JUNE 1914

AMERICAN CARPENTER AND BUILDER

THE WORLD'S GREATEST BUILDING PAPER

BUILDER TYPES

Picturing certain important groups of "Our Readers"

① THE BOSS CARPENTER

HE is the active man in charge of the work---honest, wide-awake, dependable. His influence is felt alike in the purchase of the building materials and equipment and in the construction of the building. Full satisfaction depends on his knowledge and approval. He is THE BOSS.

The Reflection of a Good Saw is Lasting

Are you really proud of your own Saw? Do you feel—down in your heart—a warm place for this most important tool? Is your Saw standing up to its work and making life pleasanter and easier for you?

If Not—It Should

ATKINS SILVER STEEL SAWS are the kind of Saws that seem—somehow—to earn their way into the hearts of those who use them.

It's because they are dependable—because they can be relied upon to make good. If you do not feel that your Saw is really a better Saw than the other fellows—then you ought to try an ATKINS—and be happy.

SILVER STEEL is as fine and as highly tempered as a razor blade. It's hard and tough—but not brittle. It won't go back on you—when you need it. Then these blades are ground on a taper and will run—even in wet lumber—free and easy with but very little set. They are distinctive and different and finer than any other Saws.

How To Get Them

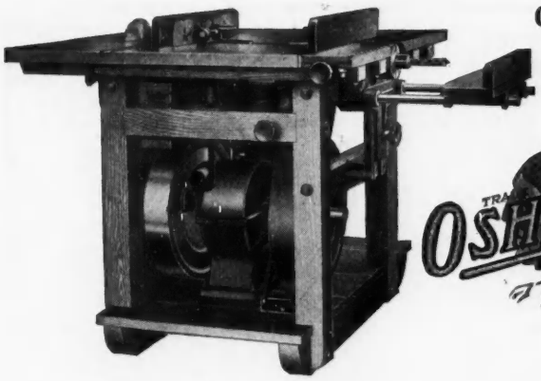
Tell your dealer to show you a genuine ATKINS SILVER STEEL SAW and look for our name on the blade. He has it or will get it for you if you ask. If he won't, then write to us—we'll tell you how to get quick service.

A Free Carpenter's Apron

Send us ten cents, to pay postage, and we will forward, free of charge, a fine strong carpenter's apron with a monthly time book and lots of useful information in regard to the purchase and care of Saws. Perhaps there will be something else in the pocket which you would like to have.

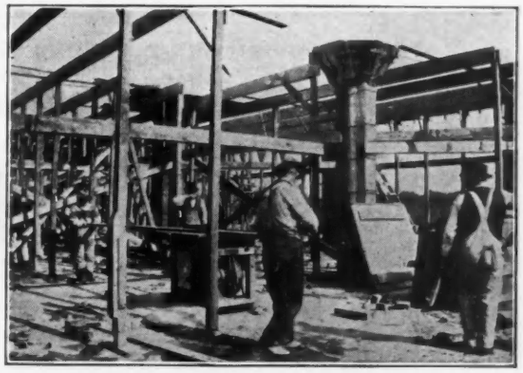
E. C. ATKINS & CO., Inc. -:- Indianapolis, Indiana

THE SILVER STEEL SAW PEOPLE



Complete Set of Attachments FREE

OSHKOSH



An Eveready Saw Rig Saves the Wages of Six Men

NEW LIST OF AGENCIES

CHICAGO, ILL.—Oshkosh Mfg. Company, 1440 Monadnock Bldg.
ATLANTA, GA.—Oshkosh Mfg. Company, Southern Sales Office, 604 Walton Bldg.
CINCINNATI, O.—S. O. Holder Supply Co., 1123 Gilbert Ave.
DENVER, COLO.—Geo. W. Summers & Company, 355 Railway Exchange.
EVANSVILLE, IND.—Indiana Builders' Supply Co., Furniture Exchange Bldg.
MILWAUKEE, WIS.—Badger-Packard Mchy. Co., 74 West Water St.
NEW ORLEANS, LA.—Henry J. Malochee, 802 Perrin Bldg.
OMAHA, NEBR.—Sunderland Mchy. & Supply Company.
PORTLAND, ORE.—G. A. Saunders Supply Co., Bldrs. Exchange, 2nd and Alder Sts.
RICHMOND, VA.—I. Bluford & Company, 1538 East Cary St.
SALT LAKE CITY, UTAH—F. C. Richmond Mchy. Co., 117 West Second South St.
SAN FRANCISCO, CAL.—J. E. Dwan & Co., 445 Turk St.
LOS ANGELES, CAL.—J. E. Dwan & Co., 1835 South Main St.
SAN DIEGO, CAL.—J. E. Dwan & Co., 250 Fifth St.
PHOENIX, ARIZ.—J. E. Dwan & Co., Creighton Bldg.
SEATTLE, WASH.—Harold G. Stern & Company, 524 First Ave. South.
ST. LOUIS, MO.—C. O. Fischer & Company, 712 International Life Bldg.
KANSAS CITY, MO.—King Supply & Equipment Co., 1201 Scarritt Bldg.
PITTSBURGH, PA.—Patterson Bros., 421 Wood St.
BIRMINGHAM, ALA. — Chadwick & Company, 510 Empire Bldg.
ST. PAUL, MINN.—Daily-Fraser Hdwe. Company, 417 Cedar St.
CHARLESTON - ON - KANAWHA, WEST VA.—O. A. & H. G. Thayer Company.
MONTREAL, QUE.—The Canada Mchy. Agency, 298 St. James Str.
WINNIPEG, MAN.—John H. Alexader, 604 Builders' Exchange Bldg.
VANCUOVER, B. C.—Dominion Dock & Supply Co., 304 Northwest Trust Bldg.

MIXERS AND PUMPS EXCLUSIVELY.

NEW YORK, N. Y.—John J. Duggan, Room 1652, 50 Church Str.

Oshkosh Mixer

It will pay any contractor to get acquainted with the OSHKOSH MIXER. Request brings full information. Write us today for prices and Special Offer.

The Mixer with the Effective 4-Way Mix.
Also built for steam or electric power.

Ask for the Bore and Stroke of the Engine

Whether a Portable Saw Rig will *pay* you or not, depends largely on the *Engine*. It requires *power* for a machine to turn out the work of from 4 to 6 men and soon return its *full cost*. Some makers of Saw Rigs *claim* all kind of power for their machines. We state the facts—bore, 4¾ inches—stroke, 6 inches. More than that, we guarantee our Engines will develop over 4 actual brake horse power. Now for some tangible

Proof of What the Eveready Portable Saw Rig Has Done

Note we did not say *will do*. One contractor who formerly bought factory-made window frames, now makes all his own frames with our machine, at 30% less cost and secures even better frames. Another, a building contracting concern, used our machine in building a church and it saved them enough the first season on that *one* contract alone to almost pay for the Saw Rig.

Our Eveready Saw Rig is not a frail, weak machine like some are, but built heavy and strong enough for any service. It is also constructed so that it is easy to *move* from one job to another. Also, so *simple*—anyone can operate it. Besides doing cross-cutting and rip-sawing, it joints, sands, jig saws, grooves, bores, miters, and grinds tools. All attachments complete come with it—*no extras* to buy. Send for our Catalog, which gives complete details and contains a long list of letters from well known users.

Live Agents Wanted in Open Territory

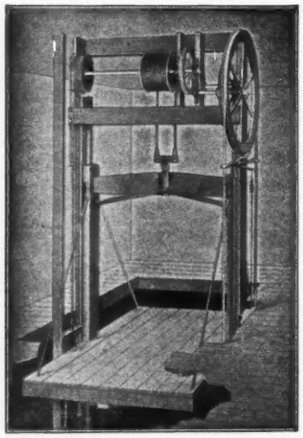
OSHKOSH MFG. COMPANY

316 South Main Street **Oshkosh, Wisconsin**

A Good Elevator

Is a Good Investment

Saves Time and Labor



Our product includes ***Dumb-Waiters, Carriage, Auto and Store Elevators*** — Hand and Power.

These machines are serviceable and will pay for themselves in a very short time. Being practically self-contained, they can be erected by any carpenter or "handy man" in a few hours' time. Plans for erecting furnished with each elevator.

The Reasonable Cost Will Interest You

Write to us today stating your requirements, giving style of machine wanted, size of platform and number of feet travel and we will name you a money-saving price on equipment made to serve you well.

SIDNEY ELEVATOR MFG. WORKS, SIDNEY, OHIO

A FREE Book For You

You should have this book because it completely illustrates and describes

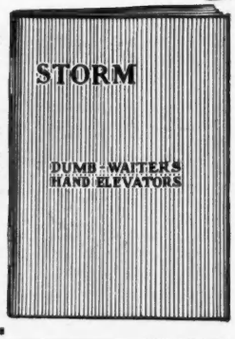
STORM

Elevators and Dumb-Waiters

We will help you estimate the cost of elevators or dumb-waiters for any of your buildings. Help you install them too. We can furnish any kind or size of elevator or lift you want.

Get Our Catalog.

Storm Manufacturing Co.
Harmon and Vesey Streets
NEWARK, N. J.



We make a specialty of furnishing

HAND POWER ELEVATORS

AND

DUMB WAITERS

Complete F. O. B. Cars Cincinnati, Ohio

FULL blue prints and instructions are furnished with each machine. The gearing is all set up complete and run before it is shipped to you, from our factory. This insures a good perfect running gearing and ready to set up when you receive it.

WRITE US FOR CATALOG AND PRICES

Electric Elevators for Passenger and Freight Service

THE WARNER ELEVATOR MFG. COMPANY
Cincinnati, Ohio

DUMB WAITERS

Some jobbing carpenters make good money on Dumb Waiters and Hand Power Elevators: Do you?

There is money in this line providing you satisfy your customers. The way to satisfy them is to furnish those outfits which will best fill their requirements.

THE SEDGWICK MACHINE WORKS
87 Carroll St. :-: POUGHKEEPSIE, N. Y.
(NEW YORK OFFICE: 128 Liberty St.)

show many types in their new catalog "L" (all of which are carried in stock for prompt shipment), and will submit drawings and specifications on either standard or special outfits free of charge. Get their catalog "L" at once and study it over.

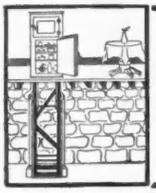
Fly Screens

Metal Frame
REWIRABLE CIN-MAN-CO.

See method of securing wire cloth, held by rounded corners, which prevents cutting by vibration.

Special inducements to Carpenters and Builders
Booklet Free

The Cincinnati Fly Screen Co.
1010-1026 Evans St., Cincinnati, O.



CARPENTERS AND BUILDERS

make extra money by installing this practical necessity in new and old homes. It saves 3650 trips to the cellar each year. "WIFE'S JOY" DUMBWAITER—Ball Bearing—Disappearing

Operates quickly by a press of the button. Takes up no room. Top lies flush with floor; can be walked on. Practical for any home. Keeps food perfectly. Can be installed complete in 2 hours. WRITE FOR CIRCULARS.

Fifteen Days' Free Trial Without Any Deposit.

AMERICAN ELEVATOR CO. - - Bloomsburg, Pa.

CHELSEA

EXEMPLAR OF QUALITY

Send for our Elevator and Dumbwaiter catalog

CHELSEA ELEVATOR CO. 330 W. 26th St., N. Y.

CARPENTERS WANTED AS AGENTS

During Fall and Winter Months. Big Money; Ready Seller.

SANITARY AUTOMATIC DUMBWAITER

saves carrying food to and from the cellar. Perfectly ventilated; screened openings; finished inside with durable white enamel. Keeps food perfectly. Top lies flush with kitchen floor. You can walk over it. Operates with push button or lever. Also furnished as a Refrigerated Dumb Waiter. Write for Particulars and Price.

YORK AUTOMATIC DUMBWAITER WORKS
639 W. Market St. YORK, PA.

THE COLUMBIA

DUMB WAITERS ELEVATORS
CELLAR HOISTS
JUMPER DISAPPEARING DUMB WAITERS
CHAIN HOISTS, CRANES and TROLLEYS

SEND FOR CATALOGUE.

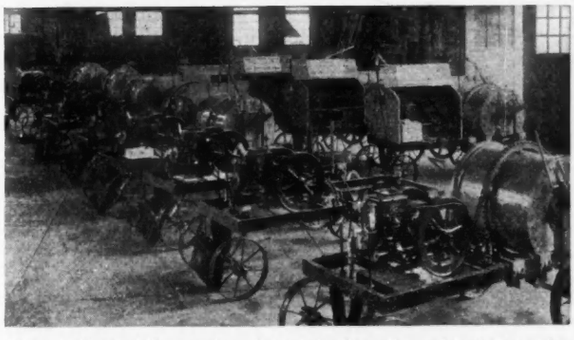
J. G. SPIEDEL, Reading, Pa.

Capacity 50 Cubic Yards per Day—Price $275.00

THE Atlas Mixer is a machine of large capacity, designed with a view to portability, and equal distribution of weight over the front and rear wheels, making it easily shifted on the job and as easily moved from place to place. Its capacity is five cubic feet of loose material per batch.

ATLAS MIXERS

Frame — Channel Iron. **Drum** — Heavy Boiler plate, Semi-Steel Heads. **Engine** — The best procurable; same make as that used on mixers selling at much higher prices. **Features** — Splendid lubrication system — bearings and all friction surfaces fully protected from dust and dirt — expanding ring clutch, like automobile emergency brakes. Drum set very low, placing charging hopper only 42 inches from the ground. Any repair part will be shipped from the factory the day your order is received.



Above is illustrated a portion of the Atlas Plant devoted to the assembling and erection of Atlas Mixers.

Below is illustrated a one-day shipment of Atlas Mixers. Many of these were repeat orders from large contractors.

The Atlas is a Dependable, Efficient, Speedy Mixer built upon lines in keeping with modern engineering practices.

10 ft. batch Atlas Mixers sell at a correspondingly low price.

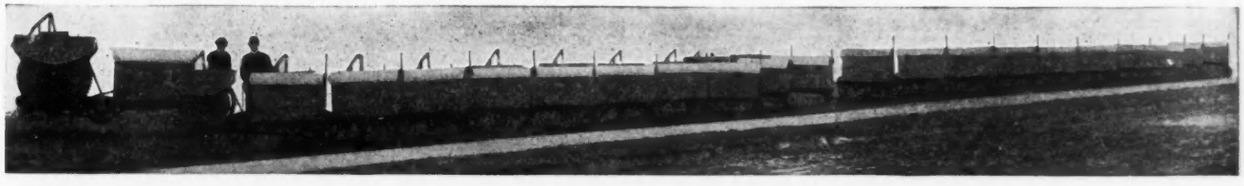
Beautiful, illustrated catalog on request.

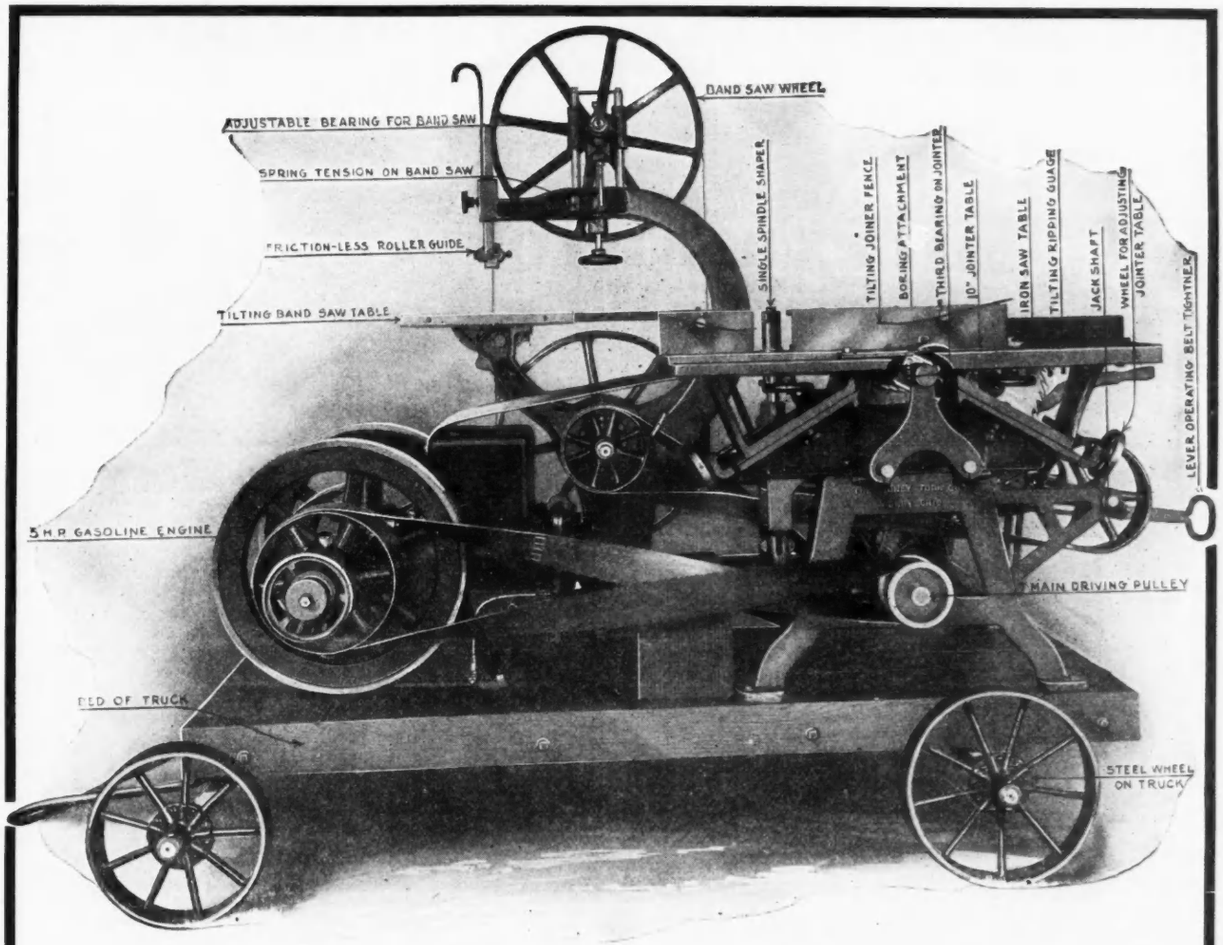
Atlas Engineering Company

780-90 Thirtieth St. **Milwaukee, Wis.**

W. E. AUSTIN MACHINERY CO., Southern Sales Managers

Atlanta **New Orleans** **Houston** **Dallas** **Memphis** **Richmond**





You helped Smith pay for his automobile!

Yes, you did! You turned over to Smith and his mill work that you could do yourself with a "Famous" Woodworker. He made a good profit on YOUR work—on OTHER work turned in to him—and NOW he's driving a fine, new car! You helped pay for it. You are helping to pay for OTHER automobiles—and it's time you began to put this extra money into your own pocket.

Are you going to do it again this year?

A "Famous" Universal Woodworker will enable you to save hand labor—keep the profits that belong to you in your own shop—promise (and DELIVER) more quickly—handle more work at a better profit—stamp you as the progressive man—and add new business by leaps-and-bounds.

There is a special "Famous" for you. Send the coupon and we will tell you something about it. Send it today. Don't help pay for the "other fellow's" car any longer. You want one. A FAMOUS will help get it.

THE SIDNEY TOOL CO., :: Sidney, Ohio

Now!—mail the coupon.

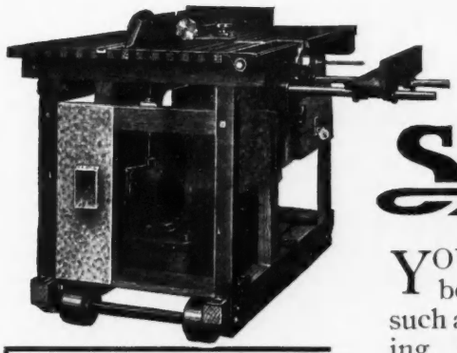
Sidney Tool Co., Sidney, Ohio.

Gentlemen: You bet, I want my own car. Prove to me that there's a "Famous" for me—that will do my work best. Send your catalog No. 12—I am interested.

Signed.....

Business.....

Address.....



Increase Your Profits

You Can Do It by Using a

Simplicity CONTRACTORS SAW RIG

YOUR men can saw four times as much lumber with ease besides performing many other time-saving operations, such as: jointing, dadoing, all standard boring, rabbiting, shaping, sanding and grinding tools. You can increase your daily output at a lower cost and do better work with the **"Simplicity" Saw Rig.**

The big, powerful 4 H. P. "Simplicity" Engine, enables you to saw 4-in. lumber with ease. We are engine builders and know that the "Simplicity" engine will deliver the power, and absolutely guarantee it to produce the very best results with the **"Simplicity" Portable Saw Rig.**

On reinforced cement contracts you can save considerable on your form lumber by doing your own mill work with our outfit No. 2. *A full set of attachments is furnished free.* It will pay you to write today for full details. *Just drop us a card.* **Dealers Wanted.**

TURNER MFG. CO.
129 LAKE ST. PORT WASHINGTON, WIS.

"Simplicity Jr." CONCRETE MIXER

A practical mixer at a price you can afford to pay. Simple design, all steel construction, chain drive, low loading hopper, quick and handy discharge; light, easy to handle, yet strong and durable.

Write for Bulletin No. M24

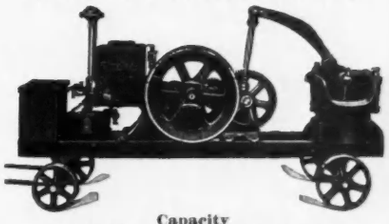
Capacity
5 cu. ft. per batch.
50 cu. yds. per day.

C122

"Simplicity" POWER PUMP

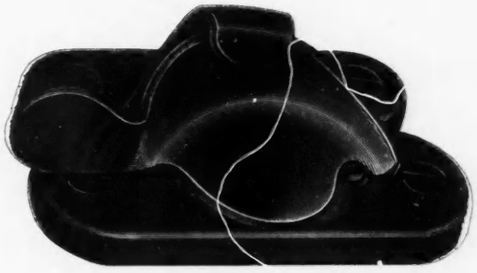
Just the trench pump for handling large quantities of water against a low suction head.

Write for Bulletin No. T28



Capacity
3,500 to 6,000 gallons per hour.

MONITOR SASH LOCKS



(PATENTED)

NEVER BREAK

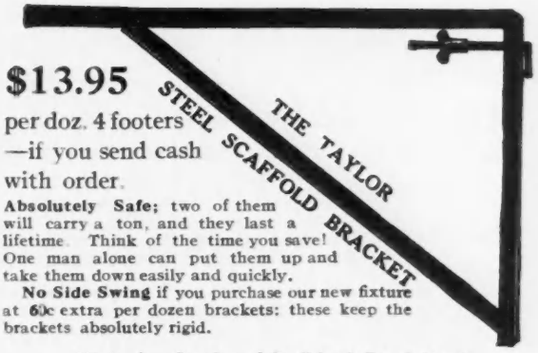
BECAUSE THEY ARE MADE OF VERY HEAVY GAUGE METAL AND PERFECTLY CONSTRUCTED.

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

MADE IN TWO SIZES AND ALL FURNISHED BY

The Champion Safety Lock Co.

Geneva, Ohio

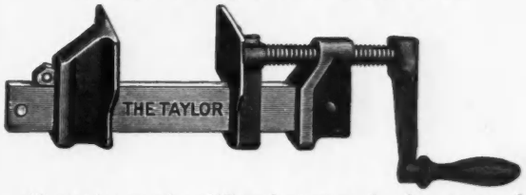


$13.95 per doz. 4 footers —if you send cash with order.

Absolutely Safe; two of them will carry a ton, and they last a lifetime. Think of the time you save! One man alone can put them up and take them down easily and quickly.

No Side Swing if you purchase our new fixture at 60c extra per dozen brackets: these keep the brackets absolutely rigid.

Write for Catalog of Builders' Specialties!



About clamps—the sliding jaw on each of ours can be moved **in an instant DIRECTLY AGAINST** the work operated on, so that half a turn of the fine specially threaded screw will apply the power.

Think of the time this saves!

The grip is positive, and special grade of steel in the bar more than doubles the strength of the clamp.

Our No. 10 catalogue shows some very interesting price reductions on four of the most wanted styles. It will pay you to write for it at once.

James L. Taylor Mfg. Co.

Poughkeepsie, N. Y., U. S. A.

Get Your Share

Of the Profits

WITH A *Crescent*

Universal Wood Worker

EVERY year the planing mills grab a big share of your profits. Why don't you keep that money? You can produce your own mill work at **cost.** It's poor policy to pay high prices for finished product when you can get out the same stuff for a trifle more than the cost of the rough lumber. All you need is **equipment.**

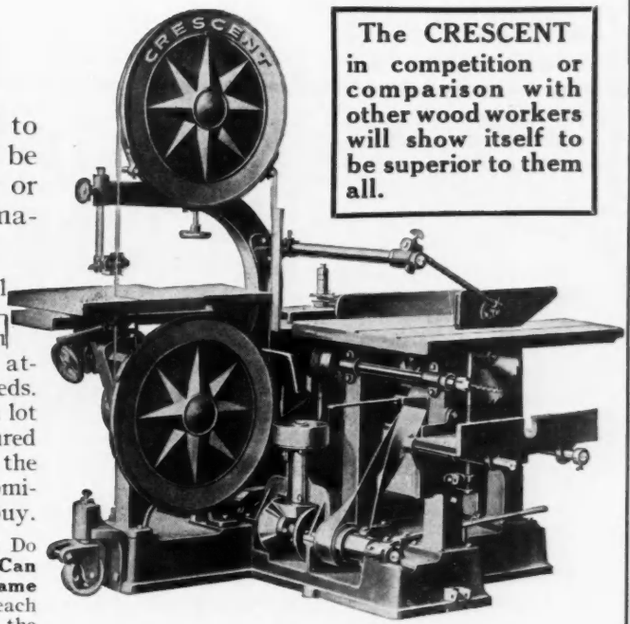
You are far-sighted. You can see that it's wise to invest a little money in **good equipment** now and let your added profits pay for it. **Prices on mill work are going up** each year. That means your profits from building are bound to be **less.** Better start now and figure on getting out your own stuff and quit handing your earnings to the other man.

Buy a Crescent

It's the machine that's **guaranteed** to make good on your work. It will not be out-of-date in a year or two. It's a lifetime machine.

What You Can Do on the CRESCENT

- Re-Sawing
- Cutting Off
- Tenoning
- Moulding
- Panel Raising
- Knife Grinding
- Mortising
- Pole Rounding
- Disc Grinding
- Rabbeting
- Boring
- Grooving
- Dadoing
- Jointing
- Band Sawing
- Ripping
- Sanding



The CRESCENT in competition or comparison with other wood workers will show itself to be superior to them all.

The Crescent Universal Wood Worker is a combination machine. You can get any combination of attachments to fit your needs. You do not have to buy a lot of unnecessary parts. Figured in plain dollars and cents, the **Crescent** is the most economical wood worker you can buy.

Look at "What You Can Do On the Crescent." **Four Men Can Use This Machine at the Same Time** without hindering each other. It's the machine for the shop or for the job. Construction is all you could wish for. We back every part with our guarantee to make good any defect.

You really should have our Red Catalog. It goes into details and gives the information a buyer wants. Nothing disguised. All in plain type, so you can decide for yourself. This book is **FREE. ASK FOR IT.**

THE CRESCENT MACHINE CO.

224 Main Street **Leetonia, Ohio**

Much Interest Shown In Lumber Advertising

April Ad Puzzle Prize Contest

BRINGS OUT ENLIGHTENING FACTS CONCERNING THE USE OF ADVERTISED GOODS BY CARPENTERS AND BUILDERS—LUMBER AND OTHER BUILDING MATERIALS CONSIDERED O. K. IF THE MANUFACTURERS ARE WILLING TO SUBMIT THEM TO THE HIGH COURT OF THOSE WHO KNOW.

IN presenting the April Ad Puzzle Prize Contest, in which we asked the four questions concerning the use of lumber and lumber advertising, we were sincere in our desire to obtain some reliable, first-hand information bearing on thus subject. We really wanted to find out how the average building contractor feels about building material advertising, and by this we mean, not the little local ads, but the big national campaigns.

We wondered if builders generally are taking full advantage of the interest that is being worked up on certain general classes of building materials or on certain specific brands by means of wide publicity campaigns through the popular magazines, newspapers, building journals, etc.

It is easy for us, or for anyone else, to sit in the office and spin theories about how things ought to be, and then to jump to the conclusion that they are that way. We are not contented, however, to follow any such easy course. It is, and always has been, our rule to get out among the builders themselves and find out from actual investigation the real facts of any proposition.

So in this instance, taking advertised species of lumber as a typical example of advertised building materials, we have been sincere in our effort to get at the truth. And we are very glad to announce that our readers have given us a very valuable fund of information.

The testimony of three builders in widely separated parts of the nation is interesting and at the same time typical of most. W. H. Bryant, Designer and Builder, Hemet, Cal., writes:

"1st. Because of my location, a long distance from shipping centers, freight rates very high, it is difficult for me to buy any lumber other than that generally sold here. I have, however, been interested in your advertising of oak flooring and have been able to interest my customers and have bought oak flooring from Los Angeles (the first used in this vicinity), using it in several houses of the better class.

"2nd. In this locality the building owners rely largely on the advice of the architects, contractors or builders.

"3rd. In my experience the most effective way to advertise a building material is through the architects and builders. This is an age of specializing, whatever we want to have done for us, we go to those who have fitted themselves for that line of work and devote their time to it. We not only have them do for us what we want, but we rely almost entirely on their advice in the way it should be done.

L. W. H. Gradisky, Carpenter and Builder, Hartford, Conn., writes:

"I think it necessary to advertise in the popular magazines to put the merits of building material before the general public, and also to advertise in the building magazines to keep the builders posted so that they can recommend and can answer all inquiries made by prospective customers.

"It certainly has a greater influence with me, seeing material advertised in the building papers than in the popular magazines or women's papers, as it seems to me that if one has a reliable building material he would appeal direct to the builders."

And Mr. A. B. Campbell, of Marcus, Wash., writes:

"I thoroughly believe in the advertising in my own building magazines. Such advertising has 100 per cent more influence with me than the same ads in any of the popular or women's papers. As a consequence, I write for a better acquaintance to every new ad that appears in my building magazines. I have samples and data from over 50 per cent of the 'A. C. & B.' advertisers. I was the first in this town to use the Cott-a-lap Co. product. First, by getting their samples and showing them to my customers; then purchasing the goods from a dealer in this city. This all happened because of 'A. C. & B.' advertising. And the same holds good regarding my tools and machinery, much of which I have purchased through 'A. C. & B.' ads."

From a study of all of this material and from other sources, it is evident that the builder is the most important link in the chain that connects the manufacturer of building materials with the actual sale and use of his material, and that to have the most effective publicity and sales campaign, the approval and co-operation of the builders must be secured.

Prize Winners in the April Contest are the Following:

First Prize, $10.00 worth of goods selected from our ad pages, W. H. Bryant, designer and builder, Hemet, Cal.

Two Second Prizes, each consisting of $5.00 worth of good selected from our ad pages:

L. W. H. Gradisky, carpenter and builder, Hartford, Conn.

A. B. Campbell, Marcus, Wash.

Third Prizes, each consisting of $1.00 worth of goods selected from our ad pages:

Elijah Jones, contractor and builder, Greenville, Ill.

E. C. Shilling, Blue Rock, Ohio.

C. R. Bartholomew, contractor and builder, Castlewood, S. D

George L. Story, Waterville, Vt.

Contents for June, 1914

AMERICAN CARPENTER AND BUILDER

Important Notice

When your subscription expires, renew at once, using the blank enclosed in your final copy. If it expires with this issue your renewal must reach us before June 25, to avoid missing the July number. Use P. O. or Express Money Order if possible, but bills or 2-cent stamps may be sent at our risk.

The **World's Greatest Building Paper**

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
RADFORD BUILDING, 1827 PRAIRIE AVE., CHICAGO

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VOL. XVII. JUNE, 1914. NO. 3

Architect Must be Versatile

By William Holabird

Senior Member of Notable Architectural Firm of Holabird & Roche, Chicago

THE field of architecture is not overcrowded. In fact, the contrary obtains. Today the young man who wishes to become an architect has splendid advantages, far better than those at his command a decade ago.

To become a successful architect, however, he must qualify in many things. He must have good habits, a steady nerve, be industrious, and have mastered the rudiments of the profession. Above all these, he must have integrity, because he is compelled to handle constantly funds that belong to other people.

In selecting a vocation, he must have a fondness for it. If he chooses a profession for which he has no liking, his success will be greatly handicapped. No man, to my knowledge, ever has attained high honors in a calling for which he has a natural aversion. I think that is one of the great dangers which parents and advisers are too prone to overlook. They indiscriminately choose a young man's business for him and as a consequence, caring little for it, his progress suffers. All sorts and conditions of men are to be found today who complain about the unattractiveness of their calling and who wish they had made a more fitting selection of their life's pursuit.

Too Many Work Mechanically

Of course, to be an architect and a successful one, a young man must be an architect in all the term implies. He cannot enter the profession half heartedly. He must work untiringly, faithfully. I would venture to declare that 80 per cent. of the young men following the various professions of today, do their work mechanically and without full knowledge of details. They have not mastered their chosen calling.

The young man who determines upon architecture as a means of earning a livelihood, must be pretty thoroughly educated. He must know mathematics in order to learn construction. He must be able to draw both mechanically and free hand; have a conception of coloring, and be able to do water color and oil work to a minor degree.

It is possible for him to educate himself by working during the day and studying at night. We have had instances of young men entering an architect's office,

boarding themselves, and supporting families, and finally saving enough money with which to take a course in European colleges.

No Short Cut to Top

Architecture is not difficult to learn if the young man is willing to work and acquire knowledge. He must start at the bottom. There is no short cut to success, and none of the men who have reached the top ever found a quick route. They all succeeded in the same way—by plodding, conscientious effort.

The remuneration received by successful architects is only fair. We have not increased special charges and rates as they should be increased. The architect, however, earns as much, as a general rule, and perhaps a trifle more, than do those who follow similar professions. He gets good fees, of course, but when he has paid his draftsmen and the various kinds of engineers he must employ, the major portion of those fees go to his employes. But they are an independent lot, are these successful architects, who never are out of employment.

I would advise any young man who has a yearning to become an architect to enter the profession without fear of the future. His success will depend upon his ability to grasp the essential and minor details that spell "fitness." He cannot be a shirker. He must stick to his work and study it incessantly. Even the most successful architect does not know it all. New and greater things are being done every day. He must keep abreast of his business.

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SPELL NOW backwards and you have WON.

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Wage Rate is Higher in 40 American Cities

BUREAU OF LABOR STATISTICS REPORTS WEEKLY COMPENSATION IN SIXTY PRINCIPAL INDUSTRIES IS INCREASED

THE average rate of wages per week in forty of the leading cities of the United States for more than sixty of the principal industries was higher on May 15, 1913, than on May 15, 1912, with the single exception of the mill work carpenters, which showed no change, says a statement just issued by the Bureau of Labor Statistics.

The greatest increase was for marble setters, which was 6.6 per cent.

Of the more important trades, the following increases in weekly rates of wages between May, 1912, and May, 1913, are given:

	Per Cent Increase		Per Cent Increase
Bricklayers	1.7	Plumbers and gasfitters	3.1
Carpenters	1.7	Structural iron workers	2.6
Hodcarriers	1.3	Stonecutters	2.2
Painters	4.2	Iron molders	5.3
Plasterers	1.0		

Highest Scale Per Hour

The highest scale per hour paid in May, 1913, in the above trades were as follows:

Bricklayers, 87½ cents, in Dallas and San Francisco.

Carpenters, 65 cents, in Chicago.

Hod carriers, 50 cents, in Portland, Salt Lake City, and San Francisco.

Painters, 65 cents, in Chicago.

Plasterers, 87½ cents, in San Francisco.

Plumbers and gas fitters, 81¼ cents, in Seattle.

Structural iron workers, 75 cents, in San Francisco.

Stone cutters, 70 cents, in Portland.

Iron molders, 50 cents, in San Francisco.

The Bureau showed that thirty-four trades showed a reduction of hours between May, 1912, and May, 1913, twenty-eight reported no change, and one reported an increase.

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Preserving Plans for Buildings

MANY DOLLARS CAN BE SAVED BY INSTITUTING CAREFUL SYSTEM

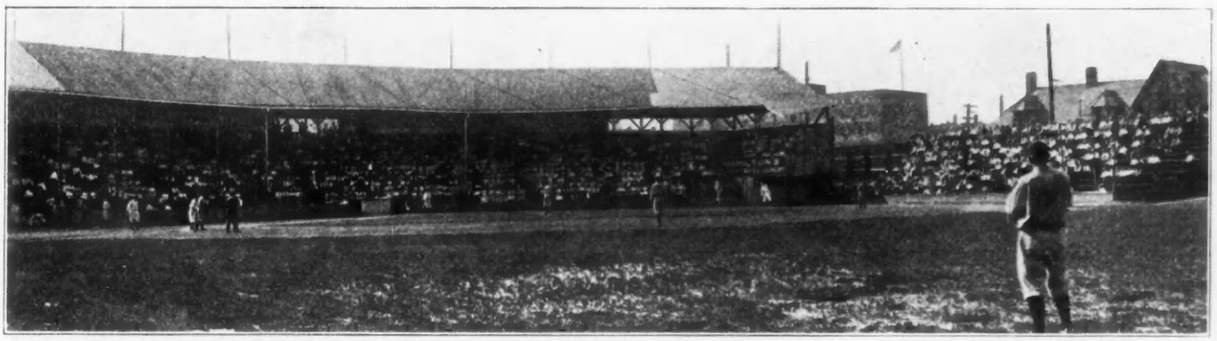
A LITTLE stunt which has been put into use in a certain builder's shop may be suggestive to others. Every set of plans which has been used in building a house is kept, and is placed in a rack with others of the same season. Thus, if an owner desires to have a building duplicated, it is not necessary to go to the structure and look it over, drafting new plans for the work, but reference can immediately be made to the old ones and the work done accordingly.

The racks are dated, the plans for each year going into the place provided for them. A tag is tacked on each, upon which are written the names of the owners for whom the work was done. Plans are retained as far back as 1895.

When any information is needed as to a certain building, as in the construction of an addition, there is never any question about it; the plans are gotten out and the exact figures on the job are presented.

"Before we arranged this system of filing them," said the head of the concern, "I must confess that very good care was not taken of them. We did not throw them away, it is true; but they were allowed to lie around without any especial effort being made to systematize the proposition, so that it was a day's labor to secure any particular set of plans that happened to be wanted. Now, however, it is a matter of instant reference, and there is no delay about it. We have saved many a dollar by being able to give immediate information and estimates on putting up a house 'like that of Mr. Jones you built for him four or five years ago,' as the inquirer tells us."

All of this may sound to the hypercritical as going too far with little things. "Penny wise and pound foolish," someone may say. But when it is remembere that the biggest businesses in the world are those which are most careful to stop the tiny leaks, and that the little losses are most dangerous because they are hardest to locate, the advantage of looking after details and economizing at every turn will be realized and appreciated by every wide awake and up-to-date carpenter and builder in the country.



Play Ball!

THE PLANNING AND CONSTRUCTION OF GRANDSTANDS FOR BASE BALL PARKS AND FAIR GROUNDS

By Leonard Lytle

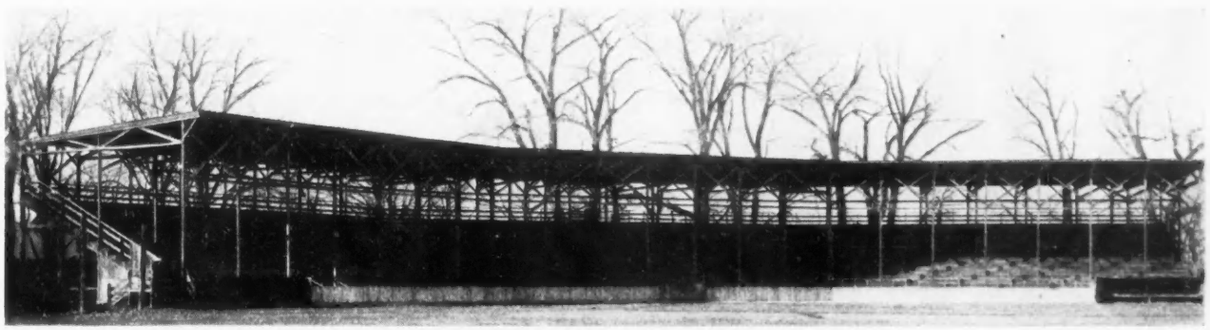
With The Lytle Construction Co., Sioux City, Iowa

A CARPENTER and builder is likely to be called upon to build an unusual kind of a structure on very short notice. The man who possesses a broad knowledge and who can give advice, and be able to talk intelligently concerning any of these unusual structures, is the man that is most likely to be selected for doing the work. There are a great many things outside of the building of houses and barns on which it is well for the carpenter and builder to keep himself posted. Skating rinks, theaters and grand stands are only a few of the many things along this line. The base ball season is here, and there will be hundreds of new grandstands erected all over the country. While the fair season does not start until late in the summer, the management of many of the county and state fairs frequently start to work to repair and remodel their buildings in the early spring.

In the building of a grandstand, it is of the utmost importance that the spectators will have the sun at their backs, and not in their faces. Grandstands are always occupied during the afternoons, and as much as possible the stand should be made to face the east or north, or northeast. It is very annoying and trying on the eyes and nerves to sit on a hot day and look into blinding sunlight to see a ball game or horse racing. In Mexico, where bull fighting is the national pastime, the rings are always built circular, with seats for spectators all the way around, rising gradually by steps as they do in our grandstands. At the back, the seats may be some 30 to 40 feet above the ground, and the height of this part of the building at 4 o'clock in the afternoon, the hour at which all bull fights commence, casts a shadow over about one-half of the entire seating space on the west side. These seats in this space are known as "Sombra," while those on the sunny side are "Sol." These words. of course, mean shade or sun. As could be expected, the seats in the sun are the cheaper.

It will be well for the builder not to forget this phase of grandstand construction, that the spectators' backs should be to the sun. At Sioux City, Iowa, at the grounds of the Interstate Fair Association, a very large grandstand has been in use for several years, which faced to the southwest. The discomfort of the spectators was very great on bright days, and the complaints were numerous. Two years ago, the fair management decided to change their mile track to a half mile track, and at the same time to erect a new grandstand, this time setting it in the proper way so that it would face nearly east. The improvement proved very popular and successful at last year's fair.

Formerly all grandstands were covered with gable roofs, and the writer believes that nearly all of those grandstands in country towns have such roofs today. The new grandstands that are being put up have flat roofs. Of course, when we speak of flat roofs, we



Base Ball Grandstand 252 Feet Long with Seating Capacity of 3,500.

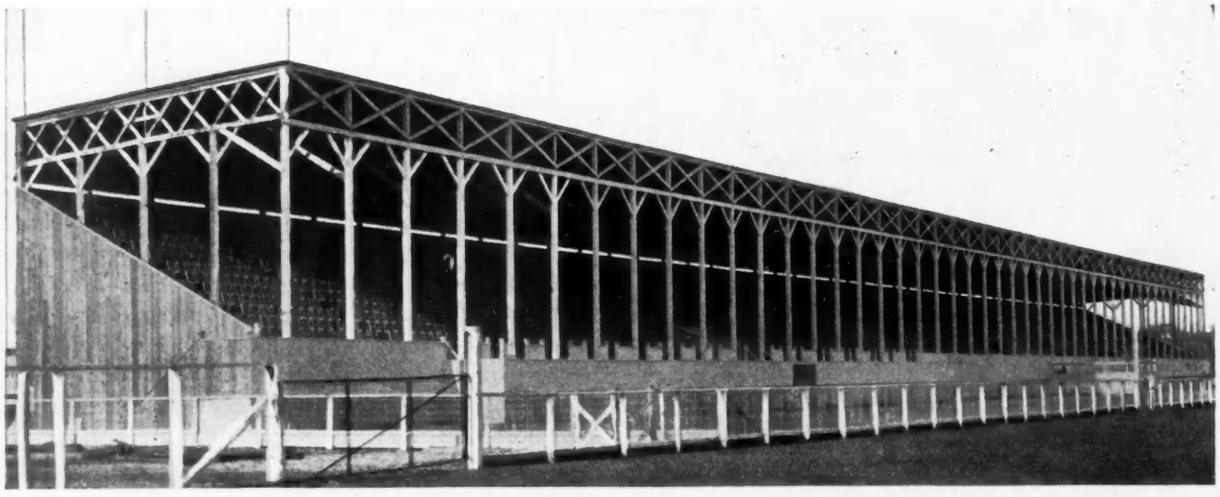
do not mean that they are absolutely flat. They slope from the front to the rear, about three-eighths of an inch to the foot. The upper surface is covered with a gravel roof, or can be covered with many of the composition roofings which are on the market.

The first photo shows one of the grandstands erected by the writer about 8 or 9 years ago. It has one of the old fashioned gable roofs, which were in vogue at that time. The roof is supported by light timber trusses, which were made up on the ground and hoisted into place by means of a gin pole. This grandstand is 216 feet long, and has a seating capacity of 2,500. The entire building, including the bleachers and fence 20 feet high around the field, was built by the writer under a rush order in 10 days' time. The footings supporting the weight of the grandstand are made of cinder concrete, mixed about 1 to 6. The cinders were screened and the concrete was mixed and placed in a rather wet condition. It is now, after all these years, in a most excellent condition, and the writer would not hesitate to use this kind of concrete for any light structure of this kind.

It can easily be seen that a grandstand with a gable roof is a much more expensive proposition than one with a flat roof, on account of the great amount of extra lumber required and the extra amount of roof surface. It will be noticed that it was necessary to put up a gutter along the front of the building in order to keep the water from dripping down and interfering with the spectators' view. Of course, a game could not go on if there was a very heavy rain, but it was found that even a light shower often caused a dripping from the roof that would last for quite a while. In a flat roof grandstand this trouble is done away with, as the water is thrown to the back of the building.

The second photograph shows a large baseball grandstand which is 252 feet long, and has a seating capacity of 3,500. Spectators enter the same as they do in the one just described; that is, by means of a large outside stairway, and by inside stairways, which are located near the front. The fronts of both of these grandstands are covered with wire mesh or poultry netting, to prevent spectators being hit with the ball. There are booths provided for each team, and in the center is a box for reporters and telegraph operators. As grandstand number two is built in the midst of a very beautiful park, the ordinary high board fence would be an eye sore, and to get around this the management has a canvas fence with which they enclose the ground whenever a game is going on.

The third photograph shows the large grandstand which was built to replace the one torn down at the Interstate Fair Grounds at Sioux City, Ia. The old grandstand had a gable roof and the new one was put up with a flat roof. The material from the old structure was worked into the new grandstand. This building, unlike baseball grandstands, is built in a straight line, as the race track runs straight, or nearly straight at this point. The building is 462 feet long and has a seating capacity of 5,000. Boxes are provided across a portion of the front. The higher priced seats are directly opposite the judges' stand.



New Grandstand at the Interstate Fair Grounds, Sioux City, Iowa,—462 Feet Long, Seating Capacity 5,000.

Every now and then we read of some terrible accident happening when a grandstand collapses at some Fourth of July celebration, President's Inauguration, or some great military review, etc. Every builder should take no chance that he may be the cause of the loss of many lives on account of making a flimsy structure. Do not be afraid to make the structure stronger than necessary. The giving away of one girder may cause the injury or death of hundreds of people, and the disgrace and perhaps punishment of the builder.

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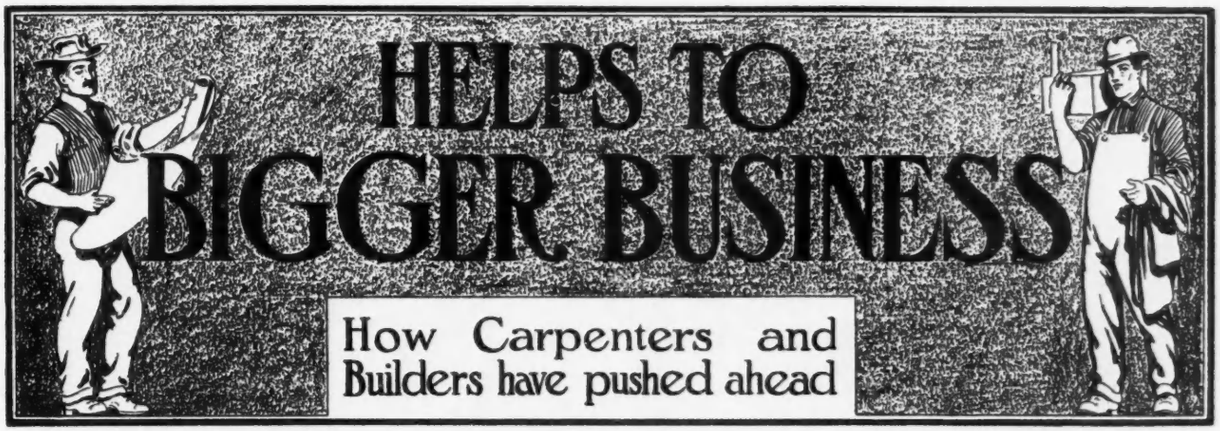
SPEAKING ABOUT MORTISING MACHINES. In a cabinet shop, I know of a case, where the tapered shank of a mortising chisel would not stay in the plunger. A mill machinist rubbed a little powdered rosin on the bit shank and the two held together happy ever after. WM. C. JASBURY.

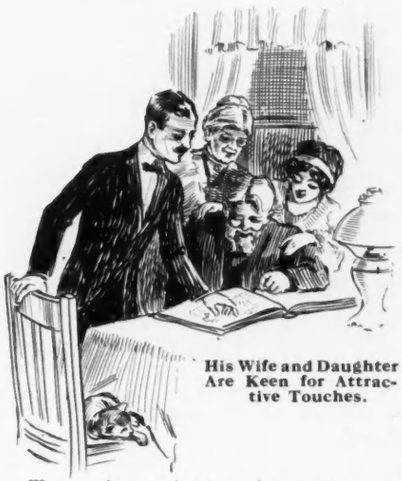


How to Build Up a Rural Business

By Dick Dickinson

IN spite of his prosperity, many a farmer still builds an old-fashioned house with an "L" and poorly devised barns. And the newer, money-saving improvements, as silos, manure pits and cement structures, are very slow in finding favor with him.

Here is a great field for the carpenter and builder in a country town, a great part of whose business comes from the farmers. He has but to get in touch with the best in agricultural progress, be prepared to suggest and carry out, and, with an eye for advertising, his country trade will expand greatly in volume and quality.



His Wife and Daughter Are Keen for Attractive Touches.

True, the agricultural papers are constantly dinning these new things into the farmer, but he still holds back. It doesn't take like the man on the ground who can show him. He is suspicious of most things that come to him through the books or on paper.

Getting the Farmer Started

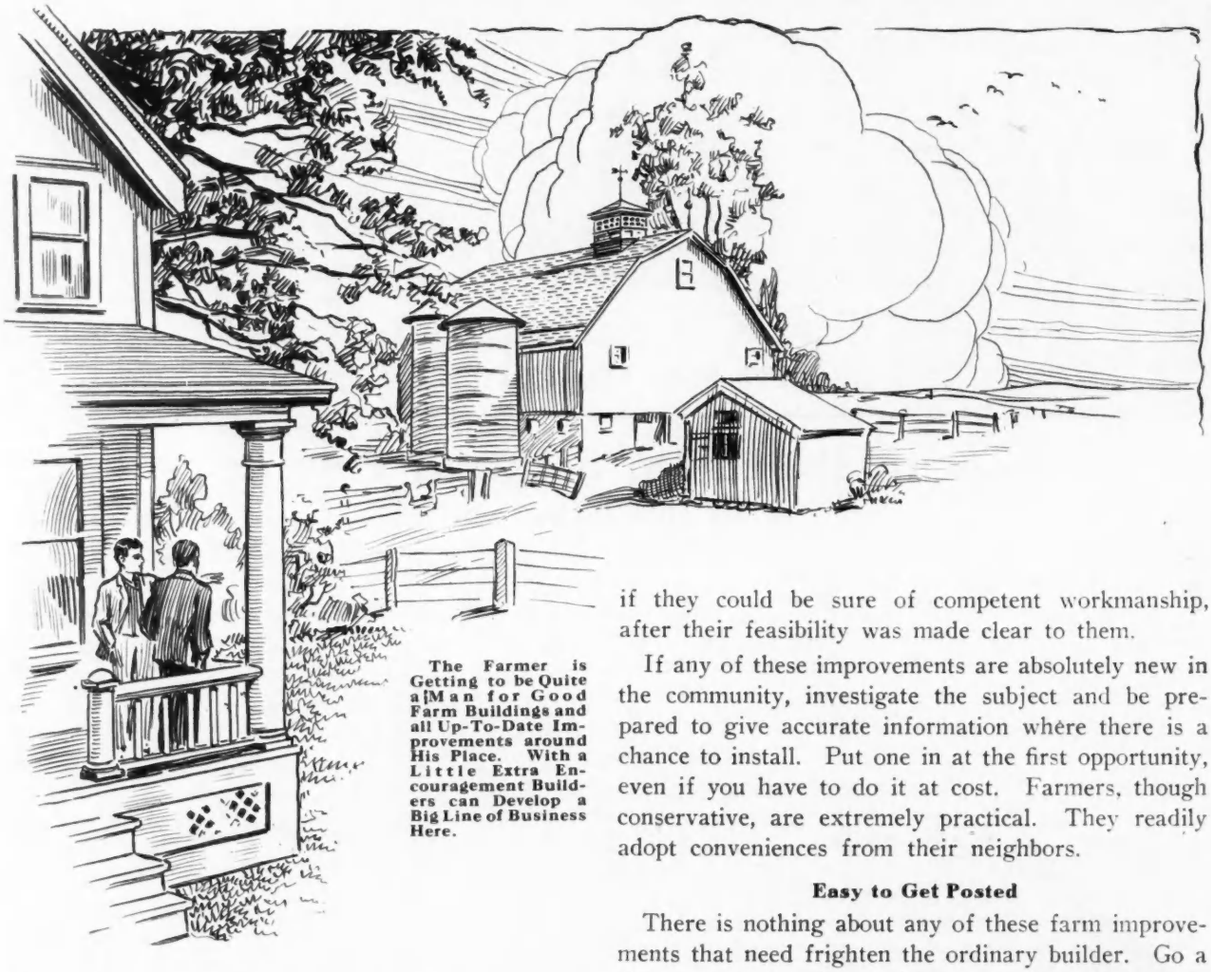
The next time you are asked to figure on a farm house, get a plan-book of various kinds of structures. Talk the matter over with the farmer, and be prepared to make suggestions. Be sure to bring his wife and daughters into the conference. They are the keenest for the attractive touches that take the humdrum and monotony out of country life. Don't force anything upon him, or insist on anything beyond what he thinks he can afford. He may have seen hundreds of such plans, but they won't have the appeal that you can make in a short talk.

If his new house departs ever so slightly from the cigar-box type of architecture, you have entered a wedge for a good run of business in that neighborhood. Farmers are more democratic and of more uniform financial ability than your patrons in cities. An attractive bungalow, with labor-saving arrangements, takes mightily among them. For years afterward they will come and ask you to build them a house "like you built for Brown." They have been shown.

Other Farm Structures

But don't stop here. Be equally prepared, no matter what farm structure is under consideration, to offer suggestions according to the farmer's financial ability. You will find them in plenty in the better agricultural papers, as well as in numerous books. One or two good periodicals are now published, devoted exclusively to farm engineering. The advertising columns of a farm paper will direct you to unlimited sources of information.

Many Farms Do Not Even Have Cement Fence Posts.



The Farmer is Getting to be Quite a Man for Good Farm Buildings and all Up-To-Date Improvements around His Place. With a Little Extra Encouragement Builders can Develop a Big Line of Business Here.

The permanency of cement structures appeals to farmers, but in general they know little about their construction or possibilities. In many communities you will not find a single cement post. The first fence you build is sure to bring good business.

Troughs, root cellar, corn cribs, silos, manure pits, and a great many other things can be built to advantage of concrete. The farmer knows it in a way, but he needs educating.

A manure pit will prevent a 50 per cent loss of the fertilizers in the manure due to leaching. A silo, of whatever material constructed, will save as great or greater a per cent of stock provender. It is a proven fact that feeding without silos is one of the greatest wastes on American farms.

You will have to be prepared to show some of these advantages, but it is not a complicated subject. The first silo or manure pit in a neighborhood means many more. They are catching.

Farm Lighting Systems

And there are not a few communities where the farmers have never seen an air-pressure water system, or an acetylene or electric light plant on a farm. They are entirely practical, and the more progressive farmers have them. Many more would install them if they could be sure of competent workmanship, after their feasibility was made clear to them.

If any of these improvements are absolutely new in the community, investigate the subject and be prepared to give accurate information where there is a chance to install. Put one in at the first opportunity, even if you have to do it at cost. Farmers, though conservative, are extremely practical. They readily adopt conveniences from their neighbors.

Easy to Get Posted

There is nothing about any of these farm improvements that need frighten the ordinary builder. Go a little out of your line and be prepared to show their advantages and cost. Have the information ready to be used at the first opportunity. Information can be gotten from a few modern books on farm engineering. One or two thoroughly up-to-date agricultural papers will keep you posted on new advancement.

You need not be fearful of the business that will follow. Farmers can now afford these improvements. It is only a question of being shown.

It not only means business, but there is a good satisfaction and honest pride in feeling that one has been largely responsible for the modern school building, attractive homes, labor-saving equipment and general improvements in a community.

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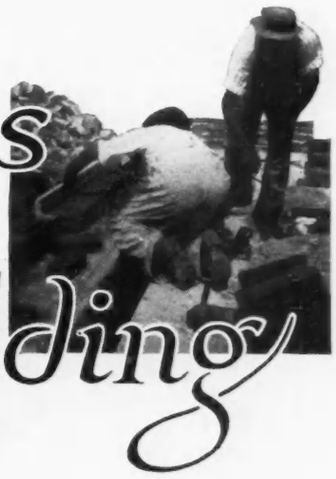
Roofing Over Gambrel Joint

To the Editor: Rushville, Neb.

In answer to Mr. Russel Scofield's Roofing Question in March number, wanting to know how to shingle over the bend in a gambrel roof so as to do a good job, I have used galvanized iron cut into strips 6 or 7 inches wide, letting it lap down on the last course 4 or 4½ inches and nail down well. After nailing you can bend it over and nail down occasionally. Then proceed with your double course of shingles over the hip, letting them project about 1½ inches.

A. Stiles,
Contractor and Builder.

Adventures in Home Building

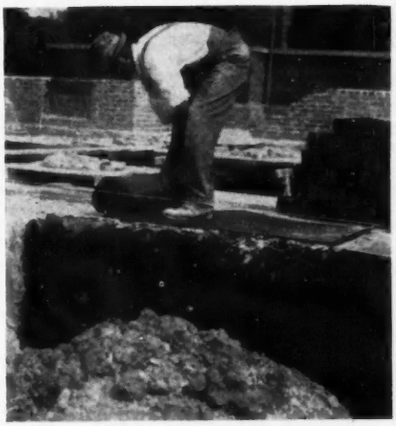


My Hollow Tile House

By Ralph E. Morrison
Editor of the Kansas City Star

DID the advantage of living in an ice chest ever appeal to you? Aside from rather cramped quarters I have often envied the tomato its ice chest apartment. "Who is a tomato that it should be cool while I swelter?" I asked.

I am answering that question by beginning to build a house along what I conceive to be the ice chest idea—the nearly air-tight compartment within the outer walls. The reason for this comparison is that the temperature within the ice chest stays for a long time the pitch at which it is put. An advantage, this, in the extremes of winter or summer.



On top of the concrete foundation the men laid a damp proofing course of asphalt soaked paper to keep moisture from creeping up.

I am going to build my house of hollow tile, faced on the outside with stucco, having the appearance of any stucco covered house.

The outside walls of the house will be fireproof, damp proof, heat proof, cold proof, wind proof, vermin proof.

They will be built of hollow tile from the bottom of the basement up to the roof, making the basement as warm and as damp proof as any part of the house.

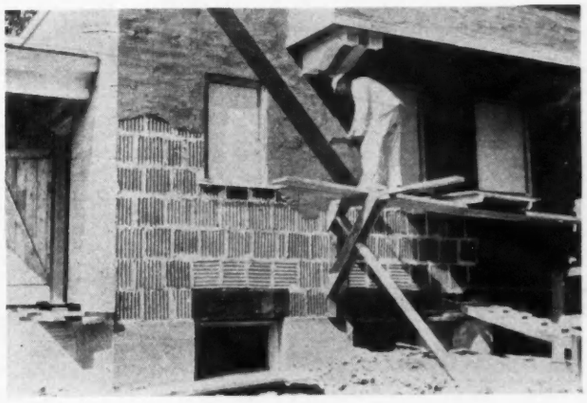
Along with the idea of building this kind of a house, came two surprises. I was at first amazed to think that these advantages which appear so apparent to me had not long ago appealed with equal force to others. "So," I said, "I will be doing some pioneering."

Second surprise came when I found I was not a pioneer at all. I am finding the use of hollow tile for residences to be a practice years old in Europe. Yesterday a man whose younger years were spent in his native Austria was telling me that even at the time he left Europe many of the better houses in the outlying districts of Austrian cities were of hollow tile construction.

That is a condition that should not be. The ocean should not separate us from knowledge. If Europe has long recognized hollow tile as a competitor of wood, brick and stone, we who build homes in this Central West should have had the same choice. Great corporations, who see millions in the saving of a penny, have the world for a schoolroom. But the individual, lacking cooperative facilities, learns slowly that which may be much to his benefit and which may be well known to another people than his immediate neighbors.

At the beginning of my investigation I was led to believe that the construction I was after was very expensive. I have proven to myself in figures from actual bids on the entire work in the house that anyone able to have a house built can afford fireproof tile, for the cost is not much more than frame and stucco construction.

The masons had to do a lot of levelling and plumbing to get the window and door frames set just right.



After the tile walls were laid a cement plaster finishing coat was put on. This will never crack.

I have built other houses of the customary materials, and have not been satisfied. They have been hot in the summer and cold in the winter. I wanted a house that would be as pleasant in temperature 110 in the shade as when the thermometer is 20 degrees below zero, either of which is reached sometimes in Kansas City.

One day I met a man who had been an engineer in many of the countries of Europe. He told me how hollow tile had been used for a long time

in government buildings and higher class residences in Russia, Austria and Italy and many other countries. He told me also of the rapid spread of this construction in this country.

I had seen the queer-looking blocks several times being used in walls of office buildings and public garages. I began to watch the construction and ask questions of the men putting up the tile. It was so simple and easy.

I learned the reasons for the use of the material.

The hollow tile has been proved to be an absolute non-conductor of heat, cold or dampness. This has been done before proper experts. In a recent hollow tile show in Chicago it was demonstrated to representatives of a packing company how hollow tile was a good material to use in walls of their refrigerator coolers.

I am satisfied because of the thoroughness of my investigation that these representations are true.

I read in books concerning hollow tile. Then I interviewed architects and builders concerning it.

I was told of the water test, how water at a tremendous pressure had been held for many hours against a hollow tile wall without dampness penetrating the first hollow of the tile. An intense heat was placed against the same wall and on the other side there was no change in temperature. I learned the strength of the material and was satisfied.

"We are furnishing hollow tile to be used in skyscrapers, apartment houses, warehouses and high school and other public buildings in this section of the country," the hollow tile concern told me. "The demand for this material for this class of construction keeps us going to the limit all the time to supply."

The tiles are hollow, but with supporting partitions. The clay or shale is non-absorbent. The idea is that the air spaces in the tile make it an absolute non-conductor.

If this is true—and I am sure of it—one can easily guess how warm and how cool a house I am going to have. The hot sun of the summer and the cold winds of the winter will be equally impotent.

The heating will be very easy and cheap. Proper ventilation is all I need to provide for the interior. Most frame houses become unendurable in the summer because with the sun beating upon them they become veritable ovens. How nice and cool the non-conducting hollow tile will make my home.

And the beauty of it all is that the price is within the means of almost anyone who can afford a popular priced home.

The Outside and Inside of a Well Designed Bay.

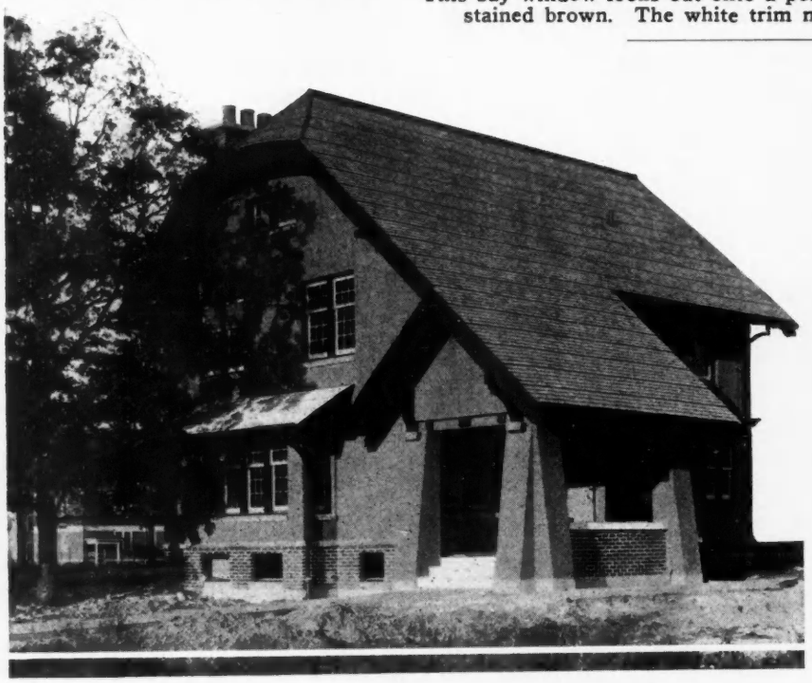
These photographs made at the residence of Miss M. L. Bradford, Magnolia, Massachusetts, convey some fine ideas for artistic home building. The design is by Architects Everitt and Mead, of Boston.

The structure is something of a summer cottage and is accordingly roughly finished within. The studs show and the inside of the matched siding serves as the finish in this room. All was stained a mellow brown.

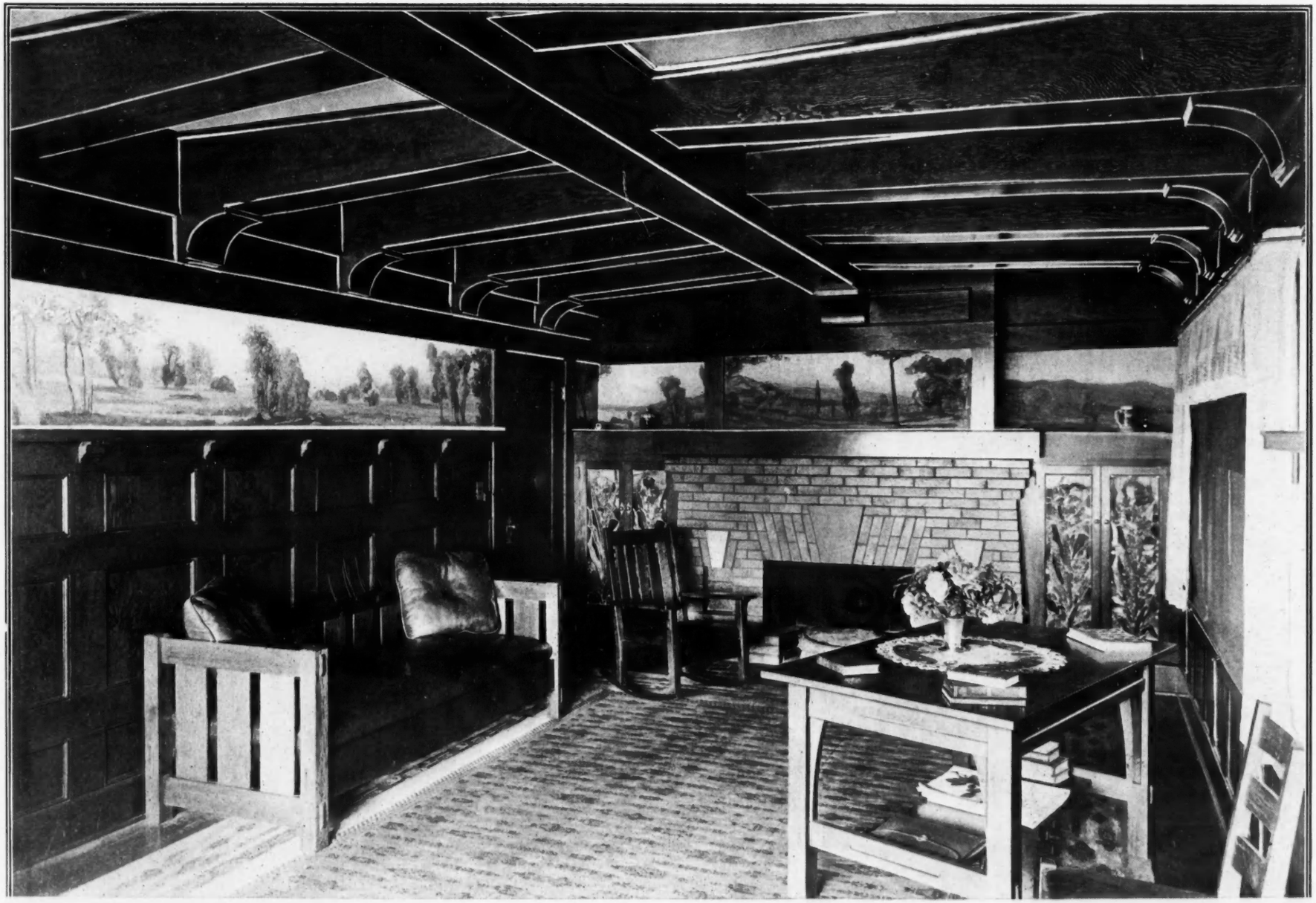
But what about the bay window? It is an oriel bay, composed of four windows along the front and one set angling at either end. The end windows and the two outside ones of the center group are divided into three rows of small panes. These windows are all fixed sash. The two center windows of the group are narrower, containing only two rows of small panes. These windows are outward opening casements.

The window sill serves as a broad shelf and holds growing plants and flowers and other knicknacks. The whole group of windows is curtained, instead of attempting to drape each separately.

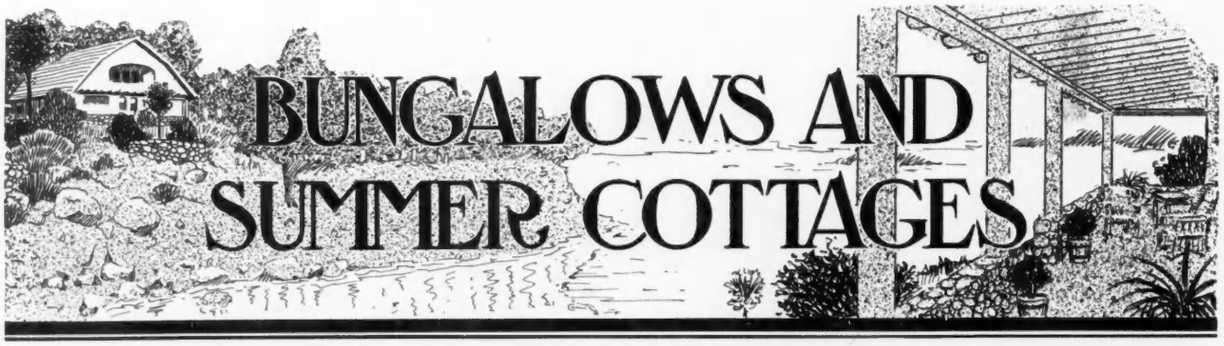
This bay window looks out onto a porch. The cottage is sided with shingles stained brown. The white trim makes a striking contrast.



My hollow tile house is a beauty. Rather English in appearance. It suggests Shakespeare—very much up-to-date.



Library, Den or Living Room with Extra Heavy Timbered Ceiling; the Paneled Wainscoting, Massive Brick Fireplace and Pictorial Landscape Border are all in Harmony with the Spirit of this Apartment. The Mission Furniture was Very Appropriately Selected. The Outside Wall of This Room, Just Visible at the Extreme Right of the Picture, is Practically all Window Space.



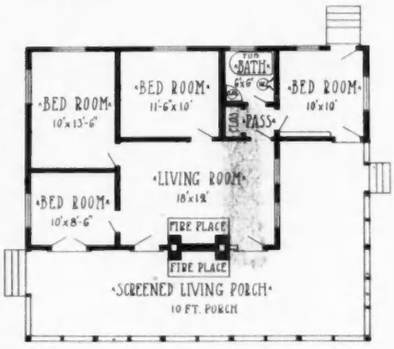
BUNGALOWS AND SUMMER COTTAGES

IN a general way it is understood that summer cottage building differs in several important respects from the accepted practice for ordinary residence work. At this time of the year, when the warm weather looms up ahead and the wise ones are planning for vacation time, it is in order to point out briefly some of the leading features of rustic summer building and to present some suggestions and designs that should help the carpenter when called on to do this kind of work.

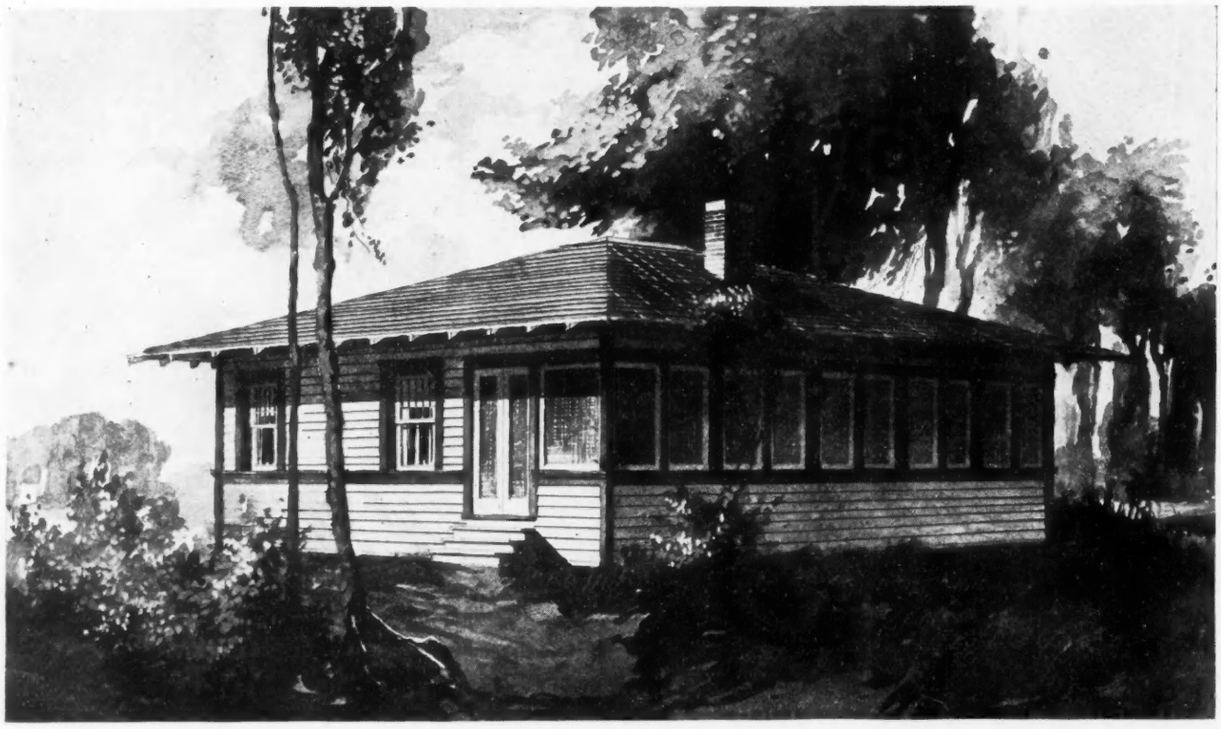
The points to be considered in summer bungalow or cottage building naturally group themselves under four main divisions—design, arrangement, construction and finish.

The location and surroundings of a summer cottage should determine its style and general outward appearance. So first study the building site. The rounding crest of a knoll is the ideal spot, assuring good drainage away from the building and keeping it free from dampness, even when built down close to the ground. Accordingly, for such a site a one-story cottage with the floor only two steps above the ground and with a low, broad roof, is suitable. This is the popular lake-resort cottage, and is usually given a comfortable, rustic look by having the side walls shingled or covered with rough stained boards. For a hilly site, on the other hand, as in mountain resorts, level spaces of any great size are scarce, and two-story "cottages" are accordingly more economical to put up; and when covered with slab siding, pole rafters showing, have a rustic appearance harmonizing well with the natural surroundings.

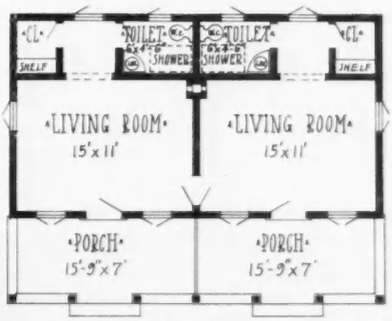
But no matter where located, summer cottages should be designed to look comfortable and easy; they are essentially unconventional, being built more for use than for looks. For this reason, the simple, straightforward designs are the best, and anything elaborate is out of place.



Floor Plan, Size 40 by 34 feet.



Shore bungalow of square plan. A broad, low hip roof design containing five rooms and bath besides very large screened-in porch. This makes a delightful summer home and can be built very cheaply. This was originally designed for a prominent Chicago advertising man and it is said to be one of the most attractive summer cottages of the western Michigan resort district. Size 40 feet by 34 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only $5.00 per set. When ordering, ask for Design No. 6600.



Floor Plan, Size 31 ft. 6 in. by 17 ft.

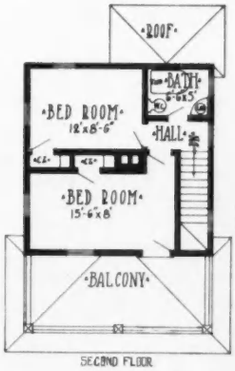
Double cottage of two rooms and big front porch; a very practical design, as it can be used by two separate parties, or thrown together and used as one house. Each living room is large enough for both eating and sleeping. Size of building, exclusive of porch, 31 feet 6 inches by 17 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only $5.00 per set. When ordering, ask for Design No. 6599.

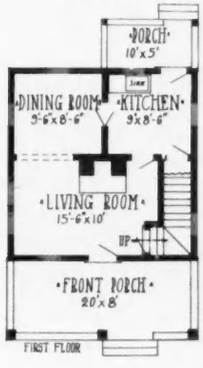
As far as the arrangement of space inside the summer cottage is concerned, three things should be provided—a good, roomy porch—preferably screened in—for hammocks and rockers and general outdoor living when the weather is right; a good, big living or assembly room—can also be used as dining-room and should have a good, practical wood grate for use on the rainy and chilly evenings; and third, plenty of sleeping accommodations. A favorite arrangement for some of the larger cottages is to have a central living hall, with high ceiling formed by the roof, and small bedrooms on each side in a double tier, the upper ones reached from a balcony. If, in addition to these three things, suitable closet space and bathroom with good plumbing can be provided, all the comforts of an expensive city home are secured.

The construction of a cottage for warm weather use only does not need to be anywhere near so solid and thorough as that ordinarily employed for houses. Cedar posts are the accepted foundation material; drop siding is used alone, without sheathing and building paper; and the inside face of the walls is left unceiled except sometimes in bedrooms, bath, etc., where "shiplap" or beaded ceiling is employed.

The first summer cottage design is especially interesting in that the ridge of the hip roof comes exactly at the center of the living room, the ceiling of which is formed by the "shiplap" roof boards, with the rafters showing.

The accompanying views should be interesting and valuable as showing some beautiful examples of rustic finish.





Five-room two story summer home that contains lots of comfort at small cost. This makes a first class suburban home for use the year around, if desired. Size 20 feet by 20 feet, exclusive of proches. We can furnish complete set of blue-printed working plans and typewritten specifications for only $6.00 per set. When ordering, ask for Design No. 6601.

Comfortable Six-Room Bungalow

There is a charm about a bungalow that appeals to everyone. This design meets the requirements of particular people. There are two features in this plan that are difficult to find in bungalow plans. One is that there are six good-sized rooms and the bedrooms are entirely separate from the living rooms.

Architects have worked nights and Sundays to incorporate these two features into a medium-priced bungalow, and are now congratulating themselves that it has actually been accomplished. It is easy to build a five-room bungalow, but the sixth room has always been a "Chinese puzzle," and the Chinese have always left it to the Yankee.

There is one especial feature about this bungalow that will appeal to the heart of every woman, and that is the splendid large living room, with a big, cheerful fireplace, and plenty of light in the front. Light is obtained by putting in a triple mullion window, and the light is not obstructed.

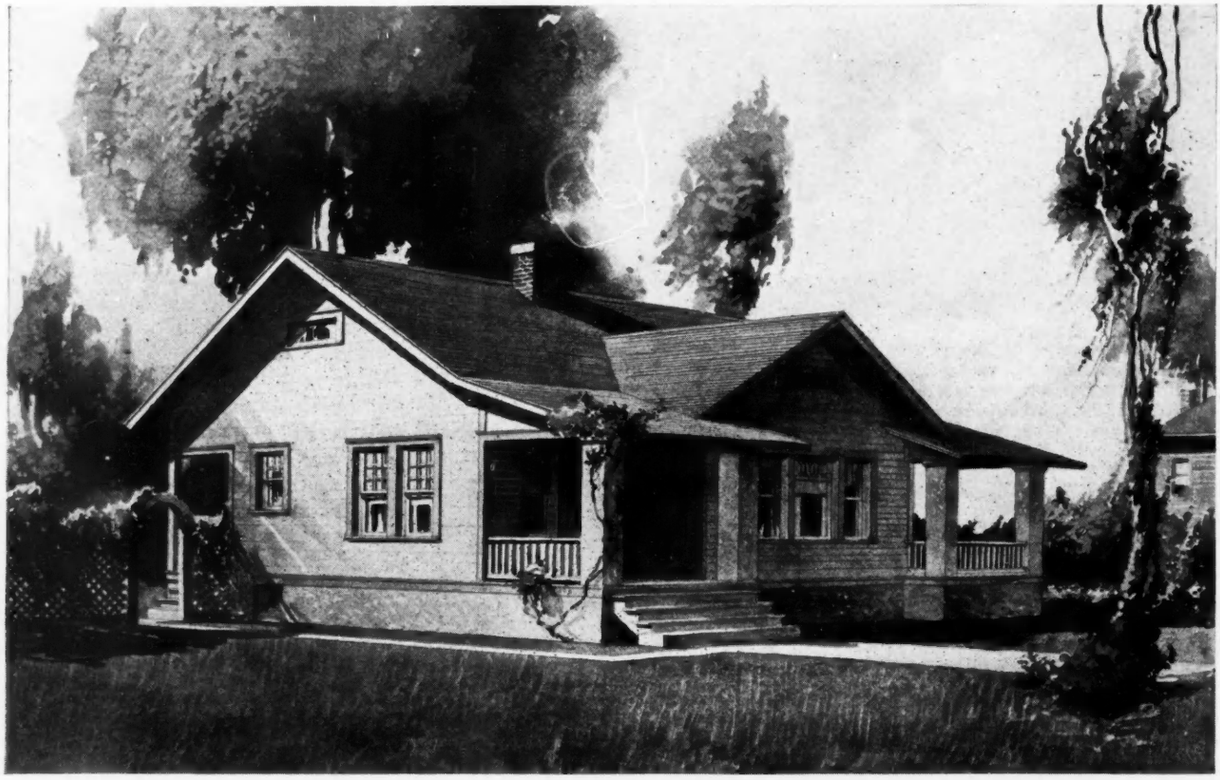
The plan of building a porch and a loggia makes this arrangement possible and adds greatly to the appearance of the building.

The size on the ground is 46 feet 6 inches by 35 feet 6 inches—not large when the amount of room and conveniences are taken into consideration. Every room is light and of easy access, and each room is large enough for the purpose it is intended for.

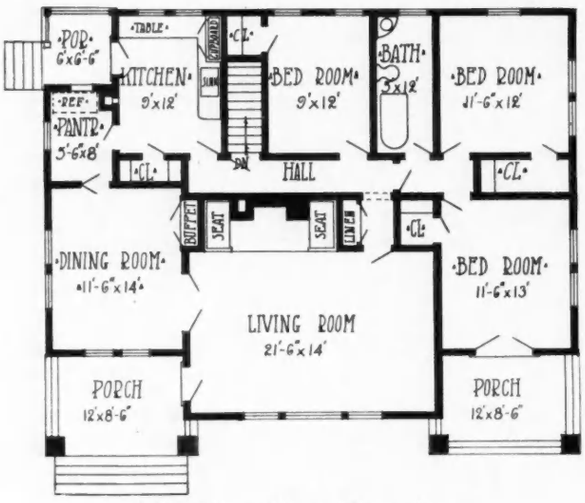
A feature about this plan that will appeal to every woman is the number of clothes closets and the manner in which they are placed for convenience. In a bungalow a woman must have places to store things, and a great difficulty has always been to find such conveniences without going upstairs for them. A study of this plan will interest everyone who has or can get a building lot suitable for a building of this kind.

The front porch also adds to the house a pleasing approach, besides making a very comfortable outdoor sitting room summer afternoons. The comfort of a porch depends somewhat upon the direction in which it faces, but usually in towns and cities there are convenient shade trees, all of which must be taken into account in choosing a house plan.

A bungalow 46 feet wide must not be crowded in close between other buildings; it spoils the effect of airy roominess that a bungalow is supposed to typify. There is as much good judgment in selecting a lot for size, shape and outlook as there is in selecting the plan of house to put on it.

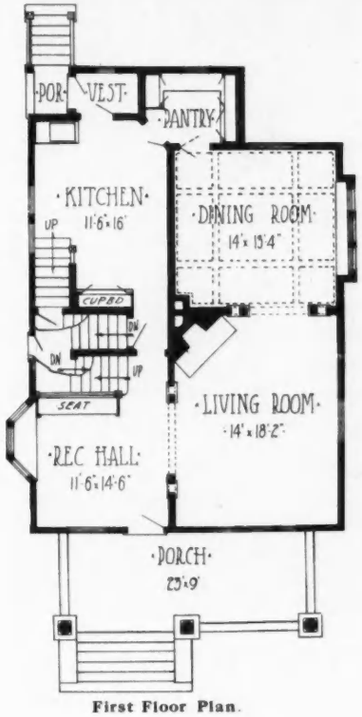


Special six-room bungalow. Size, 46 feet 6 inches by 45 feet 6 inches. We can furnish complete set of blue-printed working plans and typewritten specifications for only $10. Blue-prints consist of basement plan; first and second floor plans; front, rear, two side elevations; wall sections and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6567.

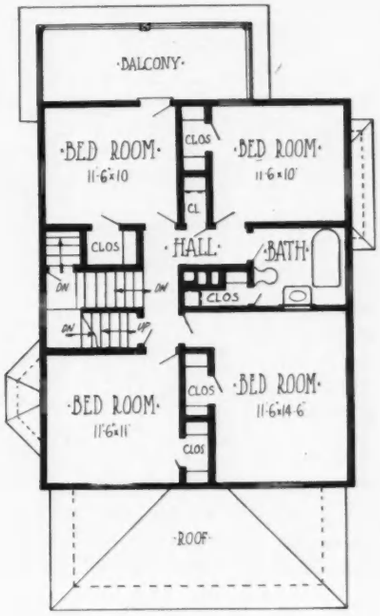


Main Floor Plan of Bungalow
Size, 46 ft. 6 in. by 35 ft. 6 in.

Tall, deep, two-story house. Size, 26 feet by 39 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only $10 per set. Blue-prints 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. 6551.



First Floor Plan.



Second Floor Plan.

Elegant Two-Story House

The size and shape of a lot often determine the style of most buildings. This plan is 27 feet wide by 39 feet in depth, which permits rather a narrow lot.

The house is well set up on a rather high cellar wall, which helps to give it a lofty appearance. This plan lends itself well to a good arrangement of rooms. On one side, downstairs, is a large, comfortable living room, and a good-sized dining-room, which is balanced up on the other side by the kitchen, reception hall and stairway.

Upstairs there are four very pleasant bedrooms. The plan is just right for a bathroom between two of the bedrooms on one side and the stairway similarly situated on the other side, while the clothes closets are principally distributed down through the center. It will be noticed that there is very little room taken up by the hallway, the space is in the rooms and a short passageway, which is as light, almost, as the rooms themselves.

Substantial Six-Room House

The design of the house has a great deal to do with the appearance and comfort of a home. A house must not encroach upon either of the adjoining lots and it is better not to come very close to the line either way, because of light, air and appearances. This is a six-room house arranged for convenience in doing the work with comfort, both in winter and summer. As the plan shows, there is no room wasted. The stair from the cellar to the upper rooms, with doors from the front room and the kitchen, is conveniently arranged.

Although the house is not very large, there are three good-sized rooms on the first floor, besides the hall, which really is a part of the parlor, the two together making a pleasing compromise between parlor and living room. A closed stairway in small houses saves room, saves heat in winter, and when the doors are left open, acts as a ventilator in summer; besides, it costs very much less than an open stairway.

First Floor Plan. Second Floor Plan.

Arrangement of Six-Room Cottage, Size 24 by 30 feet.

Six-room house 24 feet by 30 feet in size. We can furnish complete set of blue-printed working plans and typewritten specifications for only $7.00 per set. Blue-prints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections and all necessary details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6571.

A good-sized two-story house and big attic house. Size on ground, 38 feet by 28 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only $12 per set. Blue-prints 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. 6576.

Large Two-Story House

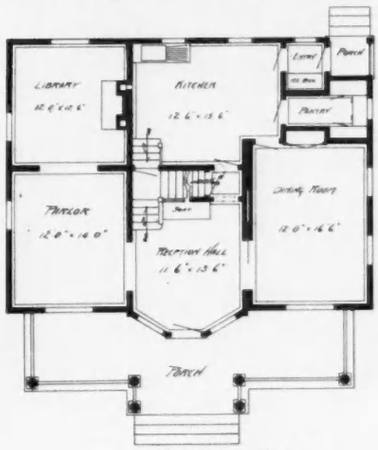
For a family of four or more persons, a large two-story house like this with a good attic is a great comfort. In this plan, there are five rooms downstairs, besides a good-sized reception hall, and there are four good-sized bedrooms upstairs, besides the bathroom, plenty of clothes closets and a dressing-room that comes in very handy for a child's cot when the little folks are young enough to need the mother's care at night.

There is a very attractive stairway in this plan that looks well from the reception hall, and it is convenient of access from the front part of the house or the kitchen; a two-way combination; an invention that has been utilized to advantage to save space and steps. Steps enough are required in doing the housework in a house as big as this, without wasting time and labor hunting for a way to get up or down stairs.

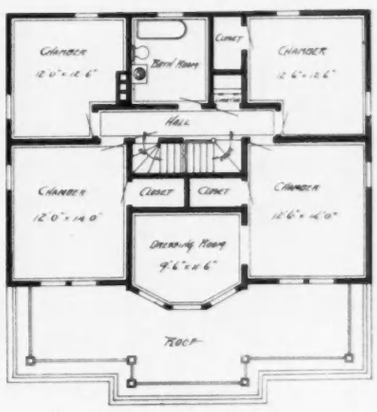
The way to the cellar is under the center part of this stairway, and the cellar landing is made where it is convenient to the heating apparatus. Continuing up is the stairway to the attic, directly over the main stair, which is another economy. Architects worked a good many years to build this stair, but success has been reached, and we now have the acme of economy and convenience without sacrificing appearance.

A large two-story house like this requires an imposing veranda and balcony, which have been well worked out in this design. It makes a finish to the front of the house and adds a great deal to the value of the property.

The library in this plan is the office for the man of the house and a study for children of school age and those of more mature years. This makes a cosy family room, where the "kids" and the parents are likely to spend winter evenings enjoying a pleasant open grate fire.



First Floor Plan.



Second Floor Plan.

Arrangement of Nine-Room House. Size 38 by 28 feet.

Corner of Modern Kitchen Finished in White Enamel; the Floor Covered with Inlaid Linoleum. Note Ventilating Hood Over the Stove. This Kitchen has all the Built-in Cabinet Features, Including Built-in Refrigerator. From the Kitchen there is a View of the Butler's Pantry. A Dutch Breakfast Room with Built-in Tables and Benches Adjoins this.

Noon Hour Talks by the Boss Carpenter

Talk No. 23—Stresses in Roof Trusses

THE BOSS EXPLAINS THE PRINCIPLES USED IN FINDING THE AMOUNT OF STRESS IN THE MEMBERS OF A TRUSS

"LAST time," said the Boss, "I told you that today I would tell you something about the principles upon which the design of trusses is based. I am going to take this proposition up with you from what is called the 'graphical' standpoint. That is, I am going to show you how to draw diagrams which will show by the length and direction of the lines just how much effect each member of the truss will feel from the loading on the truss, and whether the member is in tension or compression. This method is simple and does not require the mathematical training which is a necessity in other methods of calculation. Another point in favor of this graphical method is that, if a mistake is made in the construction of the diagrams, it will generally be noticed before the drawing has been carried very far along. In the mathematical calculations, an error might pass without notice unless the work was carefully checked.

"The fundamental principles upon which we will base our graphical work may be summed up briefly as follows: (a) A force or load may be represented by a line on our drawing. If, at the start, we choose to let one inch on our rule or scale represent a given number of pounds of force or load, then the length of each line in our drawing will represent a given number of pounds, according to this scale chosen. All loads must be laid off on the drawing on the basis of this scale at the start, and the resulting stresses in the members, when the drawing is completed, will be measured off with this same scale and reduced to their proper value in pounds.

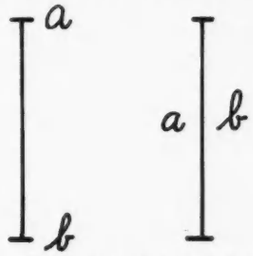


Fig. 8. Method of Lettering Lines in Diagrams.

"The direction in which the line is drawn will represent the line of action of the force.

"(b) If two or more forces lying in the same plane act upon the same point, these forces may be represented by lines on the drawing which meet at a point. If these forces hold the point in a permanent location, then they may be represented in amount and direction of action by drawing a diagram having as many sides as there are forces acting. This diagram is formed by drawing one of the forces to scale and in its proper direction of action, then on the end of this first force draw the next, taken in order about the point, according to scale and direction of action. Keep this up, adding each force in its order and always drawing the line from the free end of the force just drawn. A check on the correctness of the drawing will be to find that the last force drawn in on the diagram just closes the gap between the free ends of the diagram as it now stands. This principle will be referred to later in connection with the truss diagrams.

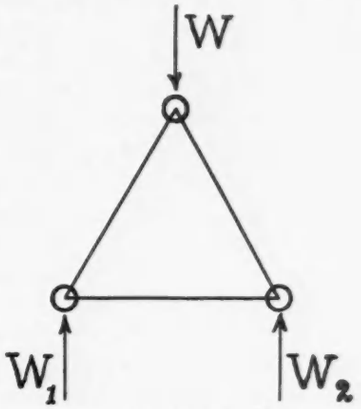


Fig. 9. Triangle as Basis of Truss Design.

"(c) Each load and each member of a truss must be lettered or numbered so that it may be easily referred to as a separate line or part of the drawing. In some instances the letters will be placed at each end of a given line, while in others the letters will be placed one on each side of the line. Fig. 8 shows this form of notation.

"It is commonly recognized that a framework of members arranged in the form of a triangle cannot change its shape without breaking one of the corner joints or distorting or breaking one of the three members. This can be seen readily by an examination of Fig. 9. This would not be true in the case of a structure of four or more sides, since an unbalanced condition of the loading on a framework similar to

that shown in Fig. 10 would allow a movement of the members and a change of shape in the framework. The dotted lines in Fig. 10 show the position which the framework would tend to take.

"Since we must avoid any tendency which would lead to a change in position of the members of a truss when in position and loaded, we must build our

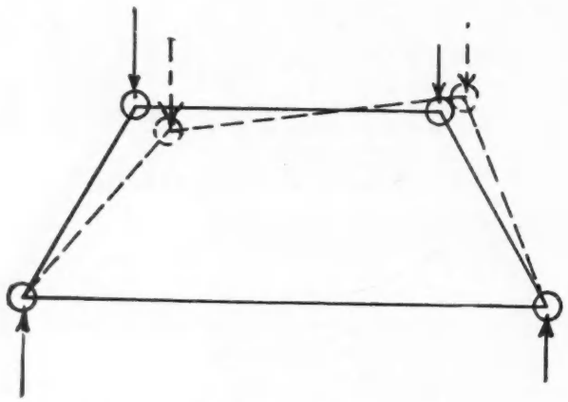


Fig. 10. An Easily Distorted Framework.

trusses in such a manner that they are composed of a number of connected triangles. Then there is no danger of the truss changing when loaded unless some part breaks. The object of these Talks is to show you how to find out the amount of stress which is present in each member of a truss so that you can make these members of a material and size that they will not break under the heaviest loads which are likely to come on the truss.

"A stress diagram of a triangular truss of the simplest form is shown in the right hand part of Fig. 11. The top force, *W*, is the load on the truss, and R_1 and R_2 are the supporting forces at the ends. Assume, for the purpose of illustration, that the load, *W*, is 1,000 pounds. This would make R_1 and R_2 each equal to 500 pounds on account of the symmetry of the figure. Beginning at the left hand joint (1), the forces acting to hold this joint where it is, are the supporting force R_1, the stress in the lower tie member and the stress in the slanting strut, *ab*. Assume that 1 inch of length in our diagram represents 1,000 pounds of load or stress in a member. Then begin by laying off the load, *W*, which will be a vertical line 1 inch long. This line is drawn in a vertical direction since *W* acts downward in a vertical direction. Divide this line into two equal parts, since R_1 and R_2 are both vertical and equal, their sum being equal to *W*. Let the line ac represent *W;* then *ad* and *dc* will represent R_1 and R_2. Draw a line from *a* parallel to the direction of the left-hand member, *ab*, of the truss. Draw a horizontal line from *d* parallel to the horizontal member, *bd*, of the truss. These two lines will meet and locate the point *b* in our stress diagram, shown at the right. A line drawn from *b* to *c* will complete the drawing. A check on the accuracy of the construction would be to see that the line *bc* is *exactly* parallel to the member, *bc*, in the truss.

"If the length of the line, *ab*, is measured and multiplied by the number of pounds which one inch of length of line is assumed as a basis at the start, the result will be the total amount of stress felt by the member *ab*. For instance, if *ab* is $1\frac{1}{4}$ inches long and the scale on which we laid off *ac* is 1,000 pounds per inch of length, then the stress in *ab* will be $1\frac{1}{4} \times 1{,}000 = 1{,}250$ pounds. In the same way, the length of *bd*, measured on the same scale, may be reduced to pounds, the result being the amount of stress felt by the tie, *bd*. The stress in *cd* may be found in the same way.

"Now we will apply these principles to an ordinary king post truss (Fig. 12), similar to that shown in Fig. 2. We have reproduced Fig. 2, putting on a given set of loads and lettering the spaces between the loads and members so that we can refer to them readily. The loads on the truss must be considered as concentrated at the joints, or meeting places, of the different members as shown. The fact that these joints are solidly connected does not interfere with our method of handling the problem.

"Each end load is 500 pounds, and all loads between are 1,000 pounds each, thus making a total of 4,000 pounds on the truss. The weight of the truss is included in the weights given and there are no ceiling loads or other weights suspended from the bottom chord. From the symmetry of the loading, each of the supporting forces at the ends or walls will be one-half of the total load, or 2,000 pounds.

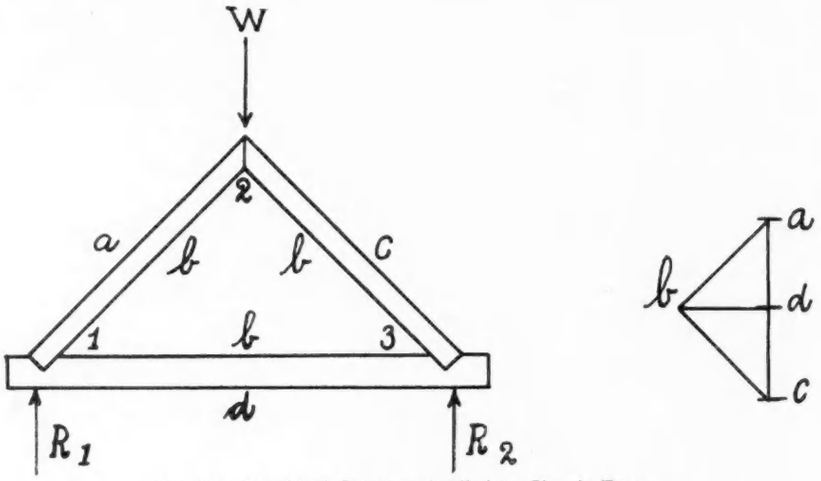


Fig. 11. Graphical Solution Applied to Simple Truss.

"First, lay off a vertical line, as shown at the right of Fig. 12, and beginning at the left hand end of the truss shown at the left in the figure, lay off the loads of 500 pounds, 1,000 pounds, etc., to scale. Suppose that we let 1 inch of length equal 2,000 pounds of load or stress. Then since the load, *ab*, is 500 pounds, lay off a length of 1/4-inch on the load line at the extreme right. Then lay off *bc* equal to 1,000 pounds, or 1/2-inch, on this same line. Lay off all the other loads which are on the truss in the same way, and on this same line, laying off each load in its order and beginning where the previous one left off. The load, *ef*, 500 pounds, will end the load line. Then lay off *fg* upward on the same line and equal to the right-hand supporting force, according to the same scale. Then *ga*, which is equal to the left-hand supporting force under the truss, should complete the load line by checking back into the point, *a*, where the line was started. Unless this last supporting force reaches back to *exactly* the point *a*, it will be necessary to check the whole line over and find out where the trouble is.

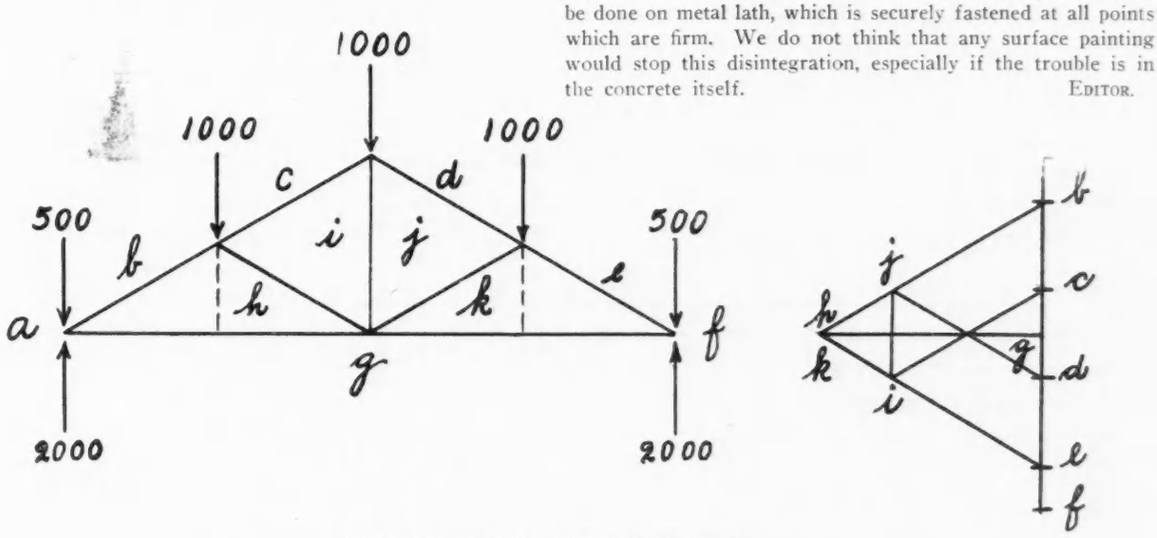


Fig. 12. Stress Diagram for King Post Truss.

"If the load line checks back to the starting point, then begin at the end joint at the left side of the truss, and from *b*, on the load line, draw a line parallel to the line *bh*. Then from *g*, on the load line, draw *gh* parallel to *gh*, the bottom chord of the truss. This will locate the point, *h*, where these two lines meet. Then draw *ci* parallel to the member, *ci*, of the truss, and *hi* parallel to *hi* of the truss. This locates the point *i*. Then draw *dj* parallel to *dj* of the truss, and from *i* in the diagram draw a line parallel to the vertical *ij* of the truss. This locates the point *j*. Draw *ek* parallel to the member, *ek*, of the truss. The points *h* and *k* should fall at the same place if the truss and loading are symmetrical. This serves as a check upon the construction of the diagram.

"As in the previous case, the length of each of the lines in the stress diagram at the right, when multiplied by the scale used, will give the total amount of stress in the truss member which corresponds to that line.

"Next time," said the Boss, "I will tell you how to tell whether these stresses are tension or compression."

✣

Refinishing a Crumbling Block Building

To the Editor. Oakes, N. D.

I have a cement block house which has been built about six years. At this time it has crumbled and cracked considerably. Would it be advisable to stucco the entire building? It would require an average thickness of 1 inch, as the blocks are rock face. Do you think if the bad places are plastered with cement and then all painted with brick and cement coating, that this would prevent further deterioration?

W. H. McPherson.

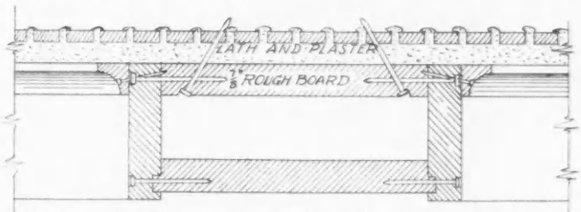
Answer.—We are hardly in a position to judge such a proposition, since we do not know how far the failure has progressed, or in what condition the walls are at the present time. If there is a tendency for the concrete to crumble and fall away, it would not be good policy to plaster direct onto such an unstable base, but would advise that all plaster work be done on metal lath, which is securely fastened at all points which are firm. We do not think that any surface painting would stop this disintegration, especially if the trouble is in the concrete itself. Editor.

Box Beam Ceiling

To the Editor: South Bend, Ind.

I am thinking of putting a box beam ceiling in the dining room of a new residence which I am building, and would be very glad if you would show me by some kind of a sketch just how this construction should be held in place, and how to build up the box beam. O. E. Bennett.

Answer.—This illustration will show in detail just what you desire as to method of fastening beam ceiling in place



Method Of Fastening A Box Ceiling Beam

and method of construction followed in building up a box beam itself. The sizes of the different parts of this beam may be varied as desired to suit the proportions of the room, but the same general plan of joining and nailing may be used. Editor.

Keeping Track of the Time

LABOR COST KEEPING SYSTEM IN SUCCESSFUL USE BY PROMINENT CONTRACTING CONCERN

By W. W. Betsworth, Supt.
The Blount Construction Co., Pensacola, Fla.

HERE is a time card which I have got up to keep track easily of our work. The small time card we use where we work several men on one job, and each kind of labor has a different color card, so it is no trouble to sort out the different tradesmen and tell how many different kinds of workmen you have on the job.

The way we handle these cards is very simple. We start by issuing to each workman a card properly filled out with the name of job he is on, then his own name in the blank space; then we punch out the month and also the day of the week.

As you know, every mechanic is not paid the same wages, even if he is doing the same kind of work, so the next step we take is to decide on wages the man is to get. If he is to have three dollars a day, we look on back of card, and it shows that a man getting three dollars a day receives thirty-three and one-third cents an hour; we then turn back to face of card and punch out thirty-three and one-third. The card is now filled out complete, and as the man works, the hours are punched out each day.

In the upper right-hand corner are the words "Pay off," followed by D. and Q. blocked off in squares. Some of the men think that this means "Pay off damn quick," but that is not what I intended it for! If a man doesn't gives satisfaction, the foreman punches out D, which means discharged, and gives him his card and sends him to the office. The bookkeeper knows at once that he has been discharged. Now, lots of times a man will get mad at the foreman and quit work, and wants his money. The foreman then punches out Q, and gives him his card. He will bring his card to the office and, to his surprise, he will be informed that workmen that quit their jobs will have to wait till regular pay day.

We have used these cards for three years and find they are far ahead of time books. As jobs are finished, the cards are put in a pile together.

Next is a sample of our office time card, which is very useful when one man works on several different jobs during the week. It is almost impossible for a carpenter to keep his time sheet and material on a piece of paper, so I got up this office time card. I have them printed in different colors, so I can easily sort out different kinds of workmen. Having two columns on the right makes it very convenient, as you can refer any time to the amount paid and the amount charged.

No material is put on this card as workmen puts it down on the instruction paper which shows him the number of the house and name of street and exactly what you want done.

In big jobs everything is charged as it leaves the office.

Week Beginning			
Jan.	Dec	11	21
Feb.	1	12	22
Mar.	2	13	23
Apr.	3	14	24
May	4	15	25
June	5	16	26
July	6	17	27
Aug.	7	18	28
Sept.	8	18	29
Oct.	9	19	30
Nov.	10	20	31

Blount Construction Company, Inc.
Time Card

Pay off D Q

Job_____

Name_____ Carp't'r-Hrs._____ $_____

Rate Per Hour			Sat.		Mon.		Tues.		Wed.		Thu.		Fri.		Sat	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
	33⅓	16⅔	1	1	1	1	1	1	1	1	1	1	1	1	1	1
.56¼	.30⅝	15	2	2	2	2	2	2	2	2	2	2	2	2	2	2
.44⅜	.27⅞	13⅝	3	3	3	3	3	3	3	3	3	3	3	3	3	3
.41⅔	.25	11⅙	4	4	4	4	4	4	4	4	4	4	4	4	4	4
.38⅝	.22⅞	08⅓	5	5	5	5	5	5	5	5	5	5	5	5	5	5
36⅙	.19⅛	05⅝	½	½	½	½	½	½	½	½	½	½	½	½	½	½

NOTICE.
Cards Must be in Office FRIDAY EVENINGS To Receive Week's Pay

Rate 9 Hour Day.

.50 per day—per hour, .05⅝
.75 " " " " .08⅓
$1.00 " " " " .11⅛
1.25 " " " " .13⅜
1.35 " " " " .15
1.50 " " " " .16⅔
1.75 " " " " .19½
2.00 " " " " .22⅜
2.25 " " " " .25
2.50 " " " " .27⅞
2.75 " " " " .30⅝
3.00 " " " " .33⅓
3.25 " " " " .36⅛
3.50 " " " " .38⅝
3.75 " " " " .41⅔
4.00 " " " " .44⅜

8 Hour Day.

$4.50 per day—per hour, .56¼

Two Sides of Time Card (Exact Size). These Cards are Good Durable Ticket Cardboard. There is a Different Color for Each Trade, as Carpenters Red, Masons Yellow, Plumbers Blue, etc. Each Man Receives a Card and Keeps it One Week Unless Shifted to Some Other Job Before the Week is Up; In That Case he Receives New Card.

BLOUNT CONSTRUCTION CO.

OFFICE TIME CARD

Week begining ..... *191*.....

Name ..... *Workman* .....

JOB	LOCATION	S	M	T	W	T	F	S	HRS.	Am't.			Am't Ch'g.		

Rate per hour ..... *Total hours*

Rate per week, $ .....

Office Time Card (Exact Size) on Which the Record is Kept of the Different Jobs to Which Workman is Assigned. For Those Men Who Are Shifted Around a Good Deal from One Job to Another This Record is Very Convenient. These Cards Are Printed on Different Colored Stocks, so that the Different Trades Can Be Easily Sorted Out.

Next month I will give you a diagram of my calculator, that I made in making up pay rolls. The bookkeeper has to do no figuring.

✣

Error in Bookkeeping System in June Issue

Mr. J. H. Blacklidge has called attention to a slight error in Fig. A, page 42 of our May issue, in his article, "A Simple Bookkeeping System for the Contractor and Builder." The last five entries on the credit side for February should read *for March*. As it stands, the balance on March 1st would not be correct. The last five entries fall within the March expenditures and the account balances O. K.—EDITOR.

"Straight" Level Glass of Little Use

To the Editor: Seattle, Wash.

I do not wonder that B. S. Wickware had trouble finding a straight level-glass, for I have never heard of such a thing before. If he finally found one, he did not get the perfect glass he thought he got, but a very imperfect one; and I fail to see of what use it can be.

It is obvious that if a perfectly straight glass is held exactly level, the bubble is just as likely to stay at either end as in the center. If it happens to be at the center and the glass is thrown ever so little out of level, the bubble will immediately move clear to the end on the higher side.

It is equally obvious that the less curve there is in a level-glass the more quick-acting it will be. A perfectly straight one would be quick-acting indeed, since it would be practically impossible to keep the bubble steady at any point but the ends. ED. BERGDAL.

TERRA COTTA TALKS

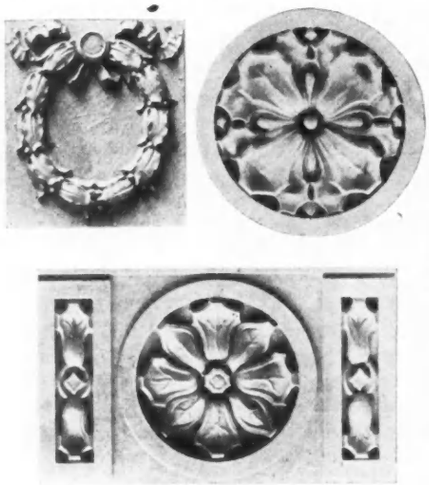
Some Terra Cotta For *Every* Building

BUILDERS FINE STOCK TERRA COTTA MOST AVAILABLE MATERIAL FOR DOOR AND WINDOW TRIM AND FOR MISCELLANEOUS SMALL USES IN CONNECTION WITH PRACTICALLY EVERY BRICK BUILDING, EVEN WHERE ONLY A LITTLE IS NEEDED

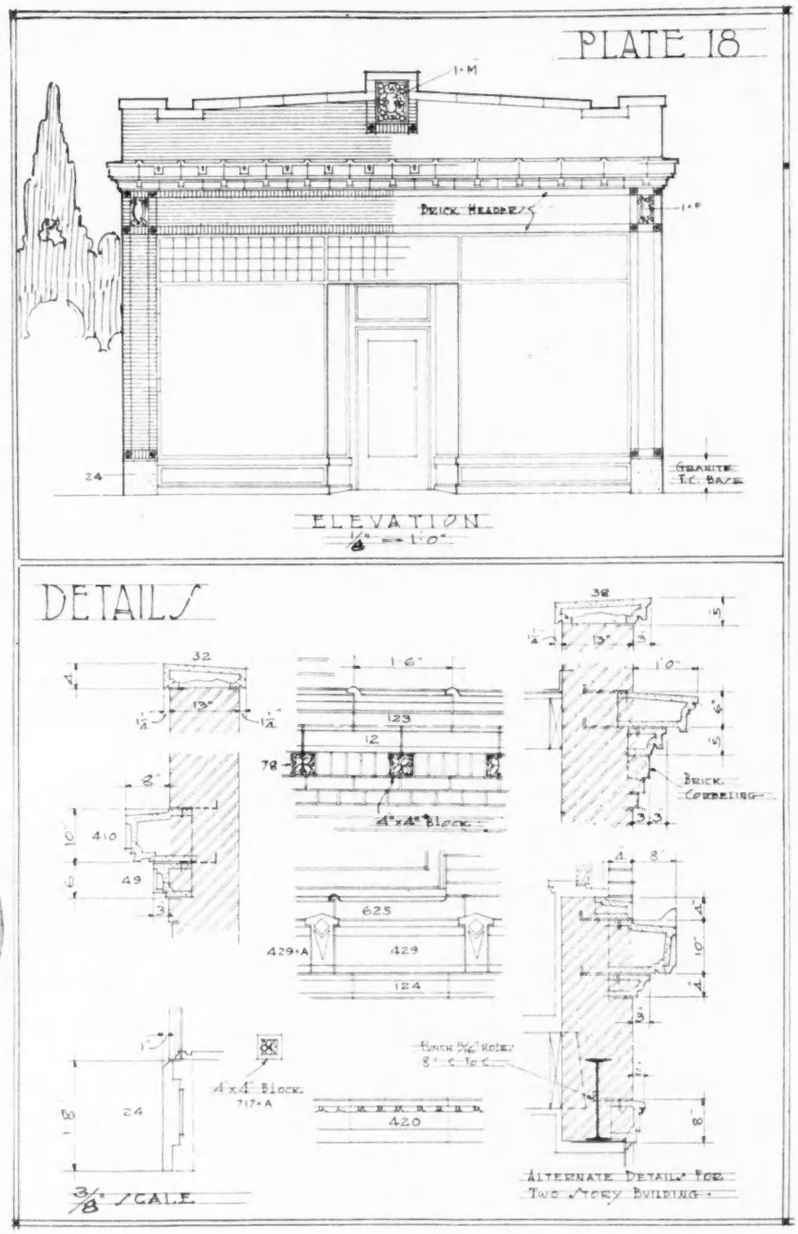
IT is surprising how often we see, here and there in all the new buildings going up this year, white enameled terra cotta pieces gleaming forth.

Evidently, architects and builders have discovered the value and the handiness of stock terra cotta trim. Around windows and over entrance doors, for little ornamental inserts (and these are often brightly colored), for chimney caps and wall copings, for sills and belt courses; in fact, for all of the little uses where formerly cut stone was employed, as well as for a good many others for which stone never could be afforded, we now see terra cotta being enmployed.

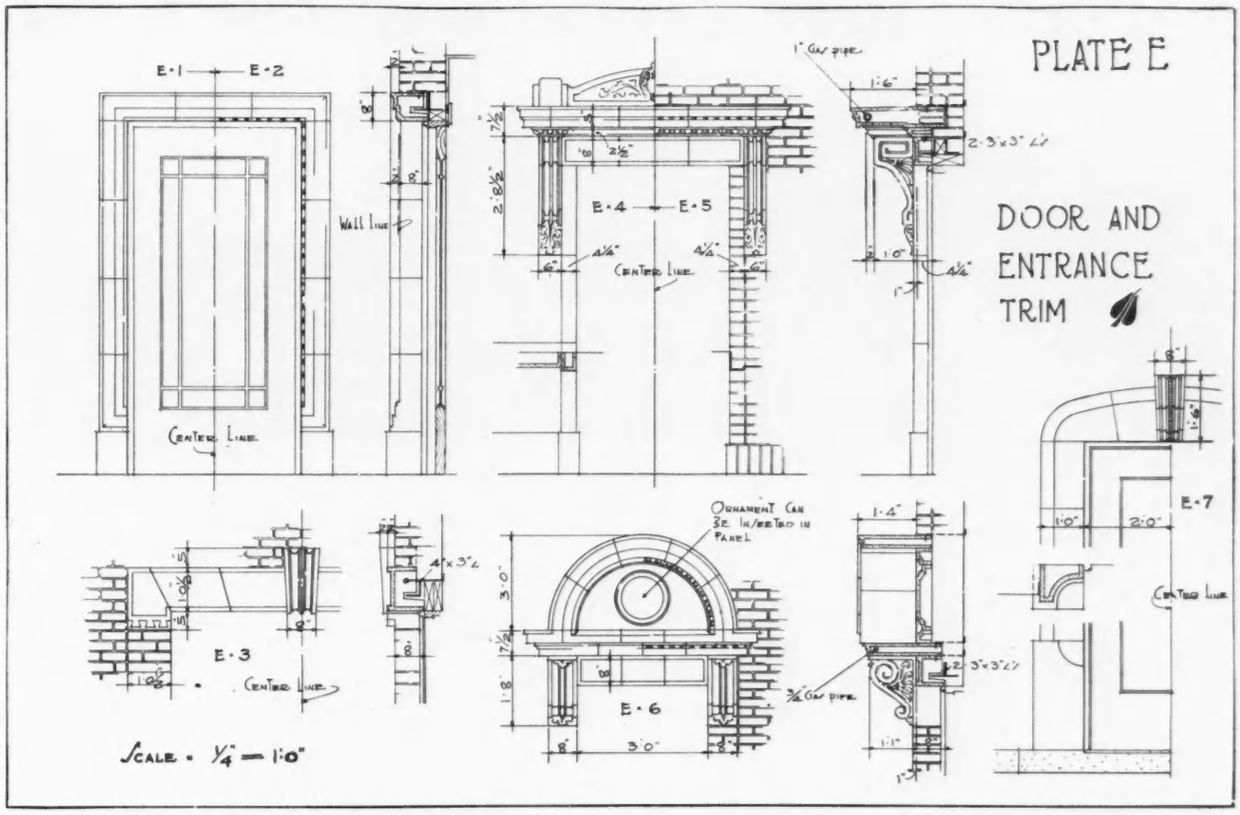
Dependable, durable goods; a big selection of attractive designs to choose from; prompt deliveries, even at short notice; satisfactory price—these are the reasons for stock terra cotta's growing popularity among architects and builders for the average run of buildings.



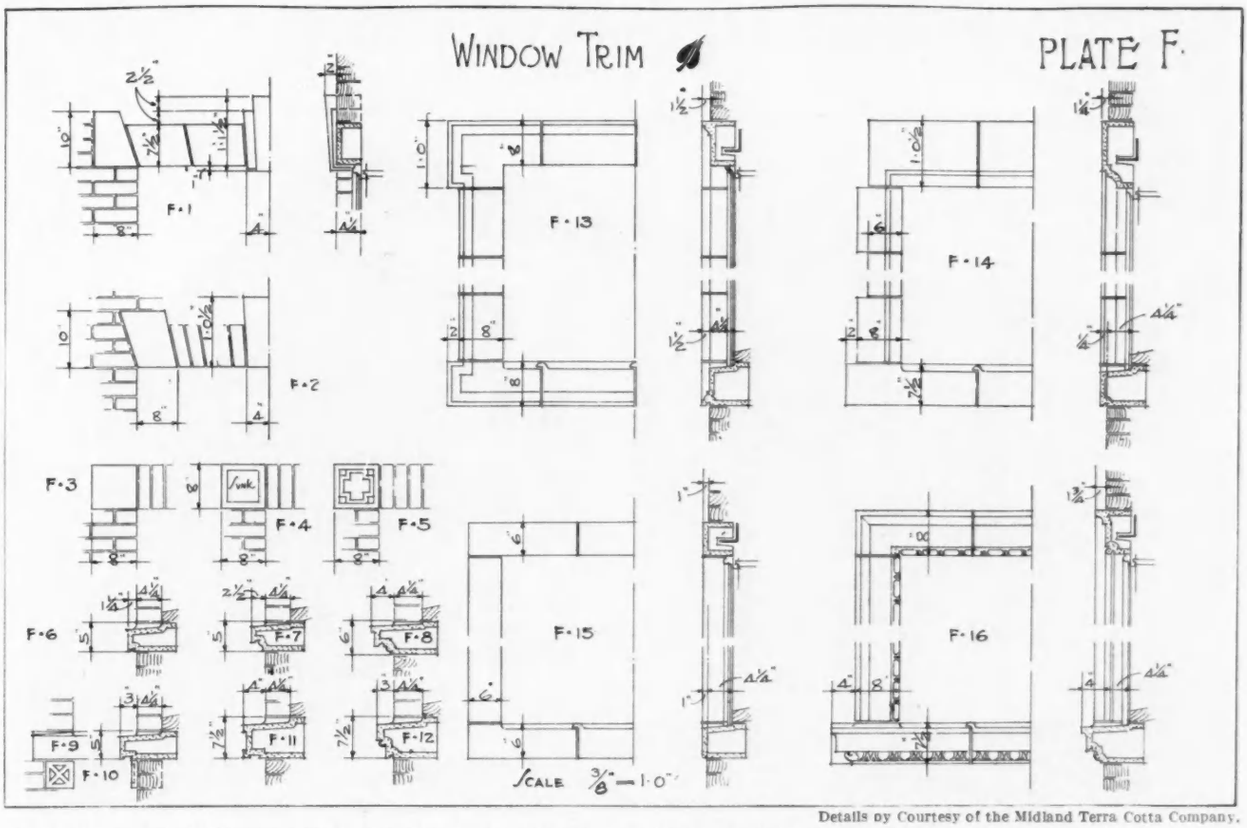
Useful Ornaments.



Front Elevation of Pretty Little One-Story Store Buildings to be Built of Brick, Enameled Terra Cotta, and Plate Glass. Below are Details Drawn to ⅜ inch Scale Showing Proper Construction for This Building and also for a Two-Story Building of Similar Design.



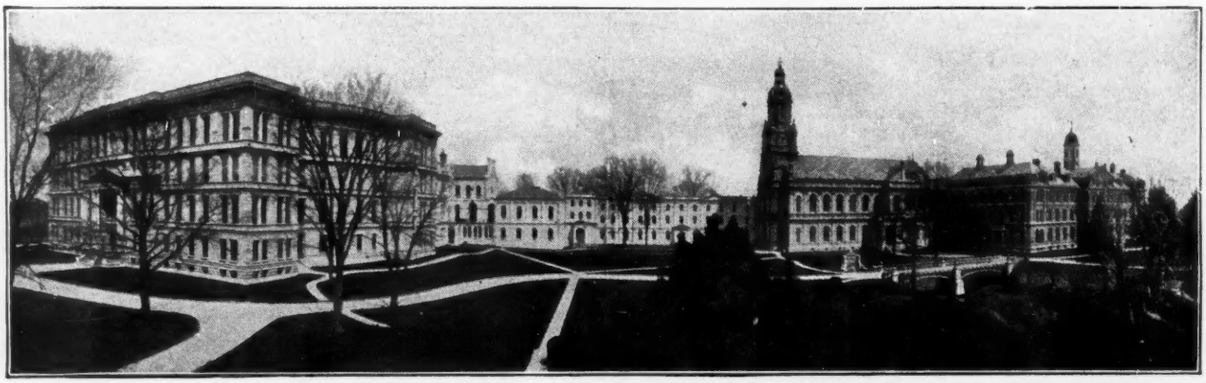
Suggestive Details for Attractive Entrance Doorways, Ornamented and Finished with Stock Terra Cotta Pieces. Seven Different Doorway Designs Are Detailed in this Plate; Scale ¼ Inch Equals One Foot.



Details by Courtesy of the Midland Terra Cotta Company.

Suggestive Details for Windows Made Attractive by Use of Stock Terra Cotta. In this Plate Simple Terra Cotta Forms Are Combined in Different Ways to Produce Nine Separate and Distinct Designs of Window Trim; Scale ¼ Inch Equals One Foot.

Notable New Buildings at St. Mary-of-the Woods



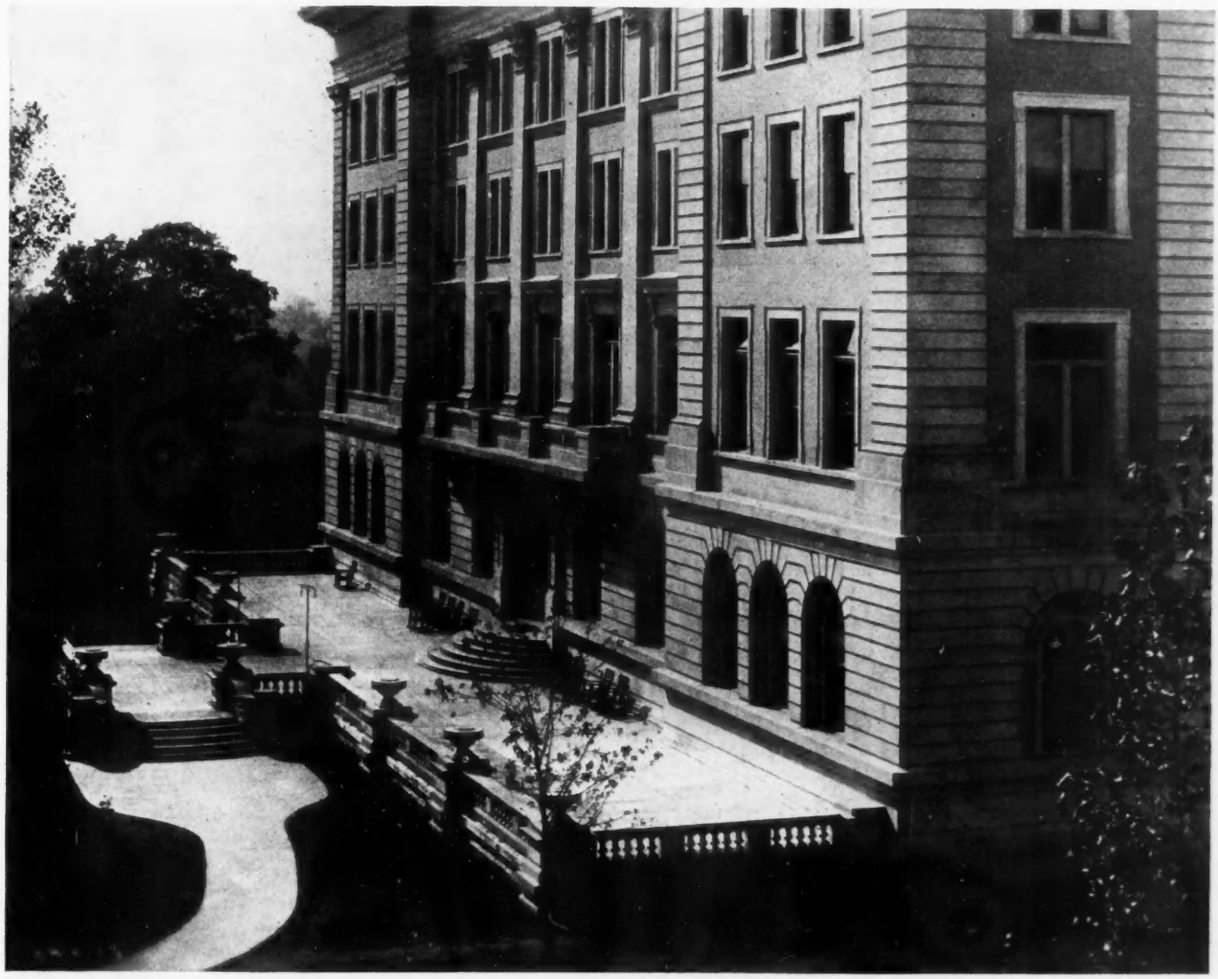
General View of Campus and Buildings at Saint Mary-of-the-Woods, Ind.

IN the design of the new College Building and Conservatory of Music at St. Mary-of-the-Woods, Ind., a serious attempt has been made to embody in the design the purposes and feeling to which these buildings are dedicated. They make a notable addition to the already magnificent equipment of this leading Catholic institution for the higher education of young women.

The College Building is treated in a free Renaissance style, using the Corinthian and Doric orders. The entire composition may be divided into the three distinct parts of the classic column; the base, shaft and entablature. The base is carried through the first story, being designed in a simple, heavy way, to give a secure and solid foundation for the superstructure. The windows are arched with semi-circular heads, and the solidity of the whole is accentuated by the deep shadows of the stone courses and the deep reveals at the windows.

The three upper stories are treated as one motive, the pilasters carrying through from the water table to the hood cornice of the building, to accentuate the intimate relationship of the usages of the rooms on these floors. In the center of the main facade, the light, graceful Corinthian Order has been used to

New Conservatory of Music is a Noble Example of Renaissance Style Architecture.



Detail of Beautiful Stone Paved Terrace Which Forms the Entrance to the Building.

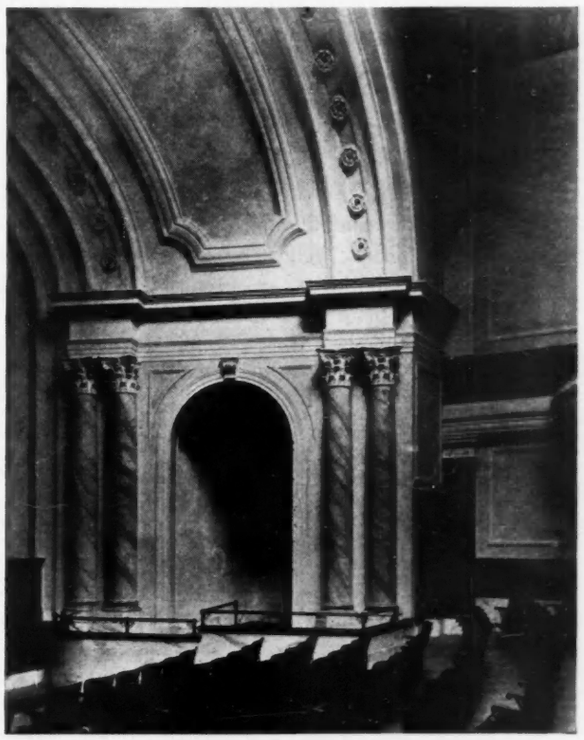
again concentrate the ornate parts of the building, while the heavier and stronger Doric order is used to add strength and support at the corners .

The building is entered through a vestibule into a spacious rotunda, octagonal in shape. This rotunda is carried through two floors, encircled on the second floor by a balcony.

The corridors to the class rooms and the main stairways are on the secondary axis of the rotunda. These corridors are wainscoted similar to the rotunda, and the Venetian Mosaic floors are carried through all the public departments of the building.

The upper two floors are designed for private apartments, containing study rooms, bed rooms and private baths, designed in such arrangements as would be most convenient for the students. The second story is partially devoted to apartments and partly to the scholastic department. The entire first floor is devoted to study rooms, containing laboratories, domestic science rooms, a lecture hall, with inclined floor and lecture platform, reception rooms and study rooms of various sizes.

In the structural development of the building, care has been taken to make it as fireproof and livable as possible. Due to the character of the sub-soil, the entire building is set upon concrete piles about 30 feet



View of Proscenium Arch and Boxes in Auditorium, Showing Style of Interior Decoration.

Coal Tipple and Shaft-House on the College Grounds at St. Mary-of-the-Woods. The Entire Campus is Underlaid With Coal.

in length to assure a stable foundation. The exterior walls are built of solid masonry, using hard burned shale brick and Bedford stone.

The interior construction consists of cast iron columns, steel girders and reinforced concrete floors of the joist construction type. The interior partitions are made of gypsum blocks, whose open air spaces make them practically sound proof.

In the interior finish and trim, the idea of simplicity and the elimination of all dust collecting projections has been sought.

Conservatory of Music

In its general feeling, the design of this building is similar to the College Building. A free use of the Renaissance style is also used in this composition. But as this building is used for an entirely different purpose, the treatment of the facade has also been attacked in a different manner. The most important room in this building being the large auditorium, in the center of the building, an attempt has been made to show this by projecting the center motive of the facade and ornamenting this portion, while the ends of the building, containing the less important rooms, are treated in a simple, plain manner, with little ornateness.

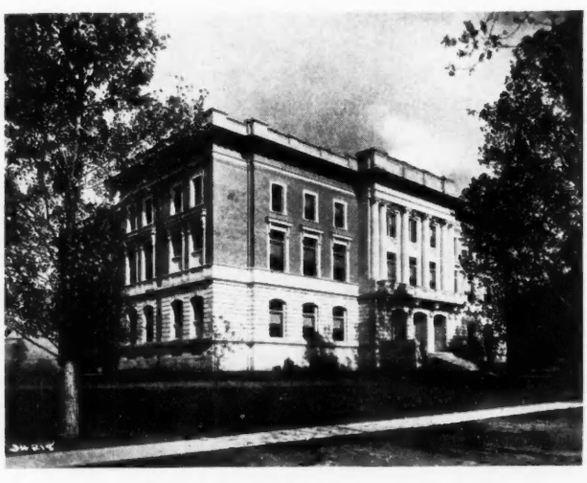
In the design of the auditorium and stage the most modern ideas have been used to make it as complete and perfect as possible. The floor of the auditorium is inclined enough so as to make the line of sight from every seat practically unobstructed. In the balcony this same object has been sought. The balcony is designed as a cantilever, projecting about 30 feet from the rear wall, thus giving a free and open main floor unobstructed by columns. The entire room and also the balcony is wainscoted with a Sienna marble.

The stage is carefully designed to meet all the different requirements of such a building. It is provided with all the electrical devices used on modern stages, such as foot lights, border lights, spot lights, dimmers, and combinations, so that any effect desired may be obtained. The gridiron is fully equipped with its many sets of lines and necessary pin rails, etc., for the successful handling of scenery. In fact, every detail of the modern stage equipment has been embodied on this stage.

Entirely surrounding the auditorium on the first, second and third floors, are the practice rooms for the students of music. These rooms are divided by means of macalite partitions, making the rooms sound proof. The doors are provided with clear glass panels, so the instructors may watch the students without opening the doors and interrupting the study.

In its structural development, this building is similar to the College Building, being as nearly fire and sound-proof as modern methods can devise.

The heating system employed for this building is a mechanical blast heating and ventilating system. Large fans in the basement force washed warm air into the room through openings in the floor, while an exhaust fan above draws the foul air out of the room, so that the air of the entire room is being constantly changed.



The New College Building is of Brick and Cut Stone in the Renaissance Style.

How to Do Work Fast—Putting Down Base

MAKING EVERY MOVE COUNT IN COPING BASE, LOCATING STUDDING, AND WORKING AROUND CHIMNEYS

By I. P. Hicks
Estimator and Contractor

AS near as we can remember, this subject has not been before the readers of the AMERICAN CARPENTER AND BUILDER for some time.

There is always a way to do every kind of work, that makes it easier, speedier and more accurate.

It is best in putting down base to work around the room from left to right as much as possible. This makes it easier to do the coping. One cannot always do this; sometimes conditions are such that it is better to work just the reverse, or even start at one side or end of a room and work both ways. The mechanic needs to have his head working right, so that he can decide at a glance the most advantageous points to work from.

The sketch shows a section and side view of a piece of base. The section shows the profile or outline of the face of the base. In putting down the face, cut the first piece off square and nail it up solid. To fit the next piece to it at an angle, cut the piece off square and about 1¼ inches longer than the exact length required. Set this piece in place as near as you can get it to its permanent position, and with a pencil scriber scribe along the side of the base, as shown at A, then with a coping saw cut out the moulded part, finishing the cut across the plain part of the base with a hand saw in the usual manner. Be particular to get the baseboard in proper position before scribing, and be particular with the scribing and cutting. If you learn to get a perfect fit at every cut, you will soon be ahead of the fellow who has to cut every board two or three times before he gets one to fit. Good fitting joints can be cut on base boards as readily as on any work, if you will go at it right and with a little painstaking care and judgment.

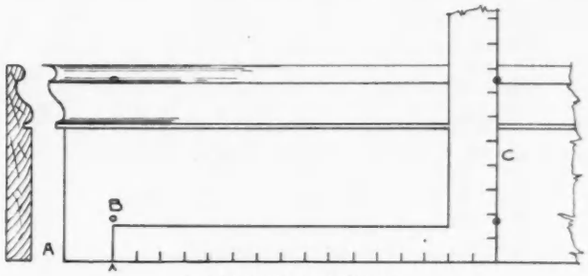
Get a good pencil scriber; a clumsy tool is not in it on this kind of work. The scribe mark you make needs to be correct, and to get this, you must learn to place the board in the right position, scribe and cut right; and most of your troubles are over.

After you have scribed and cut the board, place it in position again to see if it will fit. If it needs a little trimming, cut it off, allowing about ⅛ of an inch more than the required length. This will squeeze the joint tight when it is placed in its permanent position. In putting it in place to nail, place the end next to the wall first, and press up the joint end last. The reason for this is that the base, being cut tight, will dig into the plaster on the wall end and sometimes be very difficult to get up. If the wall end is nailed up first you can always push the joint end up along side of the other base easily, for there is nothing to obstruct it; and if the cut has been properly made there will be no difficulty in getting a perfect fit. Of course, the joint cut must be made right and the board cut to just the right length. Do not attempt to make a joint altogether by the squeezing process, for if you do, your work will be a failure. Cut to fit and give just the right amount of squeeze to make a tight joint and you will soon get perfect work in this line as well as any other.

How to Find the Studding

Some experience more or less difficulty in finding studding in plastered walls. With the hardwall plasters now in use, it is difficult to find studding by the sound of hammer blows on the wall unless you strike hard enough to dent the wall, and hammer marks on a plastered wall do not look good.

Before you nail on the base, locate one studding on each side of the room. This you can do with the hammer, striking the wall below where the top of the base will come. A hammer mark here will not disfigure anything. Drive a small nail in to make sure that you have located the stud, then make a small



Locating Nailing Places.

mark on the floor for a starting point, as in the line of B (see sketch). Drive in the nails as shown by the dots, then take a square with a 16-inch tongue and place it on the floor with the end of tongue in line of your first nailing, and the blade will represent the next line of studding and nailing. Slide the square along on the floor 16 inches at a time, the regular studding space, and you do not have to waste any time trying to locate studding with a hammer; you have no walls disfigured with hammer marks, and no extra nail holes in the base, made from extra nail driving to locate studding by guess.

It is a good plan to mark on the rough floor the location of studding when the partitions are set. This helps out the finisher quite a little, but these marks often get so obliterated by the plaster as not to be seen when the finisher gets on the job. If there is any trouble in finding studding, it is best to locate a starting point, as we have already explained, as it will avoid most of the troubles in this line of work.

To Successfully Base a Chimney

This is a task that is usually difficult to the inexperienced on account of the trouble of nailing anything to brickwork.

First, fit and nail together all the pieces that go around the chimney, not nailing into the chimney at all, then slide the pieces up around the chimney in their proper position and wedge them tight against the chimney with braces from the base to the floor. Put a small block between the base and the wedge, so as not to mar the base in wedging it up. With the base tight against the chimney, so there is no spring to it, you can usually get a couple of nails to take effect sufficient to hold. If you get two nails to hold, don't try any more, for sometimes a nail too many will spoil the whole works.

Now, while you have the base in position around the chimney, and before you take out the braces, cut in the side pieces of base that come up to the chimney, cutting them in rather tight, and these will hold the chimney base right to the spot. Cut the chimney base in first and the side pieces that come up the chimney, last. You will find this the best method, both for speed and producing good results.—Omaha, Neb.

More Shop Kinks

HELPFUL IDEAS AND SUGGESTIONS FOR CARPENTERS, CABINET MAKERS AND MACHINE WOODWORKERS

By Wm. C. Jasbury

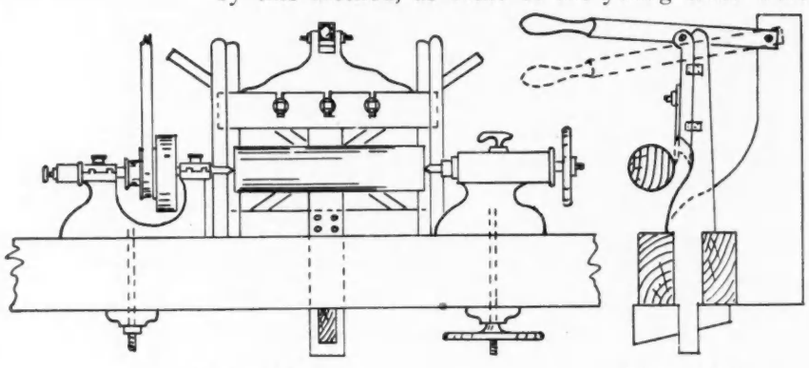
WILFUL WASTE. There is a saying that goes thus: "Wilful waste makes woeful want." I saw a case of this kind about a fortnight ago, while visiting a certain Government reservation, men were cutting down and burning red cedar trees, the real odoriferous red cedar, as used in moth-proof chests, closets, etc. This seems a shame, as this is the only known wood that will keep insects and such from a place where valuable clothing may be stored.

I once heard of mahogany being used for railroad ties in Honduras, as it was the only wood they had at hand in abundance and a railroad had to be built. These are two cases of wood, that is good for something, being wasted. Although I have some quartered oak sheathing on my own home, I bought it at a bargain, after a mill fire, in which it was charred and smoked to checking.

I know of farmers using walnut for fence posts; and think of the gun stock trade, hunting their heads off for gun breech walnut. I know of a two-horse dump cart that has walnut sides and bottom. The country wheel-right had no other boards suitable for size at the time and the cabinet making thought was not for him, he used walnut. There are many of these misplays in wood consumption.

THE MANAGER'S INVENTION. I recall an improvised contrivance in the shape of a semi-automatic turning lathe I once saw in the state of Pennsylvania; the reason for this invention was a small mill that had an order for four thousand chestnut cylinders, diameter five inches and length twenty-two inches. The system of turning them by hand was not altogether satisfactory to the manager, despite the fact that the turner on the premises was a fairly good one. However the manager wished to have his way and put a handy man (mill-wright) to work making a back knife lathe.

The knife part of this contraption was a twenty-four inch discarded planer knife; nearly all of the rest of the makeup was wood. There was considerable difficulty in the production of the cylinders by this method, as some of the young trees were

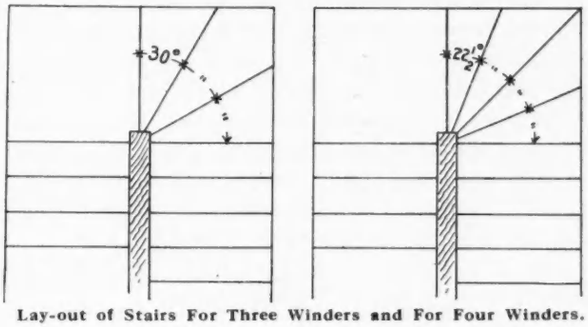


Sketch of Alleged Labor Saving Machine.

too large in diameter, but by the loss of much perspiration and time this monstrosity of a lathe did the work. I am quite sure a real (human) turner could have made the same product in less time, but that is not what this manager was there for. One thing I will say, the cylinders were all the same diameter when finished; this would have caused the turner some time, but they were not as smooth as though turned by hand, as the knife made a downward scrape cut, not a sheating cut as a turner would. However, this job was completed and shipped.

Of course, I am not prepared to say whether or not any great amount of money was made, but it did make some cheap vaudeville for the shop boys, at any rate. The lathe was an ordinary old three-coned one, the back knife doing its dirty work from the coming-up side of the stick. The lengths were cut on an ordinary cut-off saw so the adjunct of a pair of cutting off tools was not used. These would have made it too complicated. I suppose at any rate when the job had been finally finished the manager handed himself bouquets as large as umbrellas. Why, one would think he had invented a new fire box for an egg beater, or discovered some new grape juice. The boys had been watching the job so long they had really forgotten the beginning. I shall now endeavor to give you a sketch of this labor saving (?) lathe.

HEXAGON . AND OCTAGON CUTS IN WINDERS. Here is one I recently ran onto. Mind you, I am not saying it is an original idea, because it might have been both known and used long before

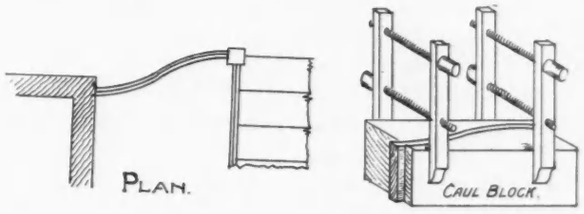


Lay-out of Stairs For Three Winders and For Four Winders.

I built stairs. However, I think it is a good stunt and that settles it as far as I am concerned. So here goes.

Take for instance a stair that has winders which are quite often used in rear stairs. Some of them have three and some have four winder treads, as shown in the illustrations. In the first case, the treads stands at 30 degrees and the second at 22½ degrees, because the quadrant of 90 degrees divided into three parts equals 30 degrees and if in four parts 22½ degrees; 12 and 7 (practically) give the hexagon miter and 12 and 5 (practically) give the octagon miter. Mark on the side of the square on which the smaller number is taken.

Recently I had a fascia board 7/8 by 12 inches by 3 feet long; and the shape was what might be called in R. R. parlance, a reverse curve; that is, it was curved concave and convex from a newel post, to



Blocks Sawed to the Proper Curve Assures Success in Handling Curved Veneering.

a plastered partition, as shown in the illustration. To do this kind of work I take some spruce, hemlock, yellow pine or any cheap wood block and saw it on band saw to the required shape of the fascia. Then put the thin veneer pieces in the saw, cut block, first giving them a coat of glue and then put on the clamps and squeeze.

AHEAD ONE PERGOLA. I recently had an occasion to visit a very fine residence in course of construction in the burgh; and the porch columns were of cement, fluted and with ornamental capitals. When they arrived on the site, they were 12 inches in diameter, instead of 14 inches, coming from a distance of 60 miles, freight, cartage, etc., to pay. The owner immediately notified the column maker, who shipped a man down, saw the "bull" and said: "Bury them in the back yard somewhere, as they are too heavy to send back, and we will send you the 14-inch columns. The 14-inch columns arrived later and were placed in position. The owner figured if he buried them in the back yard, in some hazy and smokey future, they might be dug up by some excavators, which might cause a panic among prehistoric hunters, professors, and other absent-minded data accumulators. Being a conscientious man, he did not wish to pull off such a joke on posterity, so he decided to build a pergola. The aforesaid pergola is on the job, looking as healthy as pergolas go. No doubt, every time the owner takes a stroll under the spread of vines (not the grape-juice variety) on the pergola, he chuckles to himself. Mr. Column Man was surely in "Dutch" that time, and not only that, I resurrected the poor columns, or better still, saved them from an early grave.

PICKING UP THINGS ON THE SHORE. Now and then some rare specimen will wash ashore on the beach here in New Jersey—thrown or lost from some boat from the tropics. A common trick of our cabinet makers is to walk along the ocean edge and pick up cork to use as sand paper blocks.

Curious Building Laws of Ancient Times

H. B. McMASTER BRINGS TO LIGHT SOME SURPRISING HISTORICAL FACTS

IT has been estimated by the underwriters that 27 per cent of the fire loss in this country comes from fires that extend beyond the buildings in which they originate, so stated Mr. H. B. McMaster, Commissioner of the Associated Metal Lath Manufacturers in a recent paper before the Up-to-Date Club of Youngstown, Ohio.

A reasonable conclusion is that these losses are due to the inflammable construction of our buildings.

To correct this a proper building code should be adopted in every state and municipality.

Mr. V. D. Allen, city inspector of buildings at Cleveland, was good enough to place at my disposal, Mr. McMaster continued, the result of his research into the history and evolution of building laws. Among other things he found that from the Jews came this effort at Code building:

Must Not Keep Broken Ladder

"One who builds a new house must erect a battlement around the roof so that no person shall fall from it. The battlement must be at least ten fist-breadths in height, and must be well constructed so that one may lean upon it without apprehension. To guard against injury, one must not leave a well or a pit on one's premises uncovered, nor must one keep a vicious dog, or a broken ladder. It is forbidden to walk alone at night, to stand under a wall that is like to fall, to walk upon a poorly constructed bridge, to enter a ruin, or to drink in the dark from a well lest some poisonous animal lurk in the water."

It is within the range of reason to expect that a building inspector with small fists must have been popular with builders in Jerusalem.

"Sky Scrapers" Popular B. C.

In the days of Solomon, there were buildings ten stories high; one rabbi tells of climbing 100 feet to his room; Herodotus tells us there were houses in Babylon four stories high and Greek historians report many houses in ancient Tyre ten stories high. Athens had a building law limiting the height of buildings for residences to ten stories.

About the year 325 A. D., when Constantine, the Roman emperor, determined to establish his capital on the Golden Horn, he built a wall across the peninsula as the limits of his city and the dividing line between city and country taxes.

Speculators from all parts of the empire rushed in and bought up land, raising real estate prices over 300 per cent. within a year.

High buildings were the logical outcome of this condition and the capitalists sent to Rome for architects who could design higher buildings, with the result that in ten years the new capital rivaled Rome in this regard.

Constantine, finding the view of the city and bay obstructed by these higher structures before he could complete his palace, issued an edict forbidding buildings more than 100 feet high.

A wail went up from the speculators but the tops of the buildings had to come off and it is recorded that one block lost the four upper stories which would indicate that there were buildings from 125 feet to 135 feet.

They Evaded the Laws Then Same as Now

It is related that one Apothagos built a row of houses between the royal palace and the sea. They were of stone and brick as required by law and within the limits of 100 feet, but on top of this he built frame structures of three stories. The royal "inspector of buildings" ordered these frame superstructures removed, but Apothagos, claiming it was only a temporary structure for housing his workmen while they completed the building, went into court with it. After ten years of litigation, the superstructures were torn down, but all this time royalty was much offended by the unsightly buildings which stood between it and the sea.

It is interesting to learn that every tenant in a Roman tenement had to look to his own security. Therefore, at dark all doors were barred, windows secured, and in the better class buildings a watchman was hired from a common fund. Sometimes two such watchmen were provided, one of whom was chained fast at the front door.

The Incendiary Nero in a New Light

The average person having the belief that Nero was an imperial incendiary will be apt to suffer a shock when he learns that a most comprehensive and practical fire prevention building code was formulated and enforced by this ruler whose name is heard more often in obloquy than in praise.

Some historians say Nero's act of burning Rome in the year 64 A. D. was not without design; that it was, in fact, an efficient way of removing buildings to make way for a great city plan. However this may be, it is a fact that a better order of things resulted. Ruins were hardly cold before the working population of the city were set to work clearing away the debris, and the royal architects, without regard to former ownership, laid out avenues, squares and parks on a grand scale. A law was enacted that no residences should be higher than twice the width of the adjacent street. This seems to be the earliest record of provision for limiting the height of buildings with relation to the width of the street on which they faced. Tenement houses were required to be isolated, and the two or three lower stories had ceilings resting on stone or brick arches, wood construction being permitted in upper stories only.

(*Continued to page 77*)

A Church Heating Job

DETAILS OF A HEATING PROBLEM THAT IS FREQUENTLY ENCOUNTERED

By Cecil F. Herington

"NEXT to school houses," said the Old Builder, "the most common public building of the smaller class is the church. A church presents problems in heating which are not obtained from any other type of building, this is owing to the fact that its use is intermittent for a short time only and that it is very often difficult, if not absolutely impossible, for a church to employ a person of proper ability and understanding to look after the heating apparatus. Besides this, many country churches are built without cellars, or with a cellar under a small portion, rendering it difficult to use anything but stoves, which are hardly suitable.

"I know of many cases where it has been necessary to place furnaces in a portion of the Sunday-school room (which is usually located under the auditorium proper), running pipes from the furnace to the floor of the auditorium. Because the registers in the auditorium can not always be located at a particular point, it usually means that the pipes must be run in the Sunday-school room in such a way as seriously to interfere with the arrangement of this room. This practice of heating not only occupies valuable space in the Sunday-school room, but is often unsatisfactory, owing to the difficulty of getting the proper cold air supply to the furnace, the trouble of storing coal, and the objectionable ash and coal handling, with the accompanying dust and dirt adjacent to the Sunday-school room.

"I once had a proposition of this kind put up to

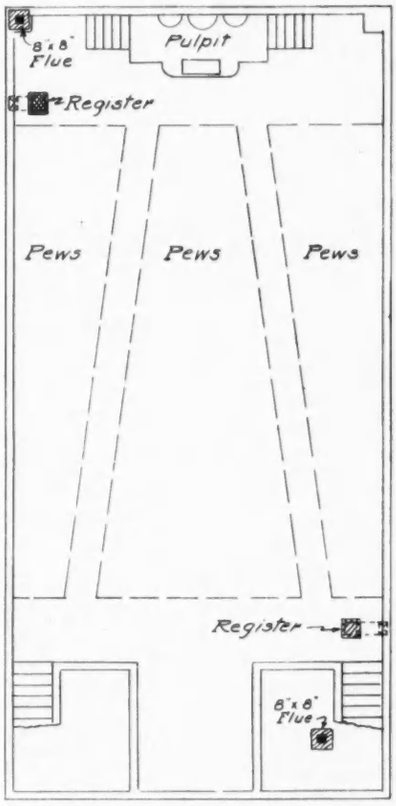


Fig. 1. Plan of Auditorium Floor.

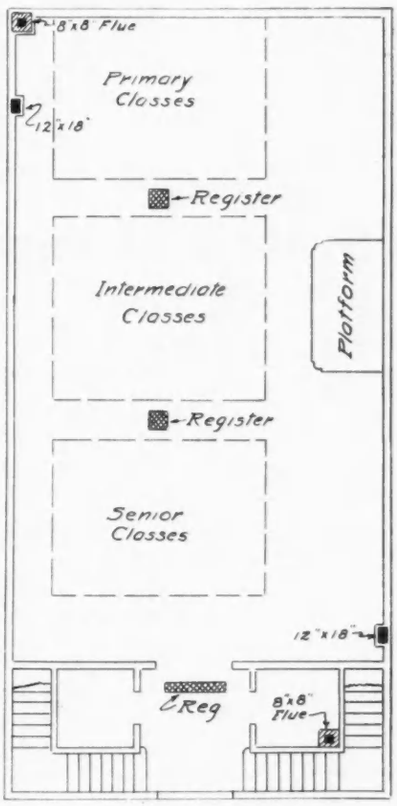


Fig. 2. Plan of Ground Floor.

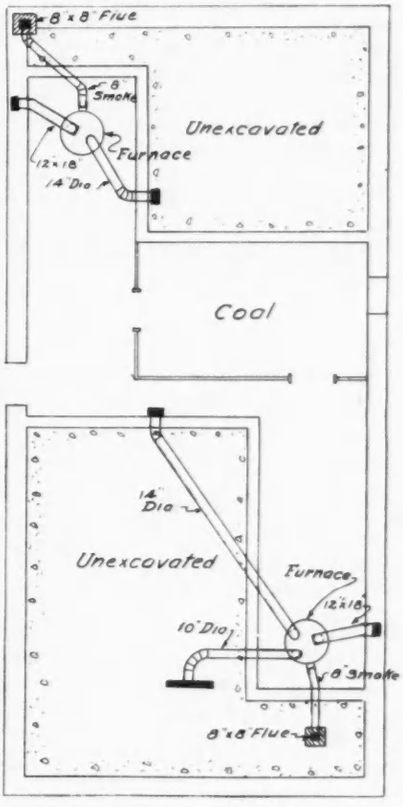


Fig. 3. Plan of Cellar.

me and I arranged it so that the church had the full use of the Sunday-school floor with no objectionable pipes exposed and with a very small additional expense for excavating. In fact, the entire cellar required did not amount to 40 per cent of the area covered by the building.

"Fig. 1 shows a plan of the auditorium and Fig. 2 of the Sunday-school room below, while Fig. 3 gives a foundation plan and indicates the amount of excavated space required for coal storage and the furnaces. There was no entrance to the cellar from the Sunday-school room, although one could have been arranged without a great deal of trouble from the front vestibule. In this particular case access was obtained by a door in the outside wall and a passageway between the two furnace rooms. Above the unexcavated portion there was a distance of some 18 inches between the ground and the bottom of the floor joists. The Sunday-school room was approximately 42 feet by 38 feet, with 11 foot ceiling, and had folding doors between the Sunday-school room and the junior room.

"The main Sunday-school room was heated by two 14-inch pipes, one running from each furnace, while the vestibule was supplied by a 10-inch pipe from the front furnace. The main auditorium on the second floor is supplied by two 12 by 18-inch flues, which rise up along the outside walls and supply one register in the front portion and one in the rear. The furnaces each have an 18½-inch diameter grate, and I understand that the expense for heating for an average year has only been some $40.00; this, of course, contemplates heating the church only on Sundays, and possibly one or two nights during the week.

"A little computation will show that there is a furnace pipe area running to the first floor of

2 times 14″ x 14″ x .7854 plus 10″ x 10″ x .7854, or
2 times 153 sq. in. plus 78 sq. in., or
306 sq. in. plus 78 sq. in., or 384 and
384 sq. in. divided by 144 equals 2.7 sq. ft.
2.7 sq. ft. at 260 velocity equals 702.2 cu. ft.
In one hour 702 cu. ft. times 60 equals 42,120 cu. ft.

"Since each cubic foot at 120 degrees Fahr. supplies about 1 B.T.U., this furnace pipe area will supply about 42,120 B.T.U. to the first floor.

"For the second floor we have a furnace pipe area of
2 times 12″ x 18″ divided by 144 or 3 sq. ft.
At 380 velocity this gives 3 x 380 or 1140 cu. ft.
In one hour 1140 x 60 or 68,400 cu. ft.
on the second floor, a total of about 68,400 B.T.U. are supplied.

"Of course, if it had been possible to guarantee proper attendance a single steam boiler would have required less excavation, but, as a usual thing, where a building is allowed to stand cold for part of the time it is necessary to drain the system in order to avoid the dangers of freezing. With a hot water system this objection is accentuated, and there is much more water to drain.

"If it had been desired to install a steam plant we could have arranged our radiators as close to the windows as possible and in the vestibule near the door. The amount of surface which would have been required is easily obtained by dividing the B.T.U. supplied by the furnace system by 250 (the efficiency of a square foot of radiator surface), thus:

First Floor, 42,120 divided by 250 equals	168 sq. ft.
Second Floor, 68,400 divided by 250 equals	273 sq. ft.
Total	441 sq. ft.
Piping 20%	88 sq. ft.
Actual boiler load	529 sq. ft.
25% to boiler rating	132 sq. ft.
Boiler Rating in catalog	661 sq. ft.

Individual Duct System of Ventilation Heating

By Harold L. Alt, M. E.

THE most ideal system of ventilation so far developed with the use of fresh air is known as the "individual duct system." In this scheme every room is supplied through one or more separate and distinct ducts which are carried back to the heater without being connected with each other, so that the air to each room is kept entirely by itself and is not in contact with that of any other room. In this feature the system only follows out the common furnace systems.

When these ducts reach the heater they are separated into two branches, one of which is connected into the hot air chamber beyond the heating coils and the other into the cold air chamber below the heating coils. Each of these branches is controlled by a damper and the respective hot and cold dampers for each duct are coupled together so as to move in unison; but they are arranged so that when one opens, the other closes, and vice versa.

Thus the exact temperature of the air supplied each room can be regulated within reasonable limits and the room on the sheltered and sunny side will not receive air at as high a temperature as a room on the north

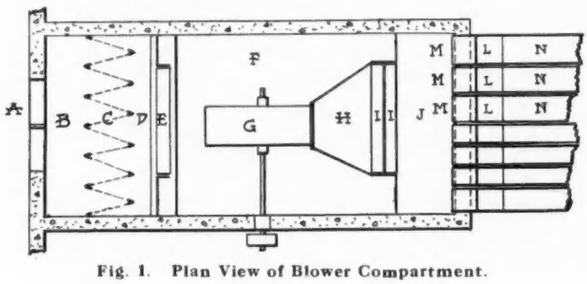


Fig. 1. Plan View of Blower Compartment.

side exposed to the wind.

A better understanding of this system can be obtained by reference to the typical plan and elevation of a system of this kind shown in Figs. 1 and 2. Here the cold fresh air enters through the window at "A," passes into the chamber "B," where it spreads out across the air filter, "C" (which is usually made of cheesecloth on wooden frames), then into the space "D," where it rises up and passes through the heater, "E," and into the fan chamber, "F."

Here it is caught by the fan, "G," and discharged through the metal connection, "H," part of the air passing through the re-heater, "I"-"I," and part passing below the heater into the by-pass chamber, "K," from which it rises through the vertical pipe, "L." The air going through "I"-"I" is heated and passes into the hot air chamber, "J," and then into the duct, "N," through the pipe, "M."

A very important adjunct to the operation of this system is the little thermostat. This, though small, is absolutely necessary to maintain proper temperature in all buildings supplied with ventilation and is, in fact, often used to control direct radiators.

The hot and cold dampers on each duct are in this case controlled from a thermostat located in the room, which the duct supplies. This thermostat opens and closes a miniature air line, which operates a little air motor, shown at "O," which moves the dampers, "P." The arrangement is such that the change of two

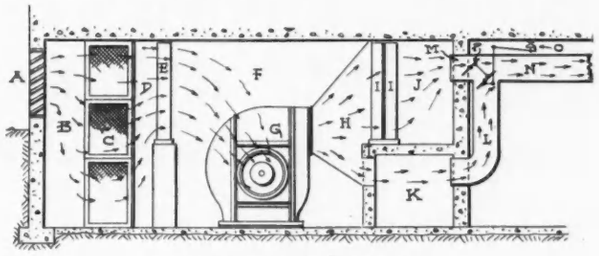


Fig. 2. Elevation of Blower.

degrees in a room will cause a change in the dampers so as to alter the air supply.

The accuracy to which this adjustment can be obtained may be realized when the fact is appreciated that on a recent tour of inspection through a new home erected by one of our greatest millionaires, the writer found but three rooms out of a total of fifty which were not between 68 and 70 degrees Fahr., and these three were only dependent on a slight adjustment to make them line up with the others.

✣

Who Knows About Shingle Thatching?

To the Editor: Algona, Ia.

Would some Brother of the Woodcraft, through your valuable paper, kindly give me some information on shingle thatched work? I have one to lay and it is a new stunt to me. A little coaching helps one. Have been a subscriber to your valuable paper for a number of years and think it well worth the money. C. HERMAN.

Ever Need to Climb a Pole?

HERE IS THE WAY TO DO IT

By Edmund Von Kaenel
Expert Steeple Jack

I WANT to tell the boys about the Von Kaenel loop system for climbing poles or stacks, or anything else of fairly small diameter that has to be "clumb."

With two pairs of loops, you can easily work your way to the top of the highest flag staff; and there is no danger of falling or slipping down.

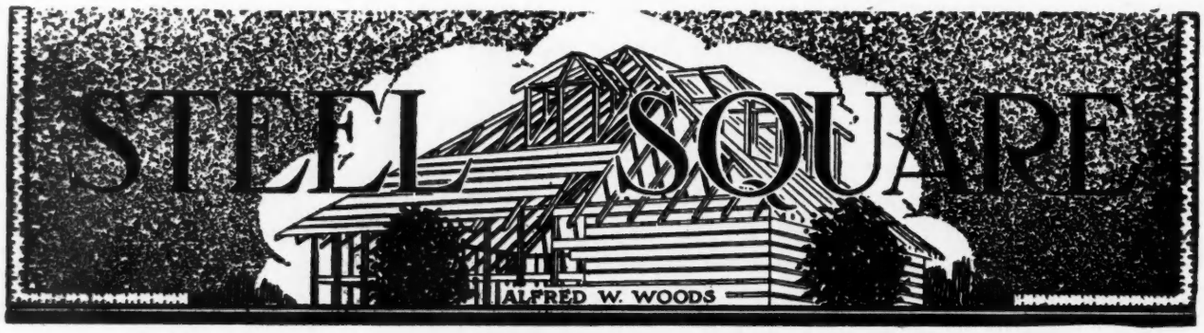
I simply take a piece of inch rope and splice a loop in each end, as shown in the sketch. Make these loops of a size depending on the size of object to be scaled. If you can't splice them, tie them solidly by wrapping.

My system requires two sets of these rope loops, one to stand in, and the other to sit in. The sitting loop, of course, has to be larger than the others.

Two of These are the Entire Outfit.

Look at the flag photo and you will see how the loops are put around the pole. The climber pushes up one set of lops while he rests his weight on the other, and so goes up.

It's safer and quicker and cheaper than scaffolding. Try it next time.



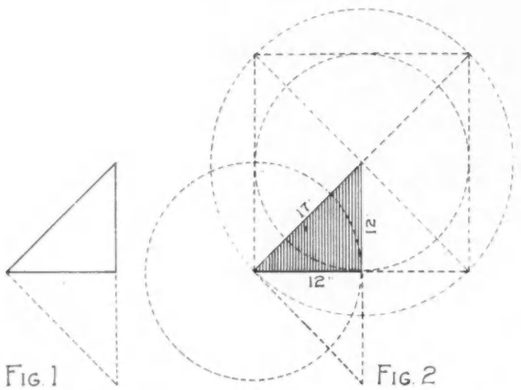
Triangles

HOW THEY MAY BE EMPLOYED IN SOLVING ROOF FRAMING BY THE AID OF THE STEEL SQUARE

By A. W. Woods

WE are going to take for our subject this month triangles and the part they play in solving, by the aid of the steel square, seemingly difficult problems in the art of framing. Every carpenter, and we might include everybody else who has had occasion to use the steel square in any of the uses to which it may be applied, has heard that old saying,—that no one is able to solve the depths of its calculating powers hidden within its ridged make-up with only the standard measurement stamped on its face. But the student does not have to go very far in the realm of mathematics to learn that all angles are solvable by reducing same to right angle triangles. The steel square furnishes the right angle corner and the triangle is completed by a line connecting the two sides of the right angle, which are as tangents to a circle.

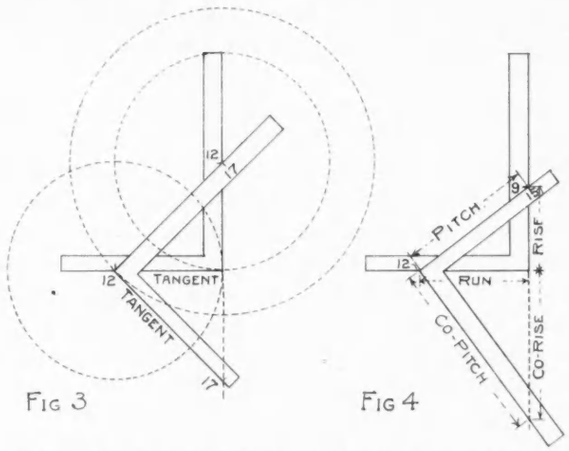
The steel square, then, is simply an aid in solving



The Angles and the Part They Occupy in the Plan

a problem based on the divisions of the circle from which the angle emanates. Therefore, the framing of a roof has its beginning in the circle. It takes on the form of polygons. The equilateral triangle being the first, contains within itself the proportions to form all other polygons and all other angles required in the framing of the roof. In short, it is the beginning and the end; it takes on the beginning as it takes on its first shape and the end where it ceases to have shape.

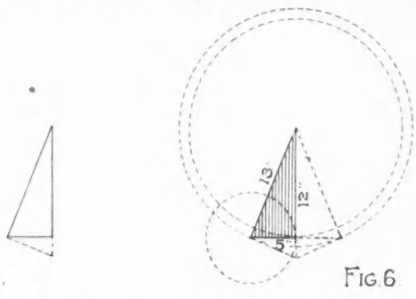
In Fig. 1 is shown the triangle for the square



The Angles Formed by the Aid of the Steel Square for the plan and Pitches.

cornered building; the angle formed by the solid lines represents the plan, while the angle formed by the dotted lines on two sides represent the length of the tangents which are used in determining the side cuts of the rafters. It will be noticed that these angles are exactly the same, and the question naturally arises,—why do we show two angles? The answer is, because the angle that forms the plan for the square is a 45 degree triangle, and for that reason its compliment is of like degree angle, and to carry out the general rule that applies to any other than the square corner, it is necessary that this formula must be thoroughly understood.

Passing on to the second figure, is shown the position of the angle in the roof plan. Of course, it is not necessary that the sides of the building be of equal length; but this is the angle to use for the square



The Angle for the Plan for the Octagon Corner 16

corner, as shown by the shaded part, regardless of the size of the roof and represents the full scale to one foot run of the common rafter.

In Fig. 3 is shown the application of the steel square to form the angle, and in connection with same are shown the tangents and what determines them.

So far, we have only dealt with the angles that form the plan and are reckoned as being on a level surface. We are now ready to take up the angles dealing with the pitches.

In Fig. 4 are shown the formation of these angles in connection with the steel square, with their respective parts designated. In this, the angles are shown for the 3/8-pitch, or 9 inch rise to the foot run. By letting the heel of the lower square rest at 12 on the tongue of the upper, as shown, it will readily be seen that any angle can be delineated by swinging the blade up or down, thus covering the whole field of angles.

It is not our purpose in this article to illustrate in detail what figures to use in obtaining the cuts, but more to show what determines them, and in this we have shown only what is used almost exclusively to all others, but the rule applies to any other angle the building may have.

In Figs. 4 and 5 are shown the angles for the octagon corner; and what is said of Figs. 1 and 2 answers equally as well as for these figures.

Mr. John Simpson, a well known legal authority, has been engaged to set forth in plain English certain important points of law that concern Builders. He will also through this department answer legal questions for Our Readers.—Editor.

Independent Contractors—Liability for Their Acts

An "independent contractor" is one who, exercising an independent employment, contracts to do a piece of work according to his own methods and without being subject to control of his employer, except as to results of work. The most important indication of an independent contractor is his right to control the details of the work. If that right is retained by his employer, whether it is exercised by him or not, the relation is usually that of master and servant or principal and agent, and not of employer and independent contractor.

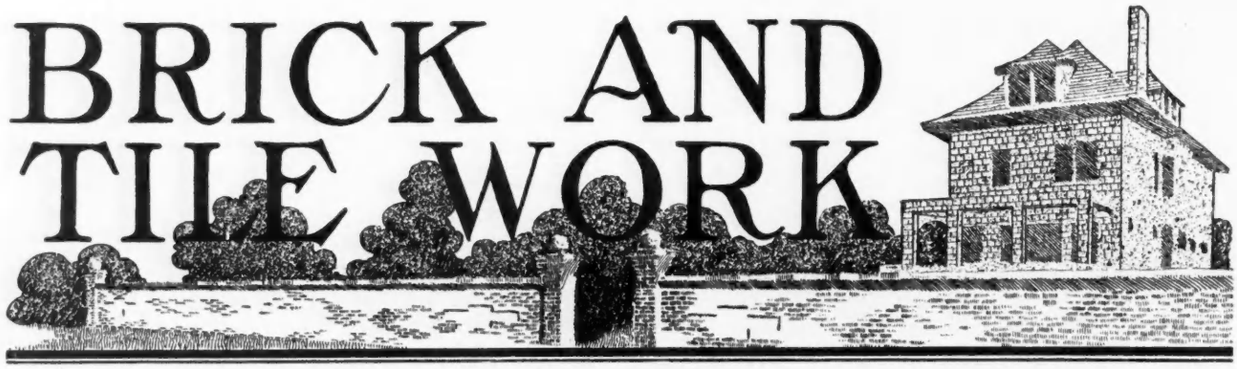
The employer of an independent contractor is not liable for the negligence of the independent contractor as such, nor is he liable for the negligence of such independent contractor's servants.

The following is an example of the application of these principles, taken from a recent decision. A cabinet maker had a contract to construct and install eight storm windows in a restaurant. He manufactured the window frames and sublet to one Munname the work of installing them, and to David Shuldiner, Inc., the work of putting in the glass. In putting in the frames Munname used a scaffold, which was placed upon the sidewalk. While two of Shuldiner's men were attempting to move it, it fell over and struck a passerby, who sued the general contractor, the cabinet maker. Assuming that the men were negligent, it was held that the defendant was not liable. Munname and Shuldiner, Inc., were both independent contractors. Their employees were not hired by the defendant and were in no way subject to his direction or under his control. When the work was sublet, the defendant did not specify how it was to be performed, nor did he reserve to himself the right to interfere in any way in its prosecution. There is an exception to the rule that a general contractor is not liable for the negligence of independent contractors to whom he has sublet work, to the effect that a person who makes a contract necessarily involving the doing of some act inherently dangerous, is bound to see that the act is performed in a proper way. But the installation of the frames and glass was not an act inherently dangerous. It could have been performed with safety. Judgment for the plaintiff was therefore reversed. Phillips v. Roth, N. Y. App. Div. 145 N. Y. Supp. 745.

Subcontractors Defined

A subcontractor may be briefly described as "one who has entered into a contract, express or implied, for the performance of an act, with a person who has already contracted for its performance." A., having entered into a contract with the owner of land to erect a house thereon, makes a contract with B., by which B. agrees to do the excavation and mason work. B. sublets to C. the mason work, and C. lets out to D. that part of the mason work which relates to bricks, and to E. that part which relates to stone, each contractor agreeing to furnish the labor and materials necessary for the performance of his contract. A. is the original contractor. who alone is responsible to the owner for the due performance of the original contract, and to whom the owner is responsible for the payment of the original contract price. B. is a subcontractor, and is alone responsible to A. for the performance of his contract with him. But B. also sustains another relation to the work. As between himself and C. he is an original contractor and C. is personally responsible to him alone for the performance of his (C.'s) contract. As it is with B., so it is with C., D., and E. Each is a subcontractor, but there are differences of degree with respect to their remoteness from the parent contract. According to some authorities, B. would be called a subcontractor of the first degree, C. of the second degree, and D. an E. of the third degree.

BRICK AND TILE WORK



Iron Anchors Used in Walls of Masonry

By John S. Edmund

THROUGH the advancing favor of brick and hollow tile as a building material for the exterior and partition walls of houses, garages, stables and such like buildings, more iron work is used in connection with the construction of same, than with the walls of wood.

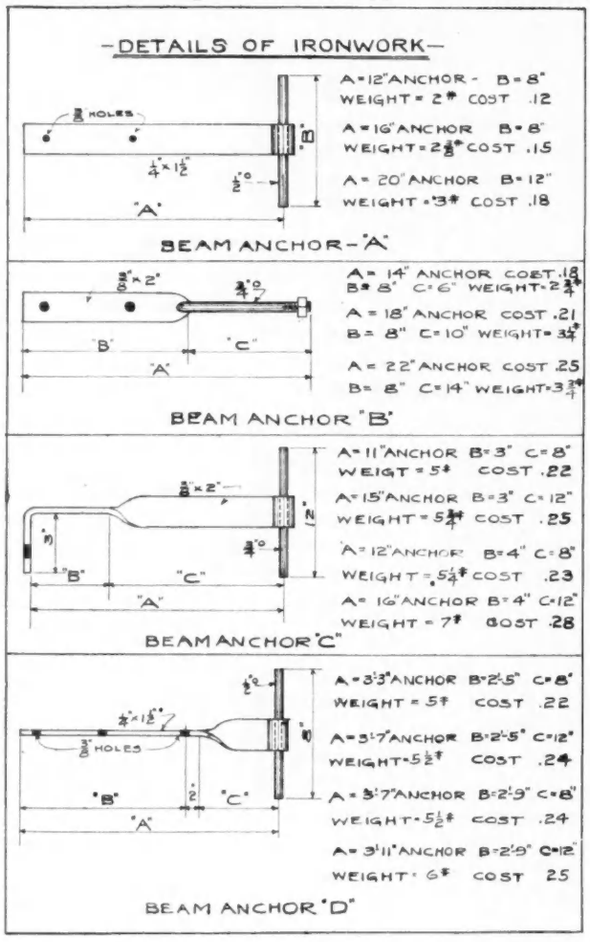
The main ironwork, other than the iron lintels, which is used with buildings of brick and hollow tile walls, beams and floors of wood, are the anchors.

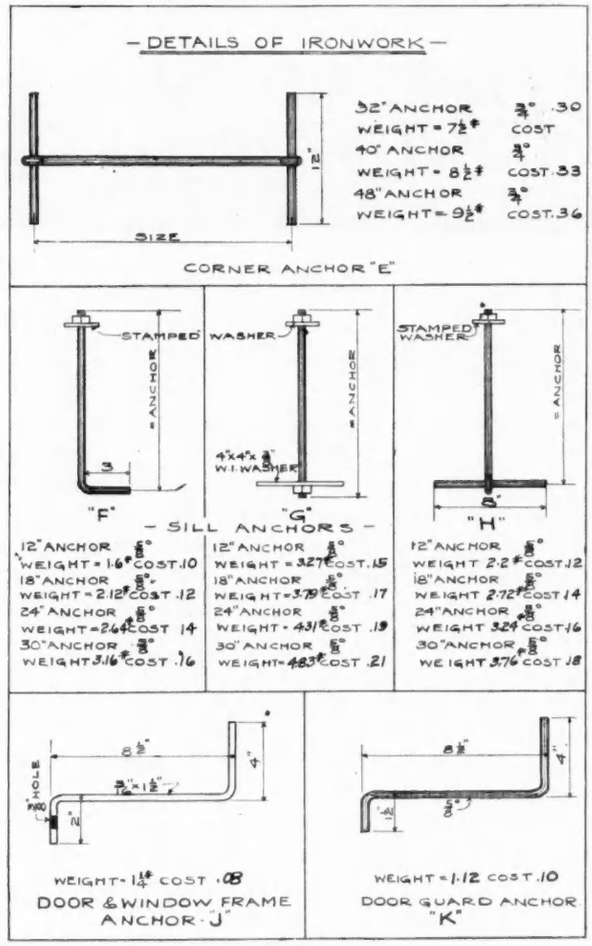
In a structure, with walls of masonry, that is properly constructed, there are no less than four or five different styles of anchors used in the construction—not including the galvanized or copper metal wall-ties, of which the majority are patented.

The illustrations as given herewith are various styles of beam anchors, corners anchors, sill anchors, door and window frame anchors, and door guard or wheel guard anchors.

The data as given in connection with each anchor is as follows: The size or length of the standard anchors used with various thicknesses of walls, beams, etc., the weight of the different sizes, and the cost of each.

Anchors "A," "B," "C" and "D" are various styles of beam anchors. Detail "A" is the most common





Iron Work Frequently Required in Connection with Brick Construction.

anchor used. It is spiked to the side of beams averaging 2 or 3 inches in thickness which run at right angles to the wall. They are sometimes allowed to project through the wall where the architectural finish of the building is not taken into consideration. They are spaced about 6 feet on centers. Detail "B" is a type of anchor used in heavy construction, such as for the longitudinal girders. They are secured to the beam with ½-inch lag screws and allowed to project through the wall, using a star or other ornamental washer on the bolt end. This style is used with every beam or girder. Detail "C" fits over the top of the beam and is secured with a lag screw or heavy spike to the side. This is used with the wall beams that run parallel with the wall. Detail "D" is used in lighter construction with the beams that run parallel with the wall, and is spiked to the top of the first three beams. These anchors are spaced every 6 feet centers.

Anchor "E" is used at the intersection of two walls where one wall is run up without waiting for the other. This usually occurs with the side and front wall, where the side wall is of common brick and the front wall of face brick or some finished stone construction. The reason this is done is to keep from damaging the front wall; as all the material is generally hoisted up at this point.

Anchors "F," "G" and "H" are types of sill anchors. Style "F" is used the most of these three, as it works equally well with concrete or brick.

Anchor "J" is a window or door frame anchor. These anchors are used in every building of first class construction. They are generally spaced three to a side for the ordinary heights of window and door frames.

Anchor "K" is used for anchoring door guards and wheel guards at corners, flat surfaces and door jambs to the brickwork on stables, garages and gates when the piers are of masonry, etc.

A Problem in Office Building Design—

THREE WINDOWS IN THE BAY OR TWO?

RALPH S. HAWLEY, of the Business Properties Company, Seattle, makes a very clear and helpful analysis of this faundamental proposition in office building arrangement in a recent issue of *Building Management.*

Window arrangement in existing office buildings has proven such a source of difficulty to the manager in his endeavor to subdivide and revise office space to satisfy the requirements of tenants, that it seems appropriate, he writes, if we are to realize the highest net income from a new building, to consider the fundamentals which determine window adaptation for any given office floor layout.

As I conceive this problem, in order to produce the highest dollar efficiency, it is necessary to determine the minimum space acceptable to the several groups of tenants which will use the building, and then to so design the window layout as to make it possible to supply at will those tenant groups with their office needs.

After having established the minimum acceptable offices, and having defined the proper window arrangement to make possible a multiplication at will of acceptable units, it becomes easy to provide any tenant with as much or as little space as he may desire adapted to his peculiar use.

Three Kinds of Tenants

There are three inclusive groups of tenants which any building has to serve, namely: The One-man, the Two-man, the Poly-man, and under these three headings may be classed any usual tenancy, be it individual, partnership, firm or corporation.

A long experience has shown the normal space required by the "One-man" to be a room 12 feet wide by 18 feet deep. Such an office will house, without crowding, a desk, stenographer's desk, chairs, files and other usual furniture.

Similarly, the normal "Two-man" tenancy requires a room 14½ feet wide by 18 feet deep. This space does for the "Two-man" what 12 feet by 18 feet does for the "One-man"; it allows comfortable accommodation for the average number of pieces of furniture.

Whenever private offices are demanded in addition to general office room, the minimum allotment acceptable to one man is an area 7 feet by 9 feet.

Assume, now, the standard units to be 12 feet by 18 feet for normal "One-man"; 14½ feet by 18 feet for normal ""Two-man"; and 7 feet by 9 feet for private one-man use. This 7 by 9 room we will call the "One-man minimum."

Then, by assembling the established standard office units in either extensive open area or numerous small rooms at will, it is easy to office the "Poly-man" with any reasonable desired combination of facilities.

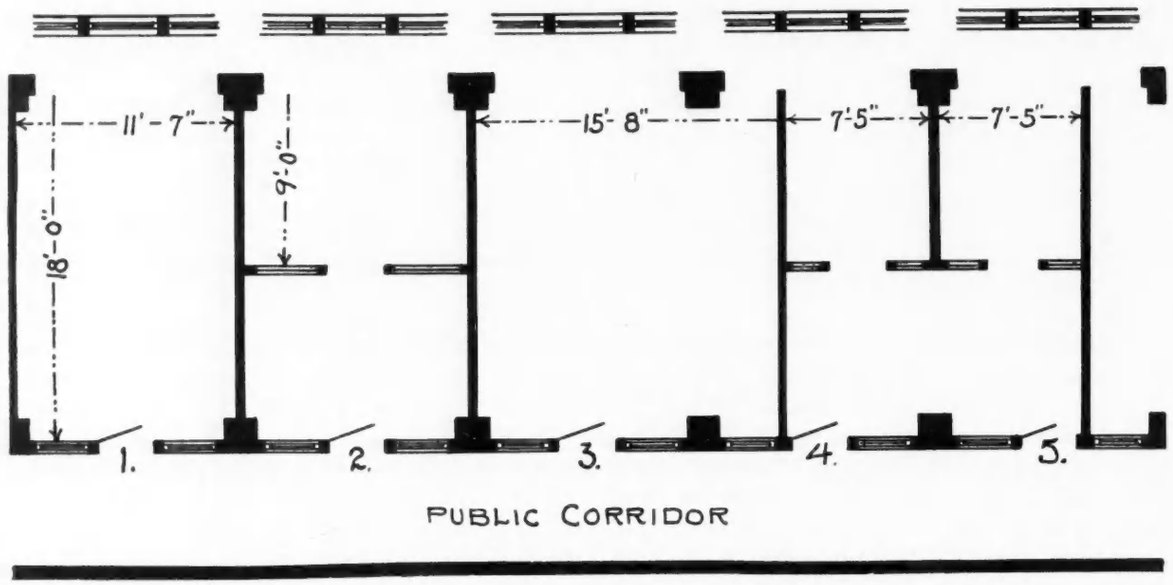
Establishing Normal Minimum Standards

The difficulty in arranging offices arises from the effort to satisfy the want of small office divisions. The larger areas can always be made available. Therefore, for our purposes, it is of primal importance to supply the normal minimum standards.

In the above standards, "One-man," "Two-man" and "Poly-man" are normally space accommodated.

The next step is to adapt the structural steel plan and window arrangement to conform to these divisions As 12 feet of outer wall face is the standard "One-man" unit, it seems logical that 12 feet should become the width of bay.

Accepting this as proper width, the number of windows per bay must be evolved. To do this graphically, I have prepared the accompanying drawing. This



A Typical Office Building Lay-out, With a Public Corridor Along the Inside and the Bank of Offices Eighteen Feet Through to the Outside Windows. (In this Drawing the Windows Are Set Forward Out of Their True Position.)

drawing shows five standard bays 12 feet on centers, forming five normal "One-man" units. Room (1) is without division of any kind. Room (2) is supplied with a cross partition to provide a private room with ante-room on hall side. Room (3) has added to it a portion of room (4) for the purpose of making a normal "Two-man" office. This office is somewhat wider than called for, but still not enough wider to greatly affect the rental efficiency. The remaining portion of room (4) is joined to an equal portion of room (5). That which is left over of (5) will be assumed to be attached to the next room. A "T" partition divides room (4) into two small rooms which are approximately dimensioned to fit our "One-man minimum," which is 7 feet by 9 feet.

In this drawing, the windows have been detached from their proper place and indicated outside the bay in order to show clearly the desired office divisions without relation to windows.

Why the Two-Window Scheme is Not Advisable

It is evident that two, three, or even four windows will satisfactorily light rooms (1), (2) and (3), provided no longitudinal partitions are used. However, when it is necessary to further divide the space as shown in room (4) for example, window arrangement becomes an obstacle instead of an aid to the rearrangement.

Two windows in the 12-foot bay will not permit of the varied divisions as shown on the drawing. In the first place, a 12-foot room, divided by a "T" partition, leaves private rooms too narrow for acceptable use. In the second place, an office adequate for the "Two-man" tenancy can not be supplied without using one full 12-foot bay and one-half of the next 12-foot bay, thus making a room about 18 feet wide, which is much too wide for profitable renting and efficient use.

If three windows are set in these 12-foot bays, the office divisions indicated on the drawing, and which are approximately standard, may be readily provided. In fact, all the varied requirements of the several groups of tenancies can be obtained because the normal minimums have been provided.

It is unnecessary to indicate how room (3) can be divided, nor how three or four individuals may be space-accommodoted by different partition arrangements.

That the window arrangement here outlined is the most efficient one for a 12-foot bay, does not indicate nor prove the superiority of three windows for bays of all widths. Bays may vary greatly in width, and each different width requires different window treatment.

Of all possible bays, dollar efficiency rigidly limits the width within the range of 12 feet as a minimum and 14½ feet as a maximum. Within these limits, three windows give the most flexible structure, and consequently the most efficient. Again, within these limits, the lower limit, 12 feet, equipped with three windows is the bay most adaptable to subdivision, and the one which will produce the highest net income results.

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Uses Bees Wax and Tallow

To the Editor: Lemoyne, Pa.

In the April issue of the AMERICAN CARPENTER AND BUILDER, Mr. J. C. Werner, of Berlin, Pa., suggests bees wax in a hammer handle, into which points of nails are to be stuck for nailing hardwood. We will agree with Mr. Werner that bees wax is the greatest substance known for nails in nailing hardwood, but it is a little too solid, especially in winter time. If one-fourth, or not more than one-third, tallow is melted with the wax it becomes much softer and easier to use. F. E. KENNEDY.

New School at North Berwyn, Ill.

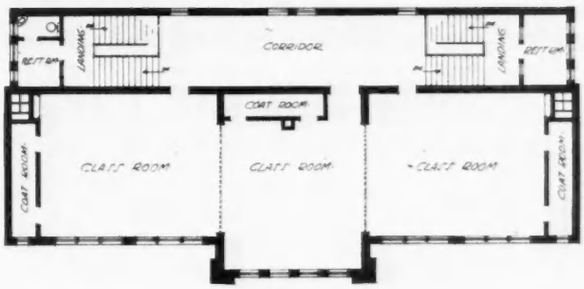
PERSPECTIVE AND BLACK AND WHITE FLOOR PLANS OF ATTRACTIVE MODERN SCHOOL BUILDING RECENTLY COMPLETED IN ONE OF THE WESTERN CHICAGO SUBURBS.

THE Karel Havlicek School at Elmwood and Fifteenth Streets, North Berwyn, Ill., has recently been completed. It is a fine example of modern schoolhouse designing. The exterior appearance is trim and neat, a contrasty combination of dark brick work and white stone trim being employed.

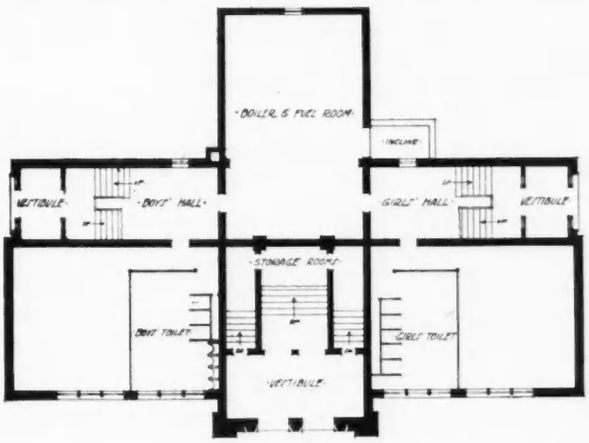
In its interior arrangement, this building provides five standard class rooms on the first and second floors, besides two large, well-lighted rooms in the basement, which can be used for manual training or recreation rooms.

This building is arranged so that an addition at the rear can be built on at any time, which will duplicate the front half.

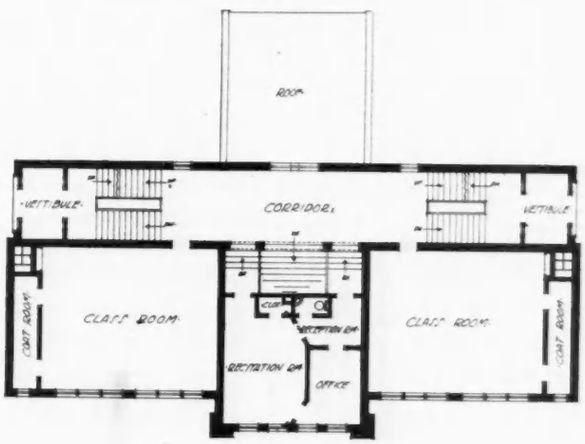
This is one of the many modern school buildings designed by Architect G. W. Ashby, of Chicago, that have been erected during the past few years in Chicago's western suburbs.



Second Floor Plan.

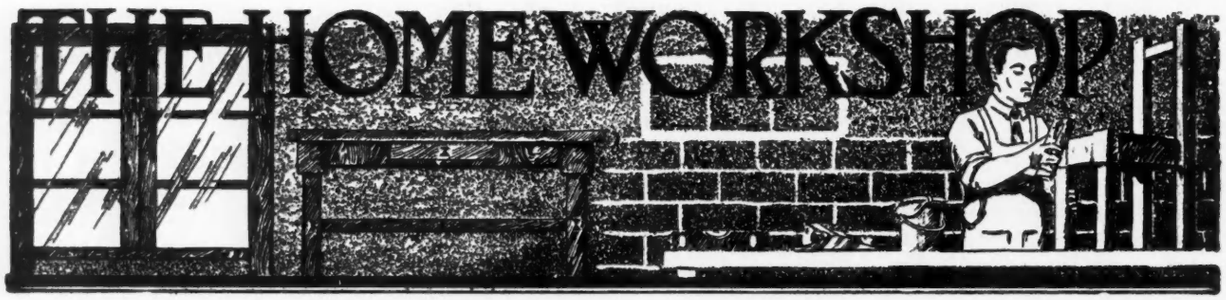


Basement Floor Plan.



First Floor Plan.

The Karel Havlicek School, Recently Built at North Berwyn, Ill., G. W. Ashby of Chicago, Architect.



Design for Large Hand Carved Seat

A PROJECT TO TEST THE METAL AND SPUR ON THE INTEREST OF THE MOST SKILLFUL

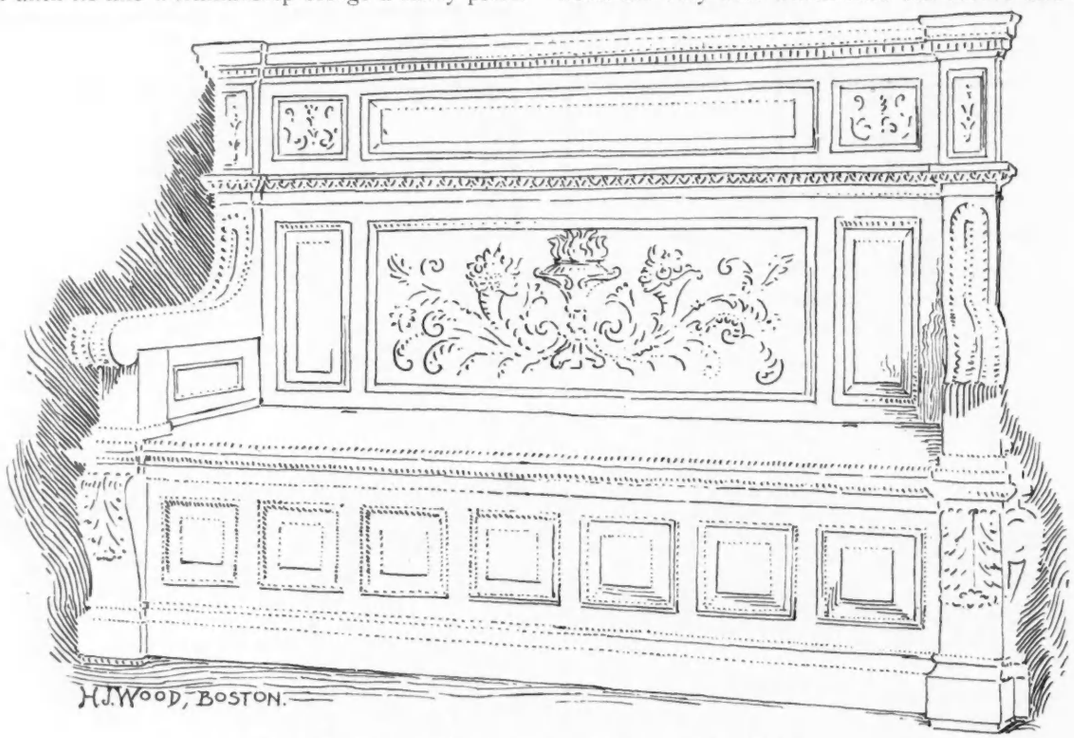
By C. Bryant Schaefer

MOST every good craftsman cultivates a taste for some style of work in which he takes special pleasure. Some fine article is often planned for construction in spare moments. In constantly submitting one's work to the approval of others, whether employers or customers, it is but natural to desire to test one's own judgment and choice in similar matters. Sometimes such a shop-made piece of work is utlized for display purposes or more often it is kept until its fine workmanship brings a fancy price.

Our diagram shows its construction—but of course, the artisan would want to decide the details of that for himself.

The large carved panel in the back is in good proportion with the narrow panel above, but if a back with one group of panels is preferred then the bottom stile can be a great deal wider.

Herein will be found a test of skill in matching the grain of the wood at joints, in making the glued up work the very best which care can secure and having



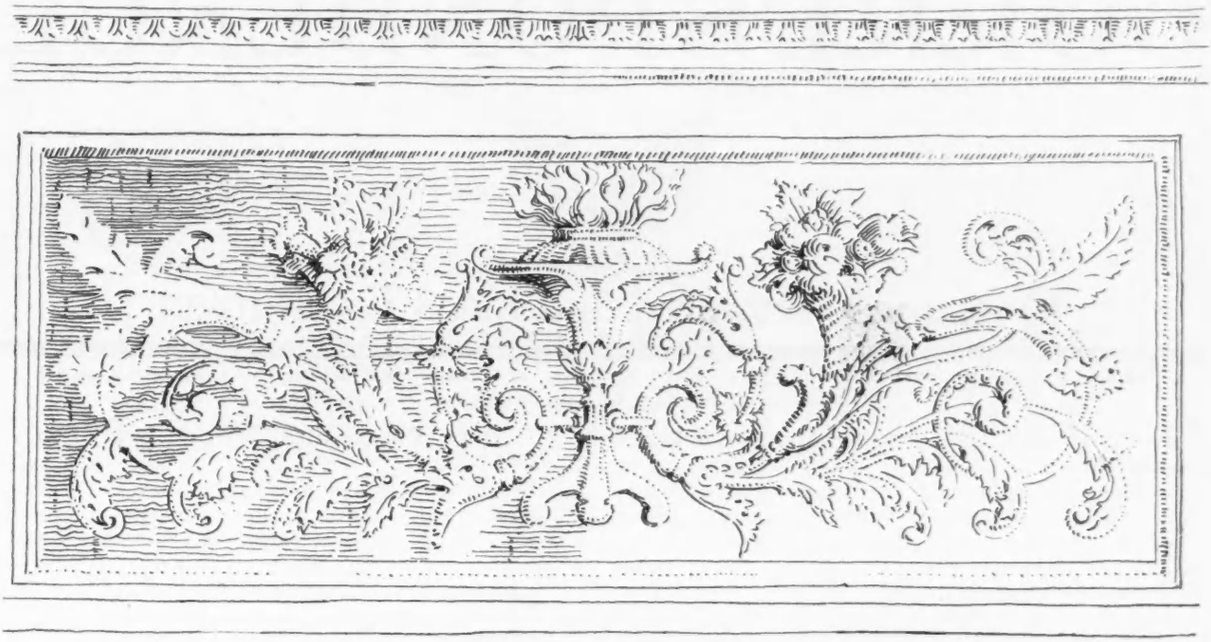
Pen and Ink Sketch of Beautiful and Unusual Hall Seat.

A piece of furniture is a good article to make in this way. It is portable and easily utilized. There is no limit to the refinement and gracefulness with which its different parts may be finished.

Our illustration shows an elegant settee in Renaissance style. Something similar to this would be appreciated by one who has been unable to panel his hallway in wood. It would make an inviting place to lounge by an open fireside.

select grain in the panel centers. The principal parts should, of course, be dowelled together.

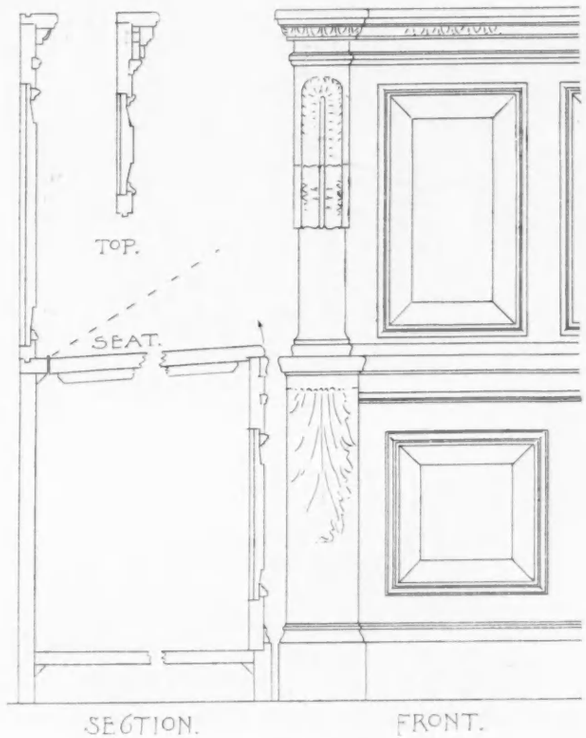
The mouldings should be more suitable for furniture than most architectural examples allow. Those at the front part of the seat especially should be well rounded at their top, also those across the middle of the back. The corners of the arm rests should also be softened. Some might like to set the front drop, below the nosing of the seat, back a little. In some styles the seat



Detail of Carved Panel for Seat Back.

itself is tilted upward towards the front, as shown in the section.

A detail is given of the carving on the main panel. It is a composition of classic forms, excellent in execution and finish. The leaves are graceful, flowing and natural. There is none of that wooden stiffness which is found in poor work. The tool marks do not have to be imperceptible to secure this flexibility of appearance.



Details Showing Construction.

The sculptured design is not without its significance, which is an additional attraction to many persons. The central feature is an altar upon which burns the flame of desire. From this flows ever-lasting fruition and plenty, represented by the familiar cornicopias at each side. These messages to future ages which artists of the past incorporated in their work make their productions enduring and worthy the painstaking labor bestowed upon them.

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Curious Building Laws of Ancient Times

(Continued from page 66.)

We learn that in front of every home the owner was required to erect a wooden portico to protect the passers-by from the rain and sun.

It was a magnificent city that Nero began, but after his death in the year 68 A. D. his ambitious plans were ignored or forgotten; the public squares were sold to speculators and high tenements along narrow streets again became the order.

In later times we learn that Venice limited the height of buildings to 70 feet, Florence to 100 feet, Paris to 60 feet, and Toledo to 75 feet.

Rheims had a curious law forbidding any structure to be higher than the eaves of the Cathedral, and it was the duty of the sexton to look daily from the port holes of this Cathedral when a building was being constructed to see that it did not rise higher than the level of his eyes.

Practically all ancient and mediaeval building laws dealt with residential structures, since the problems of office and industrial buildings were reserved for this age to deal with.

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.

Keeps Busy with Power Woodworker

To the Editor: Pekin, N. D.

It is quite a while since I wrote you, although I have been receiving your most valuable paper regularly and I read everything. My wife says I don't read anything but advertisements. Well, I must admit that I do read them, too, and every reader of this paper ought to. If I find a new one, then I write and find out what it is.

Business in the building line up here is not very rushing so far this season; but I have managed to keep going, making up material for jobs—such as store fronts, window and door frames, screen windows and doors, odd sash and all that kind of stuff. I am not stuck when I have my "Crescent No. 58" woodworker to fall back on. I am enclosing herewith a photo of the interior of my shop, which showed in the January number of your paper. You had the figures 30 by 60 feet; it should have been 50 by 60 feet.

O. S. Houge, Contractor and Builder.

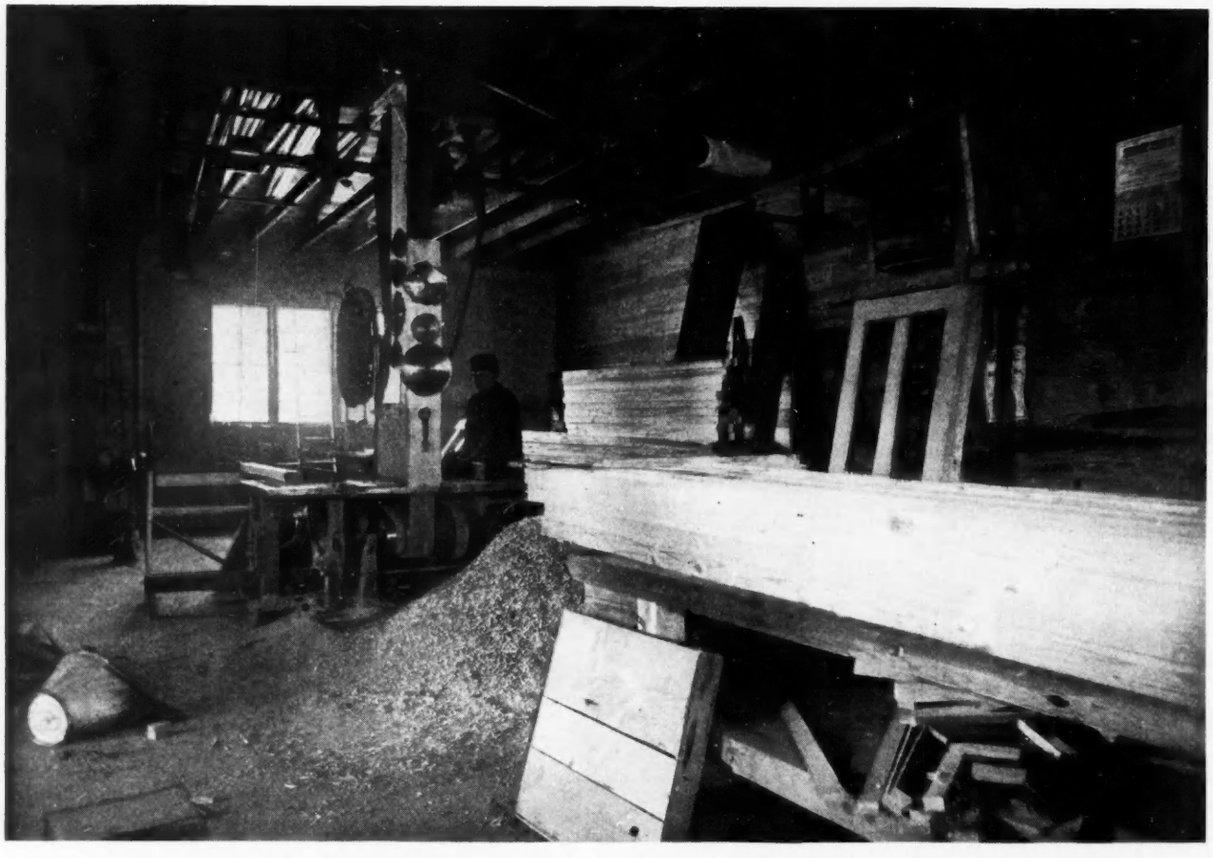
To Patch Fine Woodwork

To the Editor: Columbus, Ohio.

It frequently happens that a piece of furniture or other woodwork becomes marred, and it is necessary to repair it with a patch. This, if not neatly done, will always show the repaired spot. I have seen many a good piece of work ruined by setting in a square or diamond shaped block that would not match the wood of the original piece. By using this method, the glue joints invariably show.

A better way to do this, and one that is generally used in the car shops and piano factories, is to use a sharp outside gauge and remove a thin amount of wood, just a little larger than the marred portion, and not quite as deep as the veneer to be used.

If the gouged out portion is left elliptical, a better and neater job can be done. Be sure to leave the edges sharp. In preparing the veneer, select a piece that matches the original wood, as to color and grain. Cut the veneer to the con-



Interior of Businesslike Wood Working Shop of O. S. Houge, Contractor and Builder, Pekin, N. D.

tour of, and just a little larger than the gouged out portion, leaving the under side convex and smooth.

Make a caul of either flexible leather or felt, and on top of this place a block, preferably of soft wood, and it is ready for the glue and clamps. If the glue is too dark, it may be whitened with a little flake white, which does not lessen its adhesive power.

After the glue is thoroughly dry, clean the work up in the usual manner.

In patching oak, if a sharp pointed instrument is used to extend the pores from one piece into the other, it will make a better looking job.

Occasionally a piece of burl veneer may be used to good effect when the patch is not too large and the grain of the wood will permit.

J. D. DeBra,
Instructor in Carpentry and Cabinetwork,
Columbus Trade School.

✣

A Collapsible Work Bench

To the Editor: White Hall, Ill.

I am sending you a sketch of a six-piece take-down-and-put-together-in-one-minute work bench, one that can be taken up and down stairs or any place where a pair of trestles can be taken.

This bench has a seven-foot top made of yellow pine flooring, screwed to three cross pieces, and has a six-inch base, also a patent vise. The old adage, "poverty is the mother of invention," is how an old bedstead came into use some eight years ago, as the frame work of the bench was once a bedstead. Therefore I believe this is the only bench without a rival.

It is simple to make, as the running gears are already made, except to narrow up for width and bore holes for ½-inch pins in top of posts.

The tool box, or chest, is placed in position before the top is set in place.

I find this a very handy rig to take onto the job; and I am sure others could use it to advantage.

Jesse Harrison.

Saws Wood with Motorcycle

Little Rapids, Wis.

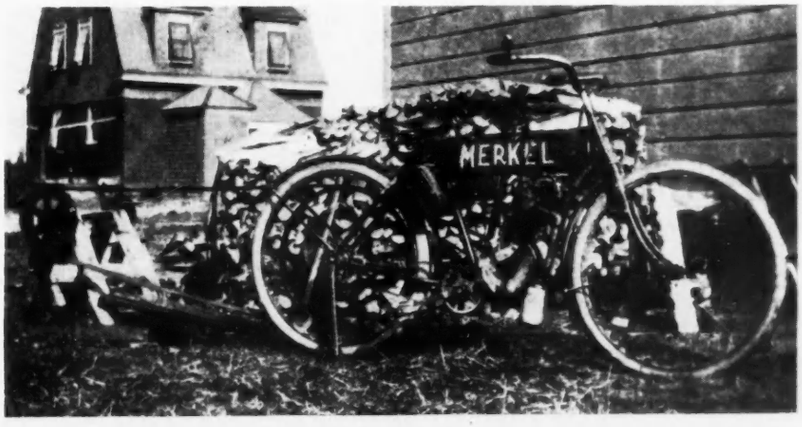
To the Editor:

I make my motorcycle "work its way" by setting it to work at doing certain odd (but heavy) jobs when it is not in use carrying me around the country. Its little engine does the work much easier than I could do it. As a good many of the carpenters and builders are now riding motorcycles, you may want to show them this photograph of my machine hitched up to a buzz saw for sawing up cord wood.

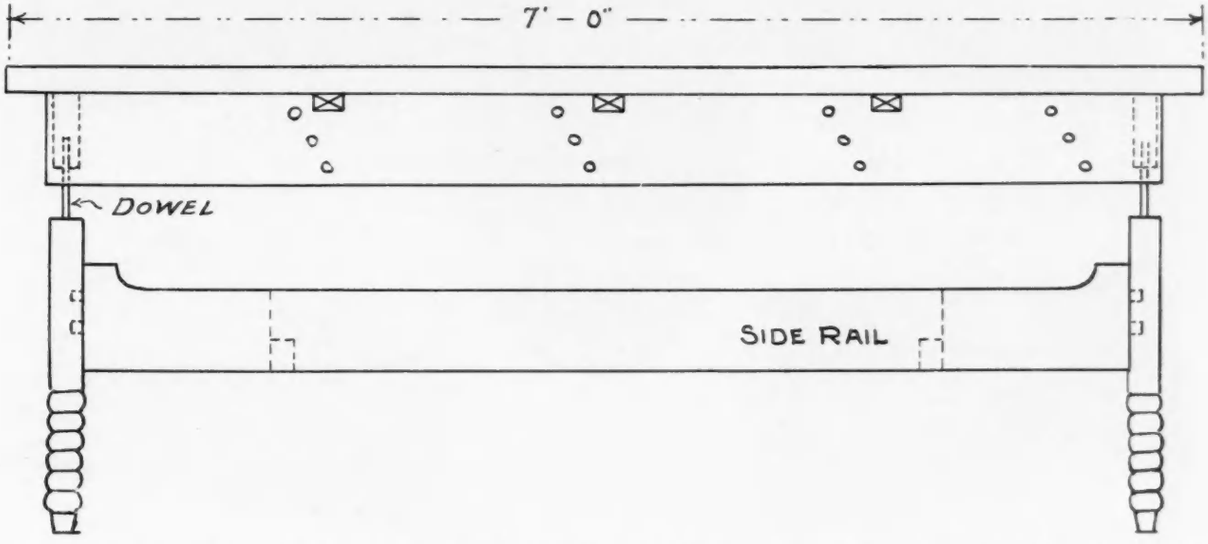
This is a 1907 model Merkle, the later models they are calling "Flying Merkel," made by the Miami Cycle & Mfg. Co. I have given this machine pretty hard service in the last seven years, but it is still in the ring. In my work as lockmaster for the Government at Rock River, Wis., I have had a lot of riding to do. This buzzsaw work is only one of the special stunts I have been setting for my machine. Besides sawing our wood, it turns the washing machine and gives a good account of itself every time.

The saw rig that I have fixed up is only a very simple one. Probably most carpenters would make one a good deal more elaborate than this, so that they could handle a variety of work on it. It's an idea that's worth trying.

L. A. Clark.



Motorcycle Hitched up to Simple Buzzsaw Rig; an Idea that a Good Many Motorcyclists Could Use in Some Form or Other.



Side Elevation of Collapsible Work Bench. This One was Made Out of An Old Bedstead. Any Stout Frame Work Would Do as Well.

About Level Glasses

To the Editor: Lemoyne, Pa.

Concerning Mr. B. S. Wickware's comment on Mr. Hick's article pertaining to the accuracy of a quick-acting level, I emphatically say Mr. Wickware is wrong—as knowledge of the mechanism of a level and the experience in using one has taught me. The shape of a level glass is an arc of a circle, and the straighter the glass the more sensitive and quicker-acting is your level. Take for example—a 24-inch level—move one end up or down 1/100 of an inch and a quick-acting level will readily respond, and the bubble will move a distance that is readily seen. Whereas, moving the slow-acting level 1/100 of an inch up or down, the movement of the bubble is so slow and the change in its position is so slight that it can scarcely be detected. Take, for instance, a surveyor's instrument, where accuracy is very essential, they are very sensitive and quick-acting.

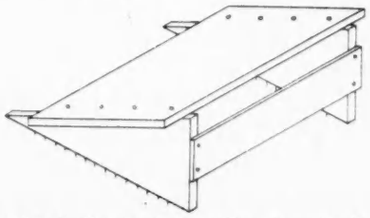
Mr. Wickware further states that the glass is warped in cooling, which makes it imperfect, and that the concave side of the glass is up, which causes it to take the center quicker. I will say here that nobody with a wise head would speak in terms like that, as it would be an utter impossibility for a person to make a bubble take a center with the concave side of the glass up. F. E. KENNEDY.

✣

A Shingling Jack

To the Editor: San Rafael, Cal.

Brother C. F. Maimbourg, in the September number, tells of his shingling seat. Now I think that I have him "beaten to a frazzle." Please don't get mad, Mr. Maimbourg, because you know every man is entitled to a good opinion of "hisself." But seriously; the sketch makes it very plain. I usually use two 10-inch shingles for the top. A couple of about 4-inch width for the "face" piece. For the sides you will want good solid inch stuff. We always use Oregon pine out here. And be sure to note the way the grain runs! This is important. After it is nailed together like the sketch, turn it over and drive shingle nails into the bottom edge, as shown by the dotted lines. Leave them so the "top" edge of the head just touches the wood. Now when you flop it and place it on the roof, you will find that the Ex-President



An Easily Made Shingler's Seat That Does the Business.

himself, with all his weight, could not make it slip. And remember this; the harder you sit down on it, the tighter it will stick to the roof.

You will find it light, strong, *very* convenient, easy and quick to make, and, in fact, the most generally satisfactory seat that you ever used, all things considered. I have used this style seat for nearly ten years and I would not give it up for any other—except, of course, on a roof more than one-half pitch. But for quarter and third pitch it "can't be beat." H. J. BLACKLIDGE.

✣

Northwestern Bungalow Building

To the Editor: Sedro Woolly, Wash.

Here are photos of some cottages I have built. I have put up three of them in three months; cost about $1,500.00; size 28 by 44 feet, 9 feet ceilings. They rent for from $18.00 to $20.00 per month. They rent faster than they can be put up. Each has three bed rooms, bath, kitchen, dining room, and large living room—all modern and plastered; hard finish. G. L. RUNDQUIST.

Simple Cottage with Bungalow Roof.

Hip Roof Covers Front Porch.

G. L. Rundquist, Bungalow Builder, Sedro Woolly, Wash.

Four Attractive Little Bungalows Built by G. L. Rundquist, That Cost About $1,500 Each.

Double Corn Crib and Granary at Atkinson, Ill. A Center Driveway Makes a Good Wagon Shed.

Illinois Corn Crib

To the Editor: Atkinson, Ill.

This picture shows the size and style of corn crib and granary built in this part of the country. The size is 30 by 32 feet, with a 14-foot driveway. It has cement foundation.

FRANK VAN BUILAERT.

✣

Store Front Details

To the Editor: New York City.

In accordance with request from "Awkward" I submit herewith sketches of three show window bases and trust they will answer his purpose.

Fig. 1 shows all wood construction, namely: the sill is of rabbeted 2 inch pine with glass bead on the outside and wood panel facing. This is the cheapest kind of construction and is used to a great extent around this section.

Fig. 2 shows the glass set in a patent glass copper moulding and a marble facing. With ornamental marble and well designed this makes a very effective show window. The copper moulding referred to has a ventilating attachment which can be closed to keep out the dust.

Fig. 3 shows the general construction of a show window in a fire-proof building. The exterior frame is ornamental cast iron and the glass moulding copper. Behind the iron grille there is provision made for a swinging sash to ventilate the cellar. The deck is of concrete or book tile, supported on light T-irons and wood floor laid on bevelled strips. The back can be brick or terra cotta blocks, as shown.

DAVID SCOTT.

✣

A Jasbury Hard-Luck Yarn

To the Editor:

Some years ago I worked as a woodturner in a factory on the West Side of New York City. I got the job through an ad. in the New York *World*. The morning I arrived at the shop, there were enough turners waiting outside to start a full-fledged turnverein society. Well, anyway, I pushed my way through and got the ear of the young foreman; being a young man myself, and American, same as he, I stood a better chance than some of my opponents. I began telling him about how many van loads of recommendations I had, etc. He told me they were counterfeit in New York; that the work was "IT."

I was started turning duster handles. The first day I made about 30 cents, and 10 hours, too, mind you. There were seven other unfortunates besides yours truly. The work was all piece work and the handles I was turning were known as Common Boston, 25 cents per gross. Boston Commons is a beautiful city park; I have been there and enjoyed it, but when they reverse the name and call it Common Bostons, that is about the finale. There were other grades, such as Boston Special. They were, I presume, after the N. Y., N. H. & H. R. R. R.; in fact, there is not much difference. Then there was the glass duster, feather duster and many other high-falutin names given these poverty-producing poisons in the shape of brush handles.

Anyway, I got so that I could make $1.75 per day if I worked from 7 A. M. until 9 P. M. The answer to our appeals for better prices, was: "If you don't like it, etc."—that stock stuff a boss pulls off to a disheartened jer. This is a sample of what happens to the woodworker in some of the much-heralded New York shops The concern, as well as making all kinds of brush and duster handles, made piano legs and panels, which employed some twenty carvers. They were paid as ridiculously low as the rest of us. The pro-

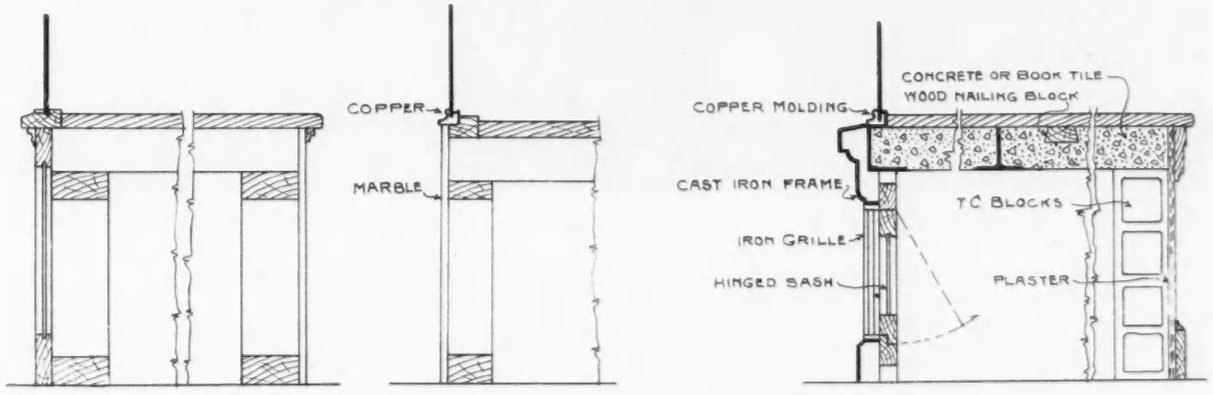


FIG. 1. FIG. 2. FIG. 3.

Cross Sections Through Store Front Bases, Showing Three Approved Types of Construction.

prietor was a tall, long-drawn-out, drink of water built man; one of those fellows who talks through his nose in order to save wear and tear to his store teeth; a real full-rigged, reinforced, tight-fisted Yankee. He made the philanthropic crack that any man could live on $1.50 per day. This man, like many others of his type found on this planet, are only living for the sake of the American bird, called the "Eagle."

Some of the peculiar, or rather new things I saw in that shop was the manner in which broom handles were sandpapered; they were thrown in a revolving cylinder, called a "Tumble Barrel," into which waste pieces of sandpaper were thrown. This contraption, when in motion, sounded like a Mexican revolution. The shop afforded a few automatic handle lathes, which were used on orders principally of hard woods, by the thousands.

I shall never forget one poor old, worn-out turner on the lathe next to mine, who made $5.10 one week. The prices were so ridiculously low, he could either take that or go out on the street and harvest a crop of snow balls, with the rest of the unemployed of which New York City always has a full complement of woodworkers. This shop had one good feature; one would not get tired of the bunch, because they were coming and going all the time.

The turner next lathe to me on the right, was a Texan; he and I consolidated and afterwards went to California. In various parts of the United States where I have hung up my hat, I have often heard New York lauded by some fellow who was dissatisfied, but believe me, Mr. Reader, New York City for a wood-turner, or machine man, is not the place it is painted, unless you are in some shop that is off the ordinary. I can describe some of the shops there, but will refrain, because I do not know the personnel of all the A. C. & B. readers; it might not sound good.

I have been in wood-working shops from Vermont to Mexico, from Long Island to Frisco. The mill or factory work of today is not the cinch it was fifteen years ago. Nowadays we have such a system of time clocks, time cards, material cards, mistake cards, etc., it is almost necessary for a wood-worker to employ a Burns detective and an expert accountant to keep his day's work straight, or rather it would seem as the manufacturing world has gone system daffy.

The winter I spent in New York was an exceptionally severe one, from a weather point of view, and a very threadbare one from a business one. I think I discovered mills that were never before seen by a white man; mills that were so short of work, the interior had the appearance of a vacuum. I followed a load of sawdust on a truck for eight blocks, trying to find out from the Hebrew driver where the *shop* was located, because I figured they must have had *"some"* work there, or either that the load represented the entire output of New York's mills.

I struck a job one morning; everything was in my favor, except I could not speak German. I tried to act like a Teuton; even waived my hands and stood parrot-toed, but I could not land.

The shop I worked in on 24th Street, New York, was to a young man learning the woodworking business, as good as a trip to a World's Fair; the walls were covered with carving designs of piano scrolls of years' standing. They were kept, I suppose, for inspiration, as I do a little carving now and then, it appealed to me as very interesting and instructive. One can pick up many good pointers by knocking around from shop to shop, because no one place, no matter how up-to-date, has all the good points. But the wage end of it was so hungry, I could not put up with it for any length of time, without getting myself a mirror so that I could see myself starving to death.

WM. C. JASBURY.

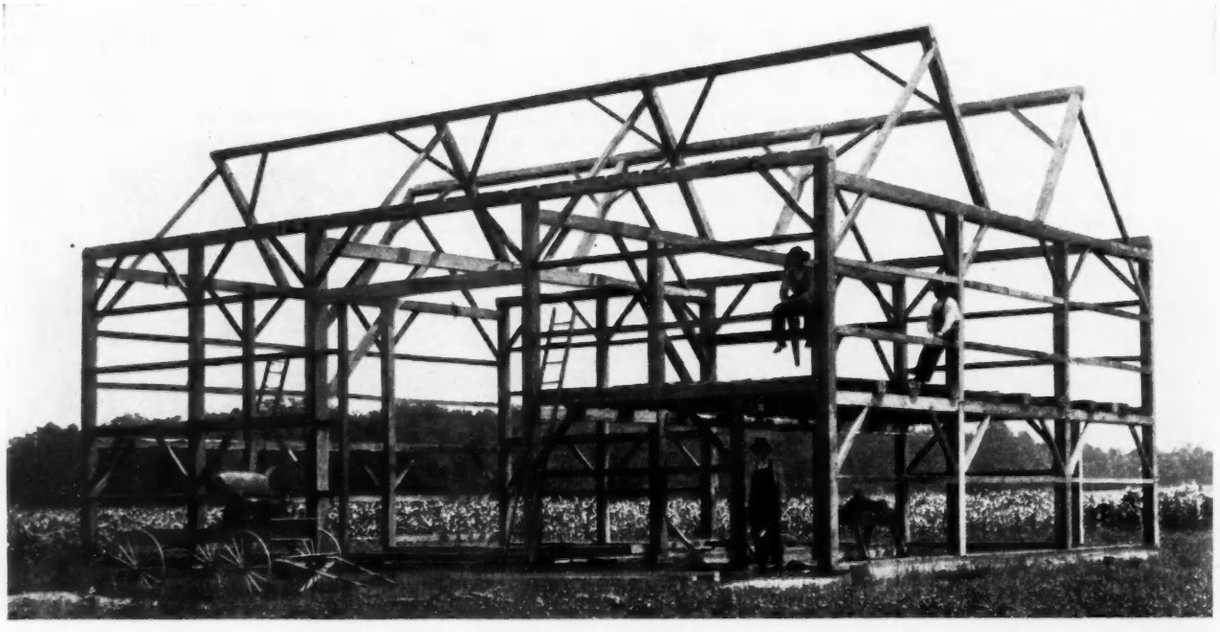
✣

An Ohio Barn

To the Editor: Jackson Center, Ohio.

This is my second barn for season 1913. This barn is 38 by 50 feet, with posts 18 feet long.

AUGUST AMBOR,
Carpenter and Builder.



Heavy Timber Barn, 38 by 50 Feet, Near Jackson Center, Ohio, Constructed by August Ambor, Contractor and Builder.

The Nonagon Tangent

To the Editor: Holly, Colo.

If the run of the common rafter for a nine sided building is 12 feet, what will be the length of the tangent of the hip rafter? C. A. WOOD.

Answer.—The accompanying illustration shows all of the parts in connection with the plan that are necessary for the foundation work of the framing for any pitch the roof may have and represents one-eighteenth of the area to be cov-

ered. The run of the common rafter being 12 feet, that for the hip will be 12 feet 10 inches, while the tangents will be 4 feet 4½ inches and 4 feet 9 inches for the common and hip rafter respectively. However, only one of these dimensions is absolutely correct,—that for the run of the

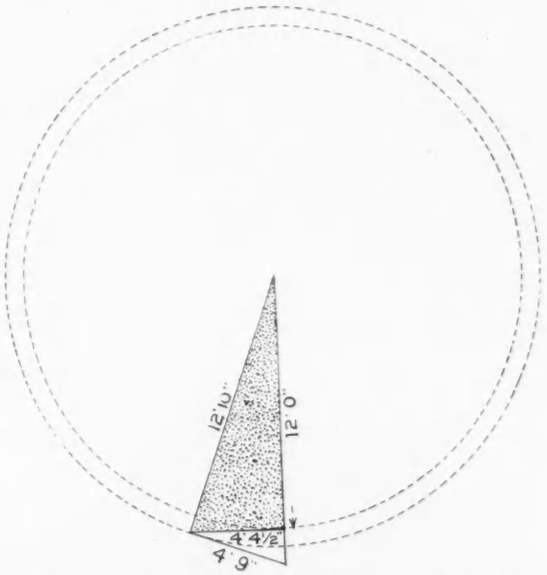


Diagram to Show How Nine Sided building is Figured

common rafter, as they all run off into fractions, but are given as near as can be worked to and, therefore, answer for all practical purposes.

When working to a scale of one inch to the foot, let the number of feet represent so many inches and the inches as so many twelfths of an inch. A. W. Woods.

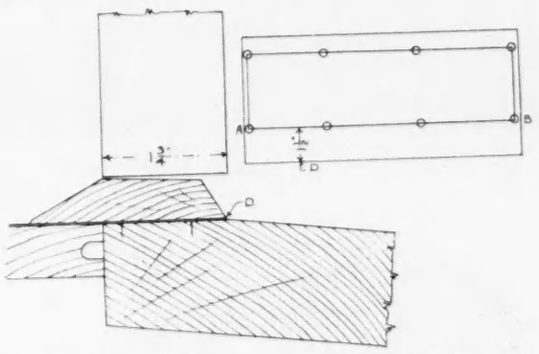
✣

Still at the Threshold

To the Editor: South Bend, Ind.

Here is my plan for preventing water driving under a threshold, causing a leak.

This is especially valuable on upper floors where the water has a chance to follow out on the ceiling, but should be done on all outside doors. The line drawn from A to B and following the tacks where shown, is a piece of common wrapping cord and tacked 1½ inches from the edge, as shown at D.



Cross Section and Bottom View of Threshold Guaranteed to be Storm-tight.

Fill in between cord with white lead and you will have a job you can feel secure from leaks, providing the threshold is also put in as above.

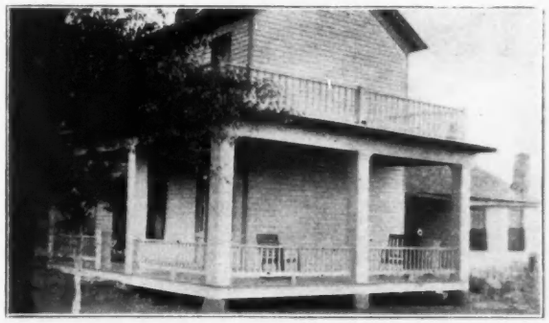
Would be pleased to hear comments, or any good suggestions on this line; someone may have a better way.

W. A. Odell.

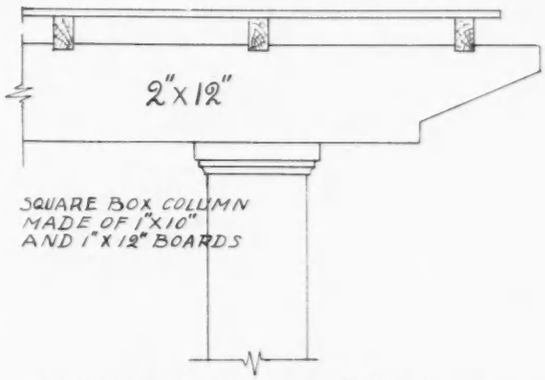
A "Hurry Up" Porch

To the Editor: Louisiana, Mo.

Last summer a friend of mine wanted a porch built with two provisos. One was that the porch should look massive, and the other it should be built before visitors arrived two days later. The result was a "Hurry Up Job," but the porch



"Massive" Porch Built in Two Days Before the Company Came.



Detail Showing Construction of "Hurry-up" Porch.

was complete when the company arrived. The columns are made of ten and twelve inch boards with a two inch cap, and a column can be nailed together in a few minutes. No scaffold is needed as the 12 by 12 facia can be placed on top of the columns from a trestle. Each alternate ceiling joist can be cut into the house, the others being spiked to headers. Where the porch goes around a corner the facia is mitered. If a tight job is wanted at the top instead of the open space, the two by fours can be gained in flush with the top. An upper and lower rail can be added if desired.

Mark Stewart.

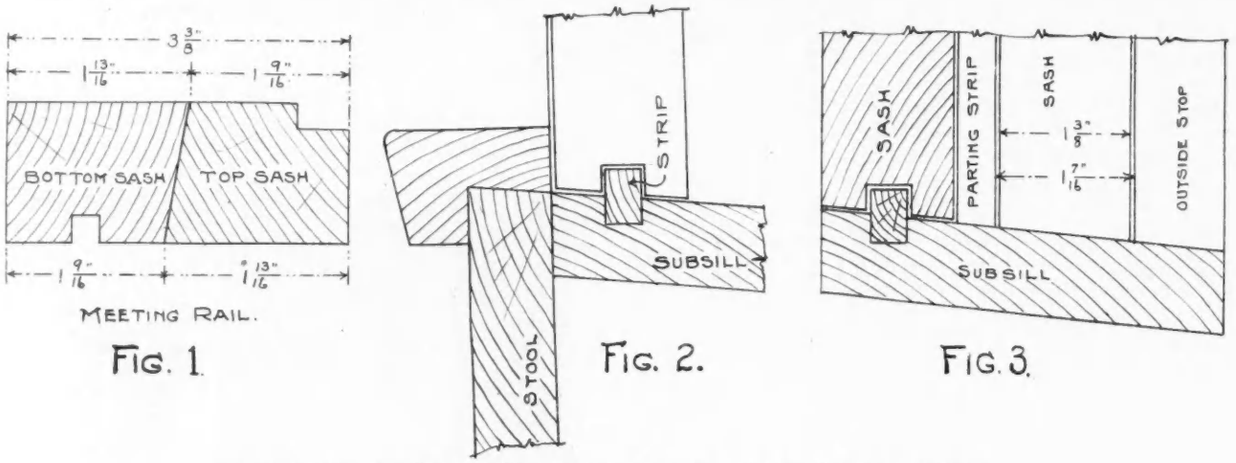
✣

Suggestions of a Mill Man

To the Editor: Louisville, Ky.

Am sending you some of my opinions of how to meet some of the difficulties which are encountered in the process of constructing a building. Am a back-sliding Charter Member, but a recent subscriber again, having taken advantage of the offer of last October for subscribers. I enjoy the magazine very much, especially the articles by brother chips, having been engaged for the last twenty years in the planing mill business as carpenter, machine hand and foreman for mill work in general, but frames especially.

I noticed some one explained that most frames are made so as to allow play for the easy running of the sash, or, in other words, instead of plowing the pulley stiles 1 7/16 from the edge and 1 13/16 for 1⅜ and 1¾-inch sash, respectively, that they should be plowed the same distance from the edge as the sash is thick, or 1⅜ and 1¾, not allowing any play whatever. I would say just this, that all sash come to the



Details of Window Framing Offered As an Improvement Over Ordinary Methods.

building smooth and are intended to fit the frames without taking anything from their thickness. The reason for the play is because the stiles are not straight and therefore the distance between the outside stop and the parting strip must be some more than the thickness of the sash, and 1/16 is not too much.

There are other troubles about sash which I think could be remedied; first of these is in the check, or meeting rail, where you almost always find, after the sash are hung, a space 1/8 inch or more, simply because they are not (the meeting rails) wide enough. They should measure, when placed together, not twice the thickness of the sash and thickness of parting strip, but their width should also include the allowance in the frame for the easy running of the sash, which is one-sixteenth more than the thickness of the sash, making the hook rails, when placed together, measure for one and three-eighth sash twice one and seven-sixteenth and one-half inch for parting strip, which in all amount to three and three-eighths inches, as shown in Fig. 1.

To prevent rain from coming in under the bottom sash, there being in this instance no room for the stool to lap (the sub-sill not being wide enough to receive any lap of the stool), the method, as shown in Fig. 2, is sometimes employed. Have the bottom rail of sash plowed to receive strip, which is inserted in sub-sill. This allows for the sash to rest on the strip with at least one-sixteenth space between rail and sub-sill, so as to allow the water to run off freely and also admit air, which will prevent decay.

Fig. 3 shows a section of frame for a building that has for thickness of walls, studs, three and five-eighths, and plaster board, which is three-eighths of an inch, making the wall four inches in thickness. ALBERT C. WILL.

✣

Were These Architect Planned?

To the Editor: Port Alberni, B. C., Can.

Enclosed please find $2.50 for which please send the AMERICAN CARPENTER AND BUILDER for one year and "Cement Houses and How to Build Them."

There is so much in it that is good, I can't get along without it. "Noon Hour Talks by the Boss Carpenter," very good; designing and installing wiring for five-room cottage, a store, hotel, etc., would be very appropriate. Also plumbing for residence, hotel, office building, etc.

Enclosed please find cards of three different styles of houses I built here. Please ask the family, "Were any or all of them designed by an architect?" and have them give their reasons.

A great deal may be learned through seeing a building as it is and not as an untrained eye sees it.

A. W. STORY.

Ten-Room House, 32 by 50 feet; Cost $4,500

Eight-Room Bungalow, 32 by 54 feet; Cost $3,000.

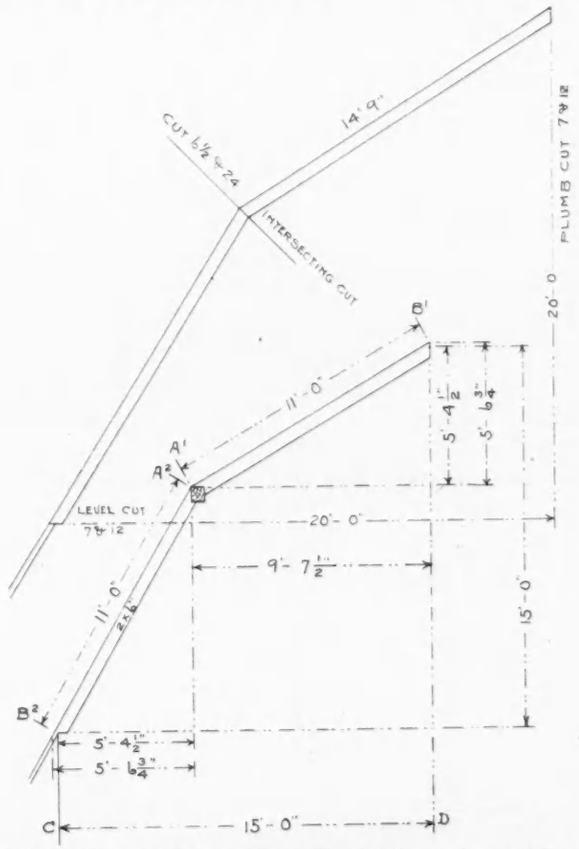
Five-Room Bungalow, 30 by 28 feet; Cost $1,400.

Scott's Gambrel Roof

To the Editor: Clarksville, Mo.

In the May issue of your paper, I see an inquiry from L. C. Hanel, Clarkson, Nebr., on gambrel roof framing, and I herewith submit a pencil sketch of my method of framing gambrel roofs, which with the following explanations will make the question clear to Mr. Hanel.

First, the way to get the length of rafters for gambrel roofs of any span,—multiply one-half the width of the building by three and divide by four and subtract 3″. This gives you the length B^2A^2 and A^1B^1; for example, the figure in lower cut,—half the width of building CD is 15′0″. Multiply this by three and divide by four, brings 11′3″. Now, subtract three inches and you have length from point to point 11′0″. Now, take 7 on the tongue and 12 on the blade and



Method of Framing Gambrel Roofs Showing Proportions and Cuts.

the tongue gives the plumb cuts at B^1 and the blade gives the seat cut at A^1 on the top section. Now, on the cut you will observe I have, for convenience, used 2 by 6 rafters and 6 by 6 purlins, so I come back 6 inches on my seat cut (A^1) and square down, giving me a good footing for my top section of rafters. Now, turn this pattern over on the bottom section and the plumb cut at B^1 gives you the seat cut at B^2, then gauge 2″ along back of rafter and rip off to length of eave desired and the seat cut A_1 gives you the plumb cut for A^2. Now this system of cutting the rafter jaw for the purlin, I consider the strongest feature in framing a gambrel roof with purlins, as the weight of the upper section of roof presses directly into the jaws of bottom section of rafters, thus eliminating the sagging of purlins, where rafters are lapped over purlins.

Second, now to locate the position of purlin post, take one-fifth the width of building and subtract 7½ inches (this will work on any width building), and you have the neat distance from outside of plate to outside, or face, of purlin. Now, the length or height of purlin post is the remaining distance to center of building, less the thickness of plate. Example, figure on cut is 30′0″, span one-fifth of this is 6′0″; subtract 7½ inches and you have 5′ 4½″ to face of purlin post; subtract 5′ 4½″ from 15′ 0″ and you have 9′ 7½″; subtract from this 6″ (thickness of purlin plate) and you have 9′ 1½″ from level of seat of lower rafter to bottom of purlin plate, or shoulder of post, for mortise work. The point of your rafters on this building will be just 2¼″ higher than half the width of building; this is the same as the measure would be from outside of rafter at B^2 to center of building.

Third, now for the intersecting cut at hip. If you did not wish to use a purlin, take 6½″ on the tongue and 24″ on blade of square and tongue gives the cut.

I have been using this system for framing for ten years and on all width buildings and know if above directions are followed closely, your work will fit up neatly.

The pitch on the upper section is 7 inch rise to 12 inch in width, and on the lower section it is reversed, 12 inch rise to 7 inches in width, or practically 17 inch rise to 12 inch width.

Would like to know the best formula for mixing materials for pebble-dash and stucco work; quantities of each material per 100 yds. Melville Scott,

Contractor and Builder.

✣

Questions to Answer

To the Editor: Darby, Mont.

I would like to ask two questions for the brothers to answer.

First, what are rules for buffet, or cupboard doors that rabbet together; should the right hand or left hand side lap over?

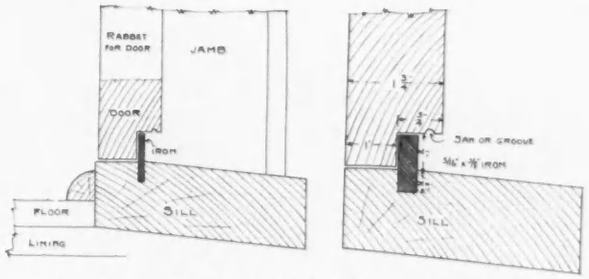
Second, should cap mouldings of any description be used on the bungalow, or should everything be square? They are both ways here and some of the carpenters hold that anything but square work is of a different school of architecture. W. E. B.

✣

Hard to Get Over

To the Editor: St.-Pie, Quebec.

Am enclosing a sketch for a non-leak threshold that may help Jack Leg with his leaky doors. Am using this kind



Door Sills Made Water-tight by Setting in Iron Strips.

of threshold on every job and never have trouble with rain coming inside the house. L. E. Carpentier,

Contracteur.

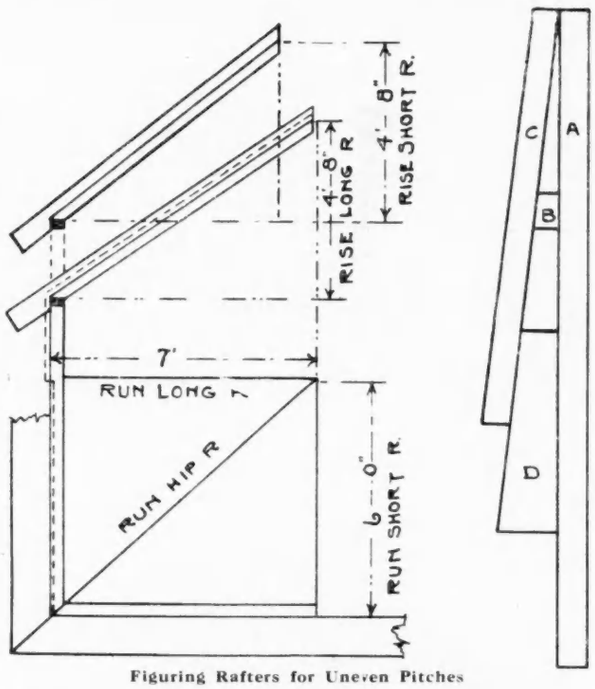
✣

Setting Door Jambs

To the Editor: Brunswick, Ohio.

I see much has been said in recent issues of the magazine in regard to setting door jambs and fitting doors. I will endeavor to tell the readers of the American Carpenter and Builder how I proceed. I may be called old fashioned or behind the times, but I will try and put up with it.

In the first place, I leave the opening in the wall about 3 inches wider than the door itself—that allows 2 inches for jambs and 1 inch for plumbing. Then, after the jambs are made straight and the proper width, I put them together allowing the side jambs to extend below the head jamb; the length of the door and 1 inch besides (½ inch for the door to clear the floor and ½ inch to scribe the jamb to the floor). Then I lay the frame on the saw horses and nail the side casings on one side of the frame—that straightens the jambs side ways. Then I square the frame and nail on a brace. Next, proceed to set the frame in the opening and plumb it; set my scribe to the ½-inch mark and scribe the frame to the floor, after which I place the frame in the opening with a piece of board about 6 inches wide, cut the same length as the width of the door, placed on the floor between the side jambs with its straight edge even with the face casings. I then proceed to nail on the other casings, being careful to keep the jambs snug against the guide on the floor. I have fitted and hung many doors in my life, and I find that I have better success with the above mentioned way of setting frames, than with the jambs nailed to studding and then cased afterwards. How Mr. Woodworth can fit his doors to the jambs before he cases them and do a good job, is beyond my knowledge. In conclusion, I wish to say that the man that invented and placed on the market the half-surface butts, conferred a great benefit on builders of my class. A. G. Brown, Builder.



Figuring Rafters for Uneven Pitches

Diagram For Uneven Pitches

To the Editor: Loveland, Colo.

I am sending you a drawing of how to frame rafters for a building with a hip roof that is longer than it is wide, so that the cornice will be the same width all around. Just draw your plan; draw run of hip rafter and where it crosses over the out edge of plate plumb up to the run of the long rafter, as shown by the dotted lines. Transfer the distance to the outside of plate, as shown, measure back the same distance at plumb cut and the same amount to the tail to get the length.

The dotted line on long common rafter shows the length, or working line. The long common rafter cuts will be 12 and 8 inches, cut on 12-inch for seat cut, 8-inch for plumb cut. For short common rafter, 12 and 9 4/12-inch cut on 12-inch for seat cut; cut on 9 4/12-inch for plumb cut.

When you want a "Tom fool thing," just take a board, A; nail cleat, B, and another board, C; put saw between boards A and C; drive key, D; and go to it. It is a make-shift for a saw vise. J. S. Noble.

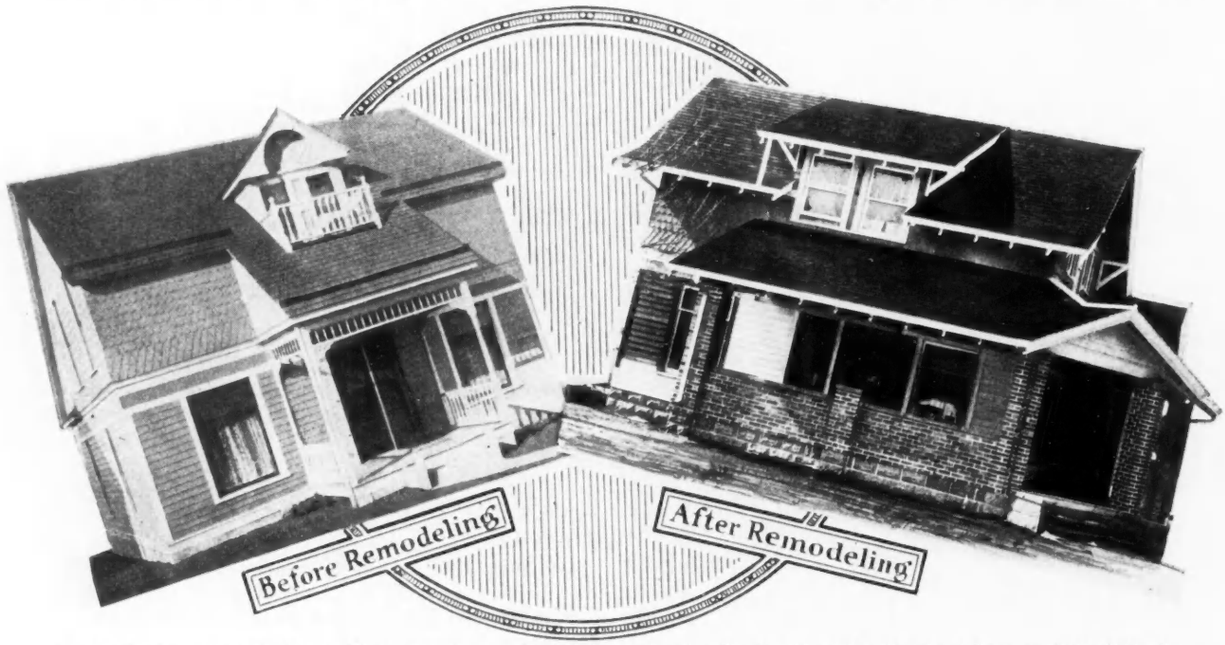
Surprising Results by Remodeling

To the Editor: Blockton, Iowa.

I am enclosing you photos of a house I remodeled for Dr. J. T. Maloy at Blockton last fall. I think these photos show the possibilities of converting the old-style house into a modern bungalow.

Hoping to see these pictures published in your valuable magazine, which is a great help to me.

Ray A. Kennedy, Designer and Builder.



An Old Fashioned Little House Made Over into a Stylish Bungalow by Simply Changing the Roof Dormer, Extending the Cornices and Building on a Brick Porch

Making a Fireless Cooker

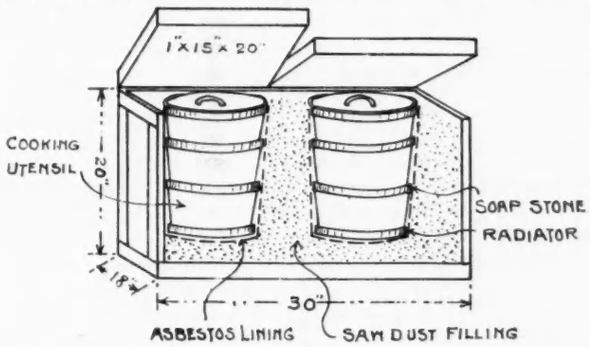
To the Editor: Tonawanda, N. Y.

Several months ago there appeared in the columns of the AMERICAN CARPENTER AND BUILDER a request as to the construction of an economical, easily constructed fireless cooker, and as up to the present issue this request has not been answered, I will endeavor to give a brief outline and sketch of how I constructed one of these outfits at a very nominal cost, compared with patented articles. Now, as the warm weather season is about to have another inning, some of the brethren may find it convenient in their spare time to construct a few cookers, from some useless stock around the shop, and thereby earn some picnic or vacation money, as at this time of the year it should not be difficult to dispose of several of these equipments.

Now, in the construction of the cooker, the essential feature is "to retain heat," which is generated by the use of coal, gas or oil fire, and the soap stone disks. The principal object in view is that the outside cool air cannot reach the utensils, nor the inside hot air escape.

This sketch shows a two compartment cooker, but only a one compartment cooker may be constructed, just as desired, or even a three or four part one.

The case, or box for cooker is constructed of short pieces of ⅝-inch stock, nailing it together just like making an ordinary box; the cover is constructed in the same manner. Then I got some of the thinnest gauge sheet tin from the hardware store, in sheets sufficient to cover the sides, ends and cover. This I carefully nailed over outside of box and painted and grained it in imitation of quartered oak, then I took some 3/16-inch thick oak strips and nailed around outside edges to give it the panel and frame effect. The inside, or false cover, I made in the same way, after having cut the holes out to size of container that was to be used. After finishing up in this way, I had as nice a looking article as could be found in any store.



Now, I will describe the interior of the cooker. In the first place, the bottom should be covered with the packing material, which may be hay, cork, or sawdust, to a depth of from 3 to 6 inches. Sawdust will be found to be the best for this purpose. Next a lining should be placed in position of sufficient size to hold the utensils, or containers. This lining may be of asbestos, or common tin will also do. The remainder of the box is filled tightly with sawdust or other material used.

The inside cover is next attached.

Next, procure soap stone radiators, or disks of sufficient size for your utensils, four for each one. The eight will cost anywhere from 60 cents to $1.00. Get your utensils and you have everything required to do fireless cooking. Iron stove lids may be used in place of soap stone disks for heating purpose.

After attaching the outside top with some ordinary flat hinges, everything is complete.

The size and dimensions of cooker are shown in sketch, as also is the mode of placing the soapstone disks, or lids, and the cooking utensils.

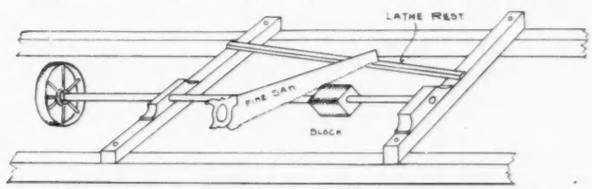
The whole thing, completed, cost me $1.25 for tin, disks and hinges, and my wife now claims she would not part with it for ten times the amount it cost for material. The advantages of having a fireless cooker is that disks may be heated over oil or gas stoves in warm weather and that such food as cereals, roast chicken and baking may be done with it. It would seem that food so prepared has a more appetizing flavor and seems better cooked if prepared in the home-made fireless cooker as described.

R. O. NEWBECKER.

An Improvised Lathe

To the Editor: Malcom, Ia.

Am sending you a sketch of a way to make wooden belt pulleys. Since the advent of the gas engine on the farm, nearly every carpenter that does work in the country, is called upon to erect line shafting and make pulleys occasionally, and as I have had a little experience, I will give my method of making a pulley. Take a block of the required size and fit it on the shaft. Then rig up a rest back of the shaft for the point of the saw to rest on; start your shaft in motion; take a fine saw and cut. Kerf as close together as you can, as shown in diagram. After which, take a coarse saw with plenty of set and turn down the kerfs already made and you will be surprised at the nice smooth job you can do. You can make a large built-up pulley nearly as easy as a small one and in a very short time; and it does not make any difference how fast your shaft runs. Maple is about the nicest wood to work, though most anything will do.



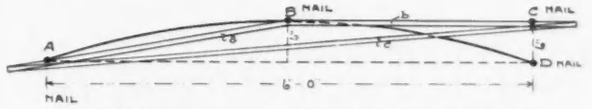
Rig for Using Hand Saw as Lathe Tool to Make Pulley

A. D. DOUGLASS.

To Describe Segment Without Radius

To the Editor: Madison, Wis.

Here is a way to make any kind of a segment, without doing any calculations about finding the radius; a thing that I believe not one carpenter in a hundred knows how to do. I have often seen some one, when performing this piece of work, have to use a hundred feet of steel tape and, of course, a hundred feet of some more or less valuable property. Now, it is all unnecessary; all you need is three strips, and three nails. If you have to lay out a segment of a circle, say six feet wide, between A and D, and six inches high, at B, take three strips and three nails and your hammer and a few brads. Place the nails at A, B and C, and nail your strips *a* and *b* together at B, and put the brace, *c*, on also with a couple of brads. Then take your pencil, put it at B and slide your strips toward A, and you have a perfect segment. Then move nail C (which you should have taken away before you begun to slide your strips toward A) down to D, and do the same thing again between B and D as you did between A and B.



Three Sticks, A, B, and C, Nailed Together Properly Will Describe any Segment; no Radius Needed

Hope this may prove a help to some of the brother carpenters.

LOUIS JENSEN.

Question for House Movers

To the Editor: Lynchburg, Va.

Will some of the readers of your paper kindly give the best way to shore up a brick building? Building is to be raised 6 feet and moved about 100 feet. Building is 28 by 60 feet with two ells. I have never moved any but frame.

GARRETT E. HOWELL.

N. B.—I have two copies of your magazine which I received since the first of the year and would not take $10.00 apiece for them.

The practical knowledge contained in each issue is worth ten times the subscription price.

GARRETT E. HOWELL.

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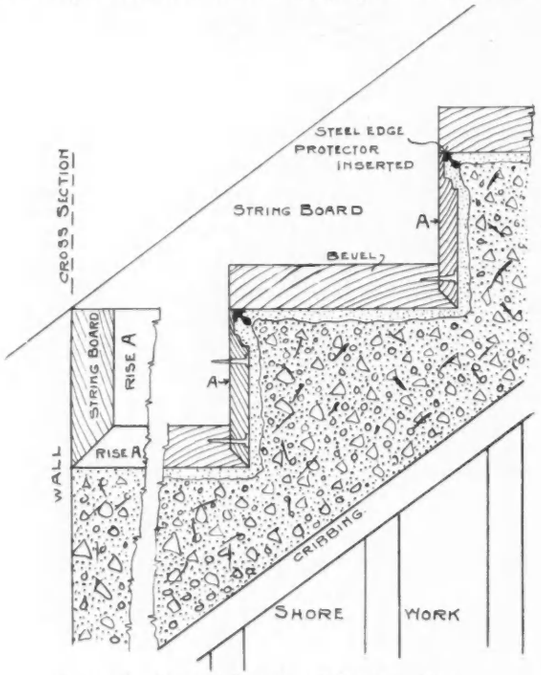
Stair Forms and Cutting of Bridging

To the Editor: Clearwater, Fla.

Referring to "Karpenter Kinks" in the March number, I wish to offer the following:

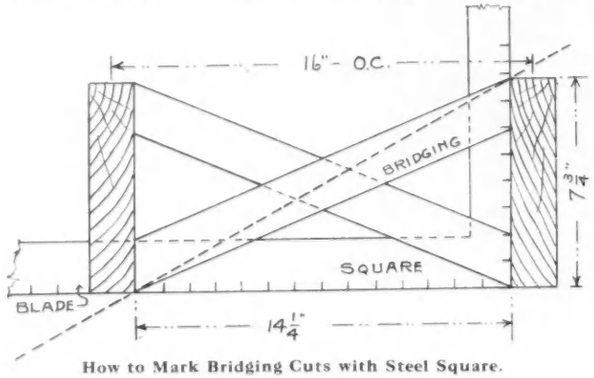
There is no way to leave off the using of a rise board while using a soft concrete and applying the finish cement as



Forms for Making Reinforced Concrete Steps.

you climb. Therefore, the bevel cuts shown are more than useless; but they will assist the trowler if cut on the tread angle, as I have marked "A" in the diagram.

This will work; I have built 'em and therefore I know; but as yet I fail to see how we can build the rise, hold it in position and trowel the finish while it is flowing. If you wish a nose on face of tread, simply plough out back of rise and, to enable the workmen to trowel the entire tread, bevel



How to Mark Bridging Cuts with Steel Square.

the rise board on face, as shown. Also bevel face of string, then there is a clean shot.

As to bridge cutting, it is a joke. In applying the square to a 2 by 2, say, bring side A to the point 14¼ inches, then bring side B (which is the reverse) to 7¾ inches. Mark and cut on this end, then reverse square and cut the other end likewise, and it will fit 2 by 8-inch 16 inch on centers, sized joist.

L.R.HOUSE.

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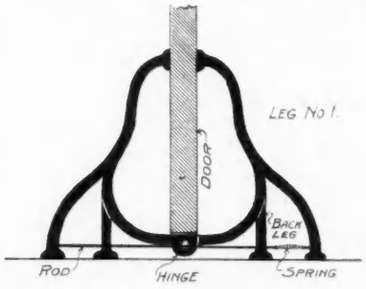
A New Door Clamp

To the Editor: Cleveland, Ohio.

I have something new for the brother chips. It is a device for holding a door, or panel work, while being fitted on the job.



Job Door Clamp.

It is warranted not to slip, or mar the floor, nor give cause to endanger men's souls in squeezing through the Pearly Gates. Therefore every carpenter should have it. It is made of malleable iron and will last a lifetime. It is a patented article and its commercial success is assured. Anyone in the market for an investment that will insure quick and profitable returns on his capital should write me at once.

JACOB B. JOB,
4478 Werner Road.

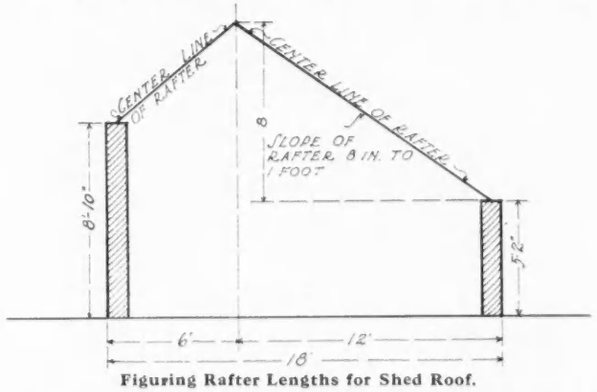
✣

Rafter Length Problem

To the Editor: West Wareham, Mass.

Here is a problem I would like solved. I want to know how to find the exact length of the short and long rafter in roof like sketch, where the back posts are 5 ft. 2 in., including plate, and the front posts are 8 ft. 10 in., including plate, and I wish to have the run for the long rafter two-thirds the width of the building, which is 18 ft. wide. The pitch is 8 inches to the foot. J. B. TRIPP.

Answer.—The method to be followed is to add together 12 times 12 and 8 times 8, and then take the square root of this quantity. This will give the length of the long rafter from ridge to center of 5 ft. 2 in. wall. Any overhang necessary for eaves should be added to this quantity. The



Figuring Rafter Lengths for Shed Roof.

method of finding the length of center line of shorter rafter is the same. That is, add together 6 times 6 and 4 1-3 times 4 1-3, and take the square root of this quantity. The result will be the length of the center line of shorter rafter. In the above calculations the thickness of the wall is not taken into account, therefore, if exact designs are desired, a plan similar to the one shown should be made, and a similar method applied. The method given above should be accurate enough for all ordinary cases. EDITOR.

Which is Right?

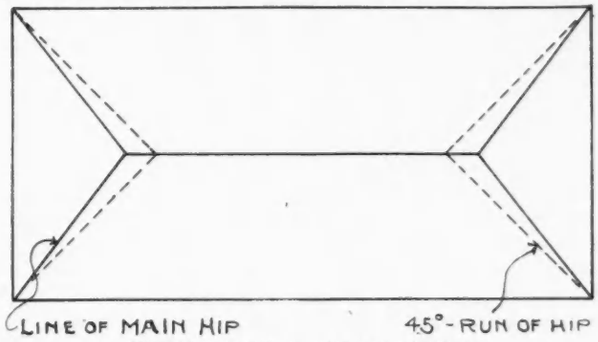
To the Editor:

Mr. "A" states that he has very frequently met with roofs where the run of the hips did not rest at an angle of 45 degrees from the adjoining plates, as shown by the illustration. Mr. "B" contends that such a thing is unknown in building practice.

In your next issue, kindly inform me which is right.

I. F. T.

Answer.—Yes, such things do occur, but in a case like this, there can be no good reason for it. To say the least, it shows bad taste in designing. Such things are usually



Hips Should Run at 45 Degree Angles.

caused by some one wanting to break out of the ordinary; and as far as that goes, he succeeds; but in doing so he largely destroys the symmetry of the roof, because it causes the joining of uneven pitches, which does not look well.

In saying this, we do not mean to convey the idea that we do not favor the joining of uneven pitched roofs, for that is another thing, and in that case the valley cannot rest at the same angle with its respective plates. In a case of this kind, where the two pitches are of the same slope, the run of the valley will rest at an angle of 135 degrees from either plate, but should one of the roofs be steeper than the other, then it will swing nearer to the plate on the lesser pitch. A. W. Woods.

✣

Furniture Polish

To the Editor: Ashland, Ill.

I see in the December number of the American Carpenter and Builder that D. M. asks you about a good furniture polish for pianos and furniture. If you know of one, I wish you would tell me how to make it and what to get, and I will be much obliged to you. Pat MacGraw.

Answer.—Have heard that the following recipe has been used to good advantage.

Beeswax, 2,500 parts; potassium carbonate, 25 parts; oil of turpentine, 4,000 parts. Dissolve the potassium carbonate in 1,500 parts of the water and in the solution boil the wax, shaved up, until the latter is partially saponified, replacing the water as it is driven off by evaporation. When this occurs, remove from the fire and stir until cold. Now add little by little and under constant agitation, the turpentine, stirring until a smooth emulsion is formed. Add the remainder of the water under constant stirring. The directions for using are very simple: First, wash the surface to be polished, rinse and dry. Apply the paste as evenly and thinly as possible over a portion of the surface, then rub off with a soft woolen cloth, using plenty of elbow grease. Editor.

✣

Without a Ladder

Allendale, N. J.

To the Editor:

It is often necessary—and difficult—to run cords or ropes over a lofty timber when no ladder is available. The principle of the difficulty is illustrated in the operation of placing decorative streamers over the cross-beams of exposed trusses in a hall or barn. It is not so hard to toss a weight over the beam in question and so to carry a string or cord over. But the string usually goes too much to the right or left of the desired position. Then, especially when the cord is of the thin, "invisible" variety, difficulty is experienced in adjusting it. It will cling to a splinter or sink into an abrasion on the timber. There it defies all jiggling attempts at adjustment. The following expedient, however, will serve perfectly under such conditions. Assuming the string to be abundantly long, tie a washer on it anywhere; or a nut, screw or nail will serve equally well. Pull the string along then until the weight can be run back and forth over the top of the timber as the effort is made to bring the string into desired position. The washer or screw will not only lift the cord out of indentations and over splinters; it will also "trip" on the edges of the beam and flop in the direction from which the pull is exerted. Each successive tripping movement, as the string is worked back and forth, will bring the cord quickly and decisively nearer to the desired position.

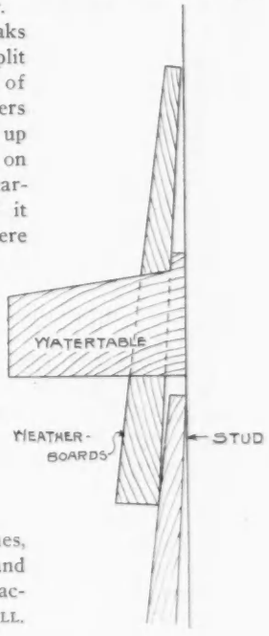
James William Jackson.

✣

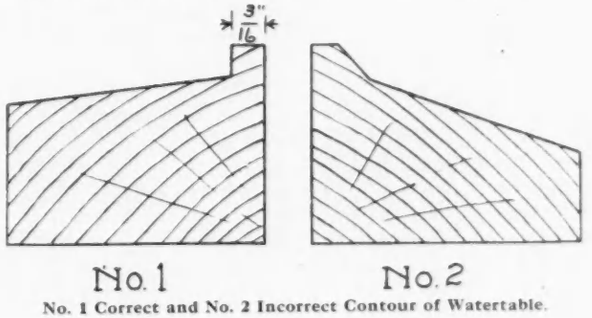
No-Leak Cap

To the Editor: Louisville, Ky.

Here is cut of watertable for heads of frames, where many leaks are found. The reason No. 1 is the right way, is because the lip is only 3/16-inch wide, which corresponds to the thickness of the weatherboards at the thin edge. I suppose the reason why there is such a watertable on the market as No. 2, is because the man that makes it, or had it made, never did any outside carpenter work, nor did he give very much thought to the matter.



However, the reason for the leaks is because the weather-boards split above the weathertable; the cause of this splitting is that the carpenters do not take the trouble to ease up the lap, and the thicker the lip is on the watertable, the more the carpenter will have to take off of it when he comes to a situation where the lap above the frame comes in the center of the weather-boards, and the weatherboards, being thinner in the center than at the bottom edge, there is not much left to take any off of the weatherboards, as R. Burbridge shows in the April number of the American Carpenter and Builder. Weatherboards do not fit against the studs in straight, perpendicular lines, as his cuts shows, but flare out, and the lap should be as shown in the accompanying sketch. Albert C. Will.



No. 1 Correct and No. 2 Incorrect Contour of Watertable.

Roof Areas

To the Editor: Frost, Tex.

A brother asked in the November issue whether there would be a difference in two roofs: one built plain ridge, the other hipped with four gables built on, it being understood that their dimensions at base are the same and their pitches equal.

In theory it requires the same amount of roofing for each of these roofs, but in practice the hip roof requires a little more covering material because there is some waste in cutting for valleys and hips, and because the covering does not stop under the rake line of built-on gables, but extends to the wall, which is usually 12 inches or more back from the rake.

But to demonstrate that these two forms of roof have the same area, let us suppose a plain ridge roof 32 feet long and 24 feet wide, including extension at eaves and rake, and half pitch. The rafters in this roof will be 17 feet long. Now sup-

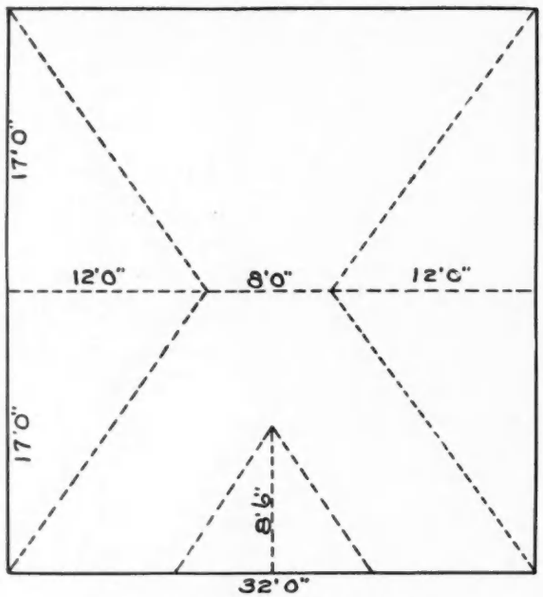


Diagram of Roof—Spread Out Flat.

pose we pry the rafters loose at foot and let roof spread until ridge is level with eaves. Then our roof would be a plane surface 32 by 34 feet, as shown by heavy outer lines in figure. The horizontal dotted line shows ridge; the other dotted lines show hips and valleys if it were a hip roof with one gable built on. The triangle formed by dotted hip lines and 34 feet line represents the area the hips take out of plain roof. Our only problem is to prove that this area is equal to that of one end of hip roof.

Now if a plumb line were let fall from the top of hip in this roof (24 feet wide), it would fall to a point 12 feet from both the sides and end of roof so we know that 12 feet is the distance between rake and where hip would meet ridge. So the area the hips take out of plain roof is represented by a triangle where base is 34 feet and where other two sides are the hips; and the distance between the center of this 34 foot line and the point where the hips meet each other is 12 feet.

Now, referring to the figure again, suppose we cut this triangle in two at the dotted line, which represents the ridge We will then have two triangles, each having 17 feet for a base, 12 feet for height, and the hip for the other side. Place these standing on their 12 foot sides with their 17 foot sides together and they form a triangle with 24 feet, base 17 feet high and the hips forming the other two sides and this is exactly what the end of hip roof is: a triangle whose base is width of roof (in this case 24 feet), and whose other two sides are the hips, and whose height is always length of common rafter (in this case 17 feet).

It is not necessary to discuss the built on gable since the difference between a hip roof and a plain ridge roof is nothing more nor less than a built on gable whose valleys would fall on the hips. I placed the dotted lines showing the valleys in the figure for purposes of giving those who might wish to try it an ocular demonstration. And here it is, patient reader; try it if you wish. Draw the figure I have given on a piece of stiff card board, on a larger scale than I have used, say not less than ¼ inch to the foot. Be careful to make your drawing accurate. Cut out card board at heavy lines and then cut out triangles represented by hips, cutting them in two at the line which represented the ridge. Also cut out the piece between the valley lines, cutting this in two at vertical line. Now bend the remaining piece of card board at what is left of ridge line to an angle of 45 degrees. Take two of the pieces, cut out at the hips, and placing the long edges together, fasten them with strips of card board and mucilage. This gives one end. Proceed with the other two in the same manner. Now take the pieces, cut out at valley lines and, placing their short sides together, paste a strip of paper that will allow them to bend, on them, and we are ready to put them all back together. Fasten your end pieces, thus forming the hips by pasting strips of paper underneath, then take the pieces that are to roof the gable and, bending at the proper joint, form the valleys, and if your work has been accurate you will have hip with one gable in miniature which will be correct in every detail.

The making of this miniature roof will prove interesting pastime for a leisure hour, and it's a study will prove to be profitable to those who are of a thoughtful turn and are not thoroughly conversant with the principles involved in roof framing. O. A. Truelove.

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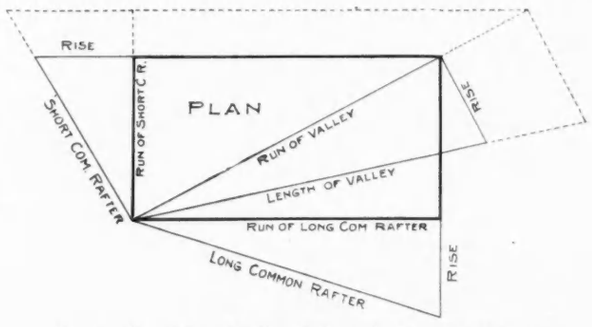
A Question in Uneven Pitches

To the Editor: State College, Pa.

Will you please illustrate a method for getting the run and length of valley rafter where the pitches are different and rise the same; also where the rises to the ridge are both different? Park R. Homan.

Answer.—For convenience in illustrating, we will show this in a simple line drawing and at the same time answer the two questions with the one illustration.

The shaded part of the illustration represents that part of the plan to be covered in the first question. The second question is exemplified in the extended dotted lines of one



Run and Length of Valley Rafters for Uneven Pitches.

of the common rafters and the valley. Thus, in this we have the length of the long and the short valley. No dimensions are given because it can be most anything; lay it off to a scale whatever it is and take measurements from that. Either the bevel square or steel square can be applied to the angles for the seat and plumb cut. Of course, there are other ways of arriving at the lengths,—this is simply one of them. A. W. Woods.

TRADE NOTES AND ITEMS OF INTEREST

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. Items for these columns must have real news value; they are offered here as interesting information for our readers; they are not advertising. No matter will be printed here simply because some advertiser wishes it. Likewise, no matter will be excluded simply because the article described is not advertized in this magazine. Suggestions for the betterment of this department are requested of our readers.

A Waterproofing Expert

An interesting narrative is told in the April number of "The Ceresit Waterproofer" about one of the well-known waterproofing experts of the present time.

It relates that in Chicago a few years ago a young man began his career as a mason's helper. He was quick, intelligent, persevering. Due to these traits, he soon learned the trade and became a boss mason. His work was careful and his active mind stirred his ambition. One day he was called to look at a basement where the water, percolating through the walls, covered the floor to a depth of 2 or 3 inches. He didn't know what to do about it, but said he would see what could be done.

He looked in the classified section of the telephone directory, and that afternoon dropped into the Ceresit office. The result was a dry basement for his customer. He soon had other calls to waterproof basements, which he attended to in his naturally thorough way.

One day about two years ago he again dropped into the Ceresit office. His purpose was to become a waterproofing superintendent, and he accomplished it. He was not content to use Ceresit—he wanted to be a part of the Ceresit organization.

That is the story of John Lyons, one of the foremost waterproofing experts in the country. When he superintends the waterproofing of a basement, reservoir or pit, it's safe to say the work will be done right.

"The Ceresit Waterproofer" is a monthly pamphlet issued by the Ceresit Waterproofing Company, 1910 Westminster building, Chicago. All who are interested in waterproofing should write and ask to be placed on their mailing list.

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"Century" Asbestos Shingles for All Buildings

One is amazed at looking over an illustrated booklet just issued by the Keasbey & Mattison Company, to see the range of work on which "Century" Asbestos Shingles are now being used. There was a time not very long ago when these shingles were used only on buildings where low cost and fireproof qualities were important without much regard for appearances; in other words, architects and builders early recognized the practical value of Asbestos "Century" Shingles, but at first their artistic qualities were not appreciated.

It is very gratifying to see that this attitude has gradually changed. Looking through this beautiful illustrated pamphlet we see photographs of buildings roofed with "Century" Shingles—buildings of great architectural beauty designed by leading architects—buildings of all kinds, from little seashore bungalows to large, elaborate, brick and concrete mansions, and public buildings of all kinds, such as churches, school buildings, city halls, railway stations and business buildings.

The evidence is certainly conclusive that the Asbestos "Century" Shingles made by the Keasbey & Mattison Company, Ambler, Pa., have come into their own as a high grade, artistic roofing material. Also as the cost has not been increased and the weather resisting and fireproof qualities of these shingles are just as real as ever before, builders are coming to use this material more and more.

This illustrated pamphlet also contains complete specifications for laying shingles in the three popular styles, namely, French method, Honey-comb effect, and American method. Working drawings illustrate fully the several points of construction. Every one of our readers should have this pamphlet. Address Dept. B, Keasbey & Mattison Co., Factors, Ambler, Pa., and they will mail you a copy, postage prepaid.

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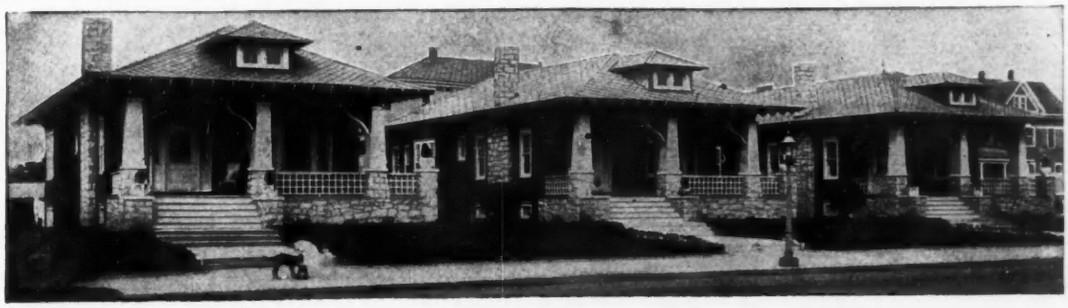
"Eureka" Spiral Screwdriver

A moderate-priced spiral screwdriver—in fact, it is claimed to be the cheapest one on the market—is the "Eureka," manufactured and sold by the Decatur Coffin Co., Decatur, Ill. It is made in two sizes, No. 1, 9 inches long, and No. 2, 12 inches long.

This is one of those ingeniously contrived screwdrivers; you simply push on the end and the screw goes in. It can, of course, be used also as an ordinary screwdriver. It is a durable, powerful tool and gives satisfaction.



The Asbestos "Century" Shingle is Admirably Adapted for Seashore Bungalows.

Bovee's Economy Furnaces

The Bovee Furnace Works, 50 Eighth Street, Waterloo, Iowa, are now offering their furnaces at manufacturers' prices, which they claim saves the purchaser about 50 per cent.

The Bovee Furnace is well known to our readers as an honest, well-built furnace, designed for efficient heating service. The accompanying illustration shows very clearly just how their furnaces are built.

Bovee Furnace, Cut Away to Show Construction

These furnaces start with a clean heating surface at the ashpit. They have a heavy cast-iron firebox, made in two sections, surmounted by a combustion chamber eighteen inches high and almost one foot larger than the firepot. This large combustion chamber adds greatly to the capacity of the fuel, also to the durability. It makes the furnace practically indestructible and furnishes a balmy atmosphere.

These furnaces are supplied with Bovee's Hot Blast Ventilating System, as can be seen by examining the picture. This takes the air from the air chamber inside of the casing and discharges it over the fuel, thoroughly mixing the air and oxygen with the gases and smoke passing off of the fuel and causing it to burn, thus securing a great deal of heat that in other furnaces and stoves is lost. With most fuel this adds fully one-fourth to the heating capacity, and with some kinds it adds even more to its value, and always insures absolutely pure air in the entire house without opening doors and windows.

Above this large combustion chamber there is a return circulating radiator which carries the heat clear around, with a sheet of flame between two sheets of cold air and sheet of cold air between two sheets of heat, which secures the greatest possible amount of heat before reaching the chimney.

They have heavy, independent, rocker shaker grates, and are very easy to fire and operate.

Builders should get better acquainted with Bovee's Economy Furnace and with the proposition the Bovee Furnace Works are making at this time. Write them today for full particulars.

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The U. S. consul at Aberdeen, Scotland, thinks that American manufacturers may have a chance to compete in furnishing staves for fish barrels. There has been a recent rise in the price of spruce and fir staves from Sweden and Scotland.

Four new state forests have recently been added to those acres. Of this amount, 67 per cent belongs to the territory, the rest being private land administered by the territorial forest officers.

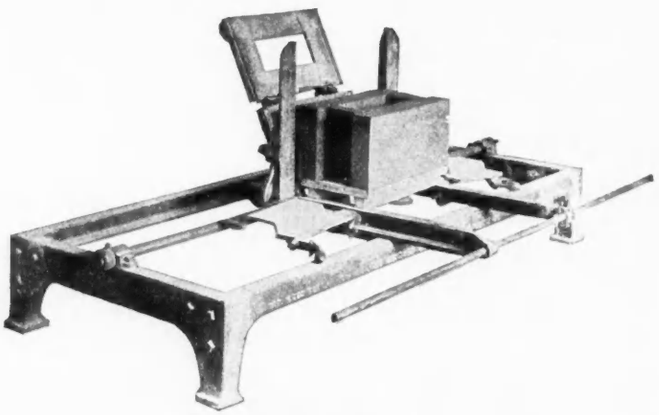
✣

Hercules Block Machines

Builders using concrete blocks for foundations and general construction work are rapidly realizing the wisdom of producing the blocks they use in their own work. There are so many days when the regular man can be employed to advantage making blocks—days when outside work is impossible. The builder who follows this plan of producing his own blocks knows exactly the kind of material he is using. Furthermore, he is making a saving on each block he lays. The cost of the equipment for making the blocks need not be large, especially if he selects a flexible, expansion type of machine like the Hercules machine, manufactured by the Century Cement Machine Company of Rochester, N. Y.

The machines are so built that the builder merely buys at the start what he needs in the way of sizes and designs, later on, if he wishes to make some other size, he orders the necessary plate and produces it. These machines are so simple in construction that only ordinary labor is required to operate them. Every part is perfectly machined so as to insure a perfect product.

The Hercules special machine discharging finished block will allow for attaching plates for the making of blocks from



Hercules Block Machine

4 to 32 inches long—4 to 12 inches high and from 4 to 16 inches on the bed. Different lengths merely require the moving of the arms or uprights and dropping in the proper plate.

A very handsome catalogue, fully descriptive of this well-known line of machines, will be gladly sent to any one interested by the Century Cement Machine Company, 220 Mill Street, Rochester, N. Y.

View of E. C. Atkins & Co. Booth at Forest Products Exposition

E. C. Atkins & Co. at the Forest Products Exposition

We show herewith a picture which does not do justice to the splendid exhibit of Saws made by E. C. Atkins & Co., The Silver Steel Saw People, at the Chicago Forest Products Exposition.

E. C. Atkins & Co. were one of the few manufacturers who seemed to appreciate the fight which the lumber interests are making to promote the timber products industry.

The Atkins Company occupied space A-1 at the very center of the hall on the main aisle, and had a similar space for the Forest Products Exposition at New York City, May 21st.

The space occupied 25 feet square and consisted of a finely finished quarter sawed oak booth, rectangular in shape, and with a door opening at the back which gave a convenient and luxurious rest room on the inside.

One board was devoted to the display of various Saws used about the mill, such as Circular, Band, Gang, Rift, Concave and other Saws. Another board showed a splendid display of Cross-cut Saws of all kinds, including Handles and Saw Fitting Tools. The third space consisted of a very splendid line of small Saws and Specialties, while the fourth was devoted to an exhaustive exhibit of Machine Knives and other Mill Specialties.

A novel feature consisted of a sawing contest, in which Messrs. Zweiky and Pollier, expert sawyers, claiming to be the Champions of the Northwest, made frequent cuts with a Silver Steel Segment Ground Cross Cut Saw against time.

The booth was in charge of Mr. A. C. Fuller, who travels in Wisconsin and Michigan, assisted by Mr. A. T. Marceau, Special Cross-cut Saw Expert.

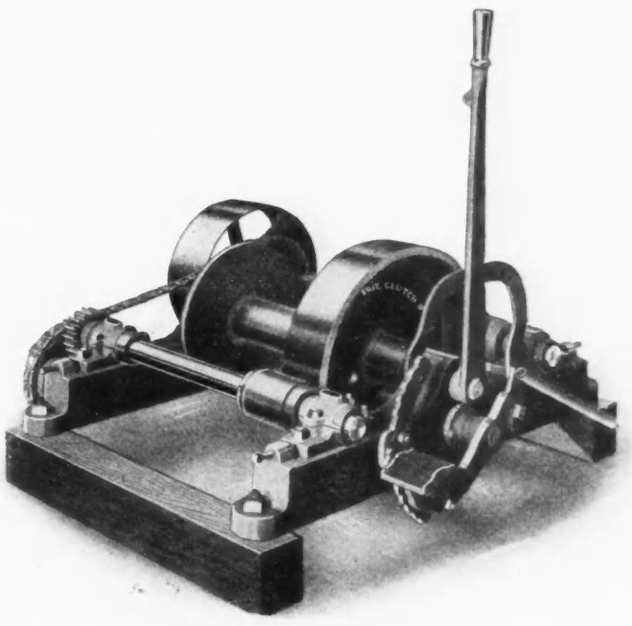
The Atkins Company distributed thousands of souvenirs and unlimited quantities of printed matter.

Their booth was the center of attraction and the lumber interests should certainly congratulate themselves that they have manufacturers supplying their needs who come to their assistance at a time like this, and not only contribute their moral, but their financial support.

New Type "Reliable Erie" Hoist

The Erie Clutch and Pulley Company, Erie, Pa., are calling particular attention to their Hoist No. 3, single-drum reversible, illustrated herewith. It has a capacity of 2,000 pounds and is designed to meet the demand of contractors and builders for a popular, moderate-priced, all-around hoist. Where pulling, hauling or lifting both ways is desired, hauling cars back and forth this reversible hoist can be used.

Investigate this. You will find the specifications satisfactory and the price very interesting. Write the Erie Clutch & Pulley Company, Erie, Pa., for full particulars.



No. 3 "Reliable Erie" Hoist

Northwestern Concrete Machinery

The Northwestern Steel & Iron Works, Eau Claire, Wis., are now entering their ninth year in the concrete field and it is said no manufacturing establishment has in that time, acquired a better or larger assortment of mixing machines and molds than is embraced in the Northwestern line. They have just issued a new catalog featuring their best and most popular equipment of all kinds. They have carefully weeded out all obsolete machines; they say that this "weeding out" process has been made from actual experience as to the best value and the most efficient machines to meet the requirements of the contractor and the cement block manufacturer.

The Northwestern Steel & Iron Works have the utmost confidence in every mixer, mold and appliance they offer in this new catalog, this confidence being based on the experiences of thousands of actual users of these various machines, and they stand ready to guarantee every article to be as represented and to fulfill every requirement for which it is intended. Their guarantee is "Money refunded if not satisfactory."

The assortment of concrete mixers in this catalog is especially noteworthy. They range in size from small hand mixers up to big fellows, priced at from $24 up to $1,000. For the general run of good-sized construction work, their Cone Batch Mixer is very popular. The illustrations shown here picture the Northwestern's latest addition, an improved cone mixer. It is called the "Northwestern Special." For efficiency, speed, capacity, durability and price, the Northwestern people are ready to enter this mixer in competition with any on the market. They say it is not a cheap machine when you consider quality. It is low in price, but high in quality.

This machine is made rigid and compact, so as to be easily moved from job to job. It is of narow gage and can be very easily taken from one floor to the one above in the average building in course of construction. It is a utility machine in every sense of the word; can be used on big jobs as well as small jobs; is light in weight; three men can easily haul it around.

The Northwestern Special has a capacity of from 5 to 6 cubic feet. While it is listed as a 5-foot machine, many contractors are loading it up to 6½ feet, the machine giving excellent results with this capacity. The shape of drum, the tilt, and the arrangement of paddles give this machine its added capacity. The mixture is always in plain sight.

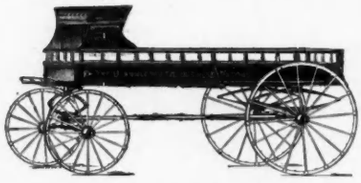
They equip this machine with the Northwestern 2½ H. P. horizontal water-cooled engine. The contractor doesn't have to worry about engine troubles; he knows that his mixer will be kept going constantly.

Every contractor should be familiar with the Northwestern Steel & Iron Works line of batch mixers, block machines, silo molds, sill cap molds, fence post molds, etc. All are illustrated in this new catalog, No. 9. Write for it today.

Shape and Tilt of Drum makes capacity. Wide chilled bearings, gives long life.

Carpenter's Wagons

A good many carpenters and builders are worrying along on foot when they ought to have a light wagon to help them in their business. What is needed is a light spring wagon that can get over the ground at a good rate of speed, and yet carry a heavy load when occasion requires.



One of the Popular Styles

The Armleder Company, who have been building wagons for thirty-three years, have recently brought out a line of wagons especially designed to meet the needs of carpenters and builders. The wagon illustrated has a capacity of 1,200 pounds. The body is 9 feet long, 45 inches wide and 13 inches deep inside. It is a strong wagon, strongly built and guaranteed for service.

The Armleder Company make 303 other styles and sizes of wagons. These are all illustrated and described in their new catalog, which they will send to any one of our readers free of charge.

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Buckeye Metal Shingle

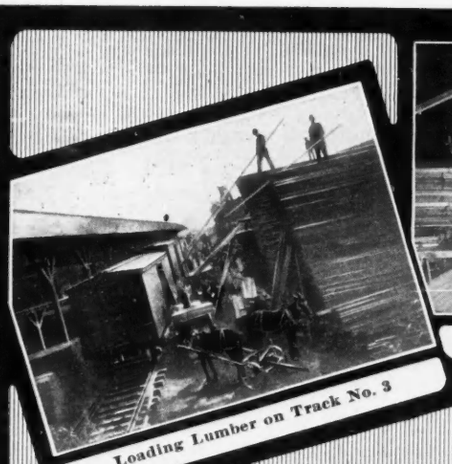
A good metal shingle has much to recommend it. In fact, there are those who see metal shingles as the most satisfactory roofing material of the present time. Certain it is that a heavily embossed metal shingle makes an attractive roof, besides being fire resisting, water-tight, light weight and good for many years of service when properly looked after.

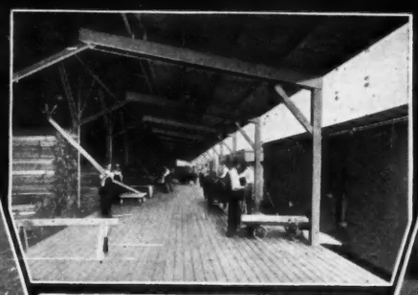
A "Buckeye" Metal Shingle Pattern

"Buckeye" metal shingles, made and sold by the Thomas & Armstrong Co., London, Ohio, are coming to be one of the most popular brands. These shingles have the patented Buckeye Raised Side-Locking Joints, which are formed entirely above the surface of the shingle, so preventing rusting and leaking. These shingles come in three different patterns, all of them beautifully embossed; they are made of heavy gauge metal.

You will find "Buckeye" metal shingles reasonable in price; in fact, the Thomas & Armstrong Co. are now making a special proposition to carpenters and builders. Concerning this, you should address Dept. A, The Thomas & Armstrong Co., London, Ohio.

Low Charging Mix, Always in Plain Sight, Guarded Bearings, No Slopping.


Loading Lumber on Track No. 3


Shipping Platform No. 3


Finishing Lumber Shed No. 1

Seasonable Price Offers

Quick Service -- Low Prices -- Quality Goods

More Than 10,000 Contractors, Carpenters and Builders Are Our Regular Customers

Dressed Lumber Bargains

	Price per 1000 ft.
Shiplap, 1x8 No. 2 Yellow Pine	**$20.00**
Sheathing, 1x6 No. 2 Yellow Pine	**19.00**
Bevel Cribbing 1x6 No. 1 Yellow Pine	**24.00**
Drop Siding 1x6 No. 1 Yellow Pine	**24.50**
Barn Boards 1x12 No. 1 Yellow Pine	**27.00**
Flooring, 1x4 Clear Yellow Pine	**27.00**
Flooring 1x4 Clear, Quarter-Sawed Yellow Pine	**38.00**
Lath, 4 Ft. No. 1 Soft Yellow Pine	**3.20**
Shingles 5 to 2 Extra Clear Red Cedar	**3.60**
Siding, ½x4 Clear White Pine	**25.00**

Write for Free Estimate on Your Lumber Orders

5,000 BARGAINS SHIPPED ANYWHERE

"Quality" Paint—an ideal special Gordon-Van Tine mixed paint for houses. Full measure and full satisfaction guaranteed or new paint free. All colors shown in free catalogue or at our store.

Quarts	**$0.35**
Half Gallon	**.65**
Gallon Cans	**1.22**
Five-gallon Kits, per gallon	**1.17**

Also Quality Barn Paints at even lower prices; 75c per gallon and up.

All Builders' Hardware

Screen Door Latch	**65c** to **$0.85**
Screen Door Tension Hinge	**.75**
Combination Screen and Storm Sash Hangers, per set	**.10**
Roman Crack Filler, per carton	**.20**
Turned Porch Balusters, each	**4½c** and up
Turned Porch Spindles, each	**1½c** and up
Paint Brush, 4-inch, set in rubber	**.60**
Enameling Varnish Brush	**22c** and up
Floor Painting Brushes	**25c** and up
Kalsomine (all shades and tints) per 4-lb. package (enough for any room)	**.24**
Decorative Enamel, ¼ pints, all colors	**.09**
Also ½ pints, pints and quarts, **15c, 28c** and	**.48**
Putty Knives, each	**14c** and up
"Quality" Floor Brush, 14-inch, with handle	**.95**
Water Closet Brush, trouble saver	**.35**
Flush Sash Lifts, each	**.06**
Electric Bronze Push Buttons (with screws)	**.40**
Door Holders, can't slip, rubber cushion	**.50**
Inside Door Knob and Lock Set (complete and screws)	**43c** and up
Burglar-proof Window Ventilating Locks	**.15**
Cupboard Catches, each	**6c** and up
Hinges (small and large, all kinds), each	**6c** and up
Glass Drawer Knobs	**16c** and up
Sash Pulleys, each	**2½**
Picture Hooks, per dozen	**.08**
Picture Wire, 25 feet	**6c** and up
Door Bells	**36c** and up
Electric Door Bell Sets, complete	**.95**
House Numbers (Aluminum) per number	**.04**
Letter Box Plates, complete	**65c** and up
Crucible Steel Hammer ("Long Claw" Brand)	**.55**

Also thousands of other wholesale-to-consumer, low-priced, high quality building, remodeling and repairing materials illustrated in our catalogs and delivered direct-to-you anywhere.

Windows

2-Light, 26x28, 1¾ check, single strength	**$1.24**
2-Light, 40x40 and 16, 1¾ check, top leaded	**3.90**

Doors

2-8x6-8 1¾ One Panel Fir	**$2.64**
2-8x6-8 1¾ Five Cross Panel Yellow Pine	**2.09**

Rough Lumber Bargains

	Price per 1000 ft.
2x 4 16 Ft. No. 1 Yellow Pine	**$19.75**
2x 6 16 Ft. No. 1 Yellow Pine	**18.75**
2x 8 16 Ft. No. 1 Yellow Pine	**19.25**
2x10 16 Ft. No. 1 Yellow Pine	**20.00**
2x12 16 Ft. No. 1 Yellow Pine	**21.00**
2x 4 16 Ft. No. 2 Yellow Pine	**17.75**
2x 6 16 Ft. No. 2 Yellow Pine	**16.75**
2x 8 16 Ft. No. 2 Yellow Pine	**17.25**
6x 6 16 Ft. No. 1 Yellow Pine	**23.50**
8x 8 16 Ft. No. 1 Yellow Pine	**23.50**

We Guarantee Safe Delivery to Your Station

Write for Our Grand 5,000 Bargain Catalog, NOW!

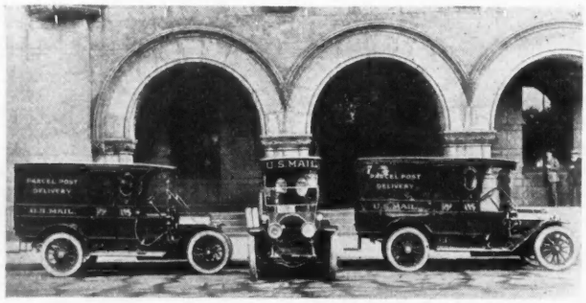
Get an idea of Gordon-Van Tine *Prices*. Get an idea of the scope of a 5,000 Bargain Stock. See how many things can be shipped *Anywhere at once*. See how little freight costs. Then remember Gordon-Van Tine guarantee prompt shipment, safe delivery and satisfaction, no matter where you live. Write for this catalog—this price guide. Then try a test order. See why there were 1,000 testimonials and 18,000 orders from contractors and carpenters last year.

GORDON-VAN TINE CO.

706 FEDERAL ST. DAVENPORT, IOWA

Motor Trucks to the Front

Reports, regardless of section, indicate that the motor vehicle is making fast headway in short-haul freight traffic and that the most significant strides of the truck industry during the present year will be in the country districts. KisselKar trucks are operated in many of these cross-country enterprises, and statistics in the possession of the Kissel Motor Car Company indicate that, owing to the elimination of delays in loading and unloading, railroad time is usually beaten by many hours. The prospect of higher freight rates for the railroads will add fresh impetus to truck prospects.



Three Kissel Kar 1500 Pound Deliveries at St. Paul Post Office.

Popular Style Transit

Contractors and builders will be interested in the "Media" transit, a new offering of Kolesch & Co., 138 Fulton Street, New York City. This instrument is built on the same substantial lines as their more expensive transits. It should be as important to the average engineer as an abridged edition of the Dictionary. They claim that it will do 90 per cent of the average engineer's field work. Their "Iron-Clad Guarantee" goes with each and every instrument.

Freight Allowed on this Roofing

The Rubber Roofing Mfg. Co., 5 Cortlandt Street, New York, N. Y., are quoting some very low prices on their "Apollo" brand rubber roofing. To introduce this brand to the readers of the AMERICAN CARPENTER AND BUILDER, freight is allowed on all shipments to any part of the United States. Samples of Apollo roofing will be sent on application, with prices.

Business Unhampered by Recent Fire Say Officials of the Heppes Co., Chicago

The fire which broke out in the plant of the Heppes Company, Kilbourne Avenue and Fillmore Street, Chicago, on the night of April 26th, caused little, if any, serious mishap to their business, according to an official statement recently sent out.

Mr. O. A. Heppes, secretary and treasurer of the company, which is universally known as manufacturers of Flex-A-Tile asphalt shingles, asphalt paint, asphalt roofing in any finish and Utility wall board, said that while the total loss approximates $25,000 the damage was insufficient to affect the operation of business to any appreciable extent.

"Deliveries of Utility wall board will probably be delayed for about ten days from the date of the fire," said Mr. Heppes. "We were unfortunate in losing a good part of our available reserve stock of wall board; but inasmuch as our manufacturing facilities are in no way impaired, we can safely promise deliveries within the ten-day limit I have given."

There will be no interruption whatever in roofing deliveries, as that section of the Heppes Company plant was untouched by the flames. In fact, the day after the fire, one of their biggest orders for Flex-A-Tile giant shingles, their new aspsalt shingle of extra weight, strength and thickness, was placed upon the cars for shipment.

Improved Steel-Handled Hammer

The Hawthorne Sales Corporation, 230 West Twenty-second Street, New York City, are offering an improved hammer which has several unusual features that will recommend it to carpenters and builders. The handle is made of steel tubing, smoothly enameled on the outside, so it will not blister the hands. This hammer cannot get broken; it will last as long as the head lasts. It is claimed also that the

handle will never loosen. It is keyed from the outer end with a wooden plug driven through the eye into the handle. Because of its special construction, the handle acts as a shock absorber and prevents jarring of the hand.

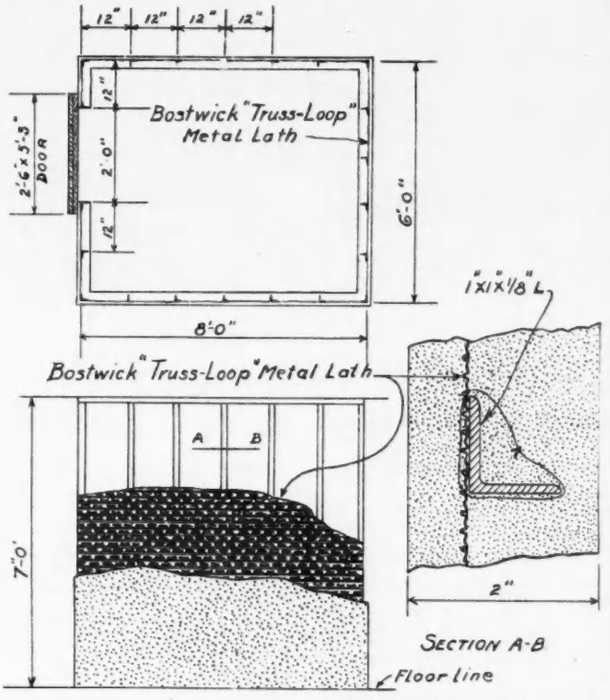
In addition to this improved handle, this hammer also has the "Hynaler" claw head. This is of particular interest to carpenters. An indentation under the claw allows for the insertion of the head of the nail, so that the nail can be held there while being started in a high place.

✣

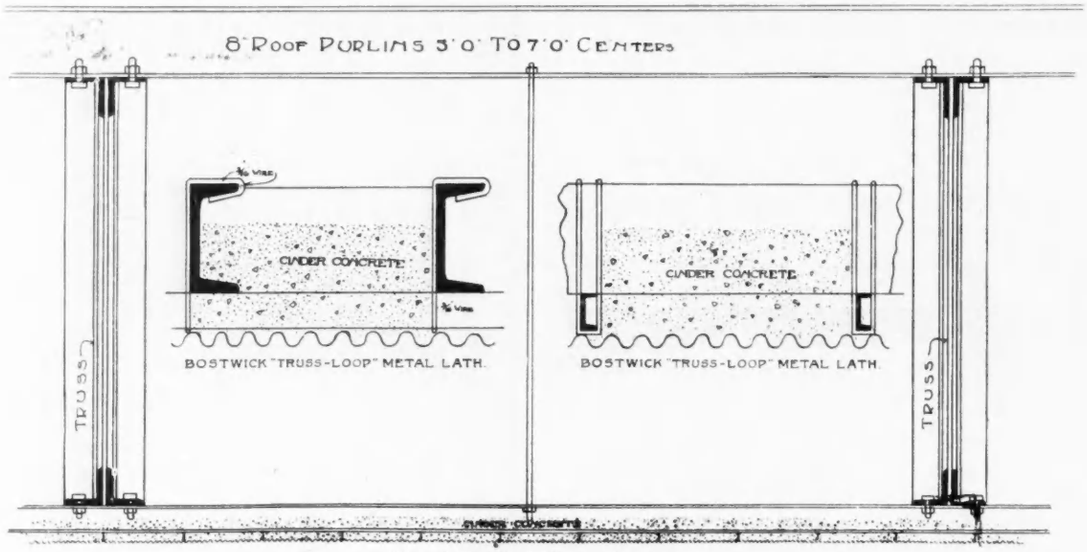
Metal Lath for Moving Picture Houses

It is said that there are 40,000 moving picture theatres in the United States. Probably in five years' time there will be as many more; anyway, there is a lot of work for builders to do in connection with the movie play houses.

Metal lath is being used very largely in certain parts of almost every moving picture theater, and the results are proving so satisfactory that more will be used as time goes on. The fire ordinances stipulate that the lantern booth shall be fireproof. For this metal lath and cement plaster make an ideal material. The accompanying working drawing shows how Bostwick "Truss-Loop" metal lath is being used in a new theater in Philadelphia. The booth measures 6 by 8 by 7 feet high; the walls are metal lath on 1-inch angle irons.



Construction of Fireproof Lantern Booth for Picture Theatres.



Method of Constructing Theatre Ceilings.

set on 12-inch centers. The cement plaster is laid on to completely imbed both lath and angles, making a reinforced concrete wall 2 inches thick. This, of course, makes a perfectly fireproof operator's booth. The expense is moderate and the construction requires a minimum of space.

Another interesting use of Bostwick metal lath was made in this same Philadelphia theater. The ceiling is lath and cement plaster carried on 1-inch steel channels, set 18 inches apart on 3-inch steel channels, set 4 feet apart, which in turn are hung from the lower cords of the ceiling trusses.

They also constructed their balcony floor by using Bostwick "Truss-Loop" metal lath and concrete, plastering the under side for the ceiling below.

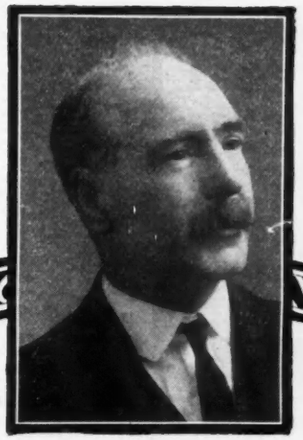
The Bostwick Steel Lath Company, Niles, Ohio, have some very instructive and interesting material concerning metal lath construction which they will send our readers on request.

✣

Increase Your Profits

You must take advantage of new ideas in saving time and labor and to cut your costs. You are in business to make money. You cannot afford to make mortises in the old fashioned way, when you can do the work in one-fifth

Harry Burton Bryce



John H. Fleming

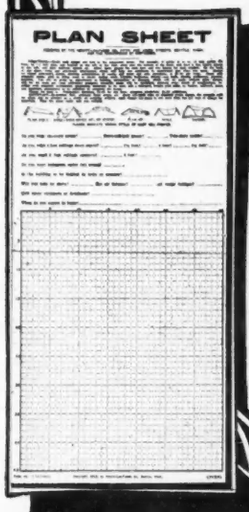
Harry Copley

We hire these men to help you—Use them

Let us introduce you to Mr. Bryce, Mr. Fleming and Mr. Copley. Mr. Bryce is our chief architect, Mr. Fleming is in charge of our special plan department, Mr. Copley is chief of our estimating department. These gentlemen and their large corps of assistants are employed by the Hewitt-Lea-Funck Company to help contractors and carpenters all over America. Each is an expert in his line—ready to give you prompt service and accurate service. No delays—no blunders. It's the business of these men to help *your* business.

Send your lumber lists for a quick price and a low one

Send us *right now*, the material list, for the house, you are figuring on. We will give you quick, by telegraph if necessary, delivered freight-paid price estimate, showing exact quantity and grade that we propose to furnish.



Rapid-fire service Our estimating force is twice as big as last fall—four times as big as last spring. We're ready to give you double-quick service. Simply send us a complete list of the materials to figure on. You get our estimate without a minute's delay and we promise that it will be *right* in every respect.

Prices that mean double profits Get our estimate and you will then *know* that we can save you money—big money—an amount as big or bigger than you have been expecting to make up on the *whole job*. This means that *you double your profits* by buying Hewitt-Lea-Funck lumber.

Expert plans at small cost

Prize Plan Book—100 good plans, 10c

Our great Plan Book has made a *big hit*. The first edition went like snow on a May day. Get this book—see what thorough and original work we do. You will find at least a dozen plans you want to use. For $2 you can get complete blue print, plans, specifications, material lists, and delivered freight-paid quotations.

Special plans $1.50 per room

Give us your rough ideas on plans—our special copyrighted plan sheet, showing reduced size at left, makes this easy—and we'll work up detailed plan for you.

Charges for all plans, stock or special, are refunded when materials are ordered.

Begin NOW making two profits on every job

Make the regular profit you have been in the habit of getting on the jobs that you handle—then make another profit—one just as big or bigger, by buying the lumber at a very great saving.

Buy your lumber direct from Hewitt-Lea-Funck

Our officers own large forests of fir and cedar. We cut and log the lumber, operate our own saw and planing mills. Ship you lumber and millwork of beautiful quality, DIRECT. Not one middleman. Just one profit to pay.

Quick deliveries—Satisfaction guaranteed

We fill all orders within 24 to 48 hours. Seven railroads compete for our business. Deliveries west of Mississippi in two weeks. As to quality we guarantee grades and guarantee better lumber than you can buy locally.

Do This Now *Send along the bills you are now figuring, for guaranteed estimate*

Hewitt-Lea-Funck Co.
408 Crary Building
Seattle, Wash.

Rush your silo orders

Many contractors have already placed orders for two and three Seattle Silos. This means a fine profit. Get after the silo orders. Get our proposition, if you haven't it, on

Seattle Silos **The silo with the wonderful swinging doors**

Made of one-piece Douglas fir, tough, strong and ideal for silos—and equipped with patented swinging doors—the handiest of their kind. *Write quick for our special silo proposition to contractors and carpenters.* Use the coupon.

Hewitt-Lea-Funck Co.,
408 Crary Bldg., Seattle, Wash.

(Be sure to write plainly)

Please send me at once:

[ ] Delivered, freight-paid price on enclosed list (no charge for quoting)
[ ] Delivered, freight-paid price on Seattle Silo, diameter_____ft., height_____ft.
[ ] Prize Plan Book (10 cents enclosed)
[ ] Special Barn Folder (4 cents enclosed)
[ ] Millwork Catalog and Lumber Price List
[ ] Special Silo Folder and Proposition
[ ] Copyrighted Plan Sheet (free, see illustration)

Name_____

R. F. D. or St. No._____

Post Office_____ State_____

Business_____

the time with a "Champion" Mortising Machine.

You use a telephone and a typewriter because they save time, labor and energy, yet you have been making mortises in the same old costly, time-consuming, back-breaking manner, with a brace, bit and chisel.

The modern business man is not satisfied with the profits that his father made. He is doing things in a more up-to-date manner and his profits are correspondingly larger.

Because he saves more time.

Don't stay in the old rut. Some people think that by using old fashioned tools and methods they have lost nothing because they have spent nothing.

You do lose the difference between your present costs and what they might be. The loss is there even if you do not see it now and is reducing your bank account.

If a machine will save time and labor and do the work as well, or better, *you need that machine.* An *hour* saved a day is a full *month* in a year.

If you need anything, the cheapest way is to get it. You are always paying for what you need whether you realize it or not. Did you ever stop to think of that? You are paying for it in time lost, labor lost, money lost, to say nothing of the loss of business and prestige and the unsatisfactory way of doing your work.

You will never get through paying for the things you need until you get them—then they will begin making money for you. That is the reason you need a Champion Mortising Machine.

Address the Colgan Machinery & Supply Co., 616 Hayden Bld., Columbus, Ohio, for full particulars.

✣

Frank H. Gould Goes with Geo. H. Bishop & Co.

The trade will be interested to learn that Frank H. Gould, who had charge of the selling department of Henry Disston & Sons, Inc., has bought an interest in Geo. H. Bishop & Co., Lawrenceburg, Ind. Mr. Gould has been connected with Disston for a period of thirty-five years and his resignation

Frank H. Gould.

comes as a surprise to his many friends in the trade. Mr. Gould has taken great interest in hardware association work, having served on the executive committee of the American Hardware Manufacturers' Association.

In his new connection he will have charge of the selling department and will visit the trade as in the past.

When you order flooring
be sure it comes from

CADILLAC

The Home of Quality

MAPLE—BEECH—BIRCH FLOORING

The forests of Northern Michigan yield the best timber for hardwood flooring. The trees are superior in quality and size and produce hardwood flooring of better average quality and lengths than can be procured elsewhere in this country. Cadillac Hardwood Floorings lead the market, because they are made from the best lumber, properly kiln dried and manufactured. The grades are not mixed to produce a cheap flooring. Regardless of price, if you want the best hardwood flooring, see that you get one of the following brands:

CUMMER-DIGGINS COMPANY

Manufacturers
"CUMMER" Brand

MAPLE
and
BEECH
FLOORING

Let us tell you how to get less than car loads at carload prices

Cummer-Diggins Co.
CADILLAC, MICH.

Beech Trees Attain Their Greatest Growth in the Native Forests of the Cadillac Region.

"ROCKHARD" Flooring

When you buy "Rockhard" Flooring, you may be sure you are getting the standard. If you use it once you will find how easy it is to lay and how serviceable.

"Rockhard" Maple Flooring combines Cadillac Quality, good and careful grading, experienced mill work. Attention to these things has made "Rockhard" the flooring you should use.

Our "Rockhard" Beech and Birch Floorings display the same excellent qualities as our Maple Flooring, and on account of their warm color tone, are often preferred for residence floors.

"Modern Hardwood Floors"

a twenty-five cent book, will be sent free of charge to CARPENTERS, Builders and Architects inquiring about "Rockhard" Flooring. A plain guide to the best method of laying hardwood flooring. Write for it.

MITCHELL BROS. COMPANY
Sales Dept.
CADILLAC, MICH.

"ELECTRIC" QUALITY FLOORING --- Maple, Beech and Birch

The best floors to live on or work on are made of wood. The best wood for interior floors is Maple, with Beech and Birch a close second for durability, and particularly desirable for appearance.

Floors made of Maple will last longer than mineral or other substitutes. There is nothing else "just as good" as a Maple, Beech or Birch floor. In addition to our large production of the standard thickness, $\frac{13}{16}$-inch flooring, we are specialists in manufacturing $\frac{3}{8}$-inch flooring in various sizes, woods, and selected features. It is not expensive, and a hardwood floor need no longer be considered a luxury.

May we write you why "ELECTRIC" Flooring SAVES Money and Trouble?

COBBS & MITCHELL, Inc. - Sales Dept. - CADILLAC, MICHIGAN

MAPLE *Cadillac* Hard Maple is unquestionably of the highest grade. Climatic and soil conditions all tend to make its quality Supreme, and in buying flooring, be sure it is *Cadillac* Maple. This wood, sometimes called Rock Maple, is unequalled as a flooring material. It represents the highest achievements in modern floor-making.

Our superior character of timber growth, and the thorough and systematic application of superior manufacturing and grading methods produce the famous *Cadillac Quality* Flooring.

BEECH *Cadillac* Beech is a close-grained, hard, strong and tough wood, and its durability is unquestioned. Beech is a close second to Maple in lasting quality and is particularly desirable for appearance.

The grain of Beech slightly resembles Oak. It is an excellent substitute for Oak and will wear longer and is cheaper. It has a natural warm tone and may be stained to produce many artistic effects.

Beech Flooring, made the *Cadillac* way, is what you should use and specify.

SPECIAL Our $\frac{3}{8}$" Maple, Beech and Birch Flooring, only slightly thicker than a carpet, can be easily and quickly laid upon the old floor without inconvenience or large expense, and is equally suited for new buildings, if laid on a smooth sub-floor. Being matched on sides and ends, the nails are concealed and cannot work out to the surface.

Made in different grades and selected colors to meet the varied requirements of the home-builder.

We sell only through your dealer. Send us his name if he does not handle *Cadillac Quality Flooring*.

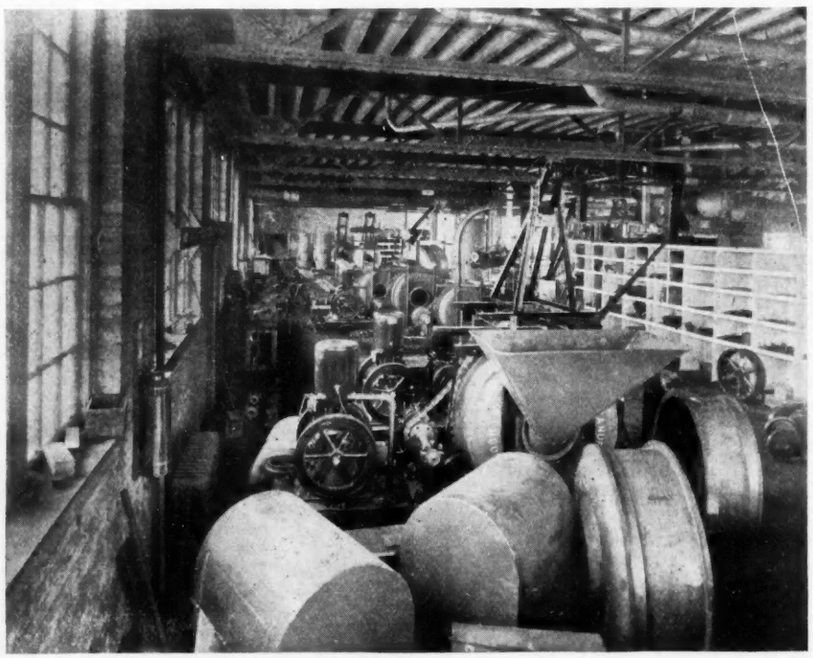
Where They Make the "Eveready"

It is with a great deal of pleasure that we reproduce herewith some interior views of the plant of the Oshkosh Manufacturing Company, 316 South Main Street, Oshkosh, Wis. Many of our readers are well acquainted with this concern by having bought of them their "Eveready Portable Saw Rig" or their "Oshkosh Concrete Mixer," and these will feel almost a personal interest in these photographs that show where their machines were made.

This company has built its success largely by giving value received for every dollar that they have collected. Their plant is complete—and now for their product.

The "Oshkosh Eveready Saw Rig" is enjoying much popularity among contractors and builders, due to the fact that it really does the work that it is intended to do. The frame, table and skids of the "Eveready" are constructed from the very best rock maple, air dried and afterward kiln seasoned. In fact, its entire construction is exceptionally strong and sturdy, so that it will stand every possible demand that can be put upon it. Besides cross-cutting and rip-sawing, the "Eveready" Saw Rig joints, sands, jig-saws, grooves, bores, mitres and grinds tools. It can be easily moved from job to job and is so simple that any one can operate it.

The efficiency of a portable saw rig—its ability to do the work of four to six men—depends largely upon the engine, and this feature of the "Eveready" has received particular



Mixers Assembling Floor at Plant of Oshkosh Manufacturing Company, Oshkosh, Wis.

WE ARE GOING TO CUT A MELON

And offer—to every Carpenter and Mechanic an opportunity to become interested with us. We are going to present to the working Carpenter and Mechanic, absolutely **free,** $25,000.00 worth of the capital stock of the Pennsylvania Saw Company, and why we are doing this, we will tell in a brief statement of facts:

The Pennsylvania Saw Company has ample Capital and Knowledge to manufacture the **Vanadium High Speed Steel Saw,** the Saw that has no equal, but believe by taking the Carpenter and Mechanic into Partnership—having them become Stockholders of the Pennsylvania Saw Company—that they will assist us to maintain the high standard of the **Vanadium Steel Saw.** We have now the most practicable Saw made, but we are always open for suggestions from the man who uses saws, and we **also believe in sharing our profits with the men who help us.** You can therefore earn one, or as many shares of Stock in this Company as you might care to work for.

For every $4.00 order sent direct to the factory, we will present One Share of Capital Stock —par value $1.00 per share—and furthermore, this Company GUARANTEES to retire this Stock at the expiration of two years at $1.25 per share—cash - if the holder wishes to sell.

HERE ARE THE PRICES FOR VANADIUM STEEL SAWS—

16 in.	18 in.	20 in.	22 in.	24 in.	26 in.	28 in.	30 in.
$1.40	**$1.50**	**$1.60**	**$1.75**	**$1.90**	**$2.00**	**$2.25**	**$2.50** any style and teeth.

Factory pays parcels post charges at these prices to any place in United States.

Vanadium Steel Saws are guaranteed to be superior to all others.

A defective saw is immediately replaced.

IMPORTANT SUGGESTION

If you cannot use enough Saws to make the $4.00, get one of your friends to order a Saw as a favor to you. You can then become a Stockholder in

PENNSYLVANIA SAW CO.
FRACKVILLE, PA.

Pennsylvania Saw Co., Frackville, Pa.

Gentlemen:

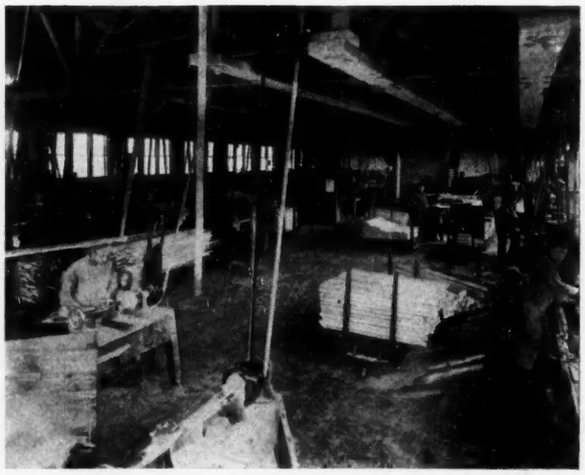
I enclose $.....for your A. C. & B. June offer, for which send me by parcel post, prepaid

Length.....in. Teeth..... Wide Blade / Narrow Blade — Straight Back / Skew Back — Rip / Cut off

It is distinctly understood that I can return any or all of these Saws if they are not satisfactory after 30 days' trial, and that you will refund the purchase price upon receipt of Saws, in which case I agree to return Stock issued to me.

Name.....

Address.....



Part of Woodworking Shop at Plant of Oshkosh Mfg. Co.

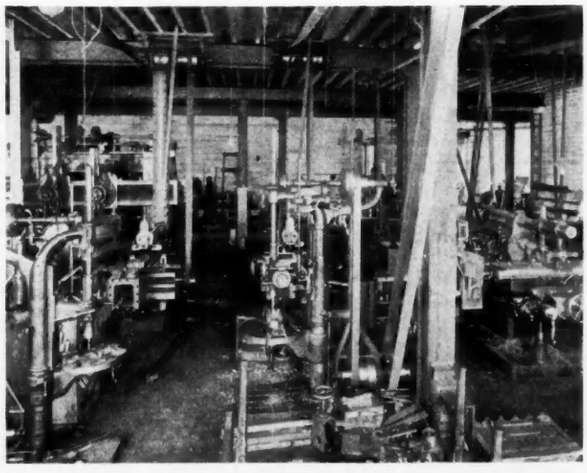
attention. The engine is especially designed and built by the Oshkosh Manufacturing Company particularly for this machine, and the company guarantee that this engine will develop over four actual brake horsepower.

The "Oshkosh Concrete Mixer" is built as a mixer should be built, and the strong claims made for it seem to be fully justified by its service record on many jobs throughout the country. It is simple, strong, durable, efficient and economical of operating power, and has very few parts. However, the strongest claim this company make is for effective mixing. This mixer is known as "the mixer with the effective four-way mix." The mixing projections are so arranged in the drum as to produce a quadruple or four-way mix, which means turning, pouring, kneading and flowing of the batch while it is being mixed. This method insures a perfect mix.

It has ample capacity, combined with speedy mixing arrangement. An idea of the mixing speed and efficiency of the Oshkosh Mixer can be gathered from the fact that the mixture is put through all these operations in one revolution.

THE AMERICAN CARPENTER AND BUILDER wishes that every reader of the paper could visit this plant and see for themselves how complete it is; what facilities they have for turning out good saw rigs and good mixers.

The Oshkosh mill equipment consists of a 20,000 board feet capacity per day, band mill with five-saw gang edger that will rip up a plank into five squares at one run, and the usual complement of smaller rip and cross-cut saws.



View of Machine Shop at Oshkosh Mfg. Co. Plant.

Built with ALPHA

means that the far-sighted owners and builders selected the highest grade Portland Cement that present-day knowledge and the most modern equipment can produce.

"Built with ALPHA" means that the thing on which the life of the building most depends is a cement that represents 23 years of experience—a cement that is tested hourly, day and night, by chemists and chemical engineers whose authority in upholding quality is supreme.

You can be sure that the grip of the concrete will be everlasting, that the structure will be imperishable, when

ALPHA PORTLAND CEMENT

The High-Water Mark of Quality

is specified and handled right, for every bag of ALPHA is guaranteed to more than meet all standard requirements.

Six great ALPHA plants on six trunk-line railroads; one plant with private docks directly on the Hudson River; capacity, 25,000 barrels daily; storage for 2,000,000 barrels. Specify ALPHA and be sure of prompt shipments of properly burned, properly ground, properly aged cement at all times, and a service that is on a par with the high quality of ALPHA Cement.

Let us send you, free of charge, valuable literature dealing with the use of ALPHA Portland Cement, with stucco work, concrete houses, and concrete improvements generally. Ask for ALPHA Book No. 10 and ask also for special literature on the kind of concrete work that most interests you.

Alpha Portland Cement Co.

General Offices:
EASTON, PA.

Branch Offices: New York, Chicago, Philadelphia, Boston, Pittsburgh, Buffalo, Baltimore, Savannah

Interior of Machine Shop at Oshkosh Mfg. Co. Plant.

The wood shop machinery consists of pole lathes, gang lathes, band lathes, dowel machines, broom and mop handle and tent slide machines, sanders, band saws, cross-cut saws, boring mill, Defiance machines to make insulator pins, planers and jointers, etc.

Steel is purchased in enormous quantities under contract, to secure the best price possible. Mild, crucible, tool and cold rolled steel are used in large volume, as well as several different kinds of much higher grade steel in smaller quantities. As practically all Oshkosh steel is purchased in flat, round or octagon shape, a well-equipped blacksmith shop is necessary. Equipment consists of twenty-one large coke furnaces, fifteen smaller forges, fifteen air, beam, or drop hammers, four "bulldozers" and two large forging machines, as well as all kinds of boring and bending machines, drills, grinders, etc.

The machine shop equipment consists of a large boring mill and double-head radial drill, and the regular equipment of lathes of Niles-Bement and Pond manufacture, the planer and shaper of the Cincinnati Milling Machine Company's make, and several small millers, etc., as well as the usual complement of saws, drills, etc.

Plant is of steel, brick and concrete construction throughout. Central station electric power is used, and factory is also electrically lighted throughout.

Space forbids going further into details of construction of the "Eveready" Portable Saw Rigs and Oshkosh Concrete Mixers. Those who are interested in obtaining full information should write to the Oshkosh Manufacturing Company, 316 South Main Street, Oshkosh, Wis., for their complete catalog.

HONEYMOON HOMES

Should be built of **Arkansas Soft Pine**

It Prevents { **the honey from going stale,**
the moon from waning.

It brings back the honeymoons of yesteryear. If from any cause your moon has waned, move into an **Arkansas Soft Pine** home as quickly as you can. You will find the honey again, sweeter and more attractive than ever.

Send for "How to Build"; learn how to make a Honeymoon Home.
Send for our "Trim Book" and learn how to feather the nest.

This advice applies, whether you are architect, contractor or owner.

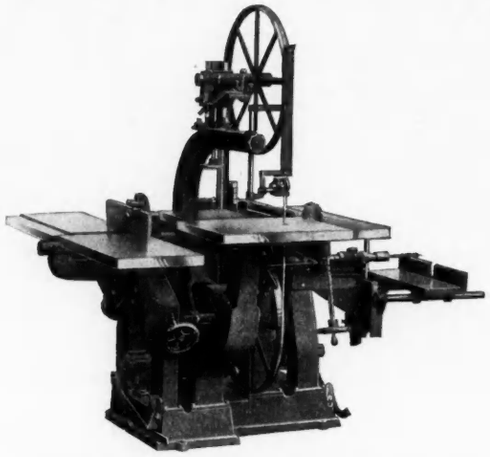
Arkansas Soft Pine Bureau

1739 Transportation Building **Chicago, Illinois**

New Model Low-Cost "Crescent" Universal Woodworker

The new "Crescent" catalog is just off the press and copies are now being mailed out to those writing in for them. A machine is described that is meeting with general favor—the No. 101 to No. 112 Universal woodworker. This machine combines band saw, jointer, saw table, borer and shaper. The user may buy the machine without band saw and shaper. Other attachments may be added, adapting the machine for mortising, tenoning, making mouldings, grinding tools, sanding.

The machine is intended particularly for these users of woodworking machines who feel that they cannot afford a complete outfit of individual machines, and at the same time hesitate to make the investment required for the "Crescent" No. 51 to No. 59 Universal woodworkers.



New Model "Crescent" Woodworker.

Wherever the machine is introduced, it is meeting with general favor, and from present indications it is going to prove to be a very popular tool.

Write the Crescent Machine Company, 224 Main Street, Leetonia, Ohio, for a copy of this new catalog, giving complete specifications.

✣

A Remarkable Book on Flat Slate Roofs

A new pamphlet, 32 pages, handsomely illustrated, issued by the Bangor Slate Association, Bangor, Pa., gives a remarkable evidence of the popularity of this well known slate, not only for steep roofs, but also for flat roofs.

Come to think of it, there is no reason why the merits of this standard slate should not commend it for flat surfaces as well.

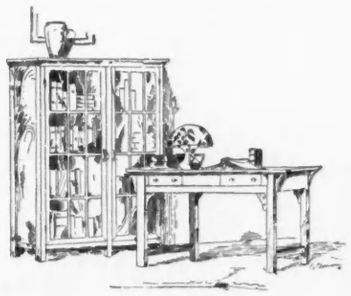
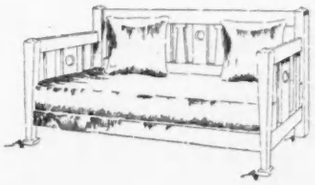
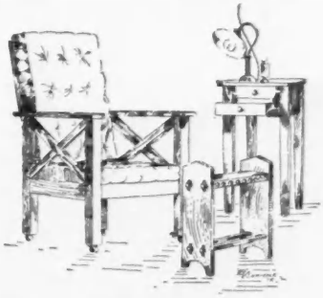
The only reason we are not aware of it, is because on a flat surface the roofing is out of sight; whereas, it is very much in evidence on a steep roof.

The booklet is handsomely illustrated with a variety of buildings that include a million dollar skyscraper, a half-million dollar city school, a $5,000 store building, a $500 shed.

One of the most remarkable features about this pamphlet is the policy that governs its publication.

Although some of the roofs illustrated have been in service for thirty years, this is the first time the Bangor Slate Association has published a booklet on the subject, has gone on record in black and white, recommending flat slate roofs.

The reason for this "thirty year triumph of silence" is due to their policy to make sure of the only test that counts—the test of time—before recommending their goods to the public.

Furniture Making Made Easy—

A FINE RECREATION FOR ALL HOME LOVERS

You know enough about tools and how they are used, to make some pretty nice things. You have the ability; these books give you the working drawings, designs, mill bills and instructions. Why not fit up a little shop for yourself and the boys where you can make some handcraft furniture and have real pleasure in doing it?

HAVE THE FUN OF FURNISHING YOUR OWN HOME

Your home can be made more comfortable and beautiful. Hand-made furniture is all the rage. It's so substantial; and your pride in it will be doubled because you made it yourself. There's no end to the work you can do if you follow our instructions. You simply can't make mistakes. You can make beautiful, sturdy pieces of furniture at a trifling cost.

READ THE TABLE OF CONTENTS OF THESE USEFUL BOOKS

VOLUME I

EQUIPMENT OF THE HOME SHOP
Value of Good Tools—The Bench—Rapid-Acting Vise—Outfit of Tools (Planes, Chisels, Saws, Gauge, Screwdriver, Try-Square, Bevel, Hammer, Brace, Bits, etc.)—Grindstone—Miter Box, etc.

USE AND CARE OF TOOLS
Uses of Try-Square—Working Face—Joint-Edge—Testing for Squareness, Uniform Width or Thickness, etc.—Marking Gauge—How to Gauge Lines—Saws (Crosscut, Rip)—Position in Sawing—How to Hold Saw—How to Hold Work—Accurate Sawing—Ripping—Good and Bad Sawing—Modern Plane and its Parts—Smooth-Plane—Jack-Plane—Setting the Blade—Adjusting Cap and Plane Irons—Planing and Finishing Surfaces, Edges and Ends—Free End Planing—Chamfers—Chisels and Chiseling—Grinding Beveled-Edge Tools—Use of Grindstone—How to Sharpen Chisel on Whetstone—Grinding and Whetting—Sharpening Plane-Irons—How to Tell Whether a Tool is Sharp or Not—Use of Scraper.

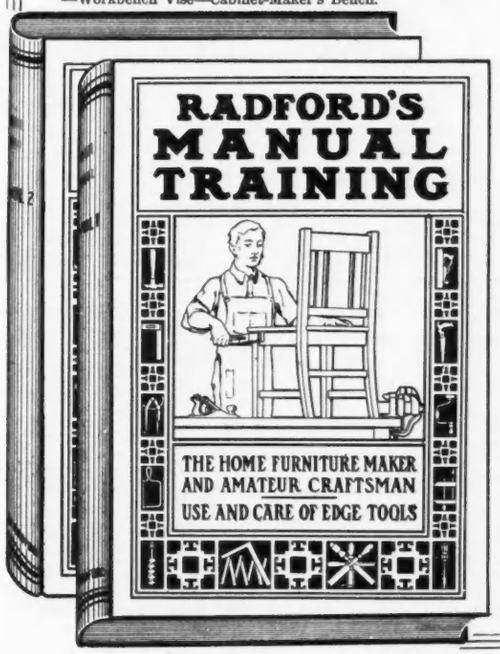
MODELS FOR HOME WORKSHOP CONSTRUCTION
Furniture Designs—Itemized Stock Bills—Working Drawings—Simple Bookcase or Magazine Stand—Convenient Book-shelves—Six-Sided Tabouret—Eight-Sided Tabouret—A Book Rack—Three-Part Screen—Footstool—Library Table of MissionDesign—Heavy Six-Sided Table—Drawing Board and T-Square—Folding Porch Chair—Porch Swing—Set of Porch Furniture—Arm-Chair—How to Make a Steam Box—Settee—Side Chair—Piano Bench—Mission Chair—Settle of Mission Design—Pierced Ornamentation—Tabouret and Settee of Pierced Ornamental Design—Morris Chair—Simple Morris Chair Design—Leather-Upholstered Arm-Chair and Rocking Chair—Large Mission Rocker—Writing Desk—Bookcase with Paneled Glass Door—Linen Chest—India Stool—Weaving Stool Seat of Rush Fiber—Hanging Clock of Mission Design—Hall Clock—Hall Clock of Mission Design—Hall Tree—Umbrella Stand for Hall—Plant Stand for Pedestal—Use of "Winding Stick"—Electric Light Pendant Fixture—Carpenter's Workbench—Workbench Vise—Cabinet-Maker's Bench.

VOLUME II

MANUAL TRAINING IN EDUCATION
HANDCRAFT FURNITURE MAKING
Ornamental Plant Stand—Hat Rack and Key Rack—How to Make a Necktie Rack—A Tea Pot Mat—Decorated Foot Stool—Foot Stool With Keyed Tenons—Leg-Rest—Tabourets with Pierced Ornamentation—Stools with Pierced Ornamentation—Tabouret with Straight Legs—Telephone Table or Stand—Plant-Stand—Simple Umbrella Stand—Enclosed Umbrella Stand, Ornamental—Coat and Hat Rack—Mirror Shelf—Hall Rack with Mirror—Umbrella Rack for Hall—How to Make a Fireless Cooker—Sewing Cabinet and Folding Table—A Strong Utility Chair—Dutch Chair with Rush Seat—A Sewing Room Rocker—Mission Rocker with Cobbler's Seat—Leather Upholstered Rocker—Big Morris Chair—Library Easy Chair—Mission Settle with Diagonal Back Pieces—Heavy Mission Settle—Straight line Mission Settle—Davenport, Leather Upholstered—Piano Bench with Hinged Top—Piano Bench with Keyed Tenons—Kitchen or Side Table—General Utility Table—A Large Library Table—Library Table with Leather Top—Flat-Top Desk or Desk-Table—A Square Dining Table—A Serving Table—A Plate Rack—Magazine Stand with Cabinet Top—A Writing Desk—Craftsman Bed of Wood—How to Make a Chiffonier—Writing Desk of Plain Design—A Table Book Rack—A Porch Swing—Electric Table Light—Electric Chandelier—To Make a Book Trough—A Dictionary Stand—A Picture Frame with Shelf—Round Top Table—Mission Candlestick—Massive Arm Chair—Side Chair of Straight Line Design—Morris Chair—How to Make the Mission Rocker—Carved Book Rack for Table—Library Table with Book Shelves—Big Easy Rocker—Electric Drop Lights—Heavy Mission Library Table—Art Craft Bedstead—Wood Screen for Bedroom.

SUGGESTIONS FOR FURNITURE DESIGNING
Kitchen Furniture—Kitchen Table—Wood-Box—Cottage Chair—Cottage Serving Table—Chair Cabinet—Extension Table—Dressing Table—Round-Top Table—Table—Twin Beds—Mirror—Library or Den Furniture—Morris Chair—Foot or Leg Rest—Light-Stand—Bookcase—Library Table—Settle—Chair—Sewing Table—Well-Furnished Hall—Settle—Umbrella Stand.

OTHER POPULAR HANDCRAFT WORK
Hammered Metal Work for the Home Shop—Stenciling—Stenciling with Flat Oil Paints,—Single-Color Stenciling, Two-Color Stencils—Modeled or Art Leather Work—How to Build a Canoe—Retrospective.



Complete Designs, Clear Drawings and Full Instructions

These books describe the article to be made and tell you how to do it in a simple, understandable way. They tell you how to lay out the work; how to work it; how to put it together; and how to finish it. Everything is complete and made still plainer by very clear drawings and illustrations.

Art Work, Tooled Leather, Hammered Brass and Copper

In addition to the largest assortment of beautifully-designed handcraft furniture ever put into book form, RADFORD'S MANUAL TRAINING books contain special departments devoted to the home arts, working with leather, brass and copper. The designs of the furniture and other articles shown throughout these books are original, serviceable and pleasing. The value of this guide for the home-craftsman is worth many, many times its price.

RADFORD'S MANUAL TRAINING in 2 Volumes (622 pages, size 6 by 9 inches), thoroughly indexed, Cloth Bound, printed on good heavy paper and thoroughly illustrated with drawings and full-page half-tone engravings, will be sent, prepaid, on receipt of check, money-order or currency.

Price, $3.00 Per Set, Postpaid

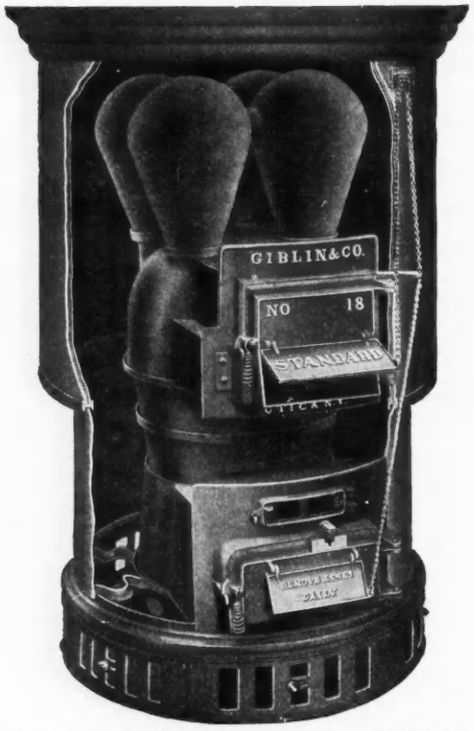
Radford Architectural Co.

1827 Prairie Avenue :-: CHICAGO, ILL.

Giblin Standard School Room Heater

The first necessity of a schoolroom is good ventilation. There has been a great awakening in this respect, and all over the country school boards are recognizing the necessity of discarding their old stoves and room heaters, which fail to heat and ventilate properly, and are looking for an apparatus which will not only work well, but will do it with economy in operation and labor attendance, and freedom from repairs. For this reason, Giblin & Co., 501 Broad street, Utica, N. Y., have placed on the market their all-cast-iron Giblin Standard School Room Heater, illustrated

This School Room Heater is designed to heat the room and thoroughly ventilate it. A concrete foundation is provided, 2 inches in thickness, on which the heater will stand.



Giblin School House Heater. It Heats and Ventilates.

This foundation effectually prevents any possibility of fire. This heater provides for heating not only the air in the room, but also air taken from outside.

In the panels in the base of the heater are openings furnished with slides so that one or all the openings may be used as desired. When thes lides are open, the air is admitted from the room to the hater chamber, heated and sent upwards in the room, and descends to the floor as it cools. In this way, the circulation of the air is continuous.

Write today for free book.

✣

Tailor-Made Millwork at Ready-Made Prices

SPEEDING UP THE DELIVERY ON SPECIAL WORK SO AS TO GIVE PROMPT SERVICE ON ALL ORDERS

Nine years ago the Cleveland Window Glass & Door Co., of Cleveland, Ohio, decided on a radical and far-reaching change of policy; to change from wholesale exclusively to dealers, and on their out-of-town woodwork to extend to all out-of-town builders the full facilities of their extensive woodworking mill and stock, also to give them net wholesale prices on their entire line of woodwork, glass and paint.

This new policy proved at once so popular that it has been continued, and thousands of contractors and builders all through the eastern and central states have had the benefit of it.

This policy gives to all builders east of the Mississippi River the opportunity to buy supplies of the highest grade at prices far below those ruling in most of their home markets, and to get service on special millwork in most cases much more promptly than they could obtain through their local mills; and especially so where the home dealers depend on out-of-town sources of supply.

To accomplish this quick service new methods and systems in millwork had to be invented or adopted.

As far as possible all material is kept partly made up, so that the final operation requires but a fraction of the usual time.

For example, for hardwood veneered doors in oak and birch the stiles and rails are cored, veneered, and edged ready to machine. By this method an odd size hardwood veneered door can on special occasions be finished in a day or two—which would require 4 to 6 weeks in many mills.

An odd sash with this system of having all the parts cut and machined can be finished in an hour, that would take days or weeks in the average mill.

Throughout the mill extra power machines, room and stock are provided so as to round out a uniform quick service.

Combined with this is a warehouse 200 by 100, 3 stories, filled to the roof with stock doors, sash, frames, finish, and porch material, together with shops for art glass, mirrors, bevel and prism glass, and full wholesale stocks of plate and window glass and paint supplies.

To make dealing easy to all, liberal terms of credit are extended to all responsible parties with large cash discounts to those who prefer to buy in that way.

The trade sought for and solicited is that of the best class of contractors, who demand and appreciate good work, modern designs and prompt service.

Free Trip to Cleveland

To establish personal relations with these customers and to show them what they can depend upon in the matter of quality and delivery of special millwork and all goods used in connection, an offer is being made to all builders in this territory (see their advertisement) whereby railroad fare both ways is paid, providing the builder will go to Cleveland and inspect their mill, warehouse and other facilities, and purchase woodwork to the amount of $100.00 or over. This offer has been accepted by hundreds of builders who have become permanent and enthusiastic customers.

That the liberal dealing, high standards and progressive policy so long maintained by the Cleveland Window Glass and Door Co., are appreciated by the best builders is evidenced by the constant growth of their business and the large territory from which trade flows to them.

HEADQUARTERS

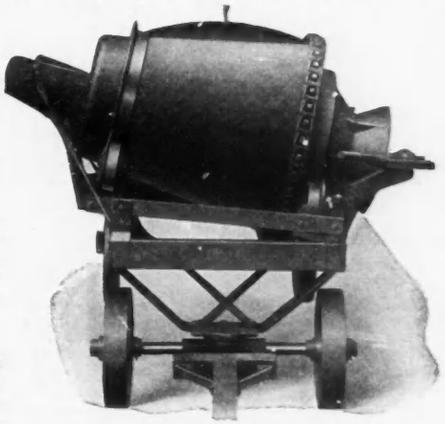
LOWEST PRICES — FOR CONCRETE MACHINERY — GUARANTEED QUALITY

Low Charging Northwestern Special Mixer. Mix always in plain sight.

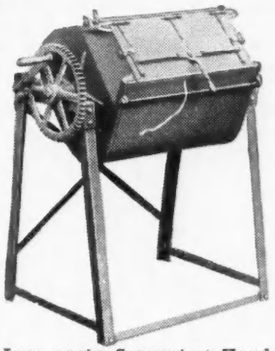
Northwestern Machines are sold direct from the factory to the user. You get the *wholesale price.* We make them; we sell them and we know just how good they are—what fine values at exceptionally low prices. We can supply you with any machine of guaranteed quality at a rock-bottom price.

Northwestern Special Concrete Mixer

Five cubic feet per batch. Combined mixing principle of cone and cylindrical shaped drum. Low charging. High discharge. Drop and whirlpool mix always in plain sight. Light, strong and portable. Wide faced truck wheels. Hot riveted and steel braced truck frame. This is the biggest offer ever made. A mixer that is first class in every way and the price will save you $200 or more. Get full description of the Northwestern Special before you place your mixer order elsewhere.



Shape and Tilt of the Drum gives greatest capacity.



Inexpensive Carpenter's Hand Power Mixer. Easily operated.

Carpenters Hand Batch Mixers

A dandy little mixer for Carpenters, Masons or Farmers. Big improvement over all other hand mixers. Made of best steel and cast iron. Weight, 220 lbs. Easily turned. Drum makes 15 revolutions per minute. Will handle 3 cu. ft. of loose material and requires only from 1½ to 2 minutes to thoroughly mix a batch. If you want an inexpensive machine, investigate this mixer It's a big bargain at the price..... **$23.00**

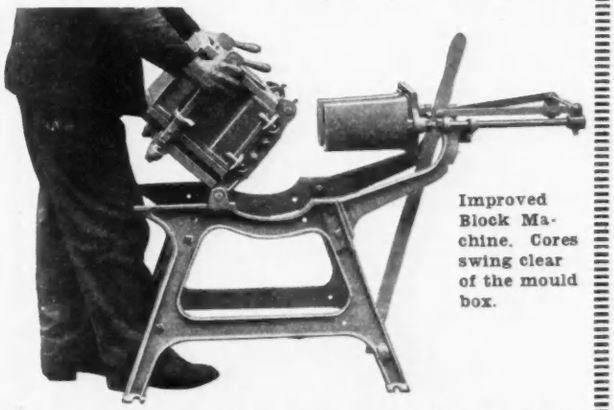
Improved Face-Down Block Machine

combines the three advantages of Speed, Large Output, and Low Price. Makes *all styles* of blocks that are of perfect design and finish. Simple in operation. Cores when withdrawn swing clear of the mould. No broken blocks. Made of heavy gray iron. Strongly braced, rigid frame. Perfectly balanced tamper. Improved device makes it easy to lock or unlock the mould *instantly.* This is an ideal machine for the Contractor or for Block Plants. Order one now. Complete description of this Block Machine, outfit, capacity, construction, etc., on pages 24 and 25 of our new Catalog. Write for this Free Book now.

Northwestern Six Brick Machine $26.00

Capacity 1,500 to 2,000 brick per day. The least expensive and handiest outfit for making perfect cement brick. Cast iron stand. Steel and iron mould box. Absolutely perfect in mechanical construction and designed to give the strongest, clean-cut product with the least amount of labor. Greatest variety of faces. Very simple to operate. Weight, 170 lbs. Full description sent on request.

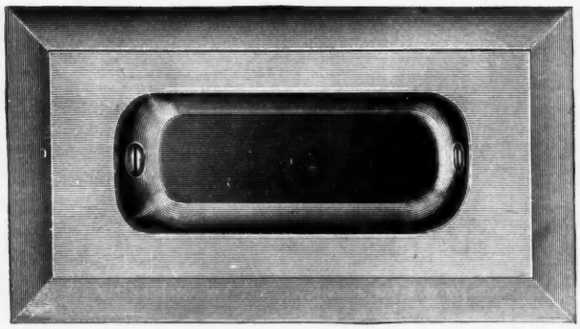
A Hand Power Brick Machine of great capacity and strength.



Improved Block Machine. Cores swing clear of the mould box.

SEND FOR BIG ILLUSTRATED CATALOG OF THE COMPLETE NORTHWESTERN LINE Mixers, Hoists, Brick and Block Machines, Moulds of all kinds, Wheelbarrows, Crushers, Forms, etc.

Northwestern Steel & Iron Works, 625 Spring Street, EAU CLAIRE, WIS.



Shelby Broad Bevel Flush Sash Lift

The Shelby Spring Hinge Co., Shelby, Ohio, recently added to their extensive line of builders' hardware, a new Flush Sash Lift, which is meeting the demand for a high-class sash lift.

The broad beveled edges give it a very massive appearance.

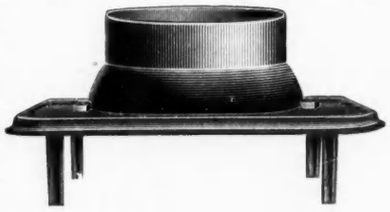
It is made from wrought steel—real bronze—or brass, finished to match any interior hardware.

Packed ¼ gross in box with screws to match.

✣

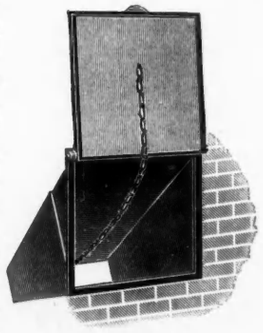
The "Best" Chimney Cap

The Sterling Foundry Co. are offering a neat appearing cap made of cast iron and guaranteed to last for years. This cap, as illustrated, is designed to replace the old style galvanized sheet iron hood. The average life of sheet iron is from one to two years. The "Best" will last for years, for cast iron will last longer than any other form of iron or steel when exposed to the weather.



It is made in three sizes and the legs have a radial adjustment so that each size will fit any chimney up to the largest size for which it is designed. The legs project inside the chimney to prevent the cap from blowing off. It is not necessary to use mortar or cement to fasten this cap to the chimney as the legs will keep it in place. To put cap on chimney adjust the legs to the size of the flue and set it on.

Another popular item in the Sterling Foundry Co.'s line is the "Best" Fuel Chute. The accompanying illustration shows the chute set in the wall. It sits flush with the wall, on the outside of building and is 28 inches long on top. The frame and door are cast iron, the tube is made of No. 16 steel. When not in use, draw chain tight and attach it to the hook at bottom of tube, which securely locks the door, making it burglar proof. To open the door, attach the last link to the hook and when door is open, it holds chain to top of tube out of the way.



Fuel Chute Open

The cover is held open by the hook on door engaging with hook on top of frame, the door opening up protects the siding. "The Best" has a flange overlapping the top of door, thus preventing the rain from running down the chute and rusting it out.

Address the Sterling Foundry Co., 888 Wallace St., Sterling, Ill., for illustrated catalog.

UTILITY

the only five-ply wall board on the market

meaning 5 layers of fibre board and 4 layers of asphalt

—additional proof

HEYWOOD BROTHERS AND WAKEFIELD of Chicago, internationally famous as makers of fine cane-seated furniture, line their lumber dry kilns as well as their varnish dry rooms with UTILITY Wall Board exclusively. To date, their UTILITY orders approximate 40,000 square feet.

They chose UTILITY as best only after careful comparisons and severest tests. In their dry kilns alone, the wall board is subjected to the extremes of dampness, heat and dryness—and these conditions change from one to the other every fifteen days.

It's the "Stuff" That Goes Into UTILITY

Concerns like Heywood Brothers and Wakefield, the Packard Motor Car Company and hundreds of others in scores of different lines prefer UTILITY Wall Board because it meets their most exacting requirements best in every way.

We now make UTILITY five-ply, because the five layers of high-quality fibre board in addition to the four layers of asphalt give that much more strength and stiffness than the usual two or three layers.

It's a *much more moisture-proof* wall board too, because now there are *four layers* of asphalt—but besides this we cover the entire outer surface with a specially prepared moisture-proofing.

Once properly applied, UTILITY is on to *stay on*—won't check, chip, crack or fall off.

Samples Free—Write Us

Judge for yourself; make your own comparisons; get actual proof of UTILITY quality in your own hands. Just write saying, *"Send UTILITY samples and literature."* Address, The Heppes Co., 4503 Fillmore Street, Chicago, Ill.

Manufacturers also of Flex-a-Tile Asphalt Shingles, Asphalt Paint and Asphalt Roofing in Any Finish.

4503 Fillmore Street

THE HEPPES CO.

CHICAGO U. S. A.

Shipment of Atlas Mixers all Ready to go to a Large New York Contractor.

Mixers by the Wholesale

When we looked at this photograph showing a shipment of eleven concrete mixers all ready to go to a single contractor we couldn't help but think of the thousands of other contractors who are still debating and wondering and everlastingly talking about buying one mixer.

They wonder if it will pay, and if it will do the work right, and if it would really save them any money—and all the time the building season is flitting by, while somehow they never get around to trying out the concrete mixer proposition for themselves.

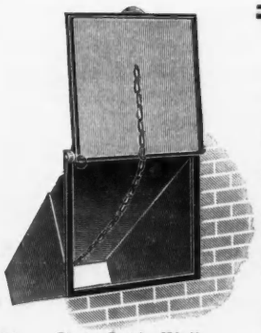
This contractor, and he is a large one operating in New York City, orders eleven "Atlas" mixers at one time. He has tried them out before and knows what he is getting. It's a pretty good testimonial, we think, for concrete mixers in general, and for the "Atlas" mixers in particular.

The Atlas Engineering Company, 780 Thirtieth Street, Milwaukee, Wis., have just issued a new catalog illustrating their line of concrete mixers. Our readers will be interested to see it. Copies will be sent to all who will write the company for them.

"Wife's Joy" Dumbwaiter

Truly a real joy to the housewife is the ball-bearing, disappearing dumbwaiter made by the American Elevator Company, Bloomsburg, Pa. This is a very simply arranged dumbwaiter; can be installed complete in two hours' time. It takes up no room in the kitchen, as the top lies flush with the floor; when in its lowered position it can be walked on.

Carpenters and builders are doing well acting as agents for this elevator, installing them. Write the company for full particulars.



Chute Set in Wall.

"Best"
FUEL CHUTE

A strong Steel and Cast Iron Chute that is easily set in the wall and will last as long as the building. Burglar proof lock. Special device for holding door open when chute is in use. Flange overlaps top of door, preventing rain from running down and rusting the chute.

THREE SIZES

No. 1—18x18" No. 2—18x24"
No. 3 20x26"

Chute closed ready for shipment.

Prices Extremely Moderate
Send for Catalog

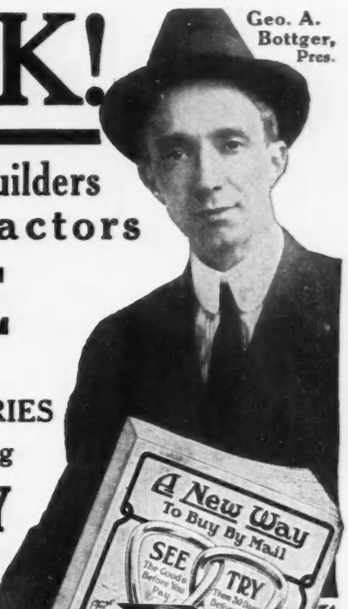
We also make Chimney Caps, Chimney Tops, Flue Thimbles, Chimney Coping, Clean-out Doors, Door Holders, Cistern and Coal Hole Covers, Cess Pools, Door Pulls, Latches, Sash Hangers, etc.

Fine Illustrated Catalog Free

Sterling Foundry Company
No. 888 Wallace St., Sterling, Illinois

LOOK!

Geo. A. Bottger, Pres.



Carpenters--Builders and Contractors

SEE

What The UNITED FACTORIES Offer You During

JUNE - JULY AND AUGUST

This Big Book is FREE

Write a Postal for It Today

Quotes lowest prices on all kinds of Roofing Paint, Gasoline Engines, Buggies, Harness, Fencing, Furniture, Pianos, etc.

Factory No. 1 Pays the Freight!

During the next 3 months you get Unito Ready Roofing laid down at your own freight depot for the price usually asked at the factory. For example:

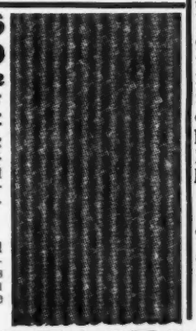
90c PER ROLL buys our famous Unito Challenge and Two-in-One Roofings. We also make Double Flint Coat, Unito Rubber Roofing, and Unito Diamond Coat (The very Best Ready Roofing made) all at low prices—all fully guaranteed and shipped prepaid on 30 days' free trial, without a cent in advance. Get our prices also on Slate and Granite Coated Asphalt Shingles, cut separately or put up in easy-to-lay continuous strips.

PRICES SLASHED
By Factory No. 2

If you are in the market for any kind of Metal Roofing, Metal Shingles, Metal Ceilings, Eaves Troughs, etc., be sure to send at once for our new cut price list. Never before such prices. They will help you under-bid your competitor. Get in your specifications now and take advantage of this big saving. Remember we sell

No "Wrecked" Goods—No Seconds

Everything from absolutely new, freshly rolled and heavily galvanized stock, carefully inspected and guaranteed the best you can buy. All shipped on 30 days approval, with privilege of return at our expense if you are not pleased. No money asked in advance. We take all the risk. Send in your orders now.



Write for Catalog

Guaranteed 5 Yrs.

FREIGHT PAID
By Factory No. 3

The more particular you are about the paint you buy, the more anxious we are to send you as much Unito Ready Mixed Paint as you need without a penny of pay in advance and let you use one-fifth of it. Then if you don't say it spreads as nicely, looks as well, and goes as far as any $2 to $2.50 per gallon paint you ever used, send back what is left and no charge will be made for part used.

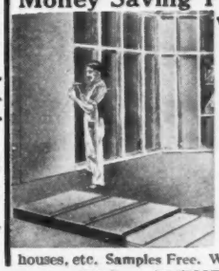
House Paint, $1.20 per gal.
Barn Paint, .70 per gal.
Roof Paint, .35 per gal.

Freight paid by us.

Our guarantee and 30 days' trial offer without pay in advance make Unito Paint SAFEST for you to use, and you save almost half the usual price. Try it at our risk.

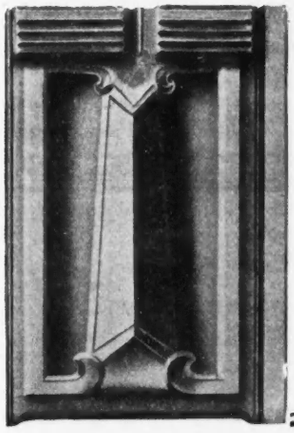
Write for FREE Sample Color Cards

Money Saving Prices On WALL BOARD



Get our prices on Plain Wall Board, also on Grained Oak Finish Wall Board for interior finishing and Waterproof Wall Board for siding small outbuildings, such as poultry houses, etc. Samples Free. Write for them.

THE UNITED FACTORIES CO. 1820 Factories Bldg., CLEVELAND, O.



"Tamco Metal"

TILE OR SHINGLES

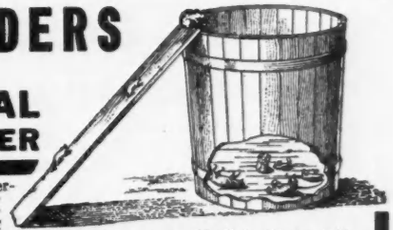
Durable and Artistic. For Residences, Barns, etc. Send for "Tile" Catalogue

THE TIFFIN ART METAL CO.
TIFFIN OHIO
Manufacturers
Metal Roofings, Ceilings, Etc.

GET ORDERS

for the

UNIVERSAL RAT CATCHER



EVERY farmer, merchant and lumber dealer in your locality will buy one of these Rat Traps. It's a sure and quick way to rid all buildings of the pests. One of these Catchers placed in a livery stable in Scranton, Pa. caught over 100 rats in ONE MONTH. Trap made of galvanized iron; can't get out of order; lasts for years; always clean. 18 inches high, 10 inches diametor. One delivered prepaid upon receipt of $3. Rats and mice die; no marks left on them.

My proposition requires no time from your work. I can show you how to make money easily. Don't be afraid to ask how. Cost you nothing to find out. I'll guarantee you can sell these Universal Rat Catchers easily.

WRITE TO ME AT ONCE.

H. D. Swarts, Inventor and Manufacturer, Scranton, Pa.

The Cost of Scraping Floors

In order to determine definitely the relative costs of scraping floors by the old method of making the workman get down on his knees and scrape with a hand blade, and the more modern system of using a Machine, the Fox Supply Company of Brooklyn, Wis., has secured some very valuable information. Mr. Campion, manager of the Company, sent out 50 letters to carpenters who had bought Fox Machines and requested them to answer the following questions:—

How many square feet of average flooring can a man scrape in one day by hand?

How many square feet of average flooring can a man scrape in one day with a Fox Floor Scraper?

Can a man do better work with a Fox Floor Scraper than by hand?

What daily wages do Contractors pay journeymen carpenters in your community?

Replies were received from every section of the country. By averaging the figures submitted, it was found that 146 square feet is the average daily space covered by hand work, while 662 square feet represents the average area which the Fox Scraper will surface in a nine hour day, or 4½ times as much. It was also found that the average wages paid is $3.16 per nine hour day. In other words, the cost of scraping 662 square feet of average flooring by hand is $14.22. When a Fox Scraper is used the cost is $3.16, a difference of $11.06.

Example of Fine Floor Finishing.

The answers to the third question were particularly gratifying to Mr. Campion. Only one carpenter of the 50 said that the work was just as good when done with a Fox. The others all maintained that the results were decidedly more satisfactory when the Fox Machine was used. A contractor from Vermont said: "Certainly much better with the Fox. Shouldn't think that there would be any question about that with any one that ever used one."

The phoograph shows a floor scraped with a Fox Scraper by Mr. V. Denick, Miles, Iowa.

✣

Johnston's Patent Shelf Pin

These pins are used for supporting movable shelves in bookcases, cabinets and all other places where movable shelves are used. They are neat, easily put in place by anyone, require no tools to remove or replace them; they cannot sag down or fall out; two pins can come directly opposite in a division of less than ¾ of an inch in thickness. The best way to see how nicely this pin works is to send for a sample and examine it. The manufacturers, J. D. Johnston, Newport, R. I., will send one to any address. Architects specifying this pin will find their clients more than pleased with it. Cabinet makers will find it the most economical to use.

✣

Uniform Mixing an Asset

A very recent example of just how much superior some concrete is to other concrete in regard to high grade and uniformity of mixing, is shown in the work done by the R. L. Whipple Co., Worcester, Mass., on the quarter-million-gallon

Exposition Chief Buys Haynes Car

Chas. C. Moore, President of the Panama-Pacific International Exposition, has purchased a Haynes four-cylinder car equipped with the Vulcan Electric Gear Shift.

Worthy of note is the fact that this car is the twenty-seventh owned by Mr. Moore. It is in constant use—much more so than were any of its twenty-six predecessors, and, due largely to its simplicity of control, Mr. Moore frankly admits that only now is he deriving the real pleasures of motoring. No doubt about it—the hand shift method suffers by comparison.

Before you buy, look over other cars at the price you want to pay, compare the specifications, part for part with those of the Haynes. Here are a few facts regarding the

HAYNES

America's First Car

The Haynes motor has a bore of 4¼ in. and a stroke of 5½ in.; cylinders cast in pairs; L-head design; valves enclosed; with a dynamometer rating of 65 and 48 horsepower on the "six" and "four," respectively. Ignition is provided by the American Simms Dual High Tension Magneto; carburetion, by the Stromberg device; electric lighting and starting, by the Leece-Neville dust-proof separate unit system; and cooling by centrifugal pump, pressed steel fan and cellular radiator.

Other Haynes specifications are the splash and gravity lubrication system; contracting band clutch; Timken and McCue full floating rear axles; twenty-one gallon gas tank on rear of chassis; motor-driven tire pump; extra demountable rim; and Collins curtains. Shock absorbers on the "six."

The Haynes "Four," 48 dynamometer horsepower, 118-inch wheelbase....$1785 and $1985
The Haynes "Six," 65 dynamometer horsepower, 130-inch wheelbase.... 2500 and 2700
The Haynes "Six," 65 dynamometer horsepower, 136-inch wheelbase.... 2585 and 2785

"The Complete Motorist" by Elwood Haynes, Father of the American Automobile Industry, fully describing the Vulcan Electric Gear Shift, will be mailed upon receipt of ten cents in stamps. Write to

THE HAYNES AUTOMOBILE COMPANY, 14 Main St., Kokomo, Ind.

Builders of America's First Car

The Haynes car is handled by Direct Factory Branches at 1715 Broadway, New York City, N. Y.; 1702 Michigan Ave., Chicago, Ill., and by dealers in every state in the Union.

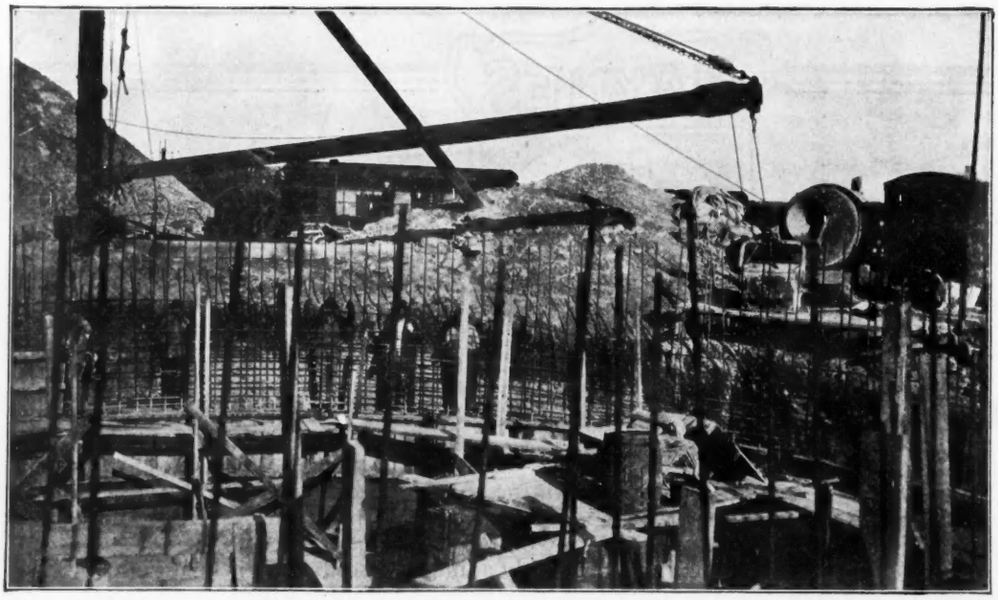
Dealers: The Haynes sells readily because of its mechanical features. You may be in open territory—send for catalog and four pages of detailed specifications, giving over 500 items which comprise the Haynes. Write us right now!

THE HAYNES AUTOMOBILE CO., 14 Main St., Kokomo, Ind.

Enclosed find 10 cents in stamps. Please send me Elwood Haynes' Book, "The Complete Motorist."

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

I expect to buy a car about.....



Reinforced Concrete Water-Tank Under Construction for Artillery Post at Fort Strong, Boston Harbor. Capacity, 250,000 Gallons; "Standard" Low-Charging Mixer Used.

reinforced concrete water-tank at Ft. Strong, Boston Harbor. This tank was built for use of the artillery post at Ft. Strong, and was constructed under supervision of the Quartermaster Department, U. S. Army.

The tank is circular, having an inside diameter of 50 ft., and a depth of 16 ft. The thickness of the walls was only 8 inches; it is very noteworthy, that, in spite of this comparatively thin section, no difficulty was experienced in securing a water-tight construction with an addition of only 5 per cent hydrated lime to the weight of the cement in a 1:4½ mix.

In view of the fact that the concrete had to be of the very highest quality and most uniform mix to give the walls sufficient strength to withstand the test of extreme low temperature to which they were subjected shortly after being poured, the contractors used "The Standard" Low-Charging Mixer, manufactured by the Standard Scale & Supply Co.

In selecting this mixer, they did so not only because the mixing principle of "The Standard" machines meant uniformity, but because, on account of the simplicity of construction of these machines, the men were able to set the mixer close to the side of the embankment and in a narrow space, and discharge the batch into buckets hung on a stiff-leg derrick. The derrick, being set in the center, gave full swing and poured the entire forms without the necessity of moving the mixer.

A flat slab, supported by beams and columns, is used to cover the tank. An important fact is noted here, that the

low heat conductivity of concrete was apparent during the unusually cold week in January last, soon after the tank was filled. While the temperature hovered around 15 degrees below zero for three or four days, yet no trouble was experienced with the action of the float-valve. In fact it is doubtful whether the temperature ever reached freezing.

The Standard Scale & Supply Co., of 1345-47 Wabash Ave., Chicago, Ill., with offices also in Pittsburgh and Philadelphia, Pa., and New York City, have considerable data regarding the thorough mixing principles of their mixers, and will be glad to mail free to any one interested a copy of their complete mixer book No. 44.

✣

"Faultless Pit" Acetylene Generator

The Gem City Acetylene Generator Company, Dayton, Ohio, have developed an improved lighting system which has the generator placed outside the building in a pit. This generator, known as the "Faultless Pit" Acetylene Generator, was carefully planned and built to meet the particular requirements of pit installation. The manufacturers, who are well known in the lighting field, have tested their pit generator very thoroughly before placing it on the market. They stand back of it with a positive guarantee.

The advantages of this generator are quickly appreciated. Being entirely outside the building, it is absolutely safe; no odor from it can possibly get into the house; no valuable room in the basement is occupied; and yet the generator is easy to get at any time for recharging.

The accompanying illustration shows the interior mechanism and the position of the different parts of a "Faultless Pit" Acetylene Generator. All those who are posted on the acetylene business will see at once from this sketch the merits of this generator. Those who are not so well posted should send at once to the Gem City Acetylene Generator Company for their descriptive literature. There is good money in acetylene lighting systems, and more of our readers might just as well be getting their share of it. There is nothing difficult about it and it works in nicely with a builder's regular business.

Interior mechanism of "Faultless Pit" Acetylene Generator.

Montana Carpenter Builds Model Home

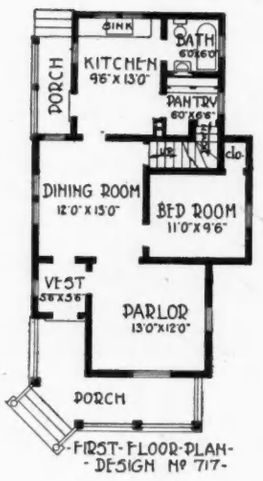
It is expected that when a contractor builds a home for himself he will put into it the very best ideas that he has gathered during his years of experience.

When Andrew Espey, of Ismay, Montana, wanted to build a house for himself, he chose a style of construction which would result in a house that would be not only nice looking, but very convenient and desirable in every way.

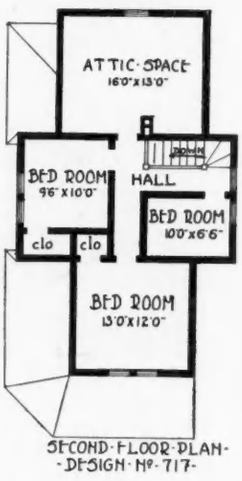
You see the house in the picture. It was designed by Hewitt-Lea-Funck Company, whose architects worked out the plans from a rough draft submitted by Mr. Espey.

It will be very interesting for our readers to study this plan. In the first place you will note the broad veranda, which gives a favorable first impression that increases as the visitor enters the vestibule through the handsome door.

This vestibule is convenient to both living room and parlor.



FIRST FLOOR PLAN
DESIGN No 717



SECOND FLOOR PLAN
DESIGN No 717

Both of these rooms are good size and nearly square in shape.

The kitchen has been given particular attention. With bath and pantry it occupies an area taking about one-third of the house.

One whole end of the kitchen is devoted to the sink, with drain boards at either side, and cupboards and shelves beneath.

The layout of this house without long halls makes it so compact that it is both easier to heat and easier to keep house in, and on that account particularly attractive to the women who have to do the work.

The second floor has three bed rooms and a big store room.

This house is one of more than a hundred that are contained in the very interesting and practical plan book issued by the Hewitt-Lea-Funck Company and obtainable by any of our readers by sending 10 cents to cover cost of mailing to 408 Crary Building, Seattle, Wash.

Change of Corbin's New York Offices

P. & F. Corbin have consolidated their New York up-town and down-town offices and have installed them in commodious quarters in the new Architects' Building at No. 101 Park Avenue. The change was made primarily to secure a closer connection between the businesses of the two stores, and also to gain the advantages of a more central location and of more convenient quarters, neither of the two former offices being susceptible of expansion to contain the forces of both. The new offices are within two minutes' walk of the entrance to the Grand Central Station, where the subway, surface and elevated lines meet. The location could hardly be easier of access from all parts of the city. They are lifted above the street level away from the noise and dust caused by the traffic, and into the light and air, the rooms fronting Park Avenue and on Fortieth Street. The display rooms are models of convenience and artistic arrangement.

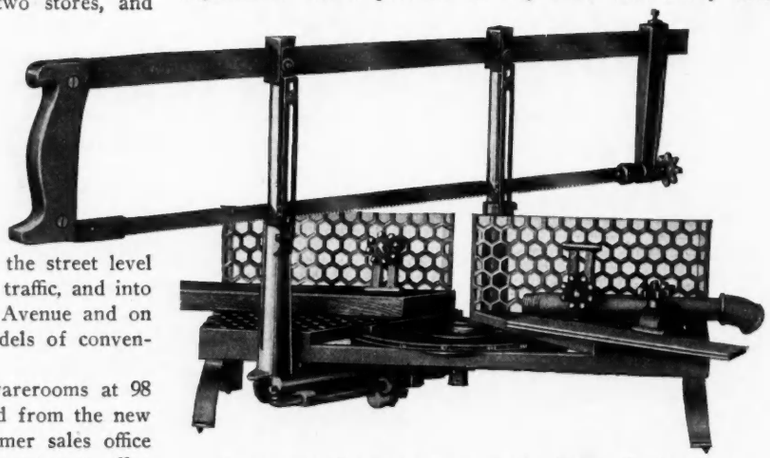
Deliveries of goods are made from the warerooms at 98 Lafayette Street, but all business is conducted from the new offices in the Architects' Building. The former sales office at 106 Lafayette Street and the Contract Department office at 39 West Thirty-eighth Street have been vacated, and the transfer to the new location has been made.

✣

The Honeycomb Mitre Box

The jobbing carpenter and builder is always bumping up against some new proposition which requires careful cutting and calculating to make the joints fit just right. It may be patching up old buildings, finishing or making some complicated mitre which must be done perfectly accurate the first time.

The adjustments of the Honeycomb Mitre Box, made by the Rockford Mitre Box Company, 252 Mill St., Rockford, Ill., make one of the best devices for all ordinary as well as the most particular work. Not only will it work accurately and closely at the start or when new, but there are adjustments which provide for any wear which may take place. This company furnishes every mitre box with their new no-set saw, on which they have recently received a patent. A user of the Honeycomb can at any time get a saw for cutting metal, it is well to keep this in mind as the demand for metal trim is rapidly increasing. The descriptive circulars sent out by the manufacturers show the construction and many good features of these boxes, as well as giving prices on the different sizes. Our readers should investigate and see the advantages of this guaranteed Mitre Box.



Honeycomb Mitre Box fitted with a Metal Cutting Saw.

Daylighting Scribner's Book Store

The remarkable daylight effect produced in Scribner's new store on Fifth Avenue, New York, is a startling revelation of what can be done through the proper application of laws governing scientific illumination.

The arched ceiling effect, which forms the principal architectural features of this store, is a soft cream white color, and is embellished with a series of simple but rich panel designs.

The surface of these arches forms one of the most perfect light-reflecting mediums possible to obtain in architectural construction. At the base of each arch is installed a powerful reflector that throws a strong white light upward. This light spreads over walls and ceiling and is reflected downward, diffusing a mellow glow of pure white light over the innumerable tables, shelves and cabinets filled with many colored volumes.

The light produced by this system is practically a reproduction of daylight, with the result that the finest details are plainly visible, while the most delicate colors can be seen in their true values. This is particularly noticeable when inspecting some of the rare old volumes found in the store. For Scribners have quite a collection of first editions and originals, a few of which are, one of the earliest Shakesperian folios, a first edition of "Gulliver's Travels," Napoleonic manuscripts in French and English, and letters of Mary, Queen of Scots. Another interesting rarity on view is a first edition of Goldsmith's "Vicar of Wakefield."

Interior of Scribner's New York Store, Showing Combined Effect of Semi-Indirect and Concealed Methods of Illumination.

The illuminating scheme of this beautiful store is finished with a series of elaborate lamps that hang from the ceiling on chain drops at a distance of about fifteen or twenty feet apart.

The powerful lamps used at the base of the arches for indirect or cove lighting are known as J-M Linolite lamps. They are about a foot long and an inch in diameter, and have a straight Tungsten filament that runs from end to end. This filament produces a continuous "line of light" that diffuses the illumination evenly over the entire surface to be lighted—in marked contrast to the spotty effect produced by the bulb type of lamp.

It is estimated that they are nine times as efficient as ordinary bulb lamps, because, so it is claimed, they consume only one-third as much current and give three times as much light. It is also said that the useful life of these lamps is three times as long as that of ordinary bulb lamps, because they have a larger glass area, and, therefore, take longer to carbonize.

The manufacturer of these lamps, the H. W. Johns-Manville Company, New York, claim that more than 90 per cent of all the art galleries in this country, together with 25,000 churches and over 30,000 stores, are equipped with J-M Lino-

lite lamps in conjunction with Frink reflectors, for which they are the sole selling agents.

This concern has published an interesting series of brochures, covering every phase of illumination, and will be pleased to send copies to anyone who has a lighting problem to solve.

✣

New Construction for Slate Roofs

Here is shown an actual photograph of framing method advocated by the Slatington Slate Co. It shows their Genuine Franklin Tunnel Slate laid on a roof covered with lath.

By reference to this photograph you will note how slate are put on, how the roof is started and finished. Also note that the slate along the gable end have one corner clipped off so the water will run back on the other slate.

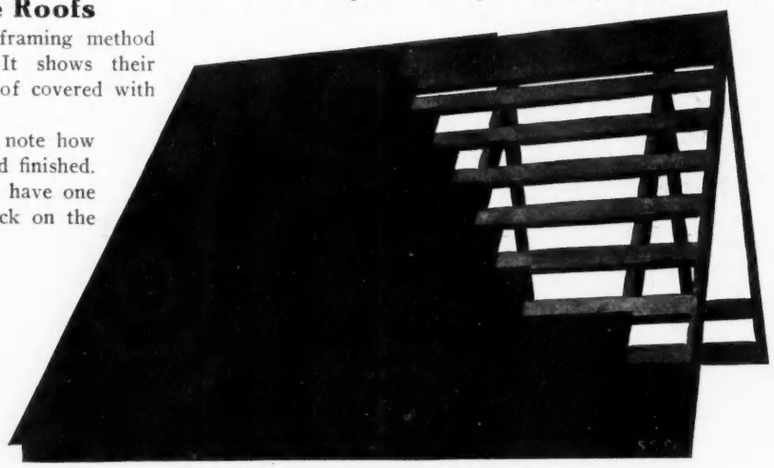
The slate at the eaves project one and one-half inches beyond the edge of the eave and along the gable ends the projection is also about one and one-half inches.

You will note that a slate roof is formed of independent and separate units, therefore it is unaffected by expansion or contraction of the roof structure. There are no seams that can open or any possibility of a leak. Each slate is a separate unit and it need not be soldered or cemented to an adjoining piece or fit into any groove, lock or seam.

Note that a roof lathed instead of sheathed with boards laid close together is strong enough for slate; the Slatington people claim that such a roof will be just as durable and the cost of sheathing will be reduced almost two-thirds by using lath.

Any building that is strong enough for any other roofing material is strong enough for slate.

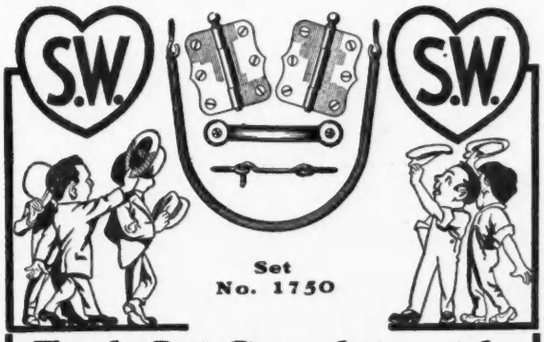
Slate are put on sheathing boards laid close together exactly the same as they are put on lath as shown in the photograph. When sheathing boards are used they should be nailed at both edges on the rafters, which should not be over two feet apart. Wide boards, when used for sheathing, are liable to warp and curl up at the edges when only one nail is used, thereby raising the slate. While it may not break the slate, it raises the courses, marring the appearance of the roof.



Open Boarding for Slate Roofs Recommended by the Slatington Slate Co.

The Catalog and Price List for 1914 of Genuine Franklin Tunnel Slate, which has just been issued, goes on to tell all about slate roofing. Write for a copy of this, addressing the Slatington Slate Co., Slatington, Pa.

STANLEY'S
Wrought Steel Screen Door Hardware



Each Set Complete with Screws Ready to go on the Screen Door

Owners and Builders alike are pleased with the high quality of the hardware and the convenient way it is packed ready for use.

Butts, pull, spring, hook and eye and screws, all of the highest quality of material and workmanship.

They can be furnished in Japan, Antique Copper, Brass or "Stanley" Sherardized rust-proof finish, the proper finish for outside doors.

The doors are removed in fall by merely slipping out the pins and are as readily re-hung in spring.

Write us for Circular "A." It tells the story.

THE STANLEY WORKS
New York New Britain, Conn., Chicago

Braces and Bits that Excel

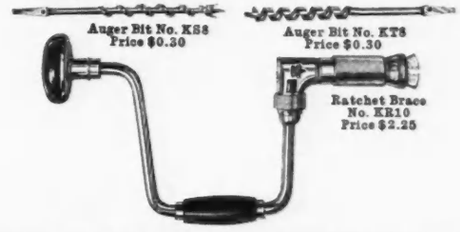
Keen Kutter braces and bits make easier work, because they have the goodness of materials plus the good workmanship that make them the finest in quality. For long use and hard use

KEEN KUTTER

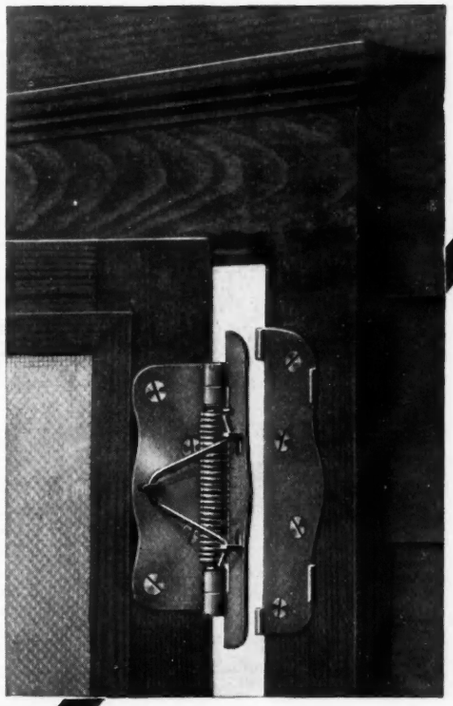
tools are what you'll like and stick to once you've tried them. Sold under a positive guarantee to satisfy, or the dealer is authorized to return the money.

If not at your dealer's, write us.

Simmons Hardware Company
St. Louis New York Philadelphia Toledo
Minneapolis Sioux City Wichita



E-Z-ON Screen Storm-Door HINGES



The E-Z-ON is a detachable and reversible hinge for screen and storm doors. Extremely simple of construction and BUILT TO LAST. Anyone can replace a storm door with a screen door, if equipped with E-Z-ON hinges in thirty seconds.

The construction of the E-Z-ON eliminates 500 per cent of the wear on spring by the use of a ¾-inch bushing between spring and pin. Keeps your door and casing in normal condition and has 100 per cent greater resisting force by use of a long jam plate. The weight of the door is carried on the lugs and there is no moving part or friction. This construction

Absolutely Prevents Door from Sagging

The E-Z-ON is handsome. It will add style to the door of a cottage or a mansion. Its construction is such that it will outlast others five to one. Leading architects and contractors indorse and specify

THE E-Z-ON HINGE
PAT APR. 1 1913

Architects, Carpenters and Builders should specify the E-Z-ON Hinge for the added satisfaction they give to clients. The E-Z-ON is up-to-date, serviceable and economical.

AGENTS WANTED

E-Z-ON hinges are selling very rapidly and the agency in your territory will soon be taken up. We are not selling patent rights or territory. We are makers of and sellers of E-Z-ON hinges.

Will You Represent Us?—Special Introductory Offer.

We will send you, on receipt of a $1.00 bill, two pair of E-Z-ON hinges for inspection and trial. Money refunded if not satisfactory. Clip coupon today, and get our agency before someone else does.

RACINE DETACHABLE HINGE CO., Racine, Wisc.

SPECIAL OFFER

Gentlemen:

Enclosed please find $1.00 for which please send me two pair of E-Z-ON hinges. Money to be refunded if not satisfactory. Also your special agent's proposition.

Name.....

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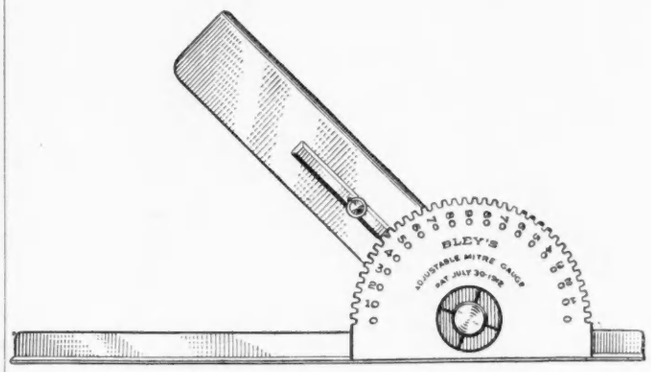
Town ..... State.....

Bley Mitre Gauge

C. E. Jennings & Co., 71-73 Murray St., New York, are placing on the market the Bley patent adjustable mitre gauge, a well-made, durable, accurate tool which may be carried in the pocket or tool chest. With this tool all angles from 0 to 90 degrees, by 5-degree jumps, may be obtained instantly and accurately on either side. By setting the trigger to 45 degrees, a perfect mitre may be cut on either side, right or



Handy Mitre Gauge.

left hand, and a mitre box dispensed with for every purpose. It is made of steel, machine finished and guaranteed accurate.

For particulars address C. E. Jennings & Co., 71 Murray St., New York.

✣

Plan Interesting Exhibit for Frisco Fair

The iron and steel industry will be given a prominent place among the various attractions at the coming Panama Pacific International Exposition at San Francisco next year by the comprehensive exhibit of the United States Steel Corporation and subsidiary companies.

A general committee, headed by A. T. De Forest, of the United States Steel Products Company, of San Francisco, has been directing the work, and H. V. Jamison, advertising manager of the American Sheet & Tin Plate Company, of Pittsburgh, has just been appointed director of exhibits for the entire corporation and at present is busily engaged mapping out plans for the exhibits of the various companies.

Among the features which will be shown will be the process of manufacturing iron and steel products, from the mines where the ore is taken out of the ground to the production of the hundreds of products of the corporation. It is intended to show how the ore is transported both by rail and water, the dock operations, the production of coal, coke and pig-iron and thence to the specialized lines of manufacture. The exhibit will even go so far as to show how the by-products are produced and will show many of the products in practical use.

A motion picture show will be part of the exhibit and through this medium will be portrayed the operations of the corporation throughout all its departments. In the pictures will also be shown the great benefit to the social world brought about by the United States Steel Corporation, as no other institution does more to further the social welfare of its employes. The corporation's many devices for insuring safety of employes will be exhibited and data will be given as to the enormous amounts expended for this purpose.

This is the first time in the history of the steel industry that the United States Steel Corporation has planned a comprehensive exhibit or display of any kind embracing all of the subsidiary companies. It is certain that this feature of the coming exposition will make a strong appeal to visitors at San Francisco in 1915.

Huber Mantels

A catalog of more than usual interest for carpenters and builders is being distributed by the Huber Builders' Material Company, 45-49 Vine Street, Cincinnati, Ohio. It illustrates a very complete line of mantels. Looking through this book, one cannot help but wonder how it is that such an elaborate book can be given away free. The mantel illustrations are all large size, so that one can tell to the smallest detail exactly what each design is like. Several of the illustrations are printed in colors.

Mr. Huber evidently understands what the people want in mantels. At any rate, designs selected for this Mantel Book are of the kind that will certainly be in great demand. The accompanying illustration shows one of these designs.

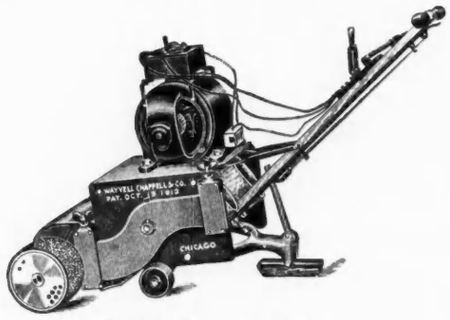
Every AMERICAN CARPENTER AND BUILDER reader should have a good mantel catalog which he can refer to quickly any time he needs anything in that line. Home builders like to have a good selection of designs to choose from, and we know of no better book than this one. The Huber Builders' Material Company will send a copy, postage prepaid, to anyone who will write them.

✣

Dow Wire & Iron Works have recently secured the contract for screening the entire Tuberculosis Hospital at Hazelwood, near Louisville.

Surfaces and Polishes Hardwood Floors in Paying Quantities

The Automatic Ball Bearing Electric Floor Surfacing Machine, manufactured by Waywell Chappell & Co., 4847 Ravenswood Ave., Chicago, Ill., not only rapidly refinishes old floors, taking off old varnish, paint, shellac, etc., but building contractors and floor layers are finding it to be a machine that will dress in paying quantities quartersawed oak, maple, etc., the way they want it. This is because it is solidly built with heavy parts accurately assembled—has heavy steel ball bearings on all running parts so cutting roller and the two 9 in. dia. suction fans (the outlets for which are shown in the illustration and to which the dust sack is attached) spin true and easy. The roller may be either flexible for easy adjustment to the floor inequalities, or rigid to level the floor quickly, being held by a pair of heavy, centrally-pivoted arms, adjustable at both ends by thumbscrews pressing against cushions. It is claimed to be the only machine having a mechanism (which this illustration clearly shows) to both brake the machine for easy work and to gauge the depth of the roller cut. This is why so many leading building contractors and floor layers want the machine. This brake-gauge, the bottom of which is of polished wood, of a length to span two ordinary floor boards, slides on the high edges, steadying the machine, and gauges the depth of cut by firmly holding the handle in any position it has been tilted and locked by the small level shown on the handle. It also brakes the forward pull of the machine (which is self-propelling in operation), making continuous work easy, either when roughing with the roller flexible and using coarse sandpaper or in finishing up last time over the boards with the roller rigid and using fine paper, when it is of most value to get quickly the class of work the floor contractor wants.



Electric Floor Surfacer.

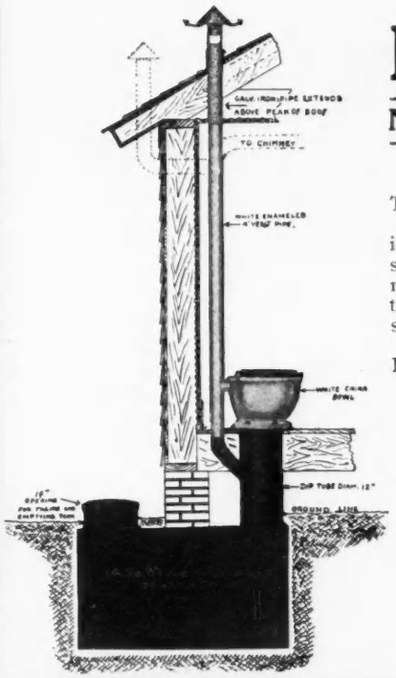
Machines are made in several sizes: for small rooms or large areas. Surfaces to base with edge roller (also shown), which is quickly adjustable to either side of the main roller as its shaft is slipped through the hollow surfacing roller shaft from either side.

Lots of Cottages and Summer Homes

Near Your Town are Now a Quick Market for

KAUSTINE CLOSETS

NO WATER **NO SEWER**



Bear Creek Township School District No. 10

Bear Creek, Mich., March 14, 1914.

To Whom It May Concern:

In October, 1913 our School District installed one of the Sanitary Chemical Systems, and we are pleased to state that it has proved a complete success, and has more than met what was claimed for it. There is positively no odor, and no trouble whatever from freezing. We most gladly recommend the system to anyone, but especially to school officers who desire a clean, sanitary closet for the children.

The Sanitary Chemical Closet meets every requirement of the Sanitary Laws of the State. Yours truly,

MAURICE P. GILL. Director.
H. J. SMITH, Treas.
W. W. STARR.

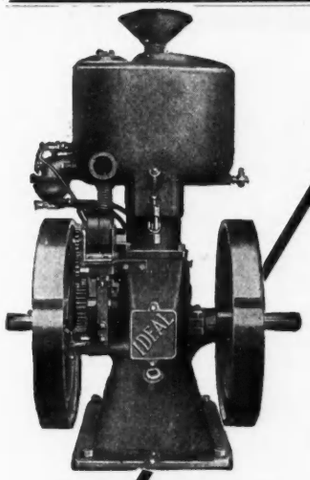
Live builders are grasping this new field, and find it a source of fine added profit.

And don't miss the public comfort stations, either—nor the schools, factories and rural homes.

Now is the time

Write today for our special offer.

KAUSTINE COMPANY, Inc.
Ellicott Square, BUFFALO, N. Y.



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Ideal Type M Engines

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—also Hoists and Pumps

Now write for catalog No. 314 and get more information on "Constant Service."

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Original Gas Engine Co.

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Gentlemen: Please send your FREE book listed below, to

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☐ Catalog of Building Material. (Postage prepaid.)

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If Plan Book is wanted send ten cents for postage and mailing.

Write your name and Address on this slip and the kind of equipment you want and send it to the Original Gas Engine Co., 630 Kalamazoo St. E., Lansing, Mich.

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Without Forms or Stiffening Channels Is

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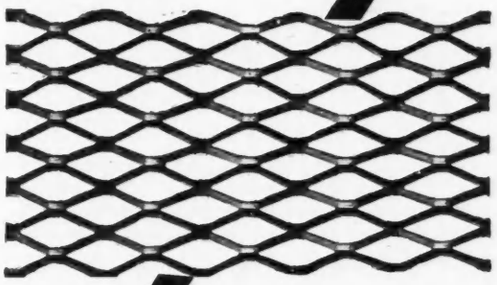
The Self-Furring Kind with Anti-Rust (Oil) Coating, Painted Black or Galvanized



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For All Stucco Work

The cup feature of this lath allows it to be fastened direct to the sheathing without the use of furring strips. Both sides alike. Perfect keying principle. The use of this lath in stucco work *reinforces* the plaster, or over-coating better than any other lath made. Cannot buckle, sag or warp. Made in sheets 18 in. x 96 in. Twenty square yards to the bundle. Price extremely reasonable. Send for FREE SAMPLE, particulars and price.

SYKES METAL LATH & ROOFING CO.

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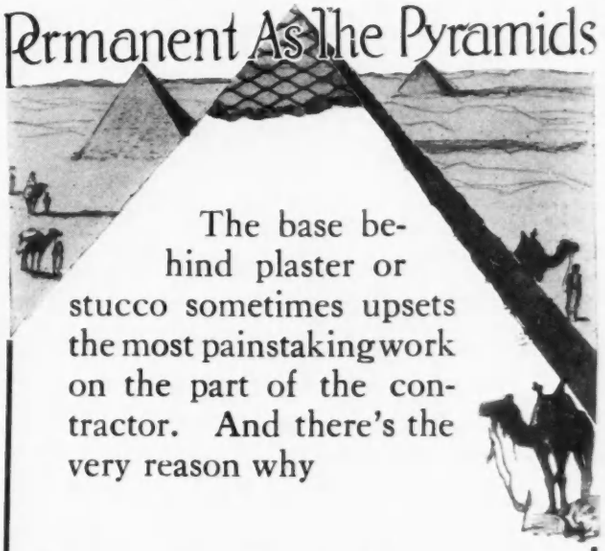
Permanent As The Pyramids



The base behind plaster or stucco sometimes upsets the most painstaking work on the part of the contractor. And there's the very reason why

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Expanded Metal Lath

is logically the choice of the careful builder and contractor—it is absolutely permanent. Kno-Burn is permanent; first, because it is a metal lath and, second, because it has the mesh that is most certain to grip the plaster firmly at all times and under all conditions.

In addition, it is rigid, shipped in sheets that are easy to apply, and made from U. S. standard gauge sheets, the *thickest* gauge used in metal lath construction.

"Standardized" Wall Construction is explained in our new book for builders and contractors, "Stucco Specifications" (36). The information it contains is authentic, right up to the minute, and mighty valuable. If you have not received your copy, write for booklet 36.

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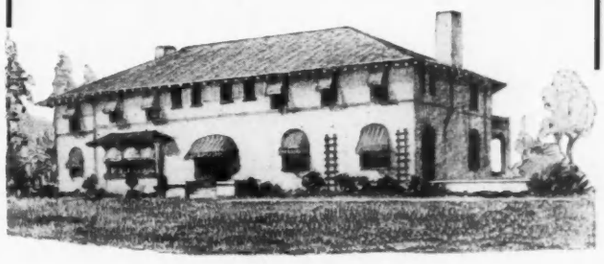

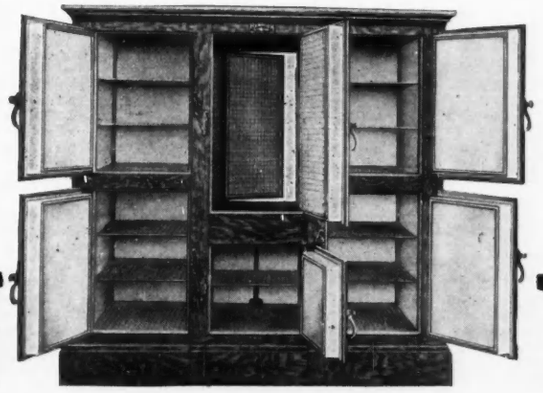

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Slipped!

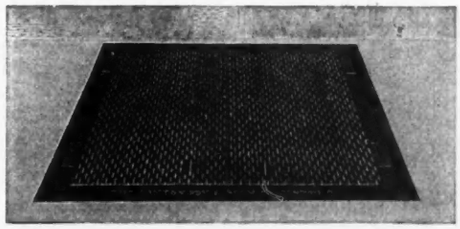
Can't happen on a

Canton SIDEWALK DOOR

¶Because the surface of **Canton Sidewalk Doors** is corrugated. In rainy or slushy weather, the sidewalk may be slippery but **Canton Sidewalk Doors** always provide a firm foothold. Prevent accidents; prevent damage suits.

¶Considering only the material and workmanship in Canton Sidewalk Doors, you have the best sidewalk door made. Then there are the other good features — stay rods and chains to protect the opening; checkered surface—anti-slipping; flush hinges; improved, burglar-proof locking device.

¶The price and merit of Canton Sidewalk Doors will please you. Write for FREE CATALOG B-1 of Sidewalk Doors, Coal Chutes, House Movers' Jacks, Gratings, and all Builders' Iron Work.



Canton Foundry & Machine Co. Canton Ohio

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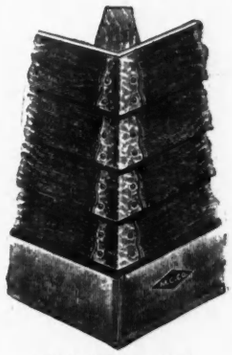

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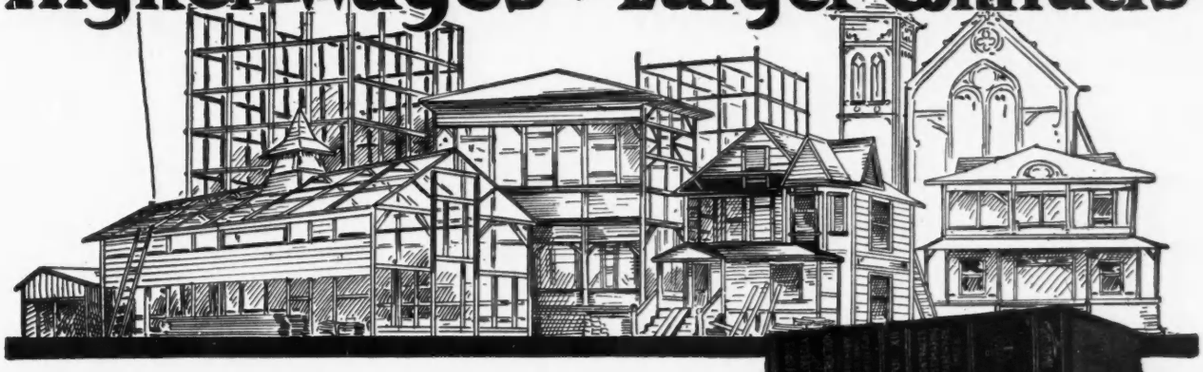

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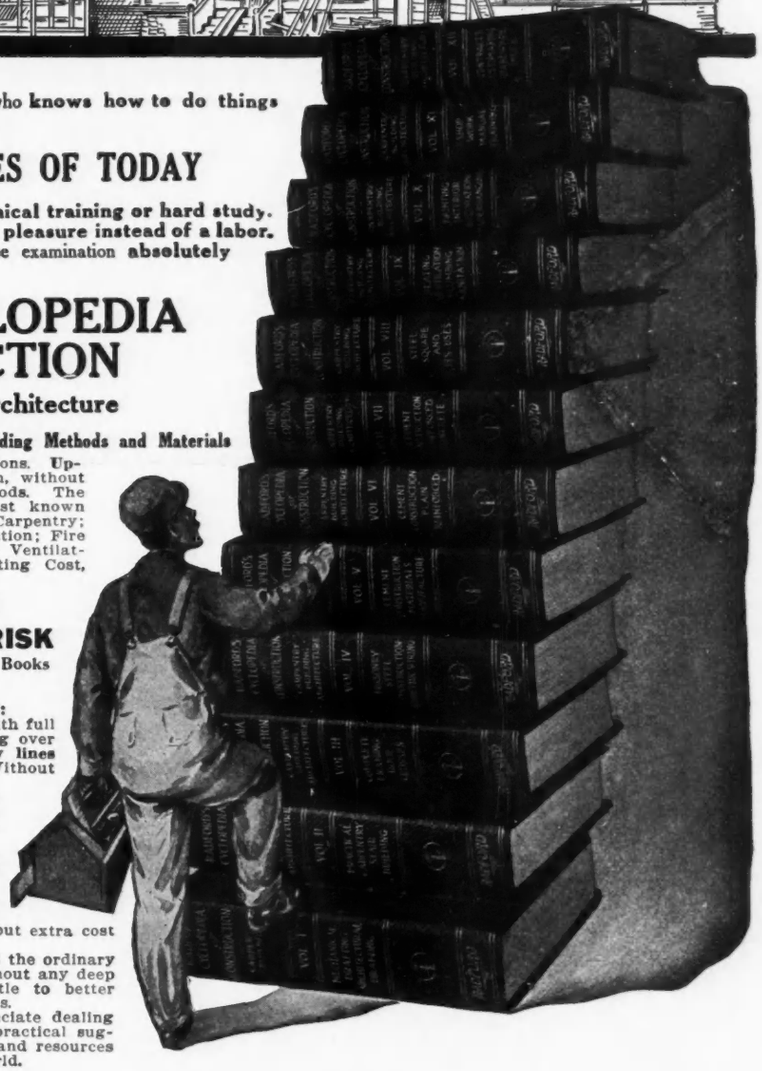

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WANTED—Agents to handle our line of Order-Made Window and Door-Screens, for new buildings, as a specialty or a side line. Write STANDARD SCREEN CO., 1850 Hastings St., Chicago, Ill.

AGENTS WANTED for house lighting machines, supplying gas for small country homes as well as large. Simple and economical. Guaranteed. A live proposition. Write for terms. THE ALEXANDER F. MILBURN CO., Baltimore, Md.

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FREE—$1.00 Certificate and 4-inch rule. See Ad Page 167. GAGE TOOL CO., Vineland, N. J.

AGENTS—500 per cent profit; free sample. Our new gold and silver sign letters for store fronts and office windows. Easily applied. Big demand everywhere. Write today for liberal offer to agents. METALLIC LETTER CO., 447 N. Clark, Chicago.

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FOR SALE—One 6-horsepower engine, good as new; one Sydney machine; one Barnes No. 4 machine; one scroll saw; one 10-inch lathe, belting, pulleys and shafting; one feed mill. All of these machines as good as new. D. L. HAMILTON, Architect, Colfax, Ill.

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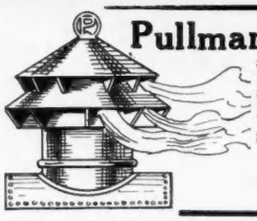
MINERS — The AULD & CONGER Co. — MANUFACTURERS

ESTABLISHED — DEPT. B. CLEVELAND, OHIO. — 1870



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1009 S. Wabash Av., Chicago, Illinois

8 Grape Vines, 6 Currant Bushes $1

All best 3 year old stock. If planted now or early spring will fruit next summer. Should ground be frozen we tell you how to protect and keep them dormant ready for early spring planting. Orders accepted now and forwarded at any future time if preferred Grapes are Worden, Niagara, Iona, Concord, the best early, medium and late varieties. Large cherry currants. Write for list of our $1 Friend Makers, consisting of all kinds of Fruit Trees, Berries and Roses.

The Landscape Garden Co., Newburgh, N. Y.

A Quicker Step!

A business man recently told us, "I bought our three Reo Motor Trucks primarily because I saw that they would save money over the old method of hauling. But I am delighted to find another advantage. They have keyed up our entire business, in every department, to a quicker step."

Doesn't that give you a big idea for your own business? Contractors and builders know the value of getting their materials on the spot at the right time. It is better to make the workmen hurry to keep up with the materials, than to hurry the materials to keep up with the men. With a Reo, you can cut out costly delays of any kind, and bring your entire organization up to a faster, busier scale of efficiency.

Users of Reo Trucks say there has never been another truck built to equal it.

The American Sash & Door Co., Kansas City, Mo., recently wrote: "Our hauls are approximately 40 miles per day, full capacity loads, and our truck is averaging 5½ miles per gallon, over a variety of road surfaces. We have spent absolutely nothing for repair parts, and the ease with which the truck takes its load has been a revelation, in the ability of a truck of its price to keep up its end with the higher-priced trucks in our fleet."

We are getting this kind of evidence from all parts of the country, and in all lines of business. The remarkably low price of the Reo makes business men more critical of its performance than they would otherwise be, yet a careful inspection of this splendid truck never fails to win the highest praise.

Here are some of the features that mark the Reo as the most advanced type of medium heavy-duty motor trucks now on the market: Reo Sectional Radiator, of 24 separate interchangeable units, may be repaired on the road anywhere; motor, clutch and transmission are cushioned on a sub-frame, away from jars and road shocks; left-side drive, and the best and handiest center control ever brought out; big armored front frame; demountable driver's cab; gas headlights and Prest-O-Lite tank, and many other details of design and construction that mark the utmost advance in modern engineering practice.

These features mean sure, unbroken service, low upkeep cost, and that wide margin of safety that a motor truck must have to meet the frequent emergencies of extra service, bad roads and overloading, that cannot be otherwise forestalled.

Write us about your hauling conditions, and we will gladly offer you our advice, whether or not you can use Reo Trucks to advantage. A Reo Motor Truck Catalog, and other useful information at your disposal. Write today,

REO MOTOR TRUCK COMPANY

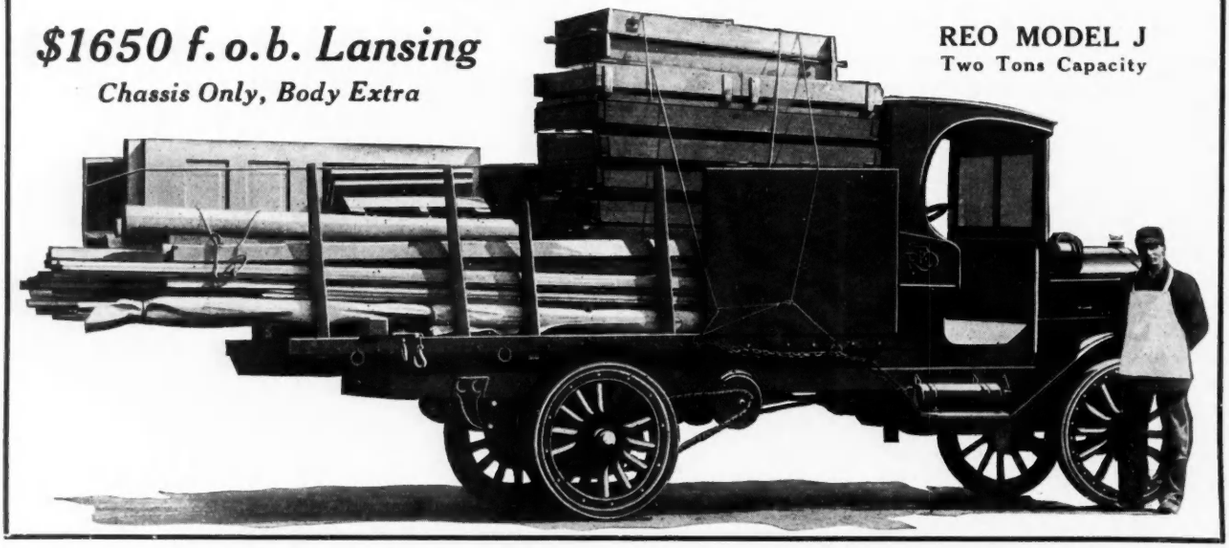
LANSING, MICHIGAN

$1650 f. o. b. Lansing

Chassis Only, Body Extra

REO MODEL J

Two Tons Capacity

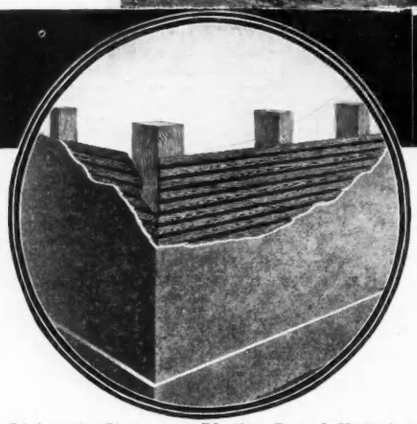


INDEX TO ADVERTISEMENTS, JUNE, 1914

Built by John J. Randall Co. Real Estate and Builders, Freeport, L. I., New York

Bishopric Stucco or Plaster Board Used on this Building

Durability is the Keynote of All Good Building



Bishopric Stucco or Plaster Board Nailed to Studding and Stucco Applied to Stucco Board

John J. Randall Company used Bishopric Stucco or Plaster Board on the house illustrated above to their entire satisfaction. The testimonial below is only one of the hundreds received proving our claims of the superiority of Bishopric Stucco or Plaster Board over all other plaster board.

Read This Letter

TEWS LIME & CEMENT CO. Freeport, N. Y., March 11, 1914.
Mr. Frank Piphorn, 895 Buffum Street, Milwaukee, Wis.

Dear Sir: We have used Bishopric Stucco Board on two houses which we have built during the past fall and winter. We are very well satisfied with the board, and think that it is superior to any metal-lath which can be used. The house which is completed has stood during the winter, and shows no effects whatever from either heat or cold. There are no cracks, nor any signs of dampness.

Yours very truly, JOHN J. RANDALL COMPANY,
By E. S. Randall, Treasurer.

Mr. Builder: Investigate the merits of Bishopric Stucco or Plaster Board. You cannot help but be convinced of the simplicity, economy and practicability of Bishopric Stucco or Plaster Board. Note carefully the application of Stucco on Bishopric Stucco or Plaster Board in circular illustration. Then study the diagram below and you will begin to really appreciate the great superiority of Bishopric Stucco or Plaster Board.

THE DOVETAILED KEY "LOCKS THE PLASTER"
BISHOPRIC STUCCO OR PLASTER BOARD
TRADE-MARK REGISTERED

"Dampness Can't Penetrate"

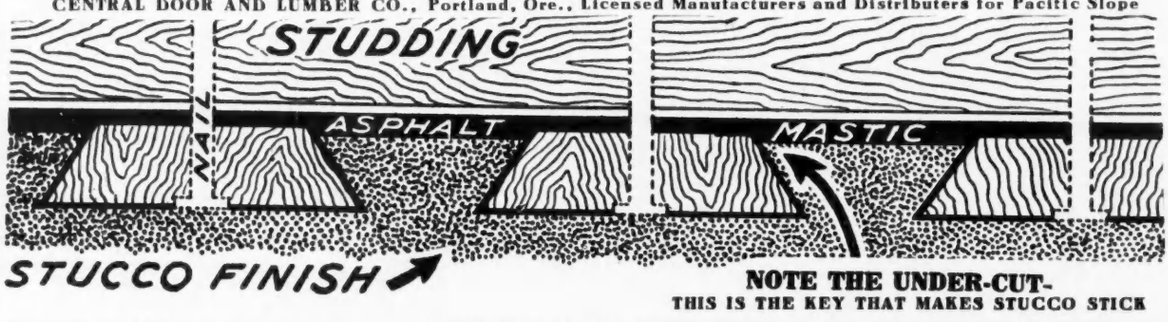
Bishopric Stucco or Plaster Board makes plaster and cement walls *permanent*—they can't crack, crumble or disintegrate when this time-defying stucco board is used. For five long years we have tested Bishopric Stucco or Plaster Board. *Every test* that a score of building experts know has been used upon it and it has *always* "stood up"—*always* made good. Its recent introduction and service already rendered have won it hundreds of friends. It will win you, once you investigate and know its many merit points over other backgrounds.

You can recommend and use Bishopric Stucco or Plaster Board without the slightest hesitation or fear of endangering your reputation. We guarantee Bishopric Stucco or Plaster Board to be as represented.

Don't delay—write today for free samples and free handsome illustrated book, just out, "Durable Homes by the Bishopric System." Contains *latest* information on stucco work. Every builder should have a copy. Get yours *now*.

THE MASTIC WALL BOARD AND ROOFING COMPANY, 530 Este Ave., Cincinnati, Ohio

CENTRAL DOOR AND LUMBER CO., Portland, Ore., Licensed Manufacturers and Distributers for Pacific Slope



NOTE THE UNDER-CUT-
THIS IS THE KEY THAT MAKES STUCCO STICK

On all woodwork where a filled grain effect is desired use Johnson's Paste Wood Filler

Floors finished with Johnson's Paste Wood Filler are sure to give satisfaction

1 lb. of Johnson's Paste Wood Filler—FREE

Johnson's Paste Wood Filler is unquestionably the best on the market. All classes of trade, including furniture manufacturers, prefer it.

It will not harden in the cans, and may be wiped with equal ease in ten minutes or two hours after being applied. It does not settle after thinning.

Johnson's Paste Wood Filler is made in several shades—*Natural, Dark Oak, Golden Oak, Antwerp, Mahogany,* etc. The Natural is slightly tinted with Ochre so it will not show white in the grain of oak, maple and other woods.

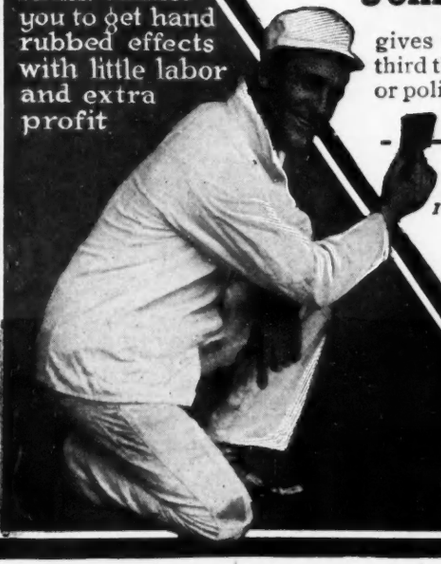
Mail the coupon and secure free and postpaid a pound of Johnson's Paste Wood Filler for trial. We will also send you a free copy of our 25c book "The Proper Treatment for Floors, Woodwork and Furniture," which gives detailed information on finishing wood—soft or hard—old or new.

Johnson's Prepared Wax

is a complete finish and polish for all wood—floors, woodwork and furniture. Apply with a cloth and in five or ten minutes polish with a dry cloth. Gives perfect results over any finish—varnish, shellac or oil. For polishing **automobile bodies** and bar tops it has no equal.

Johnson's Prepared Wax is a lasting artistic finish for floors—new or old—soft or hard

Johnson's Flat Wood Finish enables you to get hand rubbed effects with little labor and extra profit



Johnson's Flat Wood Finish

gives that artistic, hand-rubbed effect at one-third the expense. Does not require rubbing or polishing. Remember—for any work on any wood, Johnson's Finishes are best.

Please send me free and postpaid a pound sample of Johnson's Paste Wood Filler. I agree to try it and report results to you.

I buy paints from.....

Name.....

Address.....

City.....

State.....

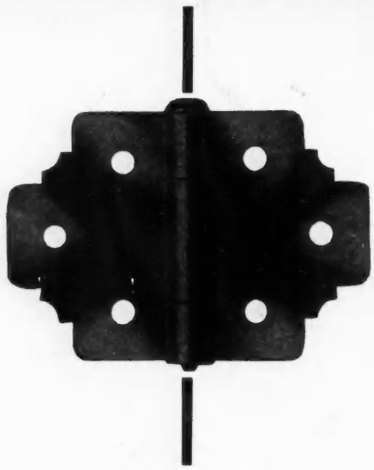
To

S.C. Johnson & Son

"The Wood Finishing Authorities"

Racine, Wis.

A.C.B. 6

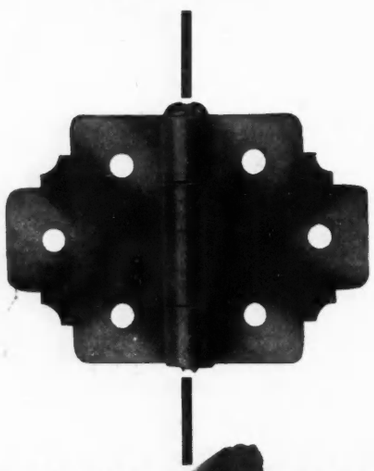


A Few Of the Reasons Why

You Should Use

NATIONAL ORNAMENTAL BUTTS AND HINGES

In Preference To the Common Sort



BECAUSE an ordinary workman will correctly hang two doors with NATIONAL ORNAMENTAL BUTTS, while an expert laboriously attaches one door with the old style butts.

NATIONAL BUTTS are packed one pair to a dozen pairs (according to size) in a box, with screws of the proper size.

NATIONAL BUTTS hang the door in such manner that the screws are subjected to a shearing strain rather than a drawing strain, as with ordinary butts. The advantage in greater weight-carrying ability is easy to understand.

All sizes from 2-inch to 4½-inch are made with double tips. The false tip (having slot for screw driver) gives easy access to the pin and its withdrawal, even if the threads become corroded.

NATIONAL ORNAMENTAL BUTTS AND HINGES ADD DISTINCTIVE BEAUTY TO THE FINISHED JOB

Send for Booklet. "Ornamental Ideas." Give Dealer's Name

NATIONAL MFG. CO., Sterling, Illinois