

Linclad

SHINGLE NAILS

WRITE FOR SAMPLES AND PRICES

W. H. MAZE COMPANY
PERU, ILLINOIS



Roofs that last

It's the nails that make the roof. Nails that are guaranteed to outlast the best grade of wooden shingles are

M. I. F. Co. Zinc Coated Iron Cut Nails

It will pay you to write for free samples of these genuine Zinc Coated Nails and price list.

Malleable Iron Fittings Co. Branford, Conn.

his position while the machine is running. The adjustment covers several inches and the wheel is equipped with spring tension which acts as a cushion for the saw blade.

Silver's new jointers are made in five sizes with 8, 12, 16, 20 and 24-inch knives. Among the special features claimed for these machines are the steel pin inclines instead of slides or grooves for mounting table, which insure absolute precision. The vertical and horizontal movement of tables and locking of same are controlled by hand wheels. A special safety guard is furnished with each machine. When desired, special safety cylinders can be furnished for any size.



New General Hardware Catalog Ready

The 1917 General Hardware Catalog of E. C. Sterns & Company, of Syracuse, N. Y., is being distributed among hardware dealers. This catalog lists a great many interesting articles in general hardware, carpenters' tools and equipment, cement workers' tools, poultry farm equipment, farm hardware and many other articles which the hardware dealer should have in his stock.

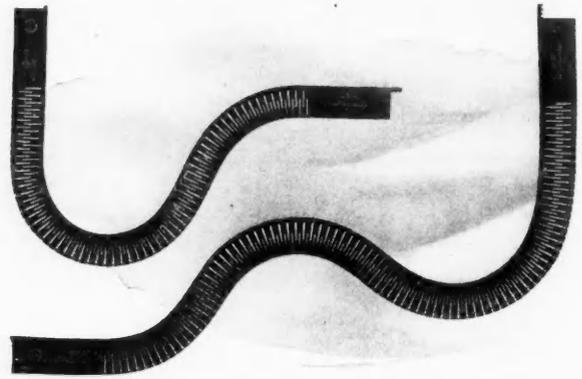
Readers of the AMERICAN CARPENTER AND BUILDER will be interested in examining the tools listed in this catalog at their local stores. They will find the complete and high-grade list of tools offered a great help to them in selecting new equipment.

Dealers may equip themselves to serve the needs of users of the articles included in this line of general hardware by making their selections from this 1917 catalog, a copy of which may be had for the asking from E. C. Sterns & Company, 500 Oneida St., Syracuse, N. Y.



An Improved Flexible Curve Rule

The Keuffel & Esser Company of Hoboken, N. J., have realized that all desirable features which might be expected of a flexible curve rule have not been embodied in most of the



This Flexible Rule Can Be Bent to Any Desired Curve and Will Hold Its Shape.

older types of rules, and have, therefore, been on the alert for a new type which would more nearly meet every requirement. They believe that in their new rule, No. 2174, a distinct step in advance has been made.

This new flexible curve rule has a distinct advantage over most of the older rules in that it is not as thick and clumsy as they were. It will usually be found preferable to splines, as the latter require heavy weights to keep them in place.

The construction of the new rule is a decided departure from former practice. The material is black xylonite, notched from opposite edges, thus making the rule very flexible. On one edge is a ruling strip of black xylonite, and on the other a metal wire for retaining the rule in any curve into which it may be bent. Each extremity ends in a tangent.

The appearance of this rule is shown in the illustration, which also gives an idea of the manner in which it may be shaped and the positions it will hold when once bent into place. Such a rule is a necessity in drawing curves of varying curvature.



**THIS IS
THE HAMMER
WITH THE
PEDIGREE**

OF COURSE
IT'S A

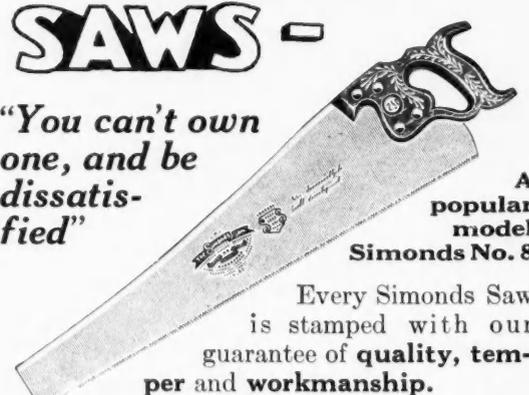
**GERMANTOWN
MASTER BUILDER**

Expert workmen the country round know and use this hammer. The finest possible quality in material, design and workmanship. Octagon shaped handle of second growth hickory, ideal hardness, and a claw that will grip all size nails with a grip that holds. Positively the **only** hammer for the workman who wants the **BEST**. Three sizes, Nos. 745, 11 oz., 746, 16 oz., 747, 20 oz., at \$1.00 each.

**Price
\$1.00**

Germantown Tool Works
PHILADELPHIA, PA.
Branch: 62 East Lake Street, Chicago

SIMONDS SAWS -



*"You can't own
one, and be
dissatisfied"*

A
popular
model
Simonds No. 8

Every Simonds Saw
is stamped with our
guarantee of **quality, temper and workmanship.**

We make our own steel to be sure
that it's the best. We can't afford to sell a
saw that isn't right.

And for many years we have made these "successful saws"; saws with quick-cutting edges, and the right "feel."

If you want saw-value for your money, try out a
Simonds. We have a catalog for anyone interested.

SIMONDS MFG. CO.
(ESTABLISHED 1832)
"The Saw Makers" **Fitchburg, Mass.**

FRESH AIR AND PROTECTION!



The Ives Window Ventilating Lock

A Safeguard for Ventilating Rooms, allowing windows to be left open at the top, the bottom, or both top and bottom, with entire security against intrusion.

Descriptive circular mailed on application.

THE H. B. IVES CO.

SOLE MANUFACTURERS

NEW HAVEN - - CONNECTICUT



The Herrick Outside Icing Refrigerator

Saves ice, gives more kitchen space and keeps the ice man on the outside, thereby keeping the floors clean and saving time and trouble.

Doors can be locked and left, and the ice is sure to be delivered with no danger of any one entering the house or getting into the refrigerator.

A new building idea commands a special attention for your bids, and when once shown our refrigerator proves a strong point in your favor.

Add to your reputation by specifying the Herrick.

Let us figure the next job with you.

HERRICK REFRIGERATOR CO.
Waterloo, Iowa



Wool Staff

for

Weather-Proofing

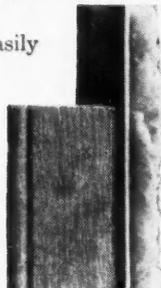
The cheapest, most effective and most durable method known for calking windows.

Made from strips of metal (copper, zinc or galvanized iron) to which are attached strips of sheep skin with long wool. These strips are tacked on the *Staff Bead* by the

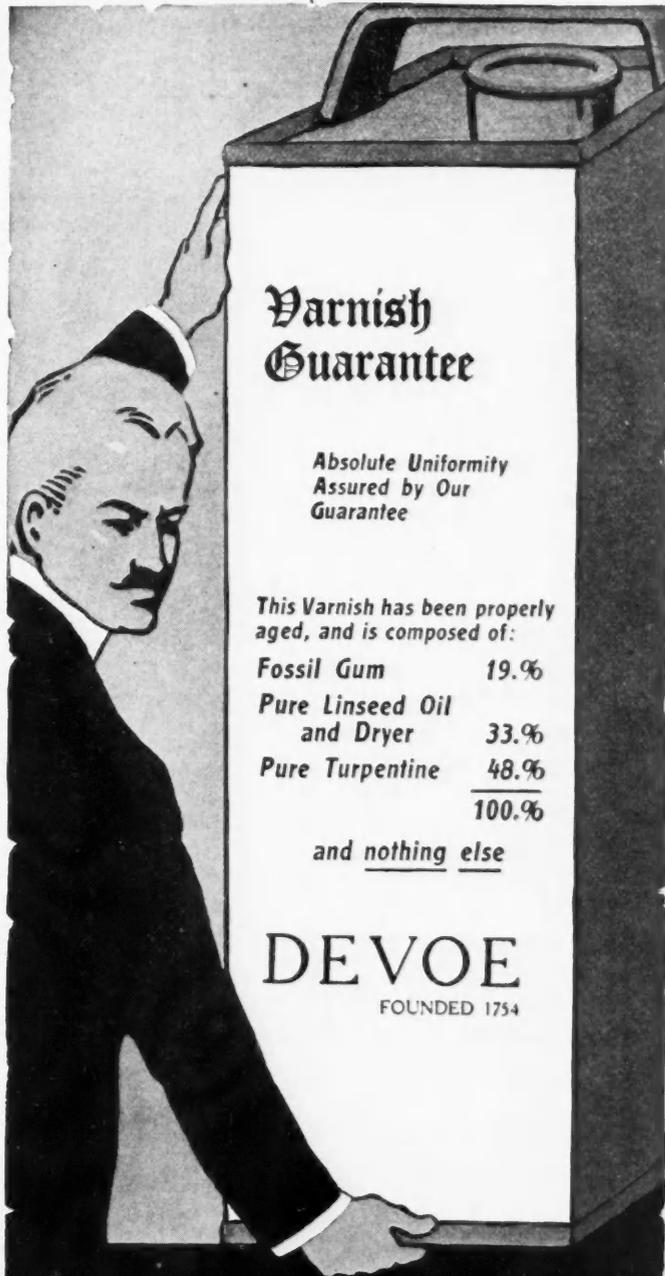
builder, and when nailed in position the long wool is tightly compressed between the staff bead and the mason work, making a permanent air tight and weather-proof joint.

Used on old as well as new work. Easily and quickly applied — practically indestructible and very reasonable in cost. And there is no waste as all short ends may be used.

You owe it to yourself, whether Builder, Contractor or Architect to investigate. **Now**, while you are thinking of it write us a postal for our literature.



Kohler Die & Specialty Company
DeKalb, Illinois



Varnish Guarantee

Absolute Uniformity Assured by Our Guarantee

This Varnish has been properly aged, and is composed of:

Fossil Gum	19.%
Pure Linseed Oil and Dryer	33.%
Pure Turpentine	48.%
	<u>100.%</u>

and nothing else

DEVOE
FOUNDED 1754

SATISFACTION

Remember this!
No longer are you forced to take varnish on FAITH, HOPE OR CHARITY.

DEVOE protects you by printing a guarantee formula on every can of DEVOE Varnish. This formula tells the exact contents of the varnish—and that's the only effective way to guarantee purity, uniformity and satisfaction.

For outside work, use DEVOE Vernisite, The Long-Life Spar Varnish.

For inside trim, use DEVOE Pale Interior, a brilliant, transparent varnish.

For all floors, use DEVOE Marble Floor Finish; it stands water, traffic and hammer test.

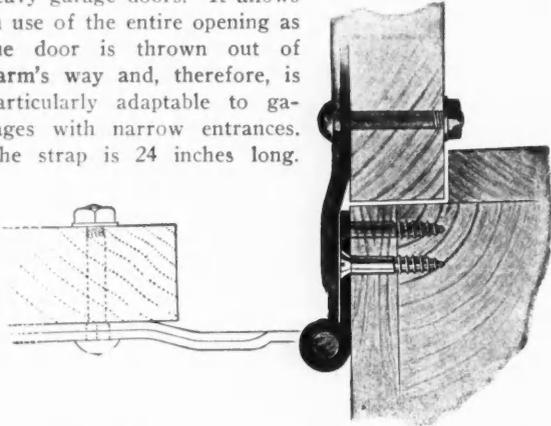
F. W. DEVOE & C. T. RAYNOLDS CO. DEVOE & RAYNOLDS CO.
New York Chicago
The Oldest Manufacturing Concern in the United States,
Founded in New York in 1754.

PAINT DEVOE PAINT

New Stanley Garage Door Hinge

A hinge which swings a door completely clear of its opening has just been put upon the market by the Stanley Works, of New Britain, as an addition to the line of Stanley Garage Hardware.

This hinge, equipped with weather-tight ball bearing washers fitted between its hinge joints, is especially designed for heavy garage doors. It allows the use of the entire opening as the door is thrown out of harm's way and, therefore, is particularly adaptable to garages with narrow entrances. The strap is 24 inches long.



Note How the Door is Carried Away from the Opening, Leaving the Entrance Entirely Unobstructed.

Its ornamental corrugation adds to its strength and pleasing appearance.

As mortising is unnecessary, this hinge is easily applied. Two of the screw holes in the pad are exposed on the outside. Three screw holes are covered over by the long leaf, so that when the door is closed, the hinge may not be removed. To use this hinge the casing should be flush with the face of the door.



"Dependable Concrete"

The latest booklet prepared by the Hydrated Lime Bureau of the National Lime Manufacturers Association on the subject of using hydrated lime in concrete, and setting forth the several advantages which have been found by prominent engineers to follow its use in judicious quantities, is given the above title.

The subject is handled in this booklet by first naming the requisites of dependable concrete and then explaining how hydrated lime may be used to obtain the desired qualities. A

few notable cases in which this material has been used successfully are mentioned.

The requisites named are these: Dependable concrete should be composed of materials of suitable quality and gradation; should be thoroly mixed; should be plastic enough to work freely in the forms and perfectly embed reinforcing steel; should have a uniform distribution of the cement, sand and stone in the hardened mass; should be homogeneous and free from honeycombing, and should be watertight.

The use of small percentages of hydrated lime in the concrete, it is claimed, results in an increased slipperiness of the concrete so that it flows freely without the use of excess water; minimizes the tendency of sand and stone to separate from the cement, preventing the formation of stone pockets and honeycombing; produces a freer moving concrete in the forms, making spading easier and resulting in more nearly perfect exterior surfaces and better embedment of reinforcing steel; results in homogeneous concrete of maximum strength; renders the concrete less porous and more nearly impermeable, minimizing alternate expansion and contraction due to moisture changes, and acts as added protection against corrosion of reinforcing steel.

The "Conclusion" set forth near the end of the pamphlet will indicate its purpose:

"Hydrated lime is not offered in the foregoing pages as a cure-all for the ill-treatment of concrete in present day practice. It must be admitted, however, that concrete is subject to certain known tendencies, and an effort has been made to show the effect of small percentages of hydrated lime in partially overcoming the tendencies set forth in the preceding pages. The mechanical influences exercised by hydrated lime are valuable in producing concrete of a more desirable quality."

Readers interested in concrete construction should obtain a copy of "Dependable Concrete" from the Hydrated Lime Bureau of the National Lime Manufacturers Association, Arrott Building, Pittsburgh, Pennsylvania.



Best Roof Under the Sun

Montross Metal Shingles for House or Barn or buildings that require durable, economical roofs. Easily applied. Fire, lightning and storm proof. Nine different designs. Write for illustrated catalog and testimonials from satisfied customers who have used Montross Roofing for a "Quarter Century." Liberal commission to good, live agents.

Montross Metal Roofing Co., 110 Erie St., Camden, N. J.

BLUE VALLEY SLATE MFG. CO., Ltd.

Miners and Manufacturers of

Unfading Roofing
Clear Structural
Electrical

SLATE

World's Fair
Premium
Blackboards

SLATE SINK TOPS A SPECIALTY
Write for Prices. Address: Box 472, Slatington, Pa.

ROOFING SLATE SINCE 1869

Miners, Makers and Shippers of all Styles and Colors of Roofing Slate. Write for Prices.

RISING & NELSON SLATE CO.
Main Office: West Pawlet, Vt.

Branch Offices:
1058 Marbridge Bldg., New York City 4 Post Office Sq., Boston, Mass
Office and Yard 2554 W. Harrison St., Chicago, Ill.

SLATE WE HAVE WHAT YOU WANT

*In Roofing Slate, Slate Blackboards
Structural and Plumbers' Slate*

SATISFACTION GUARANTEED in QUALITY and PRICE

Ask for Delivered Prices

J. K. HOWER ^{Station} C Danielsville, Pa.

R. J. KICHLINE, Sales Agent

ROOF SLATES

STRUCTURAL SLATE BLACKBOARDS

E. J. JOHNSON
38 Park Row New York

Quarry Operator
BLACK, GREEN, PURPLE, RED

Booklet, Samples and Prices on Application

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

UNFADING ROOFING SLATE

and Slate Blackboards

Best to be had and made in Slatington — Buy from us

Slatington-Bangor Slate Syndicate, Inc.
Slatington, Penna.



ROOFING SLATE

and
Slate Blackboards

quarried from our famous GFT quarry, opened in 1846, stand ALONE in a combination of Durability, Serviceability and Beauty at a most reasonable cost.

Why not buy the best as the best is the cheapest in the end?

Write for our July 1st, 1916 Price List today.

Sole Manufacturers
Slatington Slate Co.
Slatington, Pa.



THE ROCK OF AGES CLEFT FOR YOU

RED SHELDON'S SLATE

PURPLE BLACK

THE ROOF FOR AGES ALWAYS NEW

ECONOMICAL — ARTISTIC — FIREPROOF

Outlast the building. First cost, only cost. The only roof you can afford to consider for a permanent investment. Artificial substitutes bring endless expense for upkeep. Post a postal and get posted.

F. C. SHELDON SLATE CO., Granville, N. Y.

Build Your Own Grandfather's Clock

with our help

With the blue prints, instructions, finishing material, etc., we furnish, any handy man can build his own Grandfather's Clock. We sell you the works, dial, weights, pendulum, and everything you need at prices so low as to surprise you.

Works complete, \$5.00 each; others with chimes, all prices.

Here's winter work you can turn to good profit. Make duplicates for your friends. Our designs are clear cut, attractive and salable. Write for our free offer on the drawings, etc.

CLOCK COMPANY
1655 Ruffner St. Philadelphia, Pa.



CON-SER-TEX CANVAS ROOFING



The carpenter, builder and owner finds CON-SER-TEX a most satisfactory material to use wherever economy and durability are required and a neat and attractively-finished job is desired. It costs very little, is easy to lay and is almost as permanent as the structure itself.

One of the reasons why CON-SER-TEX should appeal to you is that it is so easy to handle and lay that you can save a great deal of your time and labor costs.

When you stop to consider the cost of labor to lay your roofing material on the job, you will appreciate the advantage of using CON-SER-TEX, particularly in view of the fact that it can be put down for less than half the cost of laying other materials on the same surface and area.

A postal will bring our new illustrated book on "Roofing Facts and Figures" to you. Send for it before you forget. It means money to you to have this information.

William L. Barrell Company
8 Thomas Street - New York City

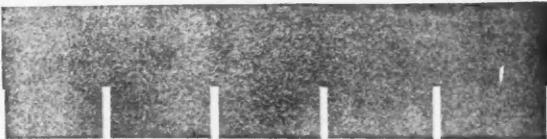
Chicago Distributors:
Geo. B. Carpenter & Co., 430-40 Wells St.

California Distributors:
Waterhouse & Price Co., Los Angeles
The Pacific Building Material Co., San Francisco

Hudson Strip Asphalt Shingles



SAVE MONEY AND TIME



Can be laid in less than 1/2 the time and with less than 2/3 of the nails than it takes to lay other shingles. Labor cost is a big item today and it can be greatly reduced by using these shingles.

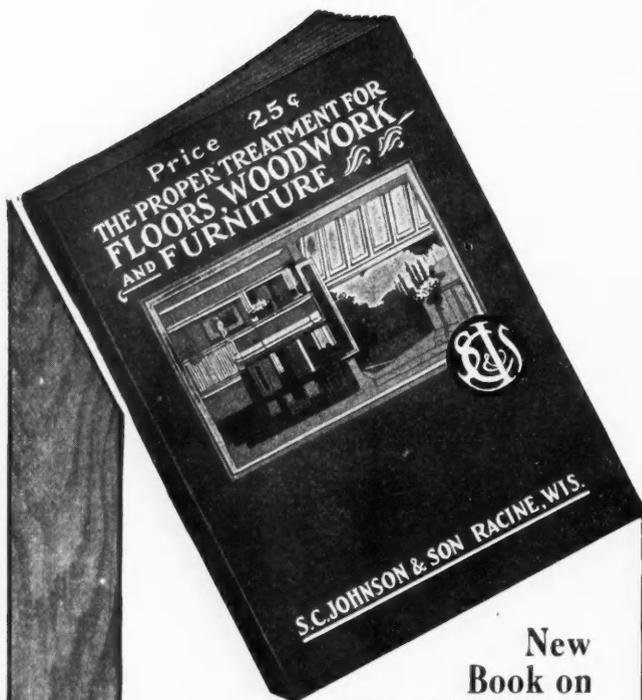
Send for Particulars

Hudson Asphalt Ready Roofing Co.
Dept. 53, 9 Church Street, New York

Send particulars regarding Hudson Asphalt Strip Shingles.

Name.....

Address.....



New Book on Wood Finishing

EVERY architect, contractor and builder is entitled to one of these new books free for the asking. It is a valuable handbook on interior finishing, beautifully illustrated in nine colors.

It tells how to finish inexpensive soft woods as beautifully as hardwoods and gives complete specifications for finishing woodwork and floors with

Johnson's Wood Dye

These dyes are not pore-filling varnish stains but coloring matter that penetrates deeply into the wood without raising the grain.

Johnson's Prepared Wax

is the most extraordinary polish for interior woodwork and floors. It gives a hard, dry, glass-like surface that does not collect dust.

If you are not familiar with Johnson's Wood Dyes and Prepared Wax we shall be glad to send you samples for experimental work or finished wood panels showing the various shades of Johnson's Wood Dye.

A.C.B.-20

Please send me free and postpaid my copy of your new 25c Instruction Book, "The Proper Treatment for Floors, Woodwork and Furniture."

Name _____

Address _____

City and State _____

Fill out this coupon and mail to

S. C. JOHNSON & SON

"The Wood Finishing Authorities"

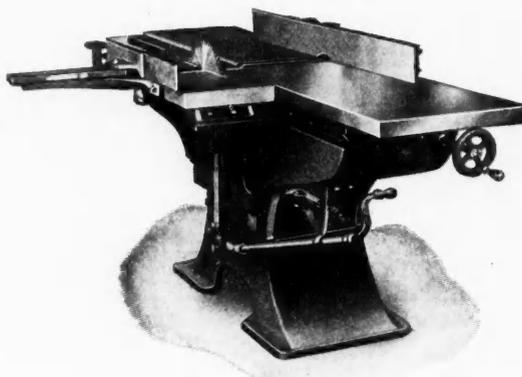
RACINE

WISCONSIN

Combination Jointer and Special Machine

The illustration shows the No. 105 jointer with No. 400 attachment in place, made by the Bicknell Manufacturing and Supply Company of Janesville, Wisconsin. This machine is offered to meet the demand for the Bicknell jointers with attachments. The machine is a two-piece table jointer with No. 400 attachment for using saws, rounding, dado and other cutter heads. The jointer table can be closed over the head and the attachment can be raised to the same height as the jointer table.

The attachment shown works in heavy machined ways and is raised and lowered by a perpendicular screw working on ball bearings, operated by a crank shaft connected to the screw with cut gears. This enables the operator to raise and lower the attachment quickly in making different cuts, or to raise the table above the heads and saws as a safeguard when using the jointer, without removing the heads. The table of the attachment is hinged at the back end so



Bicknell's Jointer with Attachment.

that changes of heads and saws can be quickly made. Each No. 400 attachment is provided with a rip saw gauge, accurately machined and fitted. The opening in the table of the attachment is fitted with an iron center piece for using the Bicknell 4-inch rounding head; also slotted for using up to 14-inch saws if wanted, or may be obtained with an iron center piece for each purpose. Wood center pieces may be easily made for special heads.

With each combination machine either the saw gauge shown in the illustration or a right hand saw gauge to be used in place of the jointer fence when the machine is used as a saw table, is furnished free of charge. The machine is designed for use in woodworking factories, planing mills, pattern shops, wagon and carriage shops.

The Bicknell Manufacturing and Supply Company, in addition to their line of woodworking machinery, both new and rebuilt, is equipped to supply shop fittings, including clutches, pulleys, shafting, hangers and other such articles.



Lumber's Most Winsome Advocate

You've got to hand it to Mr. Crosby, of Chicago, when it comes to working up enthusiasm for lumber—for lumber in general or for any particular kind of wood whose producers can form an association.

Just give Mr. Crosby a lumber association and he will do the rest. Their product, no matter what it is, is destined to find itself with a big string of talking points—real unique characteristics—in just a little while.

We recall hearing a prominent lumber manufacturer state in a public address not very many years ago, that there was no romance in the lumber business, and nothing much about lumber that could be advertised. Quite to the contrary, Mr. Crosby and his associates find lumber easily the most

(Continued to page 150.)

BAYONNE



Requires No Filler

Bayonne—waterproof, impervious to heat and cold, practically indestructible—gives far better satisfaction than any ordinary canvas, even if filled and painted in the best possible manner.

And—with paint at \$2.50 a gallon—

BAYONNE

is more economical than the lightest and flimsiest of ordinary canvas.

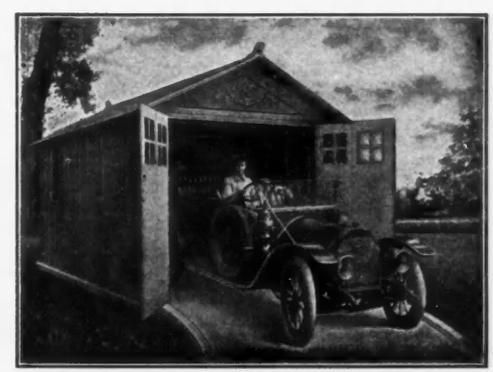
Laid on the dry boards—needs no filling and only a light finishing coat.

Write for Sample Book "N" giving prices and laying instructions. See Sweet's, Page 426

JOHN BOYLE & CO., Inc.
112-114 Duane St.—70-72 Reade St., New York
Branch House 202-204 Market St., St. Louis



Mr. Carpenter You Can Make a Lot More Money



An Agency for the METAL SHELTER CO., Inc., will bring you more business, more profits, more customers, better and quicker results all along the line, and it will be

A REAL BUSINESS OF YOUR OWN

Don't wait until someone else gets the agency for our garages, cottages, bungalows, stores, etc., etc.

It is easy to sell them and easy to set them up—a building a day. An investigation will cost you nothing. Write NOW for our descriptive circulars and proposition.

Metal Shelter Co., Inc.

Whitehall Bldg. New York City



Arch., John Henry Newson Co.,
Cleveland, for A. L. Soper

Save Roof and Side-Wall Expense

Why use materials that mean extra expense to paint, or a big repair bill every few years? You can save painting and repair expense and have beautiful architectural effects in colors if you use

"CREO=DIPT" STAINED SHINGLES

17 Grades 16, 18, 24-inch 30 Colors

They come in bundles, ready-to-lay without waste. We select shingles that are seldom seen in the open market. We use pure linseed oil earth pigments and preserve with creosote. We are responsible for both shingles and stains.

Write for Book of Homes and Sample of Colors on Wood

STANDARD STAINED SHINGLE CO., 1028 Oliver St., No. Tonawanda, N. Y.
Factory in Chicago for the West



**Added One More Usable Floor
To This Building**

How to Make Basements Waterproof

Cement insures against fire loss—Ceresit Waterproofing Compound effectively insures against dampness. Basements, cisterns, pits and cement stucco are made permanently proof against water penetration.

There are eight C. W. Co. Products. You can use them all. For instance, Indurite, a liquid which, when applied to a concrete floor, makes the surface hard as flint. It protects against dusting, oil penetration and makes it proof against wear.

Ceresit is easily used, is economical and the results positive.

The basement of the big warehouse shown here illustrates how Ceresit transforms a damp, useless basement into a dust dry usable room.

Write on your letterhead for the Ceresit Catalogue

CERESIT WATERPROOFING COMPANY
910 Westminster Bldg. CHICAGO

romantic of merchandise and favorable to the most effective advertising.

All lumber is *just lumber* only to the man who knows nothing about lumber. To the practical lumber student—and every architect, builder and building owner should be a student of lumber—every sort of tree has its distinctive characteristics, its advantages of strength, beauty of grain, color, hardness, easy working qualities, decay immunity, etc., which recommend its lumber in preference to all other woods for the particular purpose at hand. One of the functions of lumber advertising then is to make these characteristics definitely known and understood by those who do use and should use lumber.

Of all the lumber advertising booklets produced by Mr. Crosby's organization during the past few years, no two have been alike, each one has had its distinctive character, its



Your Reputation Demands

UPSON PROCESSED BOARD

---the Most Dependable Wall Board

Made in America

Contains no dirty, black materials or cheap, punky "jack pine" fibers.

Write for Samples and Information

THE UPSON CO. Fiber Board Authorities 16 Upson Point, Lockport, N. Y.

LOOK FOR THE FAMOUS BLUE CENTER

**WATERPROOF
PLASTERGON
WALL-BOARD**

TREATED
ROAD FIBRE

(See how this 10-ft. panel stands straight without bending! Send for actual photo.)

Four Ply

Send for a sample of Plastergon Wall Board. Compare it with any other wall board. Whittle it. Try to bend it. Put water on it. You will be surprised that there can be such a really big difference when the same claims of superiority are so generally made for other boards. Our users say Plastergon "has no equal at any price."

Your Safeguard in Purchasing (No. 4)

"We find that Waterproof Plastergon gives great satisfaction and our customers are all pleased with it. We will have a big demand for same this spring."

J. J. RYAN & CO.
Montrose, Pa."

Samples and our "Contractors' Practical Working Guide" sent free. Send the name of your Lumber or Builders' Supply Dealer. Write today.

Plastergon Wall Board Co.

No. 1 Philadelphia Ave., BUFFALO, N. Y.



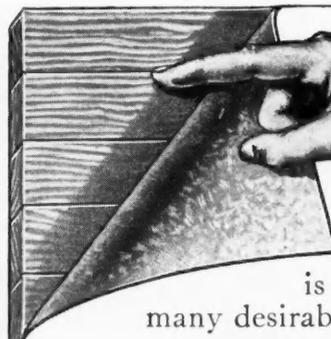
ready slogan, and its unique appeal. Of them all, none has been more persuasive, nor more beautifully presented than "California Redwood," a copy of which has just reached our editorial rooms.

California Redwood is hailed as "Nature's Lumber Masterpiece," and this Redwood book is carried out in a style to do justice to this slogan. To quote the introduction, it is a book about interior trim of genuine California Redwood in modest homes, in elaborate homes, and in public buildings; suggesting its varied yet unvarying beauty, its distinction, its graceful dignity of grain, its responsiveness to diverse artistic treatment, its sympathetic harmony with any type of interior, its excellent "workability," its unequalled freedom from the warping and shrinking tendencies of so many woods, and its economic advantage as related to more costly yet less desirable foreign "trim woods."

The illustrations are the most striking part of the presentation—beautiful photographs showing a great range of residence interiors finished in Redwood. There are also ten full page, four-color illustrations picturing Redwood in its natural state, and with a few of its most popular and practical finishes. These pages we suspect will be found by architects and builders the most useful part of the book. Full directions are given for achieving these results, and in addition some fifteen other finishing recipes are given for other effects not illustrated.

This booklet has been prepared for the California Redwood Association. Their "Service Bureau" maintains an office in San Francisco, which is ready to give practical assistance in connection with the use of Redwood in any structure. This Redwood book is worth a price, but we suspect they will be glad to mail copies of it with their compliments to any of our readers who will write them.

This Redwood book is lumber's most winsome advocate.



**THAT
WOOD
CORE**

is responsible for the many desirable qualities of



Trade Mark Reg. No. 94745

Consider first, of course, its chief use as a wall lining, and why, because of its wood core, it is **better** in every way than lath and plaster, stronger, more durable and sanitary.

Besides it has a 101 other uses, such as:

- lining summer garages and outdoor sheds for warmth.
- lining summer cottages (helps keep them cool).
- quick repair partitions.
- enclosing rooms in attic or cellar.
- building dust proof closets or cabinets.
- panels in wainscoting or beamed ceilings.
- shelves, drawer bottoms, cabinet backs, etc.

Sold by dealers everywhere.

Write for free sample and interesting booklet.

The Compo-Board Company
5777 Lyndale Ave. No. Minneapolis, Minn.

There is nothing complicated about

Allmetal Weatherstrips

Old, sunken, warped and out-of-square openings of every kind made dust and draught-proof.

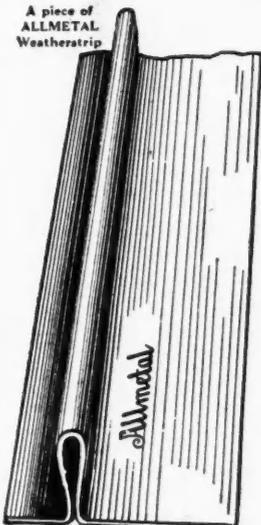
Easier to Install

This pattern is used more than all others combined.

Easier to Sell

This kind made metal weatherstripping a business.

A piece of ALLMETAL Weatherstrip



Ask any Architect

Noiseless, easy-running, non-rattling sash; better than stormsash; absolutely permanent; sash instantly removable for repairs; coal saving pays the cost; solid comfort with a smaller heating plant.

Are You the Man?

We guarantee a money-making business for a live carpenter or builder who will follow our selling plan.

Answer Quick and get our inside price list

Allmetal Weatherstrip Co.

224 West Madison Street
CHICAGO, ILL.



Reliable
Durable
Low Priced

BEMIS STANDARD VISE

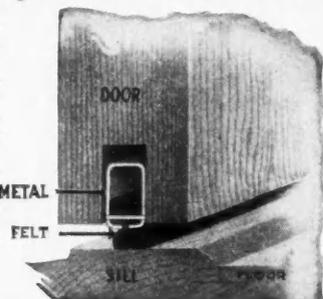
Will not slip, catch or let go. Fitted with continuous, fast-running, double-thread steel screw, positive and quick. Fitted with easily adjusted dog to hold work on top of bench. Order today—or send for circular.

Special Price—Cash with Order—\$2.00

A. L. BEMIS, 71 Commercial St., Worcester, Mass.

That Ugly Open Space Under the Door!

Who in the wide world can fix that wide space under the door? You can, whether it be wide or narrow, if you are in the weather strip business. You can fix it right, too, with the Eveleth Door Bottom Weather Strip. It is being used more and more each year in many of the leading cities by the leading weather strip men. It is being specified by the ablest architects the world knows, for the most expensive doors made. We will furnish prices, larger cut showing mechanical operation, and other interesting information.



EVELETH MFG. CO.

(Not Inc.)

12 Ashland Ave., River Forest, Ill.
(2 miles west of Chicago City Limits)

Note "That Positive Grip" in Felt.
Don't Write Today, But Tomorrow

Mr. Contractor-Carpenter

Write today—now for the best agency "try-out" proposition for the largest and most complete line of metal weather strips on the market.

Turn Your Idle Hours Into Money

We supply you with a complete agent's outfit consisting of models, estimating tables, contract blanks, advertising matter, etc.

We don't ask you to invest a dollar of your money until you get actual orders, and we show you how to get them at a good profit.

We give exclusive agency to the ones who "make good."

We give full instructions for installation.

Many contractors have taken up this business as a side line and developed it into their main business. You can do the same.

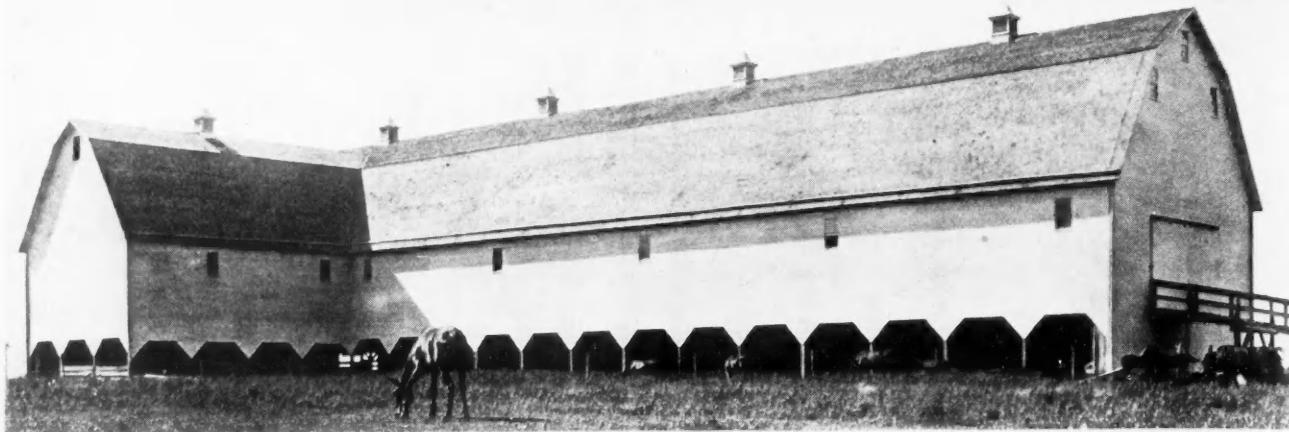
We Have Some Excellent Territory Still Open

ADDRESS:

THE DIAMOND METAL WEATHER STRIP CO.

626 Kerr Street

COLUMBUS OHIO



Five Willis Ventilators in Use on Large Live Stock Barn (Size 200 by 50 Feet and 50 by 50 Feet).

A Practical Exhibit of the Well Known Willis Ventilators

It is a well recognized fact that the only way to secure proper ventilation in a barn is to put in a proper ventilating system, with the right size and style of ventilator on the roof. The barn shown herewith is equipped with such a system and is fitted with well known Willis ventilators made by the Willis Manufacturing Co., Dept. B, Galesburg, Ill. It is interesting to know that these five ventilators of the louvre style keep this large barn full of fresh pure air. The building is 200 feet long and 50 feet wide, with a 50 foot wing onto the main building.

General Catalog No. 7, issued by the above company, illustrates the complete line of Willis products, including ventilators, skylights, metal ceilings, underwriters' label fireproof windows and doors, canopies, cornices, in fact everything

in sheet metal building materials. We understand that a large stock of these ventilators is always carried in stock ready for prompt shipment, so that our readers will have no difficulty in securing prompt deliveries.

The Willis ventilators are made in numerous styles, and sizes so as to be adapted for every purpose and for any pitch of roof. They are arranged to be ornamented with special styles of weathervanes, thus adding not only to their utility, but to their appearance. The principle on which the Willis ventilator is made is such that the draft is always in the right direction, no matter how hard the wind is blowing or whether no wind is blowing at all.

The business of equipping barns as well as other buildings with ventilating systems has proven profitable to so many of our readers that it would seem well for all of them to write for the Willis catalog and learn the Willis method of doing business.

Up-to-Date Ideas for Up-to-Date Builders

GENERAL SUMMARY OF CONTENTS

Radford's **DETAILS OF BUILDING CONSTRUCTION** is a complete manual of Building Practice, as applied to carpentry, construction and the use of millwork. It is a remarkable collection of full-page plates, accurately drawn and reproduced to exact scale, showing clearly every detail of modern building construction and finish. These plates make plain the framing and construction of residences of every type—frame houses, brick houses, brick-veneer houses, "stucco" or cement-plaster houses, cement block houses, etc.

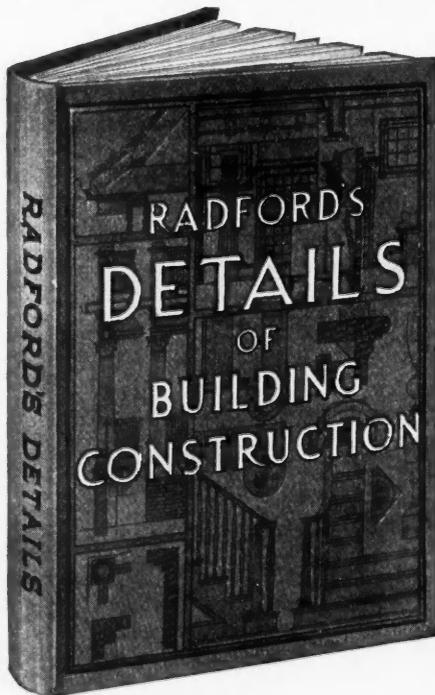
200 Pages of Live Information

200 pages of illustrations, with thousands of details, including a section showing home furniture making.

Every part of a building is shown in Radford's **DETAILS OF BUILDING CONSTRUCTION**. All dimensions, angles, curves, measurements and joints are made so plain and are so well illustrated that the "man on the job" will have no trouble or difficulty in doing the work. It has all been figured out by men who have made a lifelong study and success of architecture and building.

Price \$1.00

Postpaid



PART I. Details of Construction and Finish

38 Full Page Plates, showing complete details of interior trim, with special "built in" features for every room and part of a modern residence.

PART II. Details of Frame and Masonry Construction

44 Full Page Plates, presenting a graded series of 197 figures detailing completely every point in frame, brick and stone construction.

PART III. Details of Miscellaneous Building

57 Full Page Plates—A veritable Treasure House of practical and reliable information for carpenters and builders—especially those working in the country—working drawings and details which solve completely every building problem.

PART IV. "The Handy Man's Friend"—How to Make a Thousand and One Useful Things

61 Pages, packed full of practical helps for doing all the various pieces of work that the carpenter and the "handy-man-about-the-house" is called upon to do. Details and working drawings with brief explanatory text.

AMERICAN CARPENTER AND BUILDER --- 1827 Prairie Ave., CHICAGO