

JUNE 1915

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AMERICAN CARPENTER AND BUILDER



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SUMMER RESORT COTTAGES

IDEAS AND PLANS



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This mixer is sold on a straight 10-Day Trial basis— That's the only way to get at the merits of anything—put it to actual use and see how it performs. Don't take any man's word for anything, because, in this day and age, it isn't necessary. The man who is confident that his product will "stand up" and "make good" is only too willing to have a prospective buyer try it out.

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The following are the specifications of the National Mixer at \$225. When the traction feature is desired the price is \$25.00 additional.

DRUM—Capacity, 5 cubic feet, unmixed material (34x32 in.) semi-cast steel heads, steel center, steel blades raised off drum.

POWER—4 h. p. National Engine, standard equipment. Novo Engine furnished if desired.

DRIVE—Special chain through National Clutches.

WHEELS—Steel, 24x12 in., on 1½ in. axles.

HOPPER—Standard charging batch and side loader.

TRACTION—On rear wheels, controlled by jaw and National Clutches.

STEEL CONSTRUCTION—Nothing but steel throughout.

Send for Free Illustrated Literature which fully describes our Selling Plan, our Ten-Day Trial Offer, and the Mixer itself. A postal does it.

NATIONAL MIXER CO.
200 6th St., OSHKOSH, WISCONSIN

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Every Builder His Own Architect,—With the Help of a Good Plan Book

BEING THE SECOND OF A SERIES OF TALKS ON HOW TO USE A PLAN BOOK, ESPECIALLY THAT NEW SO-DIFFERENT PLAN BOOK, "GUARANTEED BUILDING PLANS."

THOUSANDS of carpenters and builders all over the country are rendering their communities very special service. It is a patriotic service, and in some countries would win them the Iron Cross or some other decoration. Anyhow, their fellow townspeople appreciate it.

They are putting up buildings that are a pleasure to look at. They are erecting stylish, up-to-date bungalows and two-story residences—the kind that home owners now prefer. They are comfortable homes, and an improvement to the street.

Carpenters, contractors, and practical builders are putting up these latest style, architecturally perfect designs. How do they do it, when the nearest professional architect is probably 50 to 100 miles away?—inaccessible and entirely out of the question to help them plan the average run of houses?

It makes no difference to the prospective home owner that there is no college trained architect in town. He wants an up-to-date, stylish looking, well arranged dwelling just the same—the kind he has seen pictured in the "building numbers" of popular magazines. He puts it up to the local carpenter and builder—and expects him to deliver.

What is the Answer? A Good Plan Book.

Thousands of contractors and builders are gaining reputations for good taste in designing, and for modern ideas through following closely the plans illustrated in the best plan books. There is money in this, too, besides the satisfaction of doing good work. Erect just one house of the modern style in your community and watch its influence on the building situation.

Those who never before thought of building, suddenly get interested. New houses are built; remodeling is done. The pick of the work, of course, goes to the builder who set the thing going by putting up the first new-style house.

Where Did He Get the Design? Out of His Plan Book.

A good plan book contains a great wealth of designs, building plans, and clever little ideas that you can choose from. There is something to suit every taste and every pocketbook. The greatest selection is, of course, among the medium price and medium size houses of four, five, six and seven rooms—the kind that the majority of people want.

Once you have discovered just the house design in the book that suits your present client it is a matter of only a couple of days' time and a very small expense to get the complete set of blue printed working plans and typewritten specifications. The satisfaction and safety from working to such drawings are immense.

There is also a way of redrawing plans that many clever carpenters and architects use, and this we will talk about next time, as it is worth while knowing, and is an interesting story. Blue-printing yours,

EDITOR AMERICAN CARPENTER AND BUILDER.

P. S.—Have you spoken yet for a copy of "Guaranteed Building Plans?" It is our new plan book, just coming from our presses; by far the best we have ever produced. A copy is yours, free, with our compliments, if you renew your subscription NOW to the AMERICAN CARPENTER AND BUILDER.

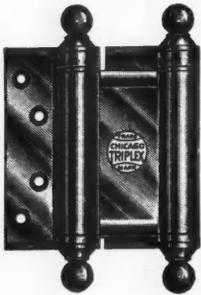
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CHICAGO SPRING BUTTS

A SUGGESTION

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



Chicago "Triplex" Spring Butts

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

Send for Catalogue C 29. It illustrates and describes the most complete line of Spring Hinges manufactured.

Chicago Spring Butt Company,

CHICAGO



NEW YORK

Yes! the World does Move! Facts are Stubborn Things



Don't Buy
SPRING HINGES
OF
OBSOLETE
CONSTRUCTION
ONLY



BOMMER

Double Acting Spring Butt Hinges

have the weight-supporting bearings correctly located to liberate the action of the springs, reducing breakage and increasing spring power, preventing unequal wear of the barrels, and giving practically unlimited durability. Bommer double-acting spring hinges open alike at both casings and both doors when both doors are opened.

The carpenter can avoid guesswork and save time when hanging double-acting doors in pairs, as he can scribe and fit both doors of a pair from the same side of the opening.

YOUR HARDWARE MERCHANT CAN SUPPLY THEM
Bommer Bros., Manufacturers Brooklyn, N. Y.



CABOT'S (Waterproof) Cement Stains

You can waterproof your stucco houses and at the same time color them in soft, rich tints by using these stains. They sink into the pores of the cement and seal them, and the colors do not spoil the cement texture as thick paints do. They wear splendidly, never crack or peel, cost less than paint and go farther. Write now for free color-card and full information.

SAMUEL CABOT, Inc., Manfg. Chemists, BOSTON

1133 Broadway, New York — 24 W. Kinzie St., Chicago

Cabot's Creosote Shingle Stains
Sheathing and Deadening Quilt; Conservo Wood Preservative, etc.

Worth Much to You

Morrill

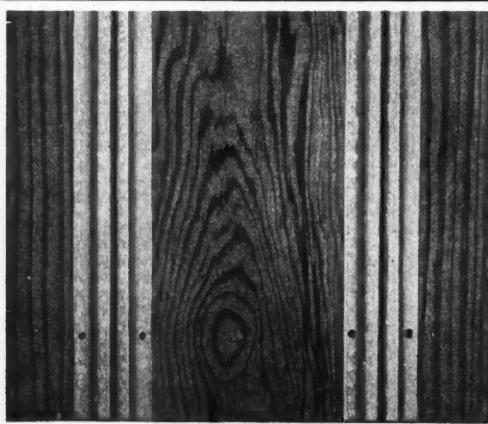
Saw Set



All master carpenters are using this Saw Set. In one operation it takes out the wrong set and puts in the right one. Write for FREE booklet "Saw Points". It tells how to properly joint, set and file hand saws.

CHAS. MORRILL

94 Lafayette Street
NEW YORK



USE METALLIC BATTEN STRIPS

for Vertical Barn Siding and other Buildings where Vertical Siding is Used

Far superior to wooden battens. They'll make your barns wind, rain and snow-proof. You'll notice the difference. Metallic Battens will keep your barns warmer and will last indefinitely. They also make a building much more attractive looking.



End View Showing Batten Closed

Pat. Feb. 18,
1913

**Always
Tight**



End View Showing Batten Open
with Seasoning of Timber

Metallic Batten Strips are always tight. They expand and contract with the siding. No Warping, Splitting or Drawing off. Metallic Batten Strips always lay flat and do not interfere with sliding doors. Put Metallic Battens on all your vertical siding buildings—Time will Tell. Also used successfully on Garages, Chicken Houses, Hog Houses, and makes Granary and Corn Crib Floors rat-proof.

Let us send you a FREE sample of this Metallic Batten Strip.

Metallic Batten Co., Owensville, Ind. Canadian Representative, Taylor Mfg. Co., Hamilton, Ont.



Member of the Audit Bureau of Circulations
Circulation Audited and Verified February, 24, 1915

<i>The</i> World's Greatest Building Paper	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.	<i>The</i> World's Greatest Building Paper
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American Carpenter and Builder
Entered as second-class matter July 1, 1905, at the postoffice at Chicago, Ill., under the act of Congress of March 3, 1879.
Published on the first day of each month by
AMERICAN CARPENTER AND BUILDER COMPANY
RADFORD BUILDING, 1827 PRAIRIE AVE., CHICAGO
Member Audit Bureau of Circulations

SUBSCRIPTION RATES
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Single Copies, 20 cents. Canadian Subscriptions, \$2.50. Foreign Subscriptions, \$3.00.

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

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PROTECTION FOR OUR READERS

The publishers of the American Carpenter and Builder will not knowingly publish any advertisement of a misleading character nor accept advertising from any individual, firm or company whose business methods are open to question.
We often receive inquiries from readers who desire information about concerns that formerly used the advertising pages of the American Carpenter and Builder, but are no longer doing so. They want to know if these former advertisers are still in business, if they can send them orders with the assurance that they will be filled, and a variety of other questions.
The American Carpenter and Builder will use every legitimate means to safeguard the interests of its readers and to protect them from fraudulent or unreliable concerns. Where the slightest doubt exists our readers should write the publishers for information. It may save them money, time and worry.
In all cases in writing to advertisers say: "I saw your advertisement in the American Carpenter and Builder."

Should the Price be Stated?

WHILE we lay no claims to being a shark on the psychology of salesmanship, it does strike us that there is sometimes more "lost motion" than there needs to be between advertisers and the prospective purchasers of their goods.

Practical business men, like the contractors and builders who read the AMERICAN CARPENTER AND BUILDER, going through the pages of their own business paper, have an entirely different attitude toward the advertising announcements than that of the popular magazine reader whose eye chances to fall upon the ad. alongside the love story or thriller he—or more often she—may be reading.

We believe our readers are good judges of values and can be safely trusted with the facts without waiting for a lot of preliminary correspondence. We commend the following letter to the thoughtful reading of all interested:

Advertising Editor: Corning, N. Y., May 11, 1915.

Out of a total of three hundred and forty-six advertisements in the May number of the "American Carpenter and Builder," there are fifty-three that I can class as interesting,—because they give the price of their goods in plain dollars and cents. Out of the above number there are eleven manufacturers of

concrete machinery who give a brief specification of their machines, and state the price in large print.

Contractors are often compelled to submit proposals for work on very short notice; and if the current prices of material, etc., could be found as easily as the advertisement, it would be a blessing to the estimator.

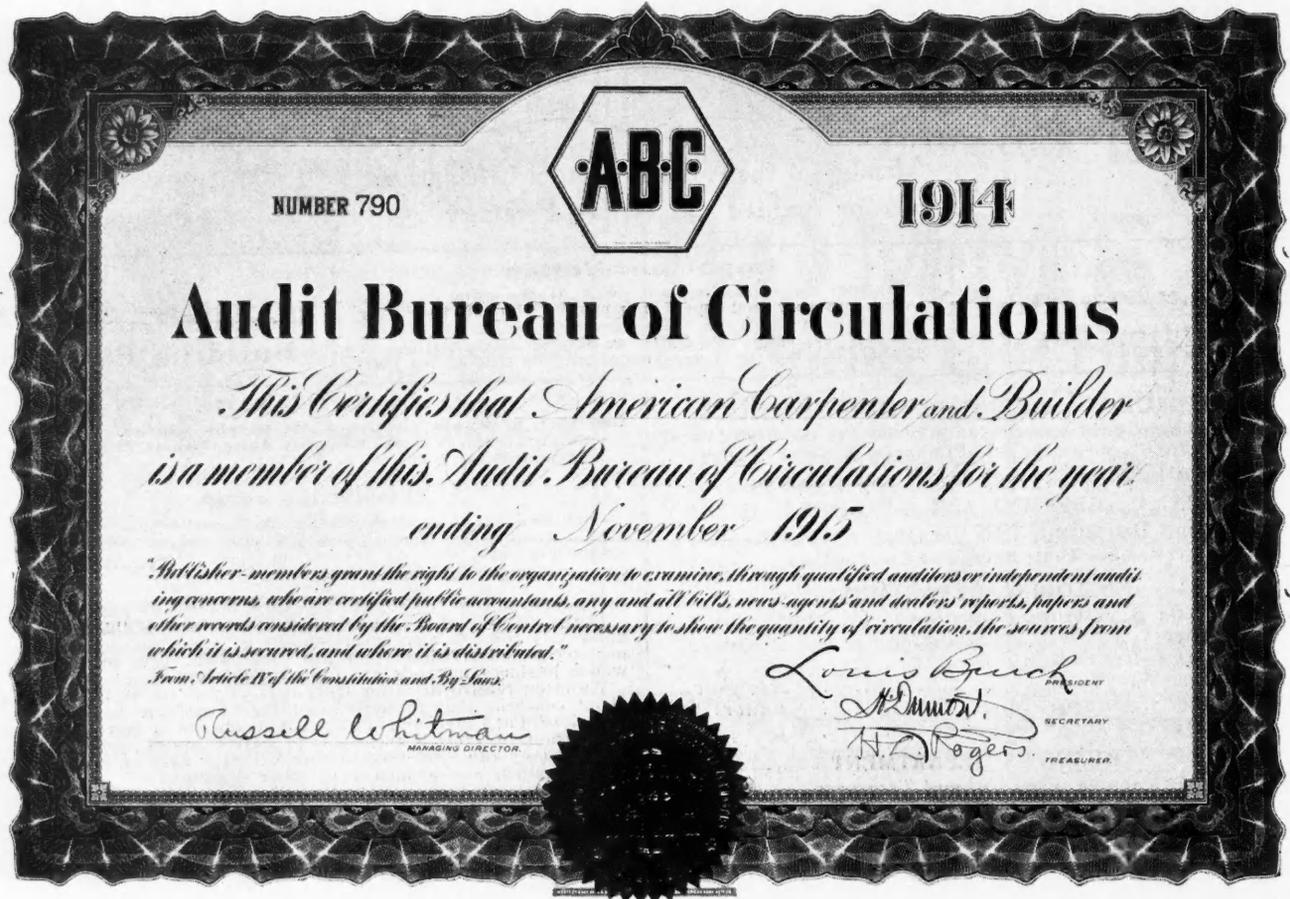
For example: The specifications might call for "Sunday's Sanitary Flooring" in the bath rooms; for "Munday's Patent Joist Hangers"; for "Friday's Brand of Concrete Waterproofing," etc.—nearly every specification calling for some advertised article that we have never had a quotation on. Now this would be all right if we had unlimited time to prepare our bids. But suppose that the bids are to be in in five days, here is an example of what sometimes happens:

We write to an advertiser in Cincinnati for a price on a certain specified article of material, and he replies that he has forwarded our "valued enquiry" to their Cleveland Branch for consideration; in about a week we receive a letter from the Cleveland Branch stating that "Our Mr. Gabfest will call on you in the course of a week or ten days and quote you our best price." In the meantime we make a wild guess on what the price should be, or trust to the chance of getting the specifications changed; and when "Our Mr. Gabfest" calls we are not really delighted to see him.

This may not be what you want for the prize contest, but if it is not, you might make the necessary corrections and publish a few of the hints that it contains so that some of your Advertisers can see what an aggravation their methods sometimes are to the average contractor.

WM. H. WELCH,
General Contractor and Builder.

Protection for Our Advertisers



This Certificate Insures an Honest Count and a Square Deal

No misrepresentations, no false claims, no exaggerated statements—these are the foundations of the AMERICAN CARPENTER AND BUILDER Business Policy. And both our subscribers and our advertisers share equally under this protection.

On page 37 of every issue of the AMERICAN CARPENTER AND BUILDER will be found an article headed "Protection for Our Readers," which assures them that we will not knowingly insert any misleading advertising and that we will use every legitimate means to safeguard their interests and protect them from unreliable or fraudulent concerns.

In the same way, the certificate reproduced above protects our advertisers. It insures them against misleading or false circulation statements. It is a Guarantee of Truth and Honesty, and it is backed up by an organization that has the confidence of the whole publishing and advertising world.

The Audit Bureau of Circulations (of which the AMERICAN CARPENTER AND BUILDER is a member) is a national association composed of the largest advertisers and advertising agencies in the country. The publisher-members (which include the three best-known building papers)

are those who permit the Association to audit their circulation books and make their findings public.

The Audit Bureau of Circulations gives advertisers absolute facts about circulation—quality, quantity and distribution. It assembles the figures, checks them, verifies them and puts them in a standard form so that any advertiser can analyze them at a glance. Facts about circulation mean well-spent advertising appropriations.

The certificate of the Audit Bureau of Circulations insures an honest count, a square deal and a complete, unbiased statement of everything that an advertiser should know about the publication he is spending his money in.

The Audit Bureau of Circulations has audited and verified the circulation of the AMERICAN CARPENTER AND BUILDER and its report of Feb. 24, 1915, will prove to the satisfaction of any advertiser that he is getting full count on our guarantee of more than 40,000 copies a month.

MR. RUSSELL WHITMAN, Managing Director of the A. B. C., 15 E. Washington Street, Chicago, will gladly supply any advertiser or publisher with full details.

THESE 50 WIN PRIZES

*Is Your Name in this List? If Not,
Next Month it May Be.*

The following are the winners in Our May Ad Study Contest:

First Prize, \$5.00.—WM. F. GIBBONS, Clarks Summit, Pa.

Second Prize, \$3.00.—EDWARD H. TINGLEY, M. E., Manual Training Department, Shepherd College State Normal School, Shepherdstown, W. Va.

Third Prize, \$2.00.—J. B. LEONARD, Carpenter and Builder, Aspen, Colo.

Forty-seven \$1.00 Prizes as follows: T. J. COX, Carpenter and Builder, 701 Sylvan St., Emporia, Kans.; WILLIAM MILLS, 584 Pleasant View Ave., Nelsonville, Ohio; L. M. TAYLOR, Carpenter and Woodworker, Tom Bean, Texas; JAMES SIMPKINS, Building Contractor, 125 Brooks St., Missoula, Mont.; W. B. MORAVA, Box 14a, Muscoda, Wis.; L. A. MEEK, Box 333, Leslie, Ark.; B. C. DWINELL, Box 343, Loveland, Colo.; HAROLD C. MOHLER, Manual Training Department, Pana Township High School, Pana, Ill.; CHAS. E. GOODSPEED, 601 Cross St., Ypsilanti, Mich.; A. C. STACKPALE, Haywood,

W. Va.; C. W. MORGAN, 49 Wellington St., Worcester, Mass.; LEOPOLD LABOWITZ, 1236 N. Campbell Ave., Chicago, Ill.; H. W. RICHARDS, 164 Oak, Elgin, Ill.; E. E. WORTHAM, Contractor and Builder, Mayfield, Ky.; S. E. MILLER, Contractor and Builder, Prop. The Star Apiary, Rhineland, Mo.; H. J. BLACKLIDGE, San Rafael, Calif.; FRANK M. KEITH, 1229 Peoples Gas Bldg., Chicago, Ill.; W. R. BALL, Manual Training Department, Whittier School, Minneapolis, Minn.; JOHN BISHOP, Dayton, Minn.; FORREST REICHARD, 922 Washington, Easton, Pa.; CHAS. R. RHODES, Silver Lake, Ind.; ROBERT HARROUN, Contractor and Builder, Lovewell, Kans.; O. STOCKER, 71 Ft. Lee Road, Bogota, N. J.; GEO. J. MATHER, Truro, N. S., Can.; F. E. ROBINSON, Madisonville, Ohio; LEE BAYS, Jr., Lebanon, Va.; R. J. SCHLONEGER, Contractor and Builder, Vestaburg, Mich.; S. R. GREGG, Carpenter and Cabinet Maker, 669 Carmel Blvd., Zion City, Ill.; H. W. SPENCER, Con-

tractor and Builder, Mount Tremper, N. Y.; GEORGE LANGEVIN, Box 100, Charlestown, Mass.; LEONARD NISULA, 16 Nichols St., Fitchburg, Mass.; M. H. MARTIN, 1115 Stewart Ave., Roanoke, Va.; A. W. HOLT, Harlem, Mont.; ROBERT J. WATSON, care of Woolslair High School, Pittsburgh, Pa.; E. B. HARSHBERGER, Architect and Builder, Minot, N. D.; C. H. BELTZ, Pendleton, Ore.; L. B. HARMON, 111 Bartlett St., Somerville, Mass.; MERTONE SIGNER, Tonica, Ill.; WILLIS BRINDLEY, 181 37th Ave., N., Seattle, Wash.; R. F. SULLIVAN, Contractor and Builder, 1728 Timea St., Keokuk, Iowa; ARTHUR LETTAU, Spotswood, N. J.; GEO. W. KEIM, Tecumseh, Nebr.; C. A. CLARK, General Builder, 1384 Grace St., St. Paul, Minn.; EDWARD BERG, Appleton, Wis.; J. W. GOHN, Carpenter and Builder, Clearmont, Mo.; PAUL DAY, Grants Pass, Ore.; THOMAS W. KELLY, Contractor and Builder, Room 4, 213 2nd Ave., Cedar Rapids, Iowa.

And Now Here's Another—

JUNE ADVERTISING STUDY CONTEST

50 Prizes to those who find some ad in this magazine most interesting and tell us why

So many of our subscribers evidently took so much pleasure in the contest last month that we offer you here another exactly like it. Get busy now. **This contest closes Wednesday, June 23, 1915.** 50 prizes will be awarded to the 50 readers who write us what advertisement in this June issue of the American Carpenter and Builder interests them most, and who give the clearest and most logical reasons why the advertisement selected is of interest. The first prize will be \$5.00, the second prize, \$3.00; third prize \$2.00, and forty-seven \$1.00 prizes.

Builders Make Money Studying Ad Pages

These 50 prizes, while valuable, are the very least of the good hard cash value you can get out of American Carpenter and Builder advertising. There are at least twelve brand new propositions in our advertising section, announced this month for the first time. As an up-to-date builder

you should know what these are. This is the busy-building season. Manufacturers and sales agents want quick action at this time of year the same as you do. They are making some very close prices that will hurry in the business. Study our advertising pages and find out

about these. New catalogs are being issued and worth while samples distributed. Our "ads" will help you to select and obtain free those that interest you.

It has been well said that the American Carpenter and Builder advertising section is the Market-place of the Building Industry. Get the habit of turning to it often. Study it thoroughly. It will bring you profitable business.

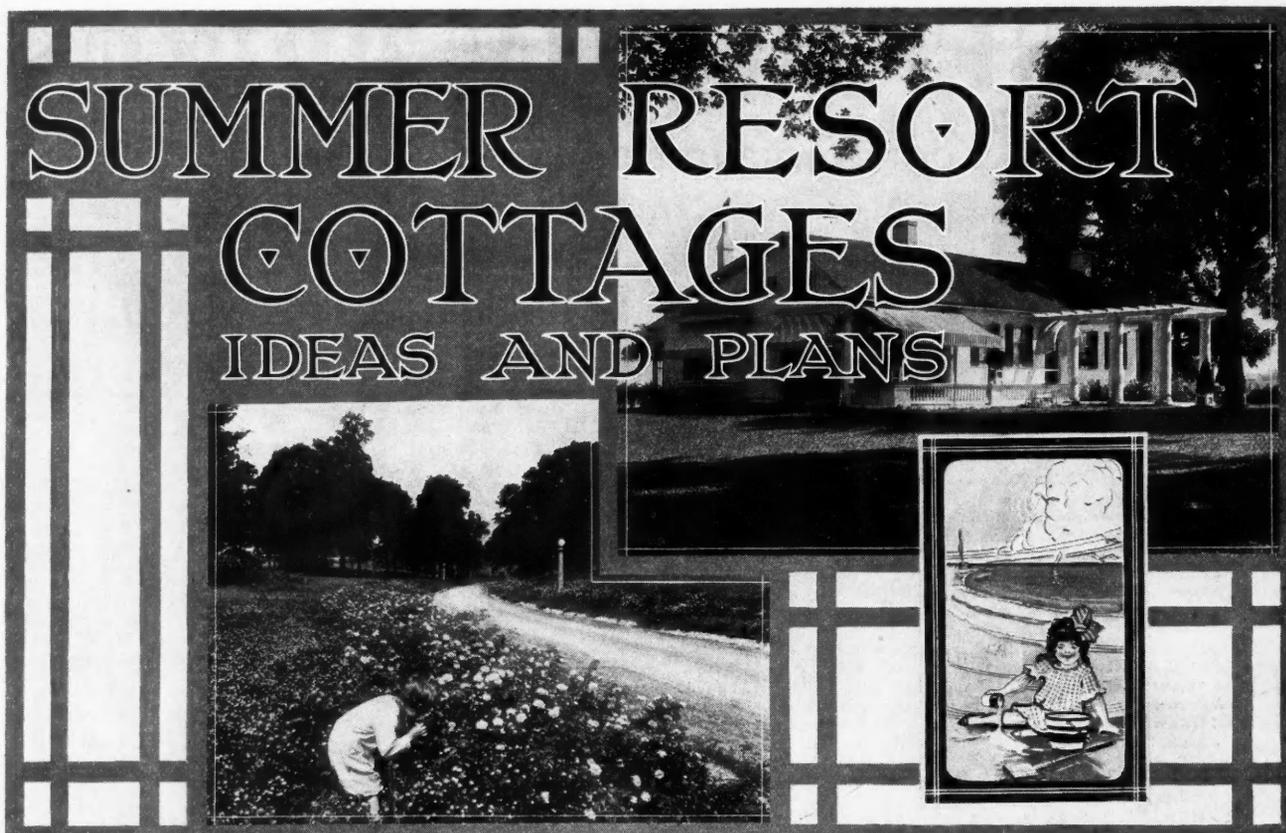
We want to know the advertisement that interests you most and why. Write us a short letter before June 23rd, addressing the Advertising Editor, American Carpenter and Builder, 1827 Prairie Ave., Chicago, Illinois.

Winners will be Announced in the July Issue

On July 1st the 50 prize winners will be mailed our "Advertised Merchandise Vouchers" good at full-face value in exchange for any goods advertised in the American Carpenter and Builder.



**The MARKET PLACE
of the BUILDING INDUSTRY**



Five Designs that Smack of the Glad Out-Doors

SEASONABLE SUGGESTIONS FOR LITTLE SUMMER HOMES—LITTLE IN COST BUT BIG IN SATISFACTION AND IN COMFORT

FEW and far between is the city man who right now is not figuring on "getting away." He is a strong minded man and set in his devotion to business, who is not now infected with vacationitis; and even so—his better half and children have not escaped: they want their summer's outing.

To the carpenter and builder this means summer cottages to be planned and erected. While many are content with resort hotels and summer boarding

houses, every summer finds more and more who want the greater privacy and satisfaction of having their own summer cottage—be it ever so tiny.

Big expense is the last thing to expect or tolerate in a summer cottage. The construction may be light—in fact a weather tight roof is practically the only absolutely necessary feature. Rough finish inside with studding and rafters exposed seems to harmonize exactly with the rough-and-ready summer camp idea.

If a smooth finish is wanted in any of the rooms, wallboard is the answer. Woodwork should be stained, all except the window sash, which looks best painted white or green.

In the accompanying five designs a great many good ideas can be observed. These will interest any prospective summer cottage owner. These are quite the classiest designs we have ever seen. They are right as to looks besides being economically planned.

Some features are included that fit these houses for use the year round, if solidly constructed. Builders will, of course, include these or not, just as seems best in each particular case. We have known places on salt water where "bath room" meant simply a small room with a pail of fresh water and perfect drainage through the cracks in the floor. Such things are governed by local custom.

If anyone wants to leave out any of the modern city conveniences that are shown on these plans—and so cut down the expense—that is his privilege. It's much easier to leave such things out when not needed than it is to try to work them in to a plan that never contemplated anything of the sort. We are thorough believers in the wisdom of planning well—conveniently and attractively—and then paying the very slight extra.



Interesting Log Cabin Summer Home in the Adirondacks.

Woodland Cottage of Four Rooms

A mighty attractive and beautiful little home is shown in the accompanying illustrations. The exterior of the house is finished in shingles laid in alternately wide and narrow rows, and the trim is white. This finish combined with the window boxes creates an extremely pleasing effect. The heavy cobble stone posts on either side of the porch are also very attractive.

The floor plan calls for four rooms: living room, dining room, kitchen, and bedroom. There is a fair-sized bath room and a large clothes closet in addition to these rooms.

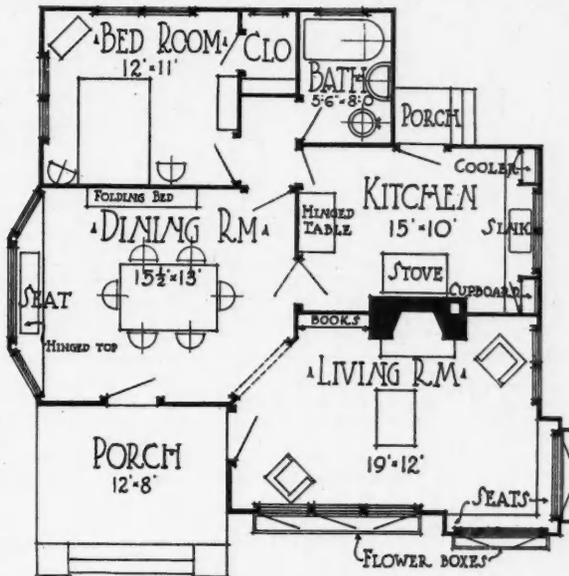
The living room is of large size and is handsomely finished. It is almost a sun parlor, as two sides of the room are practically all windows. The built-in seats in the corner bay insure full use for this part of the room. The fireplace in the living room can be either of face brick or field stones.

Above the fireplace is a mantel supported on brackets.

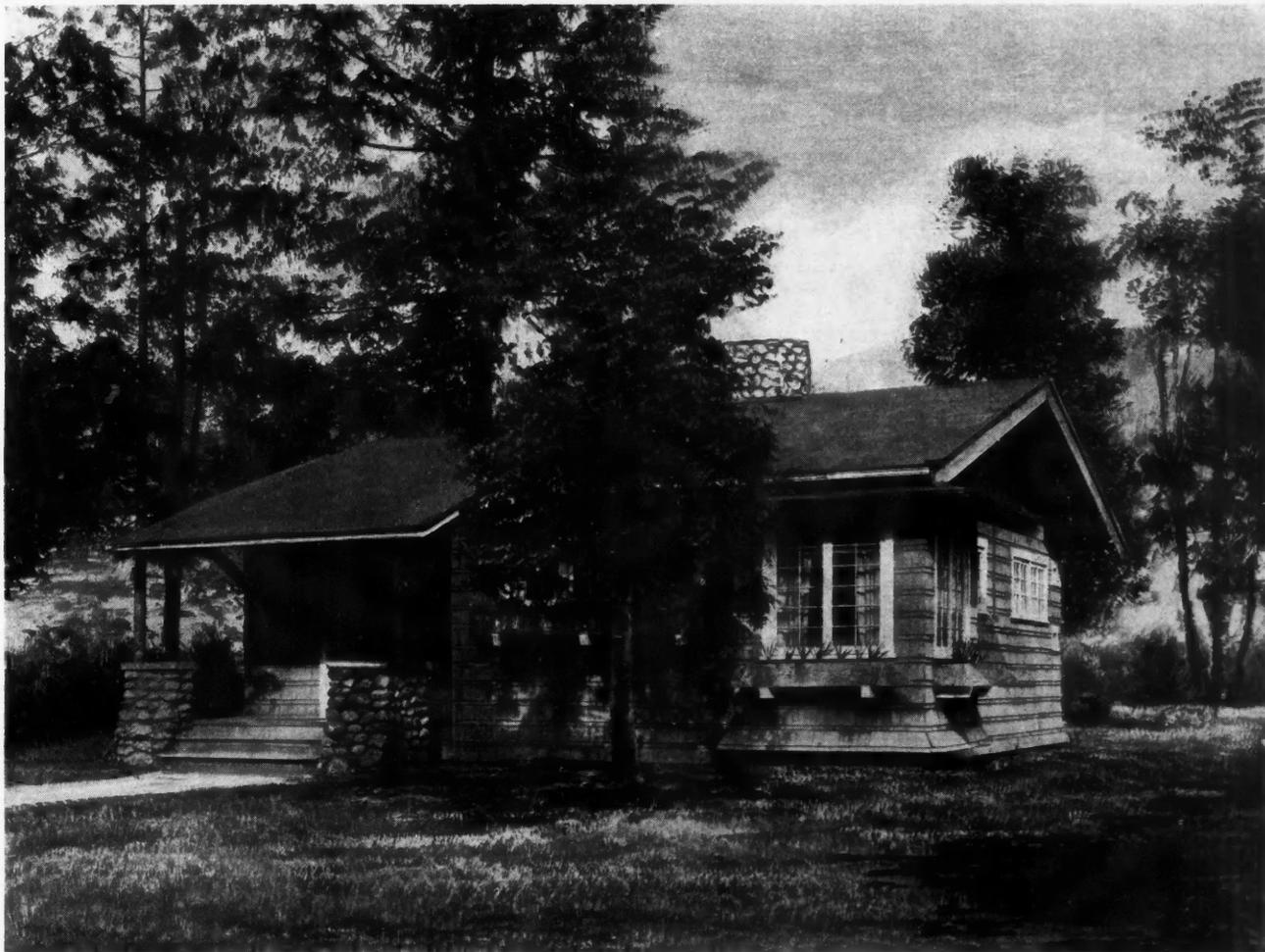
A feature of the dining room is a folding bed that folds up sideways against the wall, fitting into a projecting pocket or box. The underside of the bed is paneled as shown in the detail

sketch, so that this is a good looking and useful piece of furniture. A seat is placed in the broad bay window and has a hinged top which provides a handy catch-all for outing duffle.

The feature of the kitchen is the built-in cupboard, sink, and cooler that occupies one wall in the room. This convenient arrangement is shown clearly in the detail drawing. The cooler has openings, which are screened, one at the top of the cabinet and one at the bottom. The shelves are made of lattice work or of heavy galvanized iron screens so that the circulation of the air will be good. Such a device is of great use in summer homes far from ice supply. Above the sink are two windows which light the sink well, a feature much desired. Under both cabinet and cooler is a case of drawers. There is a hinged table in the kitchen, just right for a summer cottage where space is sometimes at a high premium. It can be folded back out of the way when it is not in use.

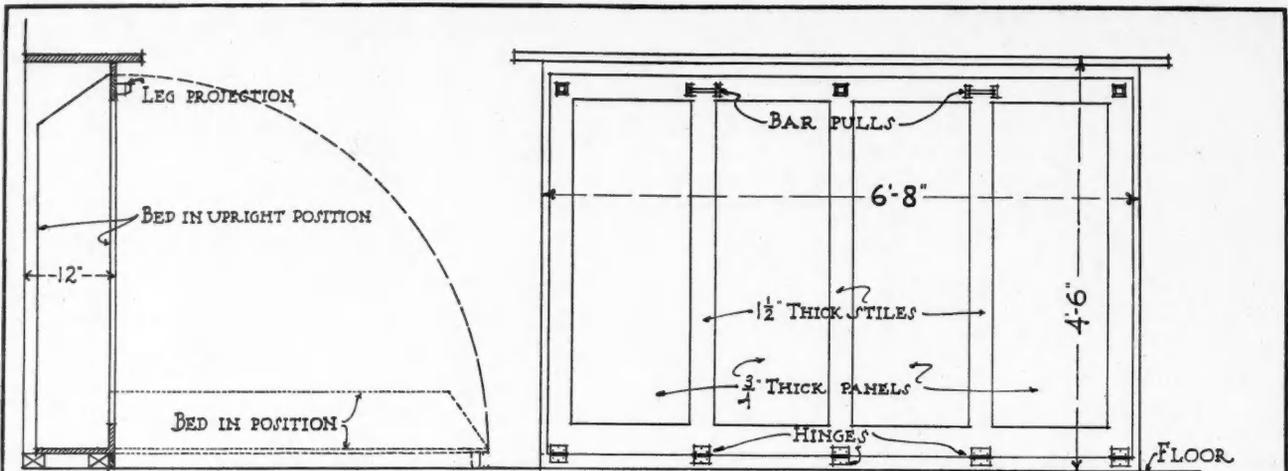


Floor Plan, Size 31 by 31 Feet.

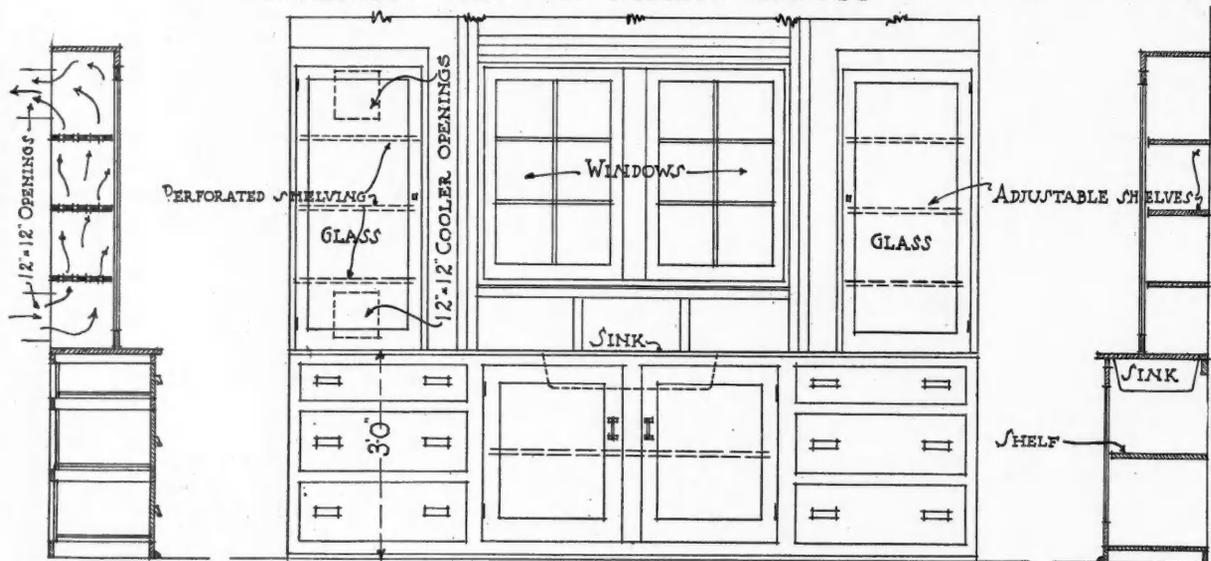


Well Lighted Summer Bungalow, Containing Four Rooms. Size, 31 by 31 feet. We can furnish complete set of blue-printed plans and typewritten specifications for only \$5.00 per set. Blue-prints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering ask for Design No. 6735.

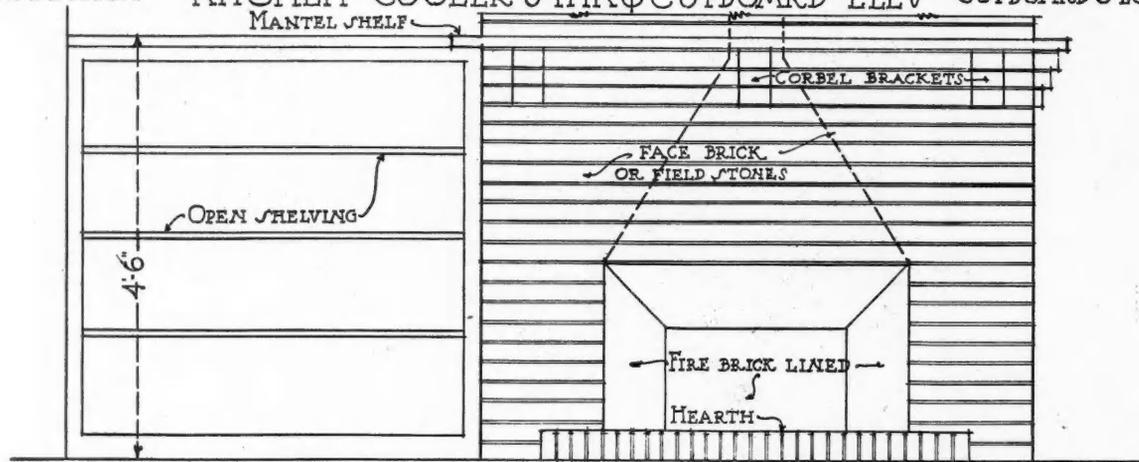
For Details of Construction and Finish of this Summer Cottage see Next Two Pages.



A FOLDING BED IN DINING ROOM A SCALE 1" EQUALS 1'-0"

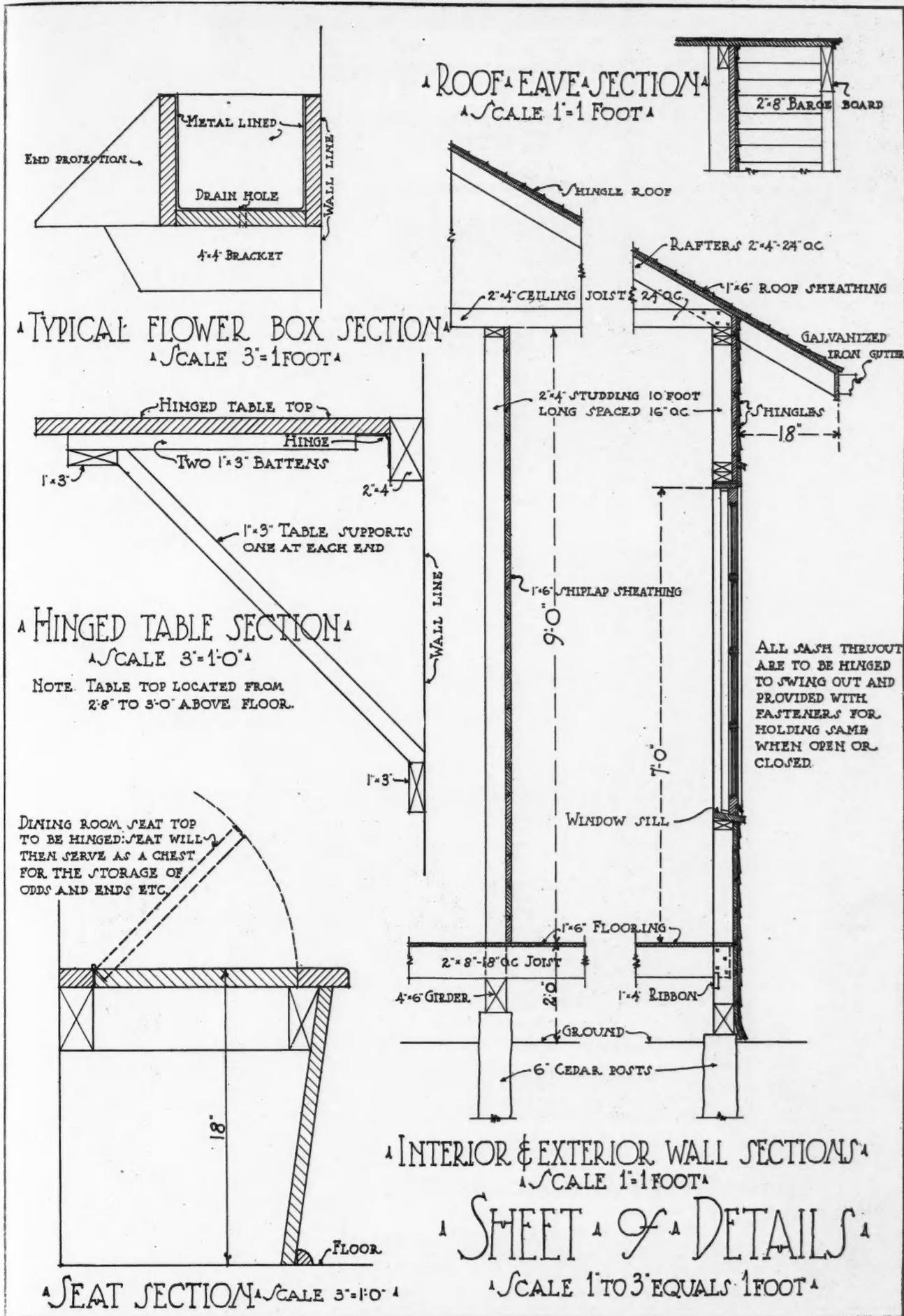


COOLER SECTION A KITCHEN A COOLER A SINK & CUPBOARD A ELEV A CUPBOARD SECTION

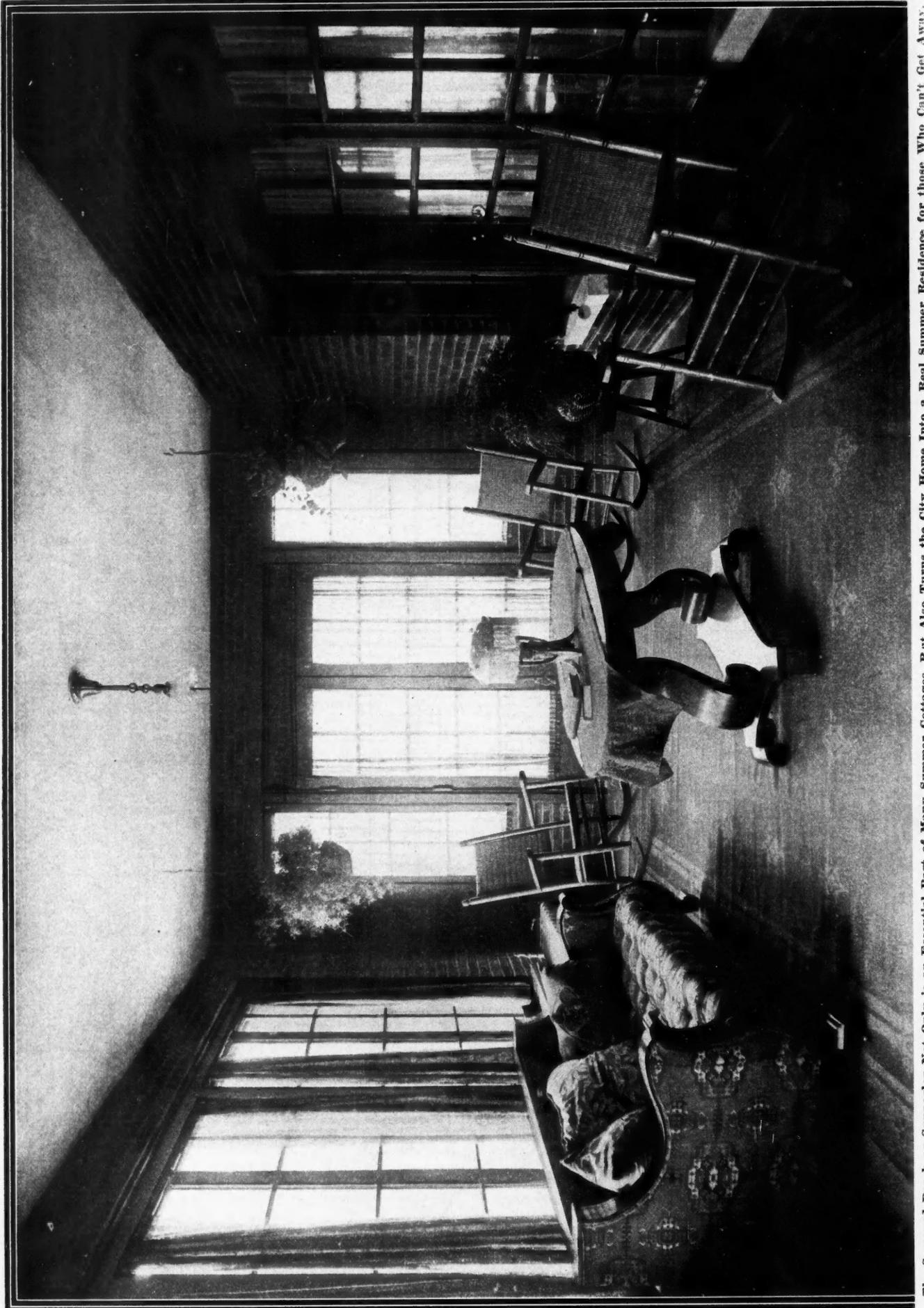


A LIVING ROOM BOOK CASE & FIRE PLACE A SCALE 1" EQUALS 1'-0"

A SHEET A OF A DETAILS A SCALE 3/4" TO 1" EQUALS 1 FOOT



DETAILS OF CONSTRUCTION OF SUMMER BUNGALOW, (DESIGN NO. 6735)
ILLUSTRATED ON PAGE 41.

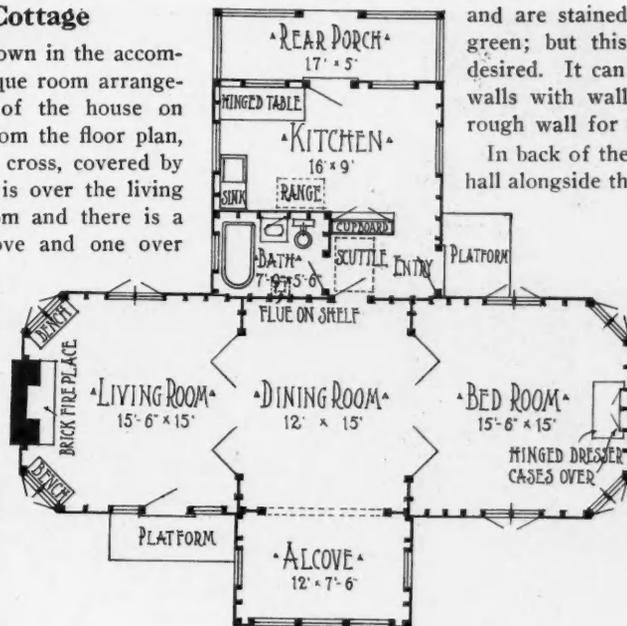


The Screened Porch or Sunparlor Not Only is an Essential Part of Many Summer Cottages, But Also Turns the City Home Into a Real Summer Residence for those Who Can't Get Away.
"The Most Used Room in the House" is the Universal Verdict. Full Glazed Double Doors With Side Windows Carry the Cheeryness Through Into the Inside Rooms.

“House Party” Cottage

The feature of the design, shown in the accompanying illustrations, is the unique room arrangement and the general shape of the house on the ground. As can be seen from the floor plan, the house is in the shape of a cross, covered by three gables. The main gable is over the living room, dining room and bedroom and there is a projecting gable over the alcove and one over the kitchen and back porch.

The room arrangement is decidedly unique. The whole main part of the house can be opened up so as to give an extremely large unobstructed floor space. Double folding doors are placed between the living room and dining room and between the dining room and bed room. There is also an alcove off the dining room with a casement opening between. When all this floor space is opened up, plenty of room is assured for an informal dance-



Floor Plan Suggests House Parties and Dancing. Size over all, 45 by 46 feet.

and are stained tan or tobacco brown or a soft green; but this is not necessary, if a finish is desired. It can be readily obtained by lining the walls with wall-board. Many people prefer the rough wall for this type of a house.

In back of the dining room is a bathroom. The hall alongside the bathroom is used as a side entry way from the small concrete side platform. In back of the bathroom is a well arranged kitchen with plenty of room. The kitchen has one of the handy hinged tables that can be folded back out of the way when it is not in use. On the other side of the room from the table is the sink and also a range. Behind the kitchen is a large back porch which can be screened and utilized in many appreciated ways.

This design is almost ideal in many ways for a summer cottage and will also prove



Nifty cottage design of four rooms. Size 45 by 46 feet. We can furnish complete set of blue-printed plans and typewritten specifications for only \$5.00 per set. Blue-prints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6733.

ing party or entertainment of any kind.

All the windows in this part of the house, with the exception of the alcove, are of the casement type. The alcove is built like a sun parlor with the sides made mostly of windows.

The roofs are of heavy construction, which adds to the artistic effect of this house. The sides are finished in cement stucco and, combined with the white window frames and dark trim, give a very inviting appearance to this design. Another unusual feature is the treatment of the corners. All the corners of the part of the house under the main gable are beveled off and a window is placed in each.

The entrance is a simple concrete platform—just the thing for a comfortable little summer cottage.

If you like to have a house in which you can entertain your friends, the more the merrier, we can't see how this house can be equaled. The big fireplace in the end of the living room, the casement windows, the beveled off corners, and the rough finish all combine to make a house that will attract attention anywhere.

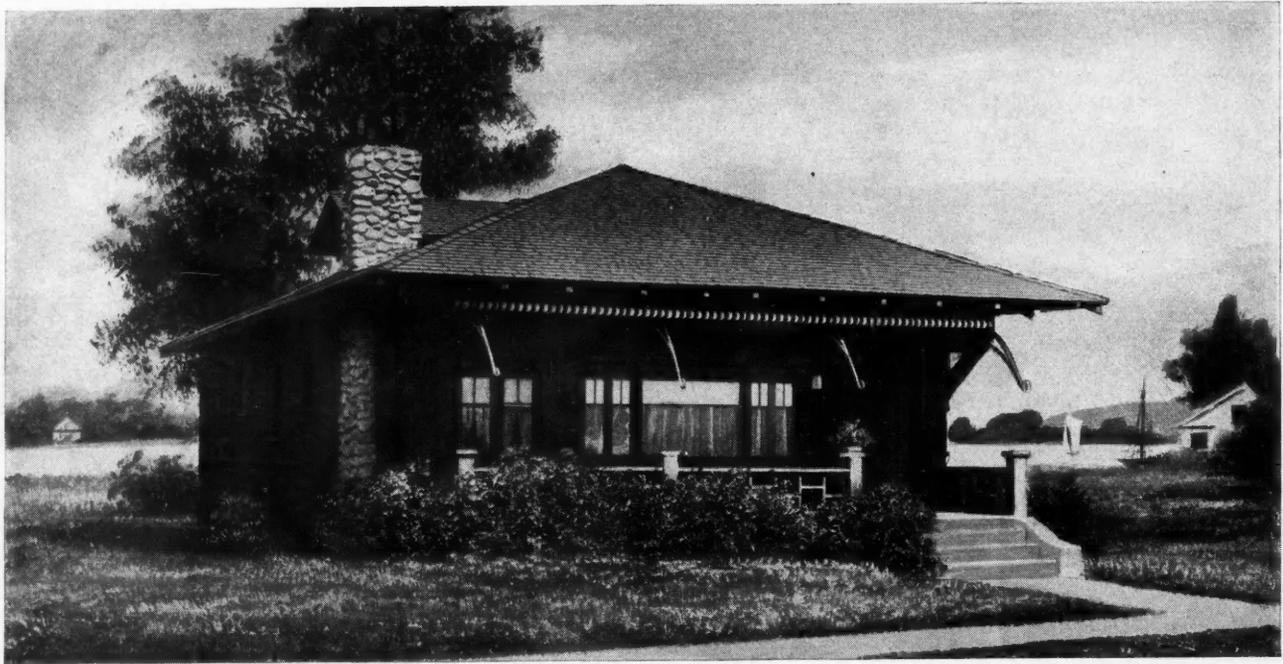
In the living room on each side of the fireplace and under the corner windows are benches that can be made of a style to fit the furniture. This room, as well as the rest of the house, is finished rough; the studs are exposed to view

very satisfactory for a house to be used the year around.

An idea for ceiling construction in the front of the cottage is to use ceiling beams set 24 inches apart and finished four sides. The ceilings are not lathed and plastered. The boarding above has to be matched stuff of good quality free from knot holes and other imperfections usually countenanced for rough flooring which does not show.

In all frankness, it is doubtful if many American housewives would relish this kind of a ceiling. It harmonizes, however, with the rustic cottage idea, and in this particular instance, is very satisfactory.

The Screened Porch or Sunparlor Not Only is an Essential Part of Many Summer Cottages, But Also Turns the City Home Into a Real Summer Residence for Those Who Cannot Get Away. "The Most Used Room in the House" is the Universal Verdict. Full Glazed Double Doors With Side Windows Carry the Cheeryness Through Into the Inside Rooms.



Hip-roofed, cozy bungalow of three rooms. Size 25 feet 6 inches by 26 feet 6 inches. We can furnish complete set of blue-printed plans and typewritten specifications for only \$5.00 per set. Blue-prints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6734.

Lake Cottage with Three Rooms

A cozy little cottage of typical summer resort construction is shown here as Design No. 6734.

The exterior is particularly attractive. The roof is of the hip type and projects far out over the eaves. Under the front eave is an awning that can be rolled out on four brackets that extend over the porch. This awning protects the expanse of front windows from the glare of the afternoon sun.

One of the distinguishing features of summer cottages is the number of windows, and this design is no exception to the rule. A dark bungalow intended for summer use would seem out of place. Summer is the time when the outdoors is most attractive and a house should be as bright and cheery as possible to resemble the great outdoors. Lots of sunshine is the answer to this. The more windows you can have the more you will appreciate a house at this season of the year. In this plan, practically the whole front of the house is taken up with windows, and as shown in the floor plan, the sides and back also have many.

The rough stone chimney is another very attractive effect of the exterior appearance. It gives a homelike, comfortable touch to the design. The decorative porch rail is very pleasing. The sides of the bungalow are finished with large shingles or shakes.

The entrance to the bungalow, at one end of the front porch, is into a

square vestibule with a big wardrobe at the back.

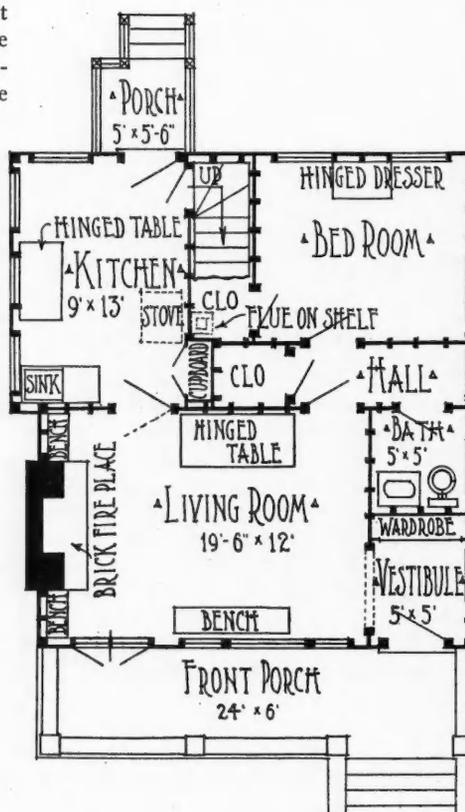
The living room is reached through a cased opening from this vestibule. The living room is, of course, the largest room in the house as it is used all the time. It generally serves as a dining

room as well as a living room, which is the case in this particular house. It extends nearly all the way across the front of the house and has one pair of French windows, at the far end of the room that open onto the porch.

This is an extremely handsome and artistic room. The walls are not finished off but have showing the studding, which can be stained. Sometimes the studding is planed on the three sides that show in the interior and the sheathing is planed on the one inside face or is made of matched lumber. Many people prefer to have the rough lumber showing and then the other decorations, such as the furniture, fireplace, etc., can be finished in rustic style to suit the walls. In this plan, the fireplace is made of brick, which can be either face or common brick, depending on the style of finishing that is used in the rest of the room.

On each side of this fireplace is a bench and there is also one in front of the windows. These can also be finished in a style to harmonize with the various methods of finishing that may be used. A hinged table is provided for dining purposes and when not in use can be folded back out of the way. This is a great convenience when floor space is small and when it is all needed as it is likely to be when there are visitors.

Back of the living room is a kitchen that is well arranged—with a sink, a stove, and a hinged table. The stairs to the store rooms in the attic are reached through this room.



Three Generous Sized Rooms Besides Bath, Clothes Closets and Attic in this Hip-Roof Lake Cottage. Size 25 ft. 6 in. by 26 ft. 6 in.

Picturesque Shingle Sided Cottage

In these illustrations is shown a three-room-or-more bungalow of light construction having a handsome, artistic appearance. The sides are of shingles which are laid in alternately wide and narrow rows—a very pleasing method of finishing. All the windows are trimmed in white and are all of the casement type.

Casement windows are a decided advantage in a house that is intended for use in the summer. The windows are open much of the time and the casement opens wide while the ordinary sliding sash always blocks at least half of the opening.

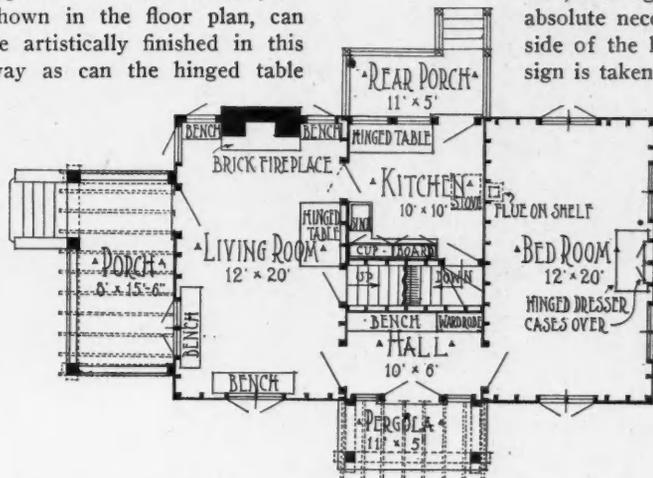
Features of the exterior are the two pergolas. One over the side porch and one over the front. Pergolas are particularly suited to a bright sunshiny house such as a summer cottage must be. These pergola roofs of heavy beams are finished dark to harmonize with the sides of the house and are supported on square columns. Above the front pergola is a white railing around the windows which open into the second floor space. Serviceable rooms can be finished off up there if desired.

The interior finish is rough. The studding is covered on the outside with sheathing and the shingles are placed on this, but no inside lath and plastering is used. The studding and inside surface of the sheathing boards can be stained and finished off if desired.

The entrance from the front porch is directly into the capacious living room, 12 by 20 feet. Across from the porch on the inside wall of this room is a hinged table which can be folded out of the way when not in use. This room can be handled in mission style and will make a very attractive room if the interior finish and the furniture are of this type. The four benches, as shown in the floor plan, can be artistically finished in this way as can the hinged table

acter of the room. The living room is used as a dining room also. It must be large because it is in use all the time, either as a living room or as a dining room.

The kitchen is large and roomy as it should be in houses of this type. A warm kitchen may be all right in winter time, but in a summer resort cottage a cool, well-lighted kitchen is an absolute necessity. The whole side of the kitchen in this design is taken up with two windows and a door which will provide plenty of ventilation and will keep the room cool. Under the two windows is a hinged table, while across from it is the sink and the cupboard. The stairs to the basement are also reached



Floor Plan of Shingled and Pergolaid Cottage, size 36 by 21 feet.

and all other furniture. The studding and the sheathing may be finished on the sides that show and can be stained dark to go with the rest of the decorations.

The big fireplace should be finished in rough brick or field stone, which will add to the comfortable, home-like char-

acter of this room.

In building a small house, the aim should be comfort first, with appearance a close second. There is no reason why a small house should not be attractive. Appearances are helped out in this plan by the balcony in the front gable and the pergolas.



Handsome shingle-sided summer cottage of three rooms. Size, 36 by 21 feet. We can furnish complete set of blue-printed plans and typewritten specifications for only \$5.00 per set. Blue-prints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6732.



Leather Paneled Dining Room (Whether Real Alligator Hide or Not Makes Very Little Difference). The Square Bay with its Built-In Seat is a Comfortable Feature. The Sideboard Just Glimpsed to the Right on the Inside Wall is Well Handled. The Combination of Cornice Mould and Flat Ceiling Beams Makes the Overhead Interesting.

Three-Room Summer Nest

A homey little nest is shown here, expressing the idea of a summer home in a most appealing way. Look at the perspective view of this cottage: Doesn't it seem to invite you in to enjoy its quiet beauty?

If you owned this little house on the bank of some lake or out in a summer resort, you would feel like a millionaire every time you looked at it. The shingled sides, the window treatment, the long front porch with its side entrance and lattice work all combine to make an exceedingly attractive appearance.

The exterior of this house has been decked out and can be further decorated by the planting of shrubs and vines. The wide window box shows something of the results that can be obtained by a little thought on the subject of exterior decorating. The porch could be made to represent an arbor by the judicious planting of vines.

In a small summer cottage of this type, the porch is one of the most important parts of the house. It is used a great deal in any summer home, but in a small one it becomes the parlor whenever the weather permits. This porch offers unlimited possibilities for decorating. We can see no better investment for this house than some porch furniture. There are many styles of this and several very good designs can be obtained at a low

cost. Wicker is one of the favorite types for this sort of thing. A swing seat, some chairs and perhaps a table would make this porch into an attractive outdoor parlor.

The construction of this house is not shown here to be of typical summer construction; but it may be made in that way if desired.

The entrance from the front porch is into the combination living and dining room, which occupies half the house. The room extends entirely across the width of the house. The wide triple window on the side is very attractively made up. Along the inner wall of this room is a big open fireplace—big enough to warm the house in chilly weather.

In the back part of the house are the kitchen, bedroom, and bathroom. There is also a hall, which makes it easy to get from one room to another. The entrance to the basement is also in this hall. The cellar has an outside entrance which many people insist on. If you are keeping a lot of things, such as garden tools, in the basement, it is almost necessary to have an outside entrance.

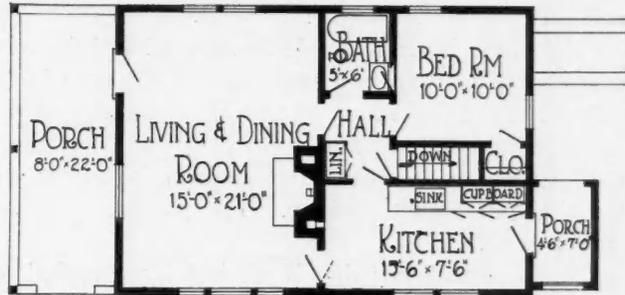
The kitchen is of the long and nar-

row type like a ship's galley. On the side is a sink and also a cupboard. Across from these are two windows which light the kitchen in good shape.

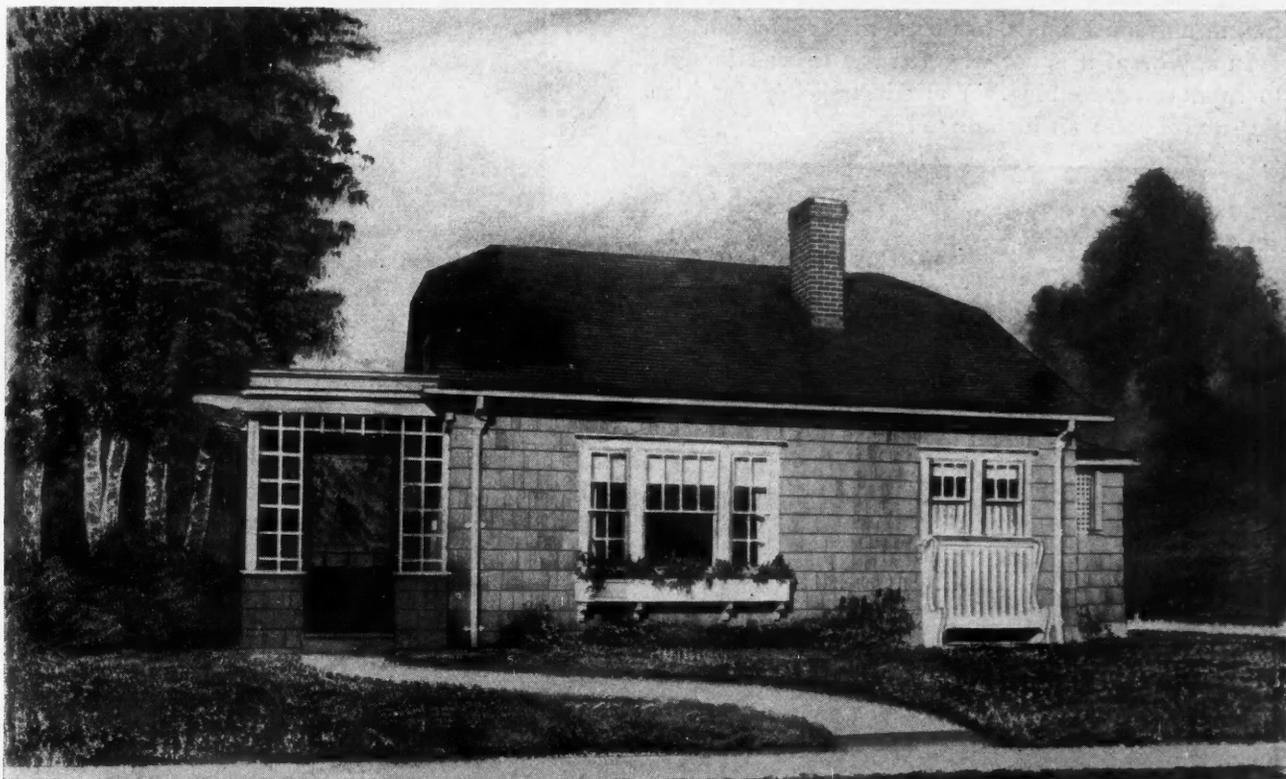
The back porch is closed in on three sides and, as the screen door can be locked, makes a valuable storage place.

The bedroom and the bathroom are on the opposite side of the house. They are well arranged and add to the comforts of this design.

In the living room is a big fireplace, which adds more to the furnishing of this room than the same amount of money invested in any other way. A fire place is attractive, whether it is used or not. When there is a fire in it, it is the most cheerful corner in the house. There is just one chimney and it is placed almost in the center of the building. A chimney generally works better when it is enclosed all around. The bricks become evenly heated and the draft is steadier and stronger.



Floor Plan, Size 32 by 22 Feet.



Comfortable, homelike cottage of three rooms. Size, 32 by 22 feet. We can furnish complete set of blue-printed plans and typewritten specifications for only \$5.00 per set. Blue-prints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6729.

Examined and approved by the National Board of Fire Underwriters. The Combination of Cornice Mould and Flat Ceiling Beams Makes the Overhead Interesting. Glimpsed to the Right on the Inside Wall is Well Handled.

"I'se Allers Made it a Rule to Start Whar I is, wit' What I Got." I Heartily Recommend the Wisdom of this Rule for the Consideration of All

THE MAN FROM THE LUMBER YARD

While we do not bar any one from reading this letter, yet we invite especial attention of the young man who has more in front of him than behind him. **EDITOR.**

EACH year, Booker T. Washington holds a meeting which is attended by colored people from all sections of the South. It is a regular experience meeting, and much benefit is gotten from the testimony of those in attendance. At one of the recent meetings an old negress stated that she owned a mule, wagon, chickens, pigs, and twenty acres of land, all paid for. It was learned that she was unmarried, and when freed, after the war, had nothing but a dog. She told how she traded the dog for a pig and from that start had reached her prosperous condition. Booker T. Washington asked her as to what rule she followed and she gave the following:

"I'se allers made it a rule to start whar I is, wit' what I got." I heartily recommend the wisdom of this rule for the consideration of all. So many of us don't start because we are not somewhere else, forgetting that if we ever attain a better position for action we must travel to that position. The position will not travel to us.

Others of us know that if we had large capital to work with we would make a success.

Statistics show very few instances where large capital, in untrained hands, has been wisely handled.

In any event it is not wise for you to wait for fate to hand you something. You will probably get it in the neck if you wait for fate to hand it to you.



"I'se allers made it a rule to start whar I is wit' what I got."

There is not one of my readers but has a better position from which to start and more capital, than had the colored woman.

A Matter of Brains

She was not handicapped by fool notions, hence her success. She used her brains.



A Little Pictorial Preachment for Carpenters.

Do you know that a man can earn only the scantiest of a living if he depends on what is below the collar? This is true of the mechanic, the farmer, the clerk, the pugilist, or what not. The only limit of your value is the limit of the use of what is above your collar.

Big employers want men who think. In this day of sharp competition it is necessary to have every moment utilized and all waste eliminated.

When concrete is mixed with brains it does not crack.

When brain drives a nail it does not split the board.

When brains make up a specification nothing is left out.

Some employers want to do all the thinking for their men and seem to resent an employe using his head. Such an employer never gets out of the "pee wee" class. I know that an employe who is not ambitious, never reads my letters. I know that the ambitious man

will not stay with a Boss who would not permit him to use his head as well as hand. One reason employers are not always liberal with praise is because so many employes develop the big head which they mistake for big brains. Yet praise always gets better results than the big stick, or a brain-storm.

Head—Heart—Hand

No man can produce his best unless he brings into play head, heart and hand. The hand cannot say to the head: "I don't need you." Nor yet can the head say to the heart, "I can get along without you."

It always has taken and always will take stout hearts to win any kind of a fight. The man who has the grit to get up after receiving a knock-out blow wins the plaudits of fate.

Suppose your judgment has been poor, and an enterprise has failed. Well, what of it? Don't you know the game better? Can't you sidestep the pitfalls easier?

Because a man has never failed is no guarantee that his next move may not be disastrous.

Yes, indeed, the man who is a candidate for success must carry a heart that is capable of daring as well as doing.

The chap that would arrive at Successville must be shod with industry and persistence, have a skilled hand, be clothed with a good reputation, have an observing eye, listening ear, and a head-gear of prudence. And there are by-paths and pitfalls that must be avoided.

When a man arrives at a point where he is all wise, he is ready for the scrap heap. Because you may be a success is no reason you cannot still learn something from a failure.

The boy who touched the hot stove can give better advice than the fellow that laughed at him, nor is a hen the best authority as to the excellence of an omelet.

Why a Partner?

I have been asked to give my opinion of partnership, and if desirable, what kind of a partner should be selected.

There is the same trouble in writing on this subject as about matrimony; i. e., advise is sought, but never or rarely followed.

Next to a man's own mother, the mother of his babies has more to do with his future welfare than anyone else. The time may come when the same consideration and care will be taken in selecting a wife as is given to selecting an automobile. Almost the same care should be exercised in selecting a partner.



The same consideration and care will be taken in selecting a wife as is given in selecting an automobile.

The reason a majority of partnerships are failures is, because a partner is selected because he chances to be a neighbor, or chances to smoke the same brand of tobacco. With partners properly "mated" a partnership is an excellent thing. It doubles each man's strong points, and halves his weaknesses.

I cannot specifically answer the inquiry as to the kind of partner to be selected, any more than I could specifically advise a man as to the kind of wife he should select, without knowing his temperament, weight, and about fifty-seven of his characteristics. The best answer I can give is to tell the kind of partner my wife is:

- (1) She is willing at all times to do her part, and expects me to do my part.
- (2) She has ideas of her own and expects them to be considered. She is also willing to consider my opinions.
- (3) When there is a conflict of opinion we calmly discuss matters, both assuming that the other may be right.
- (4) When I do make an error, she does not damn me utterly; and when a good move is made, she praises. I reciprocate in a like manner.
- (5) When the future is dark and uncertain she helps me with good cheer; and has good grit to take punishment.

Many partnerships, both business and matrimonial, sink because one member is a "crape hanger." Others are jeopardized, because one partner undermines for his own personal graft.

This is the age of co-operation. An individual working alone cannot accomplish as much as in conjunction with others. Mutual helpfulness may be had by means of a corporation, a union, or a partnership; but beware of both the man that rocks the boat, and the one that places his own interests ahead of the whole.

Teamwork always gets greater results than any one-man undertaking. The modern passenger-train hauls more people farther and faster than did the "one hoss shay." United effort in business affairs accomplishes much more than individual effort; just as organized governments give more protection to an individual than any one of our forefathers was able to give to himself.

My advise to every partnership is to have two bears, viz.: bear and forebear. Sincerely,

THE MAN FROM THE LUMBER YARD.

TRICKS *of the* CARPENTRY SHOP



The Human Side of Woodworking

By Wm. C. Jasbury

IN a large mill where nearly all kinds of work is turned out, if a fellow keeps his lamp globes cleaned, he can see some very good ideas put into use. Take a shop that does general work, everything from pattern-making to ship-fitting, housework; in fact, a little of everything that's made of wood. At present I am employed in such a plant and in such a department. Perhaps they keep me in this odd (?) department for a reason. At that, I get out Saturday night so that I may jingle my iron men.

BLUE PRINTS—I saw a fellow do something recently that seemed handy and purpose-serving. He wanted to take a tracing off a blue print, but had no transparent paper. He put the blue print to the window, put writing paper on it; lead pencil! done! One may say anybody would know enough to do that, but I know men who wouldn't think of such a trick if they waited forever. I have seen fellows go get a sheet of toilet paper and use for tracing blue prints.

Speaking of blue prints, I have oftentimes noticed men traveling with a set of blue prints. How they are observed by others. There seems to be some prestige to a man carrying a roll of blue prints and plans. He looks like Mr. Prosperity—maybe Mr. Responsibility. I have noticed this. I have also carried blue prints myself; in fact, I've had it in both ways. It would be a good thing to carry a bundle of blue prints when you are trying to get a fellow to go on your note. Another thing I've noticed, when a new set of blue prints or details lands on the job every man, from hod carrier up, has a look at them, each and every one with an air of "I can explain them."

TURN THE BOARD OVER—Jumping off the plan and blue-print boat, I'll say a few words about woodworking as it passes through the shop. Some mechanics will examine a board before using it, as to hard and soft side, color, which way the fibre runs, etc. Others will pass that stuff up as slush. Naturally, if you lay a board down on a floor, after a while it will be found that the board has warped, hollow side up, or whichever side the air strikes. The top board on a pile is nearly always this way. Some men, while passing through the shop, will turn a board over so that it will warp back again. Others wouldn't do such a thing if it curled up like Wilhelm's moustache.

HEAP BIG TALK OVER THE DINNER PAIL—Now that I am on woodworking and carpentering, nearly every man has some job he refers to as his masterpiece. You will hear such expressions as, "I once built a sideboard for a party, carving, etc.," and at the same time he couldn't carve anything but meat. Another will gargle this, "I framed a roof for a man once. Well, sir, they fetched men from all over the world, etc." Then, you will now and then hear a contractor tell how he picked up a hobo who had no tools—but he did the most difficult work, etc. To enumerate all you'll hear at noon-time would be odd enough and sometimes interesting enough to be placed on file in the Congressional Library.

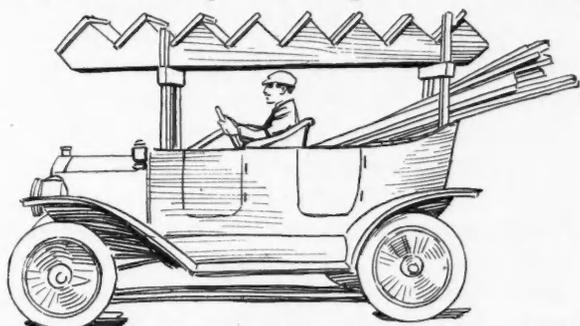
Every job of carpentry of any size, and every shop of any size, has the Authority Man. He is the man on whom the apprentice boy or novice man pins his faith. This fellow gets some of the dope from books and magazines, but doesn't tell it for fear some of the others would become his rivals. This fellow is either trying to become foreman or is one already. A foreman or man running a job will often have a man who is equal to or perhaps superior to him. This state of affairs usually causes friction.

BOARDING OUT WAGES—I once worked in a mill or shop in Jersey City. The day I hired I counted three men and three boys and the proprietor. The following morning when I appeared for duty I could only count the three boys and the proprietor. We mowed wood all that day. I of course, was naturally anxious to know what had become of the men. That night the proprietor told me he would be away the next day, and I should keep the boys going and look out for business. While I thought I had been advanced very quickly, I was not altogether settled on the disappearance of the three men. The next day I asked one of the boys where the three men were whom I had seen there before, and he told me they had quit because the boss would not give them any money. I put in that day and the next, and when the boss did not show up, I began to think the shop was my own. When the boss finally showed up I asked him for a few dollars, as I was short. He invited me across the street to a saloon, and he and yours truly discussed everything on record but wages. He later

started paying me in bunches and chunks, enough to keep my boarding missus in humor. When my salary, or, better, wages, reached \$45.00 I commenced to quit. He told me he was going under, and I would have to hypnotize myself into thinking I had been paid in full. I informed him in the presence of his wife that I was going to stay in his house until I had fed up to \$45.00, and it would take the entire Jersey City Police and Fire Departments to prevent it. Mrs. Boss was afraid I might get a job on a newspaper and expose her standing in the community; hence I was paid and forthwith fired.

A YANKEE RIG FOR AUTO CONTRACTORS.

Speaking about builders using autos and motorcycles, I recently saw a contractor that had uprights, or false standards on a touring car, he used for carrying material. In fact, I was on the car—I cannot say in the car, as I was merely hanging onto the running board. On the top was a flight of stairs, enough



False Standards Convert Touring Car into Lumber Truck.

material to build a small-sized shack and three men.

LINSEED OILED BEECH FOR TOOLS.

I once worked with a German cabinet maker who had made many of his own tools, such as fore-plane, jack plane, smoothing plane, rebate plane, moulding planes, scratch gauges, etc. They worked so slick he was often told about it. The reason he gave for their slickness, was he always soaked them in hot linseed oil after he had finished them, and their being made of beech, they were certainly equal, if not superior, to some of the nickel plated stuff on the market today.

COLUMN DIAMETERS WITH TAPE LINE

I was sent out one time, from a shop in which I worked, to get the data on some new porch work. In the collection were some Colonial columns. I had to get the diameters but had no callipers, but had a steel tape, so I encircled the columns with the tape and figured the diameters out when I got back to the shop. Thusly—Multiply circumference by 0.3183, thus

column 35-inch circumference:	.3183
	35"

	15915
	9549

11.1405" in diameter.

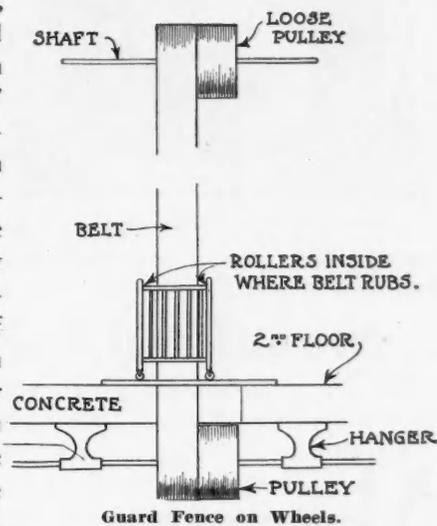
GLUED STAIR TREADS

Many architects will throw up their hands in unholy horror at a stair builder gluing flyer treads in width when he will not say a

word about gluing bull-nose circle, or winder treads in width, which is very odd at times.

SAFETY BELT GUARD ON ROLLERS

I am at present working for a large concern that has recently put up, and, put in, all the modern "Safety First" appliances in accordance with the State Factory Law. One of the new things is a shifter to throw off the line shaft on the second floor from the main line shaft on the first floor. The belt, of course,

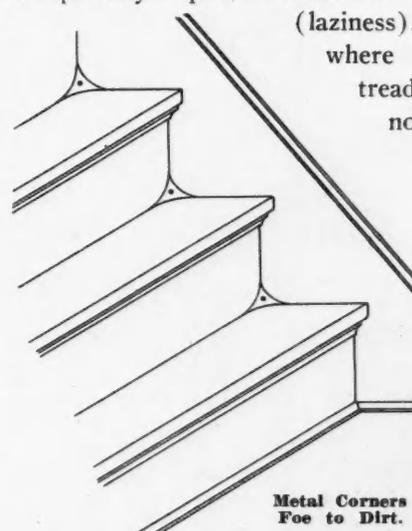


comes up through the second floor and runs up to the ceiling. The belt is shifted with a rope and pulleys in an ordinary way, but the belt guard that is on the second floor is on wheels and runs on track along with the belt as it is being shifted. The belt is 8 inches wide and shifting it travels 16 inches or more.

A MOSAIC TABLE TOP

Speaking about table tops—some years ago I glued up a table top for a sign painter with flush cleats, in white pine of 1 1/8-inch stuff. This man hung the table top against the wall in his shop and used to clean his brushes out against it, the different colors and shades, one on top of the other for over a year until he had a coating of 1/4-inch thick, then had it smoothed off. The result was the most beautiful shades and hues imaginable blending into each other, as onyx or colored marble, which requires some time, but "All things come to him who waits."

Was going up a flight of stairs recently in a house occupied by a person who had "nigger rheumatism"



(laziness). In the angles where string, riser and tread came together, I noticed cob-webs (Irish lace). Since,

I thought that must be where the fellow got his inspiration when he invented those small brass corners that are sold at hardware

stores for such purposes. They say, necessity is the mother of invention and invention is the friend of the lazy.



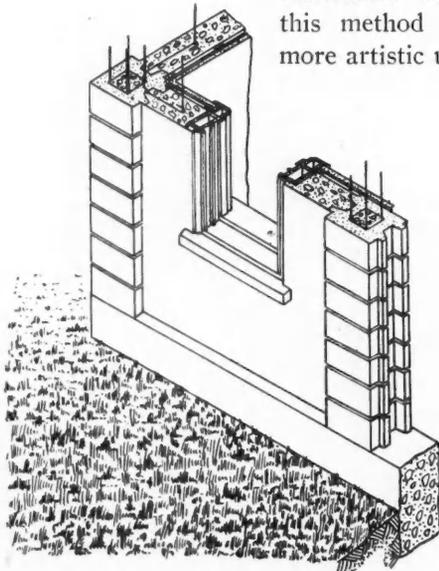
EDITOR'S NOTE—Our readers are urged to make full use of this Department. Put your concreting problems up to us; also write us your experiences and accomplishments in the Cement field for publication here.

Simplified Forms for Concrete Construction

MAIN POINTS OF A NEW SYSTEM OF CONSTRUCTION THAT MERITS ATTENTION

By H. Colin Campbell, C. E.

MANY systems have been devised that have aimed to simplify form work for concrete. Not all of these have come up to the expectations of those who have attempted to use them. Concrete building construction may properly be divided into two classes, the monolithic or one-piece system, and the unit system, in which all walls are built up of individual pieces or sections, such as blocks or panels precast and placed in their ultimate positions. Probably no type of construction in which concrete is used shows the material in a more characteristic way than monolithic construction, and this method also permits a more artistic use of concrete.



Hollow Blocks with Lugs Make Pilasters and also Supports for Curtain Wall Forms.

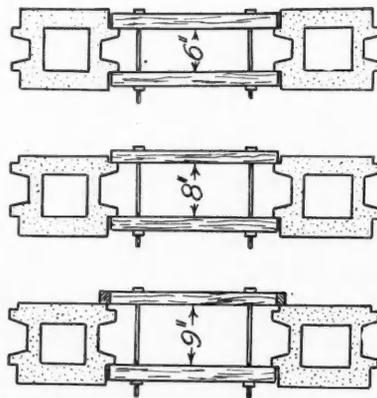
The unit system in which precast blocks or panels of various types are used is now a common method and possesses a number of advantages for the reason that form construction is often considerably simplified. Ordinary block construction, however, does not always express concrete to the best advantage.

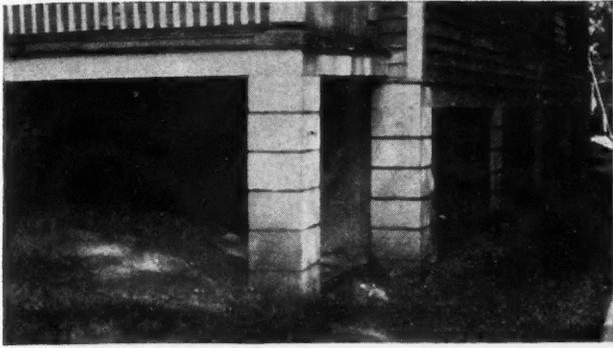
The system that is illustrated in the accompanying drawing shows simplicity and results in an effective combination of block and monolithic construction with

the distinctive features and pleasing effect of the monolithic predominating. By this system, the cost of forms is reduced to a minimum and the comparatively few blocks required for column construction makes the molding and curing of blocks a trifling part of the work as blocks compose only about one-tenth the actual concrete volume of the building.

Blocks such as shown are made in a simple mold or block machine recently perfected so that ribs will be cast in fixed positions on each end of the block as shown in the sketch at the right hand of the accompanying illustration. By varying the position of these ribs the resulting wall can be made of any desired thickness. Blocks are then set up to form piers and the planks used for forms are clamped against these ribs. Piers may be spaced to suit the design of the structure and are usually placed at from ten to fourteen feet apart. Considerable variation of the size (length) of the wall panels can be made without affecting the attractive appearance of the structure.

Forms consist simply of 14-inch planks, 2 inches thick, bolted together against the ribs on the block, with $\frac{1}{2}$ -inch bolts. The holes for bolts should be so spaced that the planks can be reversed or used in any position when setting them up. Four planks to a panel are commonly used. After concrete has hardened sufficiently, form removal is commenced by loosening the bolts in the lower planks, and placing these planks on top of the pair above where they are bolted together. Following this the other pair of planks can be moved up in the same way, and so on to the top of the wall. Bolts, of course, are well oiled so they can be driven out. This will leave a hole in the wall, but it can





Foundation Construction of Block Pillars and Monolithic Panels or Curtain Walls.

readily be pointed up afterwards, in fact, the general practice is to finish construction of this kind with stucco.

After piers are built up 5 or 6 feet high, the hollow space is filled with concrete. Hollow block afterward filled with concrete and with reinforcing rods placed as shown, form a very quick and easy method of constructing columns without the use of forms. Reinforcing rods should be placed as shown in the sketch and corners should be "tied" together by looping reinforcing around a rod embedded in the wall and one of the rods embedded in the block column. This is clearly shown in the drawing. This type of construction does away with scaffolding on the outside of walls, as it is not necessary except for cornice work.

The ingenious worker can see the many possibilities of amplifying this form system. Photographs accompanying illustrate foundation work and a residence that were constructed by using the system described.

A Concrete Garage

Nearly every one nowadays is interested in an automobile—has one or hopes soon to have such a convenience, for the automobile is no longer regarded as a luxury.

This brings up the question of a suitable place to take care of the machine and "suitable" means more than a structure that will simply house the machine. Once you have an automobile on your property, the necessity for storing inflammable oils and the still more inflammable and explosive gasoline makes it imperative that you shall protect yourself from the increased fire risk. Logically fireproof construction is called for and is well attained through some use of concrete.

The accompanying plans (page 66) show a concrete garage of block construction, the roof being the only portion that is not absolutely fireproof, yet as shown this portion contemplates fire-resisting construction that will probably afford the necessary protection against fire that may originate within the structure, and the cement shingle roof is certainly sufficient protection against fire from outside.

The drawing is sufficiently detailed to need no specific explanation. Of course, if rough cast blocks are used, the exterior should be finished with a coat of stucco as suggested by the drawing.

To produce a fire-resisting roof construction, the ceiling should be covered with some kind of metal lath and from 1½ to 2 inches of cement plaster applied. This should afford sufficient protection to prevent damage to the roof framing in case of fire breaking out within the structure.



Residence Built by Using New System of Block Pilasters and Poured Curtain Wall Panels. A very pleasing architectural effect is produced.

Concrete Work

Floor construction should be of concrete and the forms should be so laid out that the floor surface will have a gentle slope toward a central drain properly connected to an outside outlet.

One of the desirable conveniences in the modern garage, but not shown on the accompanying plans is a pit from 3 to 4 feet wide and from 4 to 5 feet long over which the car can stand to facilitate getting at the machinery underneath for purposes of cleaning or possibly for repair. A work bench should also be conveniently located so that all repairs to the car can be conveniently made. Locker room is also desirable. Gasoline should be stored in a metal tank encased in 6 inches of concrete and buried in the

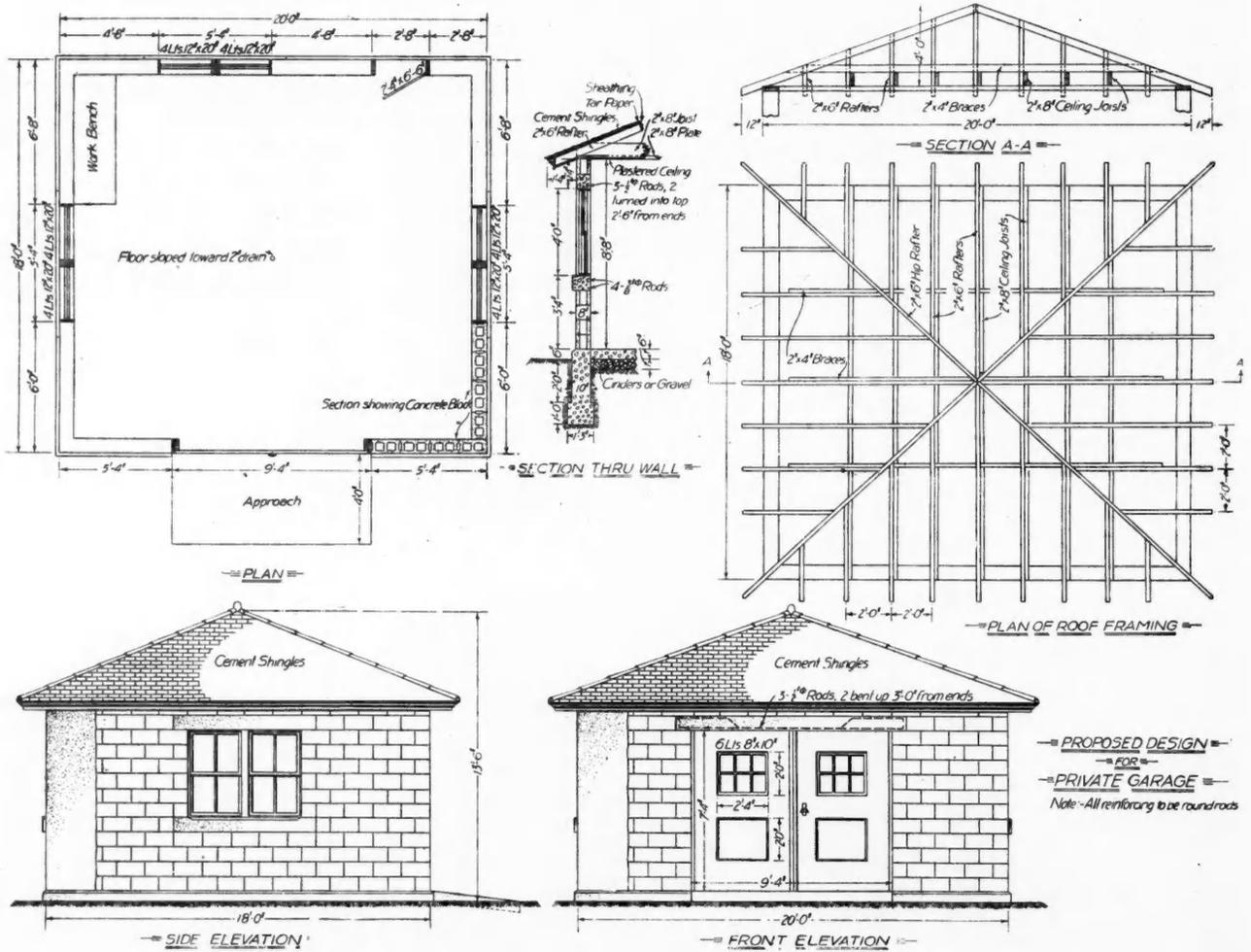
to monolithic concrete construction, and if any readers are interested in receiving suggestions for modifications or alterations to meet their individual needs, the writer will be glad to receive such inquiries, which will be handled free as a part of the service of this department.



Unique House Moving Job

In East Boston three large, three-flat buildings were recently moved through the streets a distance of about $2\frac{3}{8}$ miles by means of steam rollers. Two heavy rollers were used, and at a speed of five times as great as could be attained with horses.

The buildings were 37 feet high and each weighed 200 tons. On account of the size of the buildings, it was necessary to cut trolley, electric light, and telephone wires in its path.



Working Drawings of 20 by 18-Foot Concrete Block Garage.

ground outside of the structure, connection to this tank being made by a pipe attached to a pump in the garage.

Lubricating oils should be kept in metal barrels or drums as the oil will seep through wooden barrels, spread on the floor and make the floor dirty. Metal drip pans to catch the oil should be kept under the car, or a basin formed in the concrete for this purpose, and then filled with sand which can be removed and replenished from time to time as it becomes oil soaked.

The plans shown can, of course, be readily adapted

A corps of electricians went ahead to do this work.

The first building left its foundations on Monday, May 3rd, and reached its destination on Thursday night, which shows remarkable speed.

The work was in charge of the John Cavanagh Company, of South Boston.



Irritating Advice

Pat, the hod carrier (to the carpenter who is vigorously sucking his thumb, cursing at the same time): Don't you know how to drive a nail yit, without smashin' your finger?

Carpenter: No, you blamed fool, and neither do you.

Pat: Sure I do. Hold the hammer in both hands.

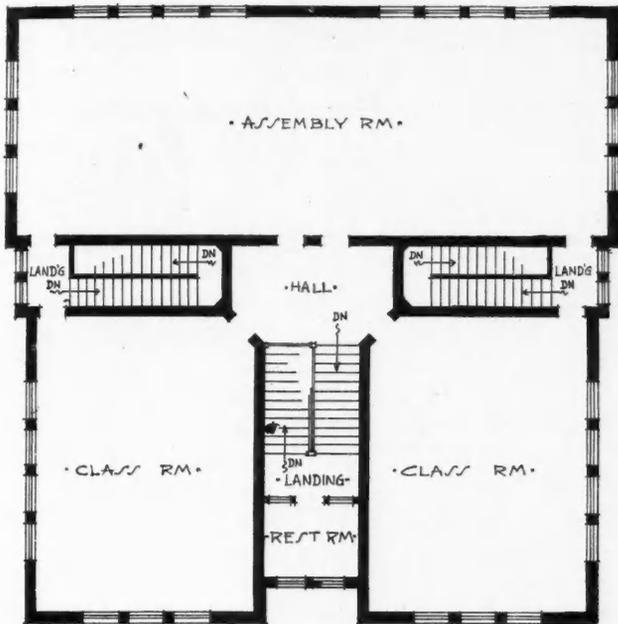
Well Designed Substantial School House

THE design shown here is of a type that is much desired by school boards because of its substantial construction. There is nothing about a building of this kind to get in bad shape; and its square, heavy lines give it a distinguished, pleasing appearance. It is one of the designs of the well known architect, Mr. G. W. Ashby, of Chicago, whose school house designs are

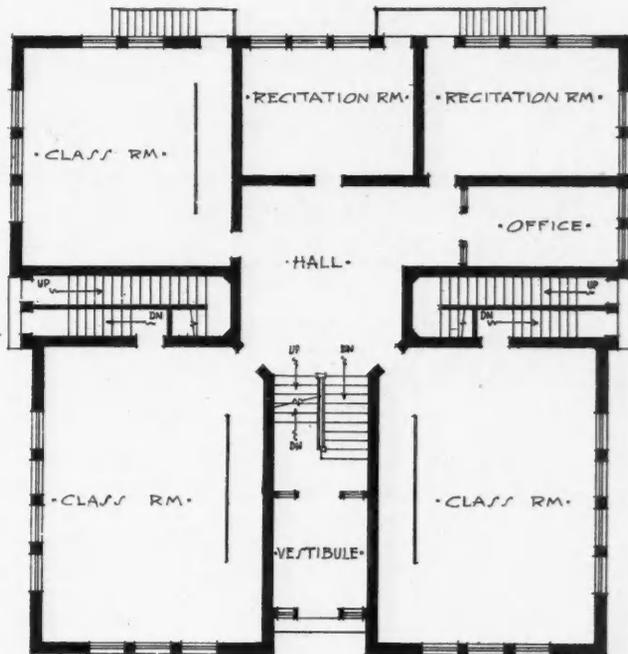
familiar to many people throughout the central West.

The entrance is into a vestibule from which there are stairs to the first floor. On the first floor are three classrooms, two recitation rooms, and an office. There is also the large central hall to make all the rooms easy of access.

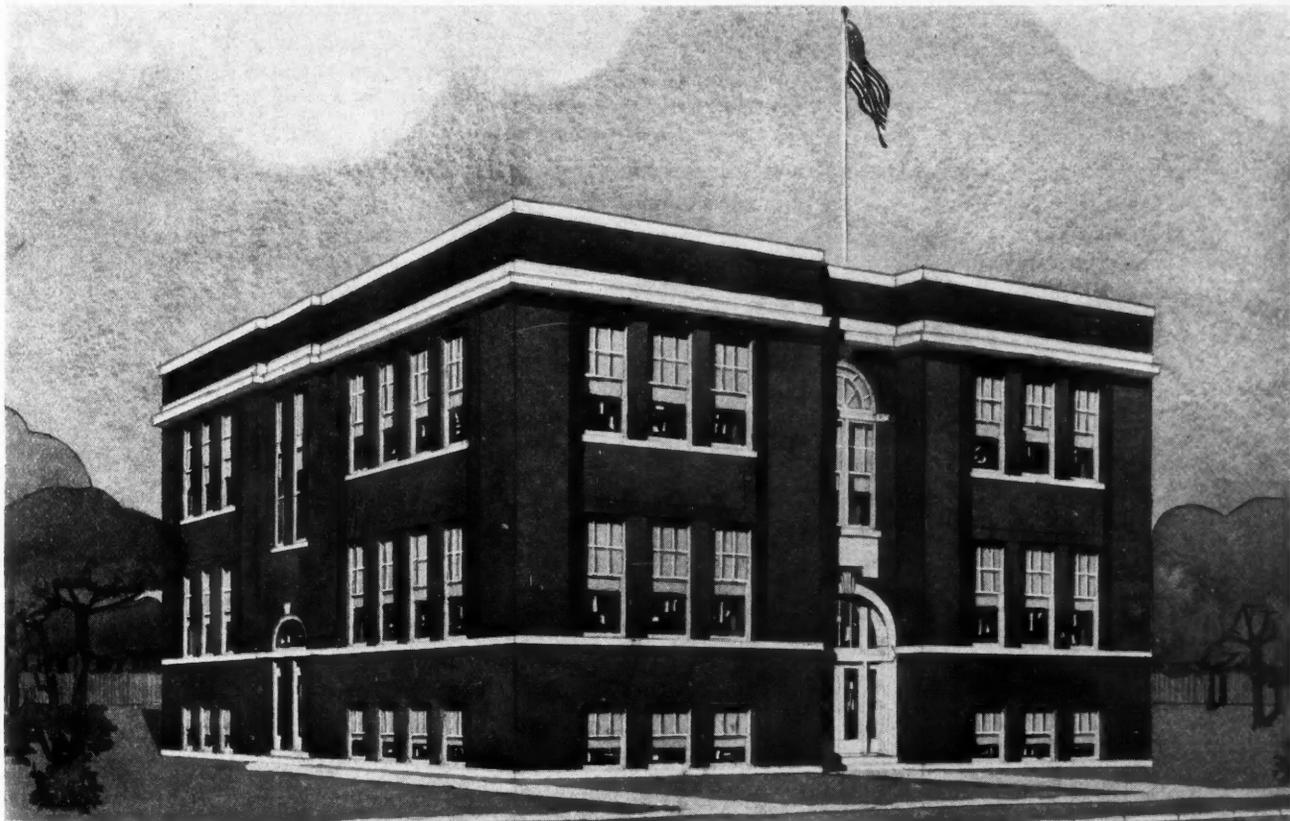
On the second floor is a large assembly room and two large class rooms connected by the usual hall.



Second Floor Plan.

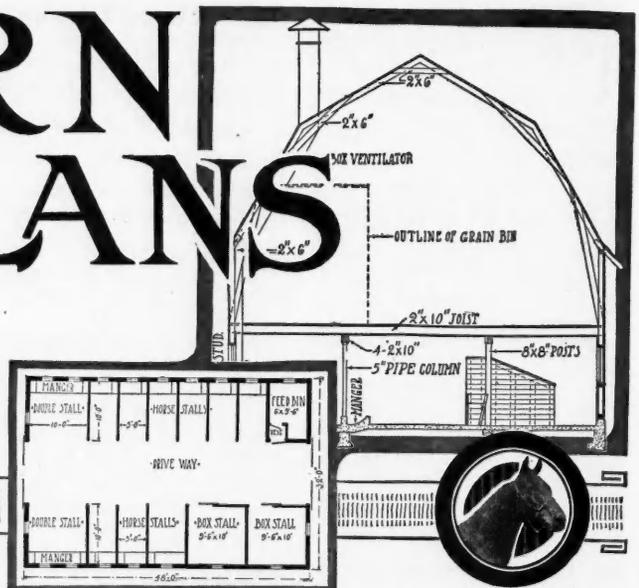
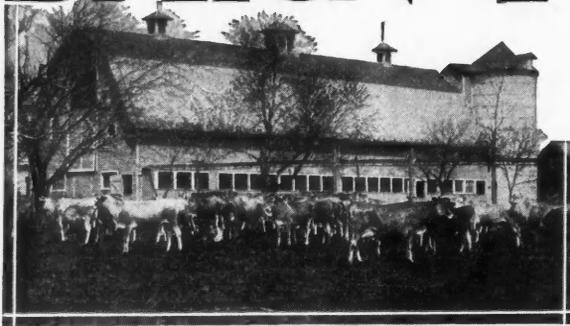


First Floor Plan.



Small School House of Thoroughly Modern Design.

MODERN BARN PLANS



Implement Shed

A convenient house for the storage of implements is shown in Design A309.

It is 24 feet in width by 50 feet in length. There is a 16 foot door in each end for the easy entrance of the larger farm implements, and there is a small door in the side to be used when passing in and out and for the carrying in of hand tools and other small farm implements.

Farm machinery and implements depreciate about 10% a year when they are properly housed and kept painted. The loss from leaving tools out in the weather is enormous. An implement shed constructed in this manner is a great convenience in doing repair work.

This implement house has a con-

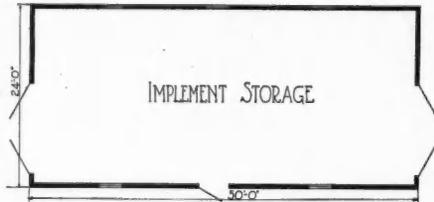
crete wall extending all around the outside and it has a concrete floor to keep the tools and machinery up from the ground and to keep them dry to prevent rusting.

The sides and ends are built in the usual way by using studding sockets and 2x4 studding, covered with drop siding. The roof is constructed of 2x4 rafters with matched roofing boards covered with roll roofing. The advantage in using matched roofing boards is to pre-

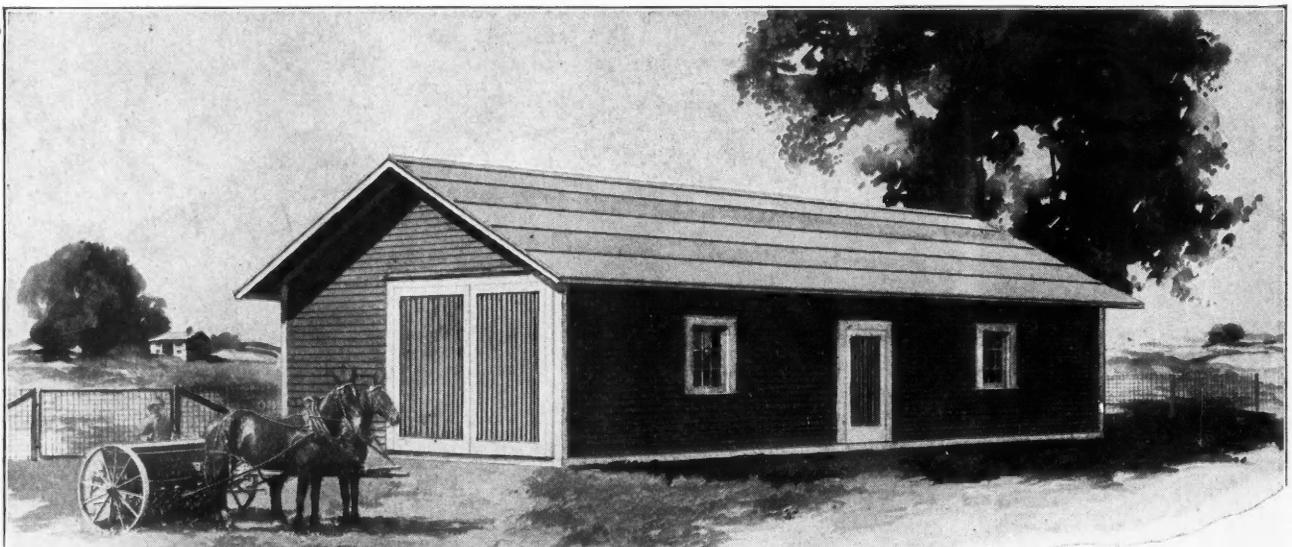
vent the wind from flapping the roll roofing. Good roofing boards will sometimes double the lasting qualities of the roof.

Some farmers build a regular repair shop in one end or in the center. The shop is provided with a blacksmith kit and all the necessary woodworking tools to make small repairs on any farm machine or implement; such work as replacing lost bolts or broken braces, or replacing worn parts with new ones is done in the winter time between chore periods.

But a farmer is helpless without tools. It is not necessary to collect an expensive outfit, but a forge, anvil, vise, drill press, with a small assortment of cold chisels, punches, hammers, wrenches and tongs will enable a farmer to do a good deal of blacksmith tinkering.



Floor Plan of Farm Machine Shed.



Handy Implement Shed, 24 by 50 feet, with double doors at each end, also on one side. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$3.00. When ordering, ask for Design No. A309



Combination Dairy and Horse Barn. Size, 36 by 60 feet, suitable for 24 cows and 7 horses. 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. A300.

Combination Dairy and Horse Barn

A combination farm barn suitable for almost any farm is shown in Design A300.

It is 36 feet in width by 60 feet in length and furnishes stabling for 24 cows and 7 horses. Thirty-six feet in width is the standard for a cow stable where litter carriers and feed carriers are used in the alleyways. The horse stalls being turned the other way, the

width of building does not count.

The whole foundation is of concrete with footings and piers reaching down to solid ground below frost and firmly embedded to prevent settling. Over the stables is an extra large mow that holds a great weight of fodder when filled to the peak, so that good underpinning is necessary to keep the building square and plumb and to prevent cracks in the masonry work.

The whole barn has a concrete floor, but the cow stable is different from the horse end, because of the depressions for gutters, the slope of the standing floors, the mangers and slight elevation for the

center feed alley. Also the ceiling over the cow stable is a foot lower than the horse stable. Eight feet in the clear is considered about right for a cow stable to ventilate properly, but most farmers like to have a nine-foot ceiling in a horse stable.

This barn is arranged for the greatest possible convenience in doing the chores. The silo is connected to the stable by a small feed room directly in front of the main feed alley, so that the silage carrier can run directly from the hopper under the silo chute to dump the silage into the mangers. This same carrier will take silage and other feed from the feed room to the horse mangers.

The litter carriers are arranged to carry the manure from the gutters behind the cows and dump it directly into the manure spreader to be carted at once to the field.

The ventilating system carries off the foul air from the four corners of the barn.



Floor Plan of Combination Barn.

New Design for Winter Hog House

A well-built hog house containing 14 individual pens, with an alley through the center, is shown in the accompanying perspective and floor plan of Design No. A302.

The house is 22 feet wide and 42 feet long, with two main entrance doors at the ends of the feeding alley. Each pen on the south side of the building has an outside door to connect the inside stalls with the outside exercising pens.

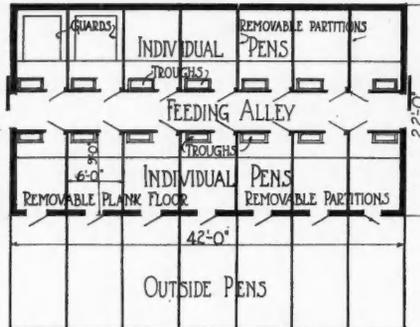
The foundation is of concrete, and there is a solid concrete floor the full size of the house. This floor is carefully made and given a smooth waterproof finish, so it may be kept clean with the least possible expenditure of labor. The concrete wall extends up eighteen inches above the grade line to prevent the possibility of a draft of cold air on the nests. All doors are carefully fitted to shut tight in the winter time.

Each pen has a concrete feeding trough and a swinging gate opening into the center alley. These gates are very convenient when transferring animals from one pen to another. They are also handy at breeding time, because the presence of the attendant inside of the pens is frequently necessary.

The construction above the concrete consists of studding, outside boarding, strong building paper and drop siding. So far as the sides are concerned, it is

important that the work should be thoroughly well done.

The shape of the roof is intended to admit all the light and sunshine possible during the farrowing season. Special roof windows of the "Sunshine" type are provided. These are made of galvanized iron and are inexpensive.



Floor Plan of Hog House. A-302.

Metal ventilators are provided to carry off the foul air, which is a necessary precaution, because the health of breeding stock depends greatly upon the supply of fresh air.

Improved winter hog houses have helped to eliminate disease and to put the hog business on a better paying basis than ever before. The fact is now recognized that hogs require as careful handling in winter as other kinds of live stock. Hogs have been known to winter through in poorly constructed buildings, but it pays to house and feed

good breeding stock in a thoroughly scientific manner.

A few breeding sows, say three or four, may hustle for themselves around the barn yard and make themselves fairly comfortable at night by rooting their way into the hay stack, but there is not much profit to a farmer in keeping three or four sows. A larger number demands different treatment, so that some kind of a winter hog house is necessary to raise pigs in paying quantities.

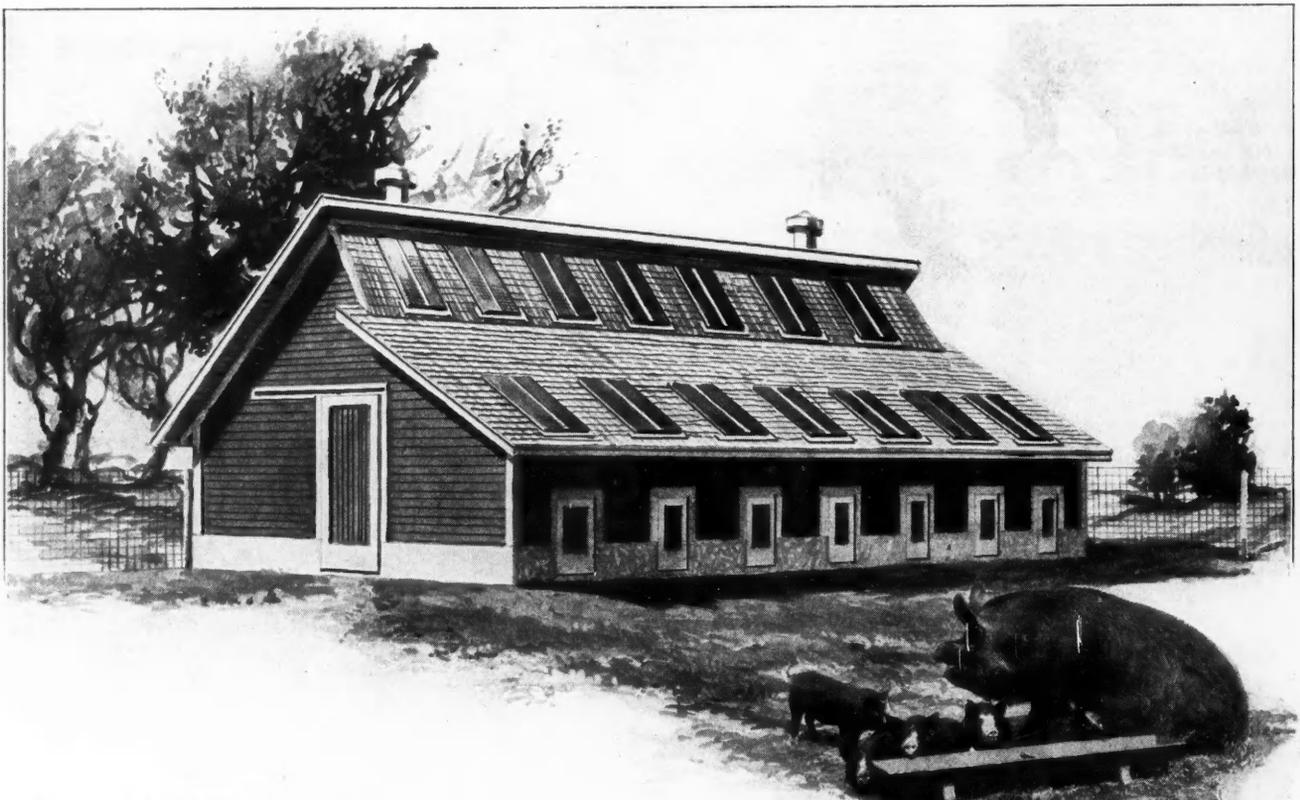
If builders will interest themselves in the various buildings required by up-to-date farmers and will become thoroughly conversant with their requirements, a large amount of building business will unquestionably be done this season.

Hay Feeding Racks for Hogs

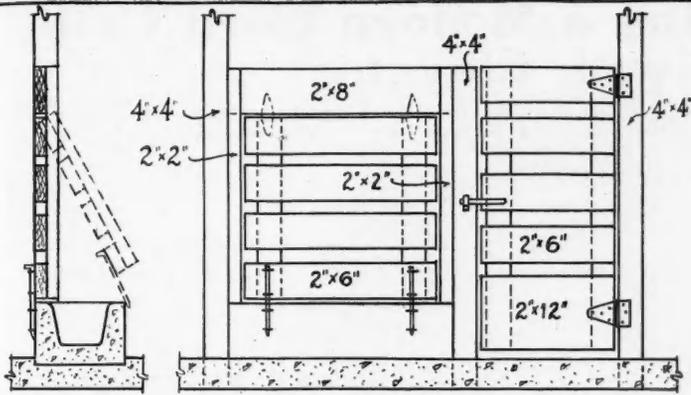
Hogs cannot eat hay out of mangers. If it is given to them on the ground they soon make bedding of it, so it seems necessary to build special racks for feeding hay to hogs.

After a number of experiments builders have hit on the plan of top hinging the sides of a rack so that the hogs can push them in at the bottom. The sides of the racks are made perpendicular or with a slight flare outward at the bottom, so the hay will slip down easily.

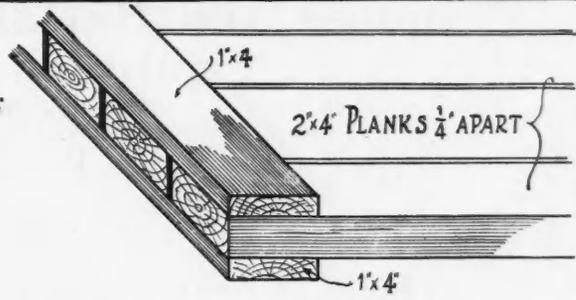
Two by two inch rounded spindles work the best in a hog feeding rack, and so placed as to leave openings about 5 inches apart in the clear.



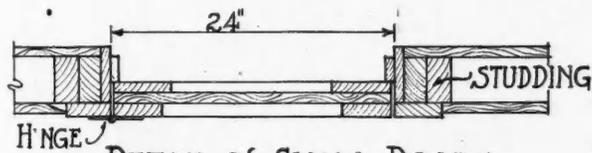
A Fourteen-Pen Winter Hog House, measuring 42 by 22 feet, of a modified saw tooth roof design to use the Sunshine windows, which are made with galvanized iron frames and sash. We can furnish complete set of Blue Printed Working Plans and Typewritten Specifications for only \$6.00 per set. When ordering, ask for Design No. A302.



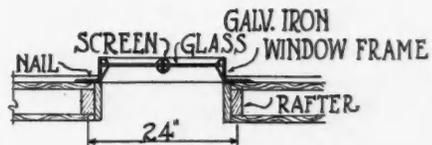
TROUGH SECTION FRONT VIEW OF TROUGH
TROUGH & PEN ENCLOSURE



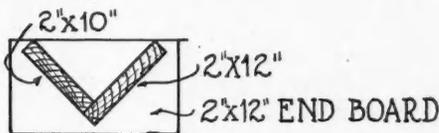
REMOVABLE PLANK FLOORS



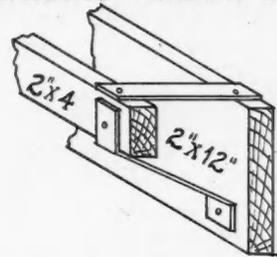
DETAIL OF SMALL DOORS



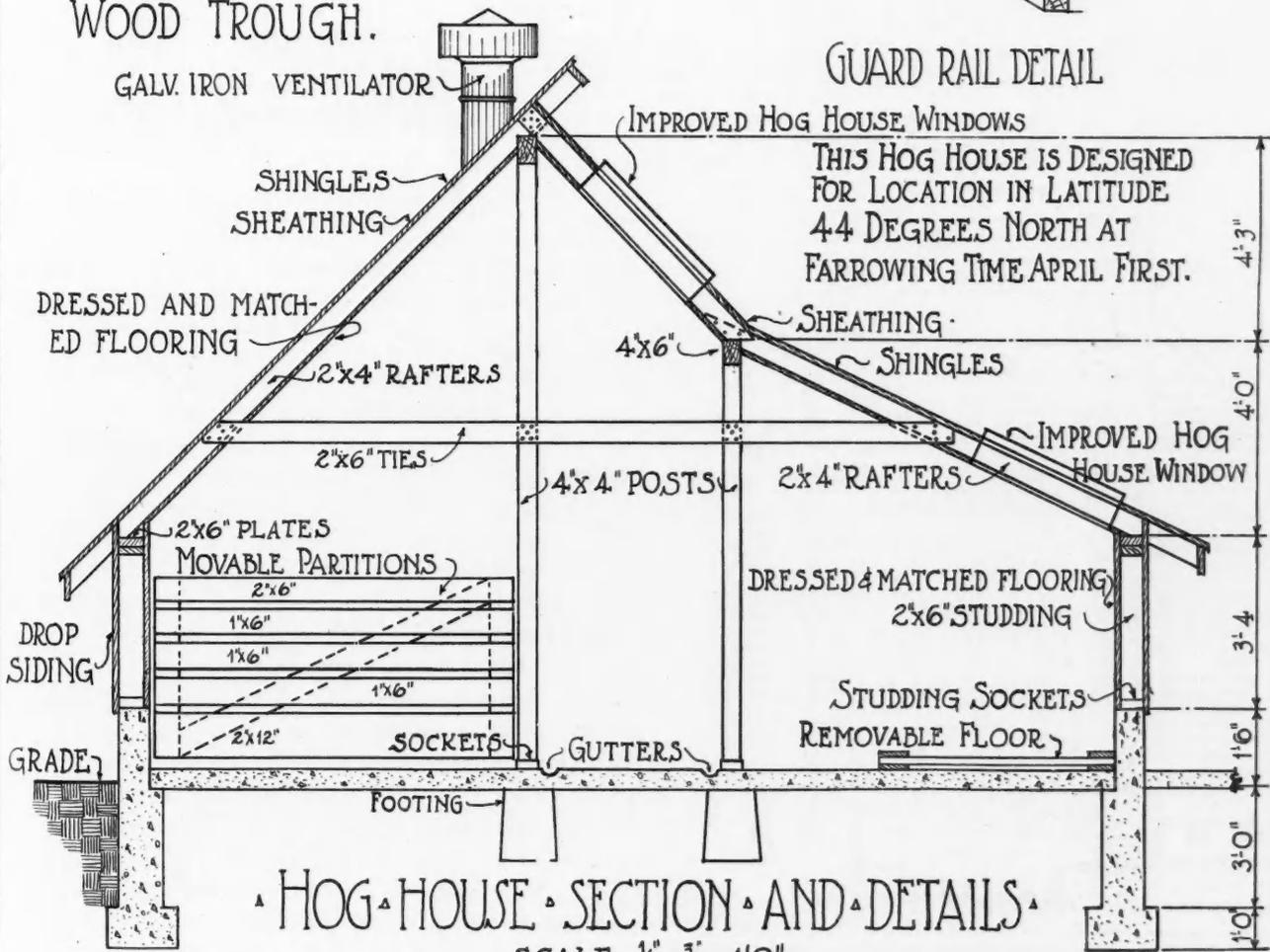
IMPROVED WINDOW DETAIL



WOOD TROUGH.



GUARD RAIL DETAIL



HOG HOUSE SECTION AND DETAILS
SCALE $\frac{1}{4} + \frac{3}{8} = 1'0"$

Planning and Building a Modern Corn Crib Equipped with Elevator

WHAT EVERY BUILDER SHOULD KNOW ABOUT THE NEW LABOR-SAVING OUTFITS FOR HANDLING EAR CORN AND GRAIN—BIG OPPORTUNITY AND GROWING FIELD FOR COUNTRY CONTRACTORS

By Herbert Shearer

THE most important aid to modern farming is labor saving buildings and machinery,—the newest of which is the two-story corn crib and grain house.

A two-story farm grain house is a labor saving building.

Machinery in such a building takes the place of expensive hand labor. Machinery is cheap; but human muscle is the most expensive of all agricultural products.

Many contractors and builders in the corn growing states have already gone into this proposition and are looked to as authorities on the proper construction and equipment of these new labor saving farm structures. Many more should take this up now as these elevator equipped corn and grain storage houses are destined to become as common and a great deal more popular than the old-fashioned, long, low, rakish looking corn cribs that have been so long familiar.

These higher structures require special knowledge of the art of building besides full particulars about the

elevating equipment. So it is up to the enterprising contractor or builder immediately to post himself on these requirements,—both in regard to the building and its machinery equipment. The two belong together, as each must fit the other.

Pointers for Farm Elevator Builders

To make a two-story corn crib that will fit the elevating machinery it is necessary for the builder to know:

That certain makes of elevators require a pit to hold the elevator boot.

That some elevators have folding boots.

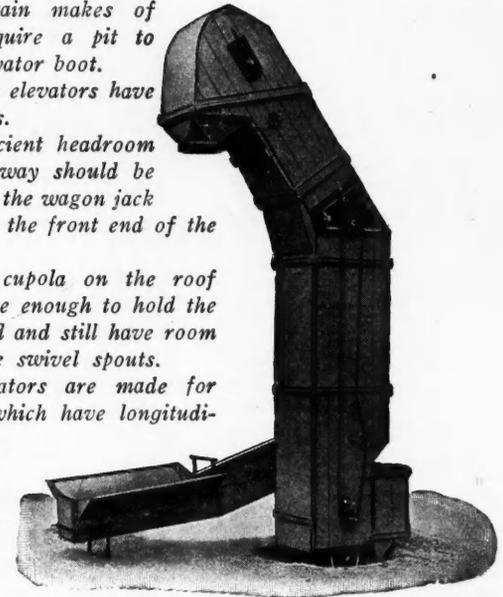
That sufficient headroom in the driveway should be provided for the wagon jack that elevates the front end of the wagon.

That the cupola on the roof must be large enough to hold the elevator head and still have room to swing the swivel spouts.

That elevators are made for long cribs, which have longitudinal carriers that receive corn ears or small grain from the elevator buckets and carry the stream lengthwise of the crib.

From pockets in the bottom of this conveyor the corn ears or small grains are spouted to the different bins.

That manufacturers of elevating machinery are ready and anxious to supply all the detailed information and plans that any carpenter or builder will write and ask for.

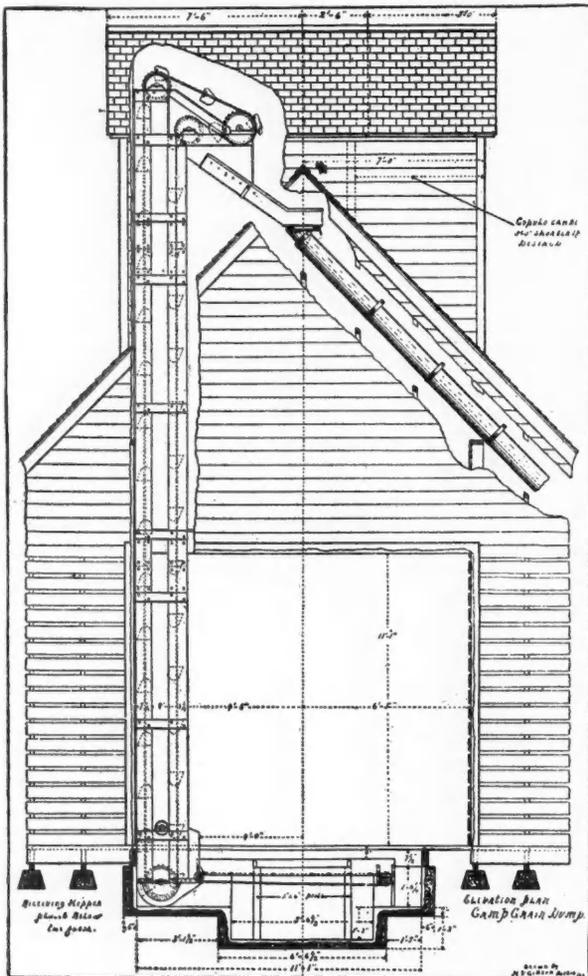


Receiving Hopper and Cup Elevator of the "Meadows" Type. This is Built Into the Corn Crib with the Discharging Head High Up in the Cupola.

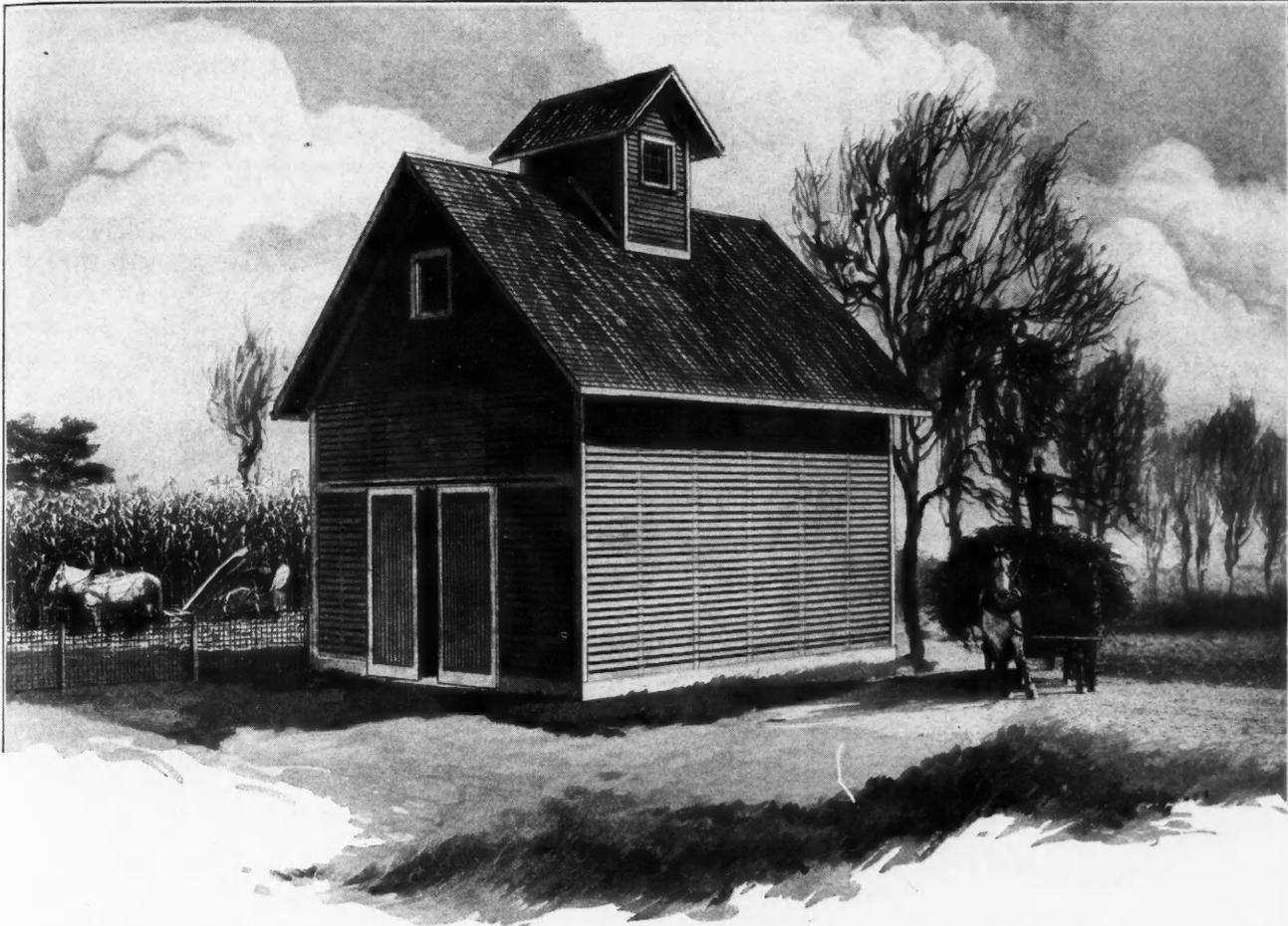
Handling Grain the Easy Way

The manufacturers started the game a while ago by building small cup carriers that would take ear corn or small grain from the tail board of a wagon box and carry it to the far end of a freight car. Then farmers tried out these portable elevators at home to carry grain into the lofts of buildings when the lower storage bins are full. Their success created a demand for high storage houses—giving big capacity and enabling the farmer to handle his grain the *easy way*—machine power going up and gravity coming down.

The manufacturers are now making better and more speedy power elevators, which in turn permit higher and better granaries. In this way modern farm elevators and modern two-story corn cribs and grain houses are growing up together. The combination at once became popular and the demand is increasing in every section where corn and grains are grown.



Section Through Crib Showing Installation of "Camp" Bucket Elevator with Spout to Fill Any Bin.



A Model Two-Story Combined Corn Crib and Granary of the Type Favored by Progressive Farmers in Grain or Corn Raising Districts. 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. A344.

Combination of Building and Machinery

Technical building knowledge and skill are required to connect the building and elevating machinery properly so that the two will work smoothly together. There are certain features about the building that must conform to the requirements and peculiarities of the elevating machinery.

The grain or ear corn are carried up to a point from which they will travel by gravity to any part of the building.

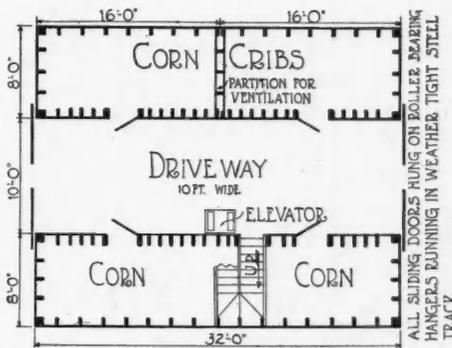
The building requires great structural strength in some places; but the material may be very light in others. Hence, the necessity of understanding both building and machinery in order to meet all of the necessary technical requirements.

These points emphasize the necessity for builders to study into this growing field of business; first, that they may talk intelligently to farmers to secure their contracts, and, second, to select the proper machinery to do the work, so as to fit the equipment and building together so skillfully that other orders will just

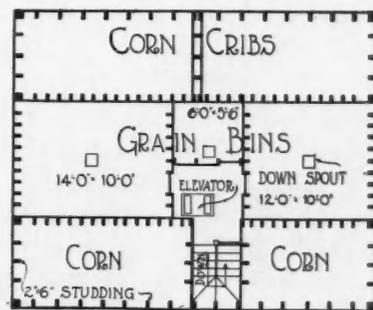
naturally follow from other farmers in the neighborhood.

When a builder understands the technical details he is prepared to explain the many advantages of handling grain by machinery with the kind of enthusiasm that inspires confidence.

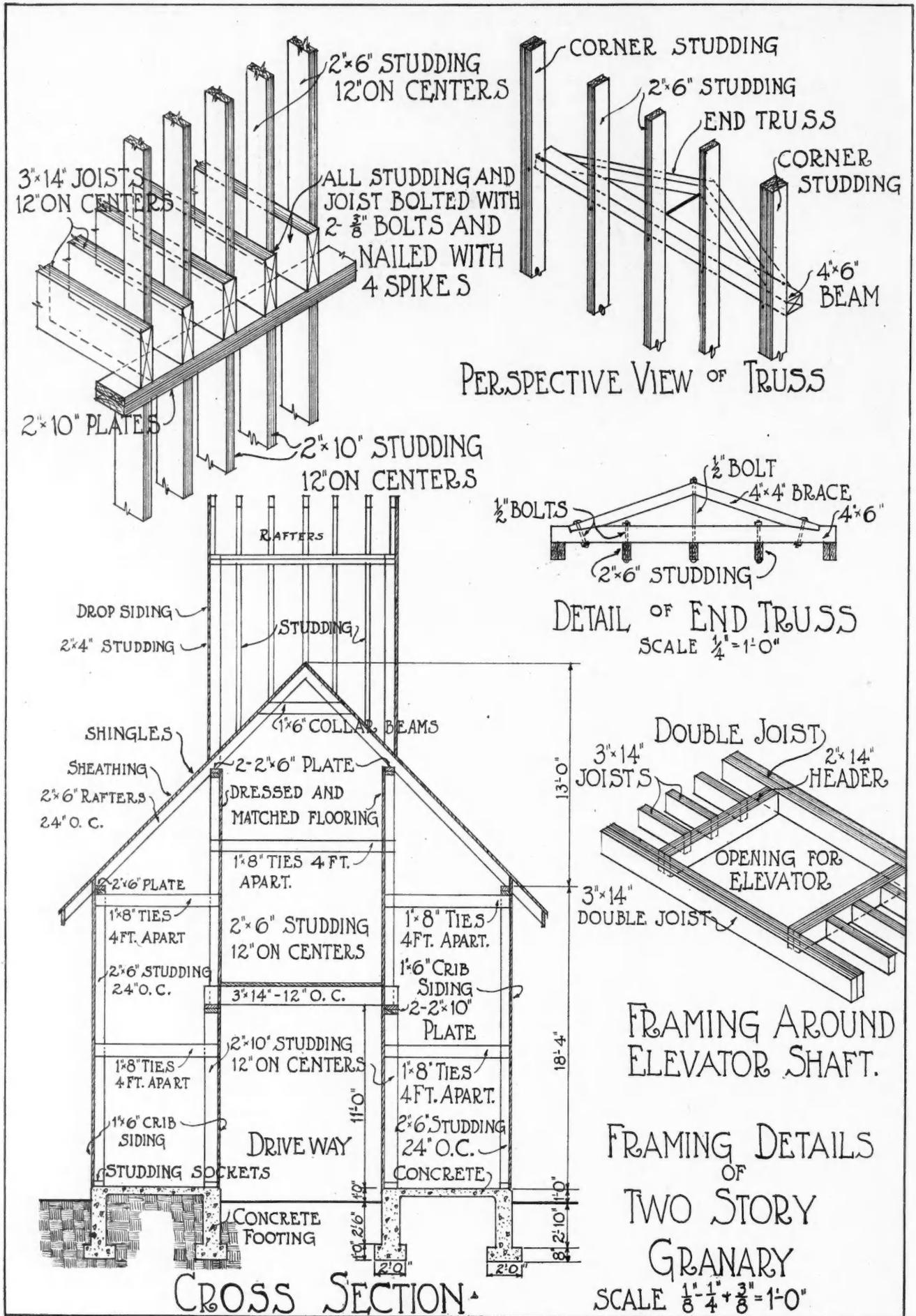
From the time the plans are made, all through the different building operations to the installation of the machinery the services of the builder are necessary. He is the only man within reach who understands the mechanics of both ends of this work. He is the only man in the community who has the necessary detailed information. He is the only man who has the tools to



Ground Floor Contains Center Driveway and Two 8-Ft. Corn Cribs.



Upper Floor Has Corn Cribs on Outside and Grain Bins in Center.



DETAILS OF CONSTRUCTION OF MODEL TWO-STORY COMBINED CORN CRIB AND GRANARY (DESIGN NO. A344) ILLUSTRATED ON PAGE 63.

complete the job in proper style.

He has advertisements at hand and may have catalogs and letters from manufacturers giving the latest and most reliable information, the importance of which is suggested by the growing popularity of two-story corn cribs and grain houses, where they have been properly constructed and fitted with the right kind of elevating machinery.

Kinds of Farm Elevators

There are two general groups of farm elevators, designated as *portable* and *stationary*.

Generally speaking, portable elevators work on an incline and push the grain or ears of corn through a trough or spout by means of sliding cross arms.

Stationary elevators operate with buckets in a vertical shaft. The buckets are filled at the boot bottom with a scooping motion and discharge at the top into a chute, as they are lifted and turned upside down by passing over a drum.

Operating Power

There are two kinds of power used to drive farm elevators, horse power and gasoline or oil engines.

Portable elevators are for the most part driven by horse power, because horses are necessary to haul the load. They are unhitched from the wagon and made to do the unloading by turning the horse power.

Stationary elevators are better operated by gasoline engines or kerosene engines, because the load may be quickly dumped and the horses are required to go and fetch more grain. In the meantime the engine empties the boot and cleans up the floor ready for the next load.

Height of a Two-Story Corn Crib

A cubic foot of wheat weighs 49 pounds, corn 44, oats 28, and peas 50 pounds.

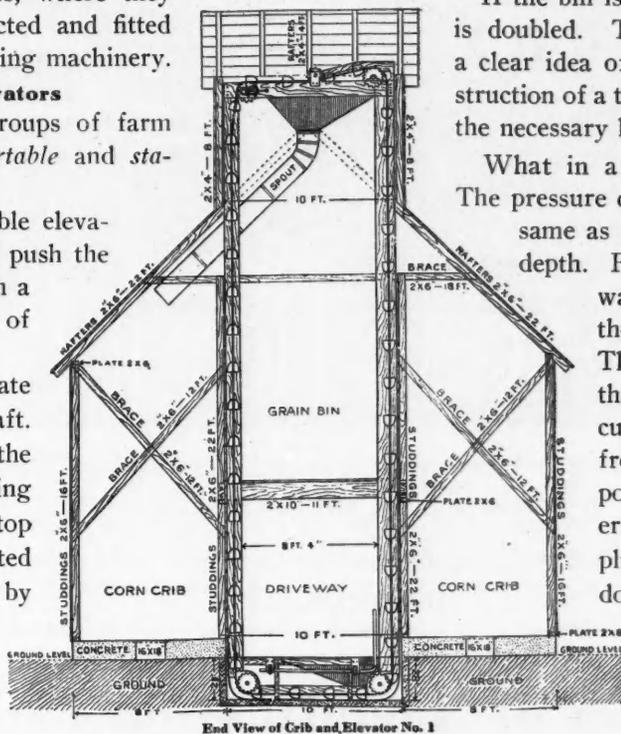
Figuring the weight of wheat, we find that a bin 10 feet deep filled with wheat will put a load of 490 pounds on each square foot of floor surface. If the

alley way through the corn crib is 10 feet wide and the grain bins are the same size overhead, and the floor joists are placed a foot apart on centers, a full bin 10 feet deep will place a load of 4900 pounds on each joist, which is approximately two and a half tons.

If the bin is made 20 feet deep, the load is doubled. These figures give a builder a clear idea of what is needed in the construction of a two-story grain house to carry the necessary load.

What in a bin is liquid in character. The pressure on the sides is practically the same as the dead weight at the same depth. For instance, the pressure outward at the floor is practically the same as the pressure down. The pressure on any part of the side of the bin may be calculated by measuring down from the top and figuring 49 pounds as the side pressure exerted per square foot, multiplied by the number of feet down from the top of the bin.

For instance, any bin would be required to resist an outward side pressure of 245 pounds per square foot five feet down from the top of the bin.



With the "Meyer" Type Elevator the Buckets Go Up in a Box at One Side of the Driveway and Come Down at the Other.

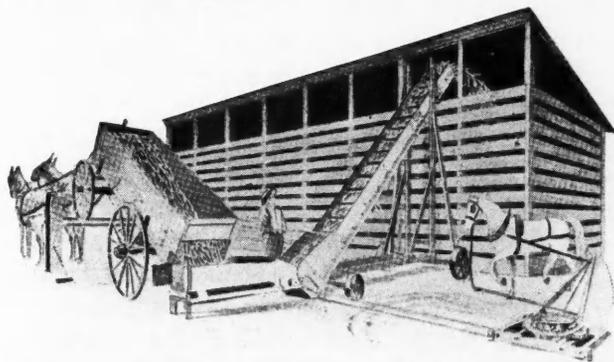
Builders of grain warehouses lock the corners of bins and put in cross ties at frequent intervals. A common way is to use 2 x 4 or 2 x 6's laid flatways and lodged at the corners and spiked together. Such bins have cross timbers or iron rods to tie them together. The cross ties are more frequent towards the bottom.

Of course, it is seldom that builders are called upon to build large grain elevators requiring extra heavy construction. These facts are mentioned simply to call attention to the necessity of making all grain bins sufficiently strong.

Corn Crib Ventilation

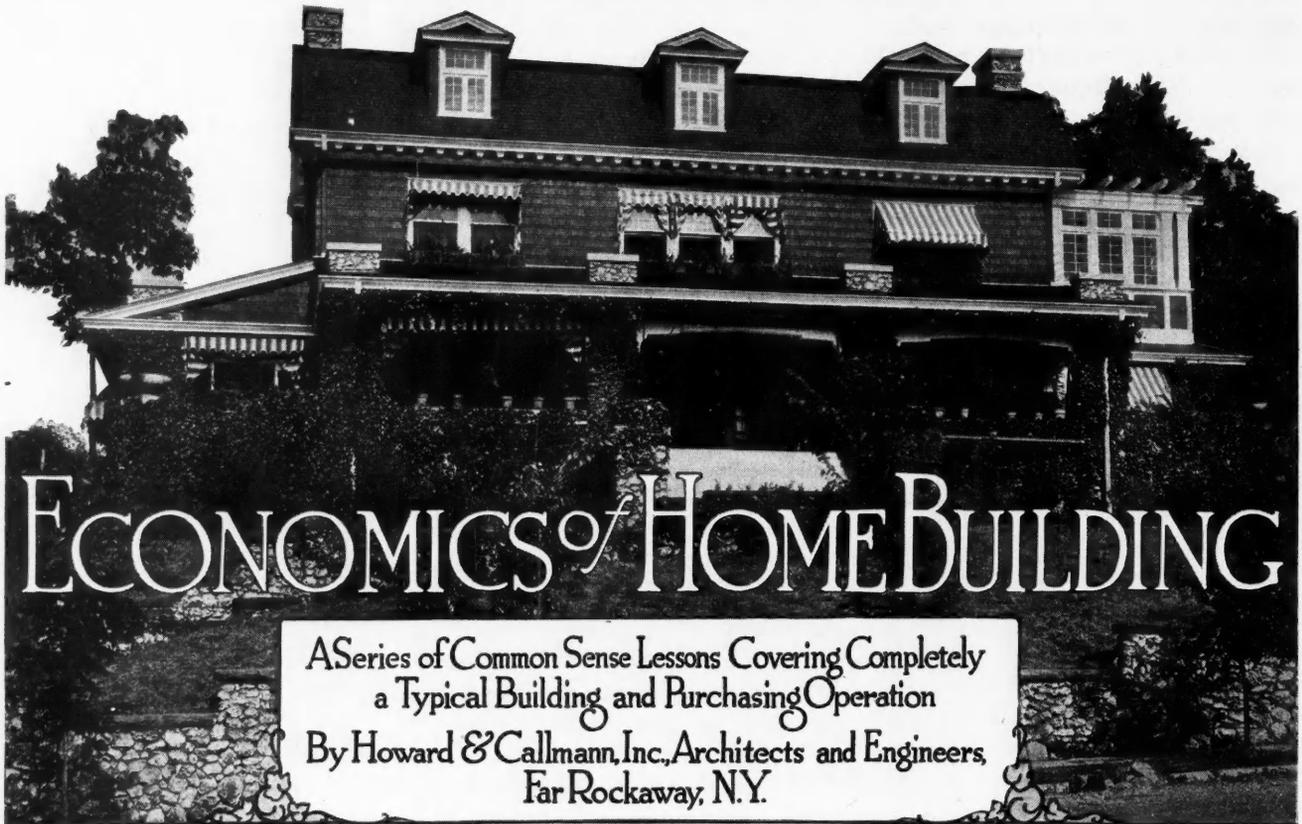
Taking one part of this country with another, it is not considered advisable to build a corn crib wider than 8 or 10 feet, because it is difficult to get air through between the ears of corn from one side of the crib to the other when the sides of the crib are more than 8 or 10 feet apart.

A corn crib looks better and protects the corn better when the sides are covered with slats. Probably because it shows more substantial construction. Corn cribs of this character are sometimes lined on the inside of the studding with corn wire mesh, which holds the corn away from the wooden slats and encourages a free circulation of air.



Some Farmers Want an Elevator of the "Portable" Type. It is the thing for Filling the Ordinary Style Cribs; it is Easily Moved About.

(To be Continued in July Issue)



ECONOMICS OF HOME BUILDING

A Series of Common Sense Lessons Covering Completely
a Typical Building and Purchasing Operation
By Howard & Callmann, Inc., Architects and Engineers,
Far Rockaway, N.Y.

IN TWELVE PARTS—PART VII

Explanation of Specification Provisions—

LAST month we stated, and explained the “general,” or preliminary, provisions contained in the average building contract. Next comes the—

Mason’s Specifications

Excavating—Brick and Stone Masonry—Foundations and Footings—Stucco—Plastering—Tile Work

cement, and “Rosedale,” which is a natural cement.

Mason’s Specification

(150) Specification of the work to be done in conjunction with the Carpenter work. The cost of this work must be included in the Carpenter’s estimate.

(151) *Special Note.* The attention of the Contractor is drawn to the notes written on the drawings, as they are part of this specification.

(152) All work shall be protected against the weather.

(153) Water required during the erection of the building shall be supplied, and the building heated if necessary by the Contractor.

(154) *Excavating.* Before estimating examine the excavation made at the site. If there is good sand and gravel, it can be used in the construction of the building.

(155) The finished grading shall not be included in this contract.

“Grading” means spreading the surface soil evenly either level or to a pitch.

(156) *Cement.* Portland cement of approved brand shall be used for all concrete, stucco or mortar.

There are two kinds of cement and various brands of each; “Portland” cement, which is a manufactured

(157) *Trenches.* Dig trenches 2’ 0” wide and 12” below the finished cellar floor. Level off the bottom of the trenches ready for the concrete footings.

(158) *Concrete Work—Mixture.* Concrete for footings, walls, cellar and piazza floors, shall be composed of one part cement, two parts of sand and five parts of gravel, thoroughly mixed with water and a waterproofing compound, brand of compound shall be approved by the Architect.

Concrete can be mixed with clean gravel or small broken stone.

(159) *Footings.* Set boards 12” high along each side of the trenches to hold back the earth, and pour in the concrete. The footings shall be 12” thick and 24” wide. Footings shall be laid under all walls, piers and chimneys. From each side of piers and chimneys the footings shall project 12”.

The “footings” are a concrete base laid around the building. The foundation walls are built on the footings which spread the weight of the building over a larger area of ground, this reduces settlement.

(160) *Foundation Walls.* Foundation walls shall be built plumb and true, and shall be of concrete 12” thick. The concrete for the walls shall be poured into wood frames built by the Carpenter Contractor.

All foundation walls that are exposed after the grading is done shall have a ¼” scratch coat and a

dash finish to match the stucco on the other part of the building.

If a light scratch coat is not spread over the exposed foundation walls, the lines caused by the wood forms will show through the dash coat.

(161) *Cellar Floor.* Level off and tamp the entire cellar bottom—and lay concrete 4" thick over the entire surface, over this spread a finish $\frac{3}{4}$ " thick of two parts sand mixed with one part cement and float smooth.

If there is a water grid set in the cellar floor connected to a drain or cesspool, the floor of the cellar should be laid to a pitch from the side walls to the grid.

(162) *Kitchen and Laundry Hearths.* The kitchen and laundry hearths shall be of concrete, with a $\frac{3}{4}$ " floated finish.

(163) *Reinforced Concrete Templates and Chimney Cap.* Supply and set reinforced concrete templates for all piers—5" thick, and the same area as the piers.

Supply and set chimney caps of reinforced concrete, projecting $1\frac{1}{2}$ " beyond each side of the chimney stacks.

The reinforcing can be done by setting wire cloth in the concrete.

(164) *Mortar.* Mortar for brickwork shall be composed of three parts cement, two of lime and fifteen sand. Common brick mortar joints shall be "struck jointed." Pressed brick shall be laid up with red mortar and "jointed."

A proportion of lime mixed in the mortar makes it spread better and is good in cold weather as it prevents the mortar from freezing.

(165) *Brickwork.* Common brick required in the construction of chimneys, piers, hearth arches and trap basin, shall be good hard burnt brick. The piers shall be set up with a bond.

Brick is laid in courses and set parallel with the wall in some courses and across the wall in others. This is done to interlock the bricks and is called "bond"; there are various ways of arranging the bond.

(166) *Chimneys.* Build chimneys of brick and line all flues with unglazed tile pipe. Chimneys above the roof line shall be built of pressed brick.

It is not advisable to stucco chimneys as it streaks the roof.

(167) *Shield Wall Back of Kitchen Range.* At the back of the kitchen range, as indicated on the first floor plan, set a 4" thick fire shield of pressed brick 6' 0" high and width shown on the drawings; finish on top with a bluestone cap with a tooled edge 5" on bed and 3" thick. The stone shall project one inch over the brickwork.

The method of setting a cooking range between brickwork is seldom used, it is not as sanitary as the open set range.

(168) *Piers.* All piers in cellar or piers shown outside cellar walls shall be built of common brick to the sizes marked on the drawings.

Piers support the girders which in turn support the floor beams.

Turn 4" brick arches under the kitchen and laundry hearths.

The brick arch forms a solid base for the hearth and prevents cracks in the concrete.

(169) *Trap Basin.* Build a brick box around the drain trap in cellar with a 3" bluestone flag cover.

This is necessary as in case of a stoppage in the drain, it is cleaned out from this trap.

(170) *Mantel.* Include in estimate \$75.00 net for a mantel, which will be selected by the Owner or designed by the Architect. Contractor shall also include for setting the mantel, hearth, jambs and the iron back.

If a mantel from a stock mantel company is desired, \$75.00 can be deducted from the contract price.

Exterior and Interior Plastering

(171) *Stucco.* The stucco shall be composed of five parts cement, twelve parts of sand, three parts of lime and a portion of wood fibre for the first (scratch) coat. This shall be spread over the entire outside walls and allowed to dry thoroughly.

An outside frame wall covered with stucco, is built of studs, sheathing, tar paper and wire cloth upon which the stucco is spread.

A second coat of similar parts shall be spread over the first and allowed to dry. (Leave out the wood fibre in the second coat.)

The dash or finish coat shall be of sanded white cement with a mat finish.

"Mat" finish is medium rough, and is thrown on from a brush through a wire screen.

(172) *Lath and Plastering.* All inside walls, ceilings, partitions, staircase soffits, etc., shall be lathed and covered with two coats of patent plaster, when dry, a third coat of lime putty and plaster of Paris shall be applied as a finishing coat.

Cellar ceiling shall be lathed and plastered one coat only.

"Soffit" means the sloping underside of the staircase under the treads and risers. Patent plaster is almost universally used if it can be procured, as it is better than the ordinary three coat work and costs about the same.

Run all plastering down to floors.

Plaster run down to flooring is a protection against vermin.

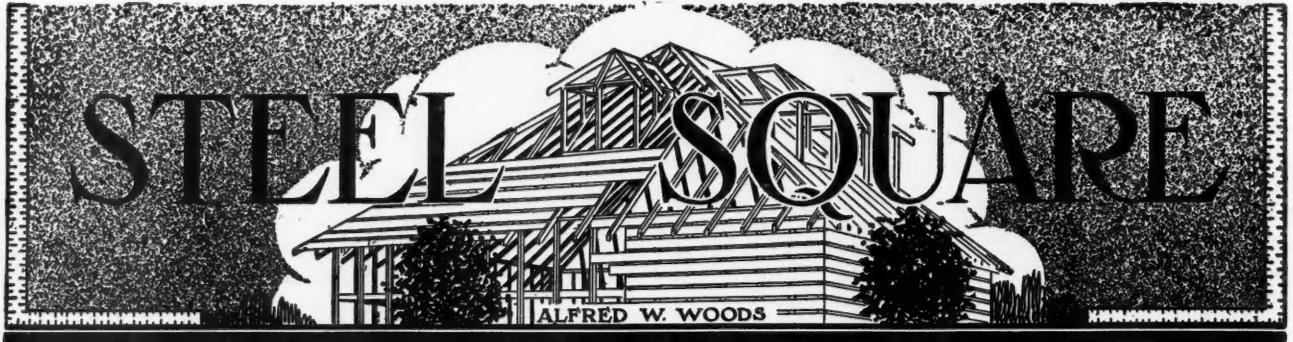
Plaster lath shall be set $\frac{1}{4}$ " apart and metal corner beads shall be set at all angles.

Plaster lath should be set $\frac{1}{4}$ " apart to allow the plaster to pass between the lath as it is being spread, which forms a key and secures it to the lath; it is cheaper to set the lath closer together as it takes less plaster to cover the wall.

Cut out plaster cracks and do the necessary pointing up. Clean all marks off the plaster and floors after all other Contractors have completed their work.

The plaster will occasionally crack from the shrinkage of the timber and at parts where the building varies

(Continued to page 69.)



How to Use the Steel Square

A CONTINUATION OF WOODS' ANNUAL SERMON TO BEGINNERS, ILLUSTRATING THE GOVERNING PARTS IN FRAMING A TEN-SIDED ROOF WITH A TEN-INCH RISE

By A. W. Woods

WELL, here we are again, and we hope with renewed interest to take up the work where we left off last month—in which you will remember we gave a very complete analysis of the proportions to use on the steel square and what determines them, for finding all of the cuts and bevels contained in the framing of a ten-sided building with a ten-inch rise to the foot, regardless of the size of the building.

We will now conclude the subject by taking a definite size or run of the common rafter and show how the lengths are arrived at; and as we are dealing in tens, we will assume the run

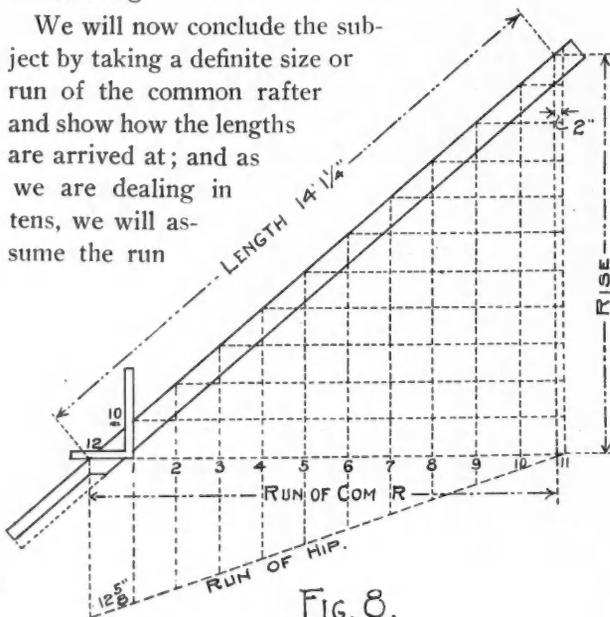


FIG. 8.

Running the Square on Common Rafter.

to be ten feet and ten inches ($10\ 10/12$). By extracting the square root, it will be seen 15.6204 inches is the length of the common rafter for a one-foot run and this multiplied by $10\ 10/12$ equals 14 feet $1\ 7/8$ inches, which will be the required length of the common rafter. The length for the corresponding hip if found in the same way, using the same figures for the multiplicand, because it must coincide with the common rafter. The result thus obtained are the figures to use from an engineering standpoint and are as near being absolutely correct as is possible to work to by mathematical calculation. These calculations are greatly simplified by referring to square root tables given in carpenters' and

engineers' hand books for that purpose; and any school boy that has passed the eighth grade, should experience no trouble in arriving at the figures to use for any angle the building may have.

But we hear some of the older chaps accusing us of splitting hairs; that we are getting down to too small a point for practical purposes. We do not question it from their standpoint, but there can be no question about better results being obtained.

We will not say more along that line, but will come down to every day practice, as is generally used by carpenters, that of scale and running of the square—either of which requires very accurate work on the part of the manipulator, as it is well nigh impossible to obtain absolute correctness. Hence the necessity of very careful measurements. It is true a little variation may not be detected, but it is not our purpose to teach variation, but to avoid it as much as possible, just as we would a mistake, and we all know how common they are and how hard to avoid, however careful we may be.

In Fig. 8 is shown the running of the square and to make this illustration clear, the common rafter is shown with its run and rise in its true position, and the placing of the square to obtain the seat and plumb

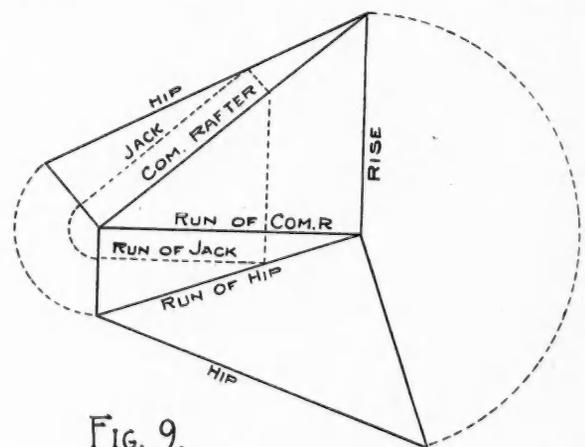


FIG. 9.

Complete Layout of Rafters for 10-Sided Roof.

cuts. The vertical and horizontal dotted lines show the relative measurements to the run and rise and as the run of the hip rests at an angle of 18 degrees from that of the common rafter, the vertical lines are continued on to the run of the hip, and its corresponding length to the foot run is shown to be $12\frac{5}{8}$ inches. These are the figures to use on the tongue to find the corresponding length of the hip by simply placing the square the same number of times as used for the common rafter.

Now, in our example, we have a run of ten feet and ten inches and so we place the square at 12 and 10

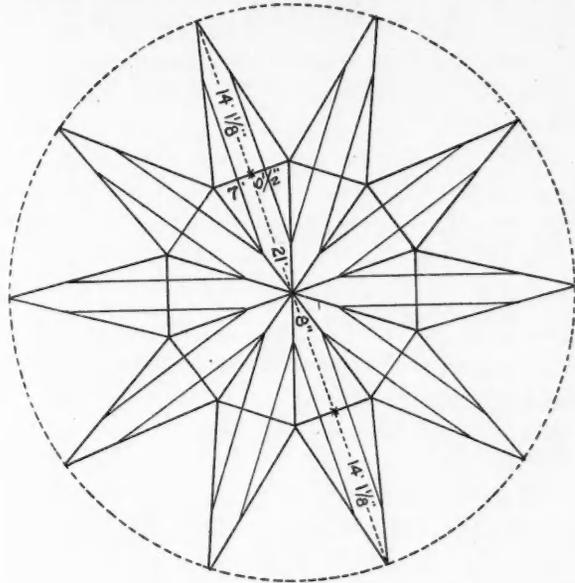


FIG. 10.

Card-Board Cutout for 10-Sided Roof.

as shown, eleven times and from the eleventh placing of the square, deduct two inches by measuring square back from the plumb line and lay off another plumb line for the cut; and in the operation the length of the common rafter is solved. Proceed in like manner for the hip, placing the square the same number of times; but use $12\frac{5}{8}$ on the tongue instead of twelve, because that is the amount of the corresponding run to that of the common rafter; but instead of deducting two inches, it should be the corresponding amount of the hip's run to that of two inches for the common rafter's run, which in this case is equal to $2\frac{1}{8}$ inches.

The jack rafter is but a part of the common rafter, consequently its seat and plumb cuts are the same as for the common rafter; but instead of this cut being made square across the back of the rafter, it must be made at an angle to fit against the side of the hip; and for that reason it is generally called side cut of the jack, but in reality, it is not an extra cut at all, as one might infer, as it is made at one operation, just the same as making a miter cut which in fact it is; but instead of being on a level, it is at an inclined plane.

In our last article, we explained what the proportions are on the square to use and what determines them, and therefore will not repeat, but there is a question as to how the length of the jack may be found

without resorting to a diagram.

To arrive at this, let us go back to where we started; 12 and $3\frac{11}{12}$ give the miter and we also have found for one foot run of the common rafter, its length is $15\frac{5}{8}$ inches. So it necessarily follows for each $3\frac{11}{12}$ that the jack rests from the corner on which the hip rests the length of the jack will be as many times $15\frac{5}{8}$ inches. This, of course, is reckoned to the center line on the back of the hip, so that it is necessary to make a deduction in the length of the jack, provided it is desired that it rest at a certain place on the plate. Then the proper deduction to make is one-half of the hip's thickness taken square back from the angle across the back of the jack as laid off for the full length of the jack to the center of the hip.

In a roof of this kind, the common rafter may be omitted and it is well to do so, as it avoids running one-half of the rafters to the center; but it is necessary to find its length and cuts in order to find the proportions required for other parts that enter into the roof.

In Fig. 9 is shown a complete layout of the rafters and if this were cut and folded on the runs and common rafter line, it would form a solid or cube in proportion to one-twentieth part of our roof and contains all of the angles for the cuts that we have described in the foregoing, save a part of two.

In Fig. 10 is shown a complete layout of the whole roof, and if cut out and the points folded back until they touch one another, it would show the roof in miniature with every rafter in its respective place.

With this we close, but still we have not said all that should be said to complete the subject, and as it is too lengthy to continue this article, we will let it go over until next month.



Mason's Specifications

(Continued from page 67.)

in weight, for instance: a heavy chimney stack adjoining a frame wall will settle, unless the footing under the chimney stack is wide enough to spread the weight equally. After settlement has taken place the cracks are pointed up.

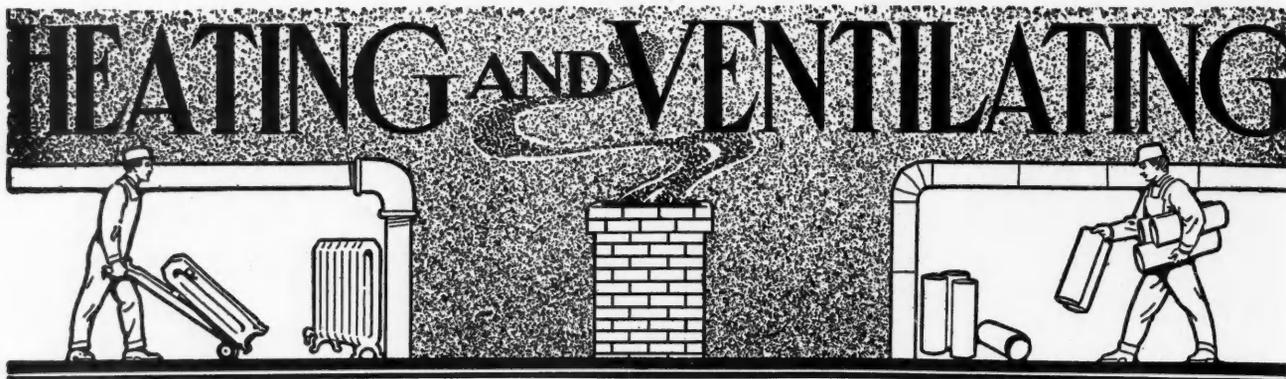
(173) **Tile Floor.** The floor of the second story bathroom shall be covered with hexagonal tiles set in cement on a concrete base.

The concrete base is formed by setting round boards between the floor beams 4" down from the top of the beam, the concrete is laid in these pockets and finished level with the top of the beam. Upon this base cement is spread and the tile set.

(174) **Tile Walls.** The side walls in bathrooms shall be covered with white glazed tile 4' 2" high with tile cap and sanitary base.

The tile floor shall be cleaned with acid after all mechanics have completed their work on the building.

Where side walls are to be tiled, metal lath should be set up to the top of the tile cap, as plasterer's lath is not strong enough to hold the weight of the tile.



How to Select a Warm Air Furnace

THIRD ARTICLE—VALUABLE HINTS FOR CONTRACTORS AND BUILDERS REGARDING THE HEATING PLANT AND ITS RELATION TO THE REST OF THE JOB (CONTINUED FROM MAY ISSUE)

By C. S. Stout

(Secretary, Marshall Furnace Co.)

NEXT to the chimney the thing contributing most to the success of the heating system is the depth of the basement and the location of the heater in it.

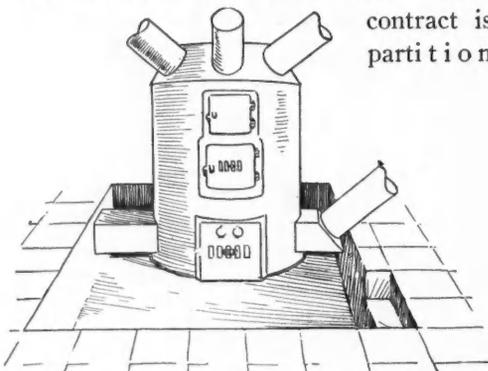
The deeper the basement the greater the pitch or rise to the warm air pipes and the greater the elevation to the pipes the more rapid the flow of air through them will be and with less friction.

If you do not want to excavate the entire basement just lower the furnace room or construct a pit or depression large enough to hold the furnace and leave the balance of the floor the original depth.

The cold air supply for a furnace may be conducted to it either above the cellar bottom, through wood or galvanized iron ducts, or underneath the cellar bottom through trenches or masonry ducts. The entire supply may come from outside the house, the entire supply from inside, or part from each. The last method is perhaps the most satisfactory way.

If outside air is used exclusively the supply should equal at least 75% of the amount piped off in the warm air conductors. If inside air is used exclusively, the supply should equal the outgo. If the combination inside and outside is used, the requirements differ with the amount of outside air used, but the warm air pipes should be fed with approximately their entire capacity.

Do not cement the cellar bottom until the heating contract is placed nor partition off the



Furnace sitting in a pit or depression in shallow basement to gain elevation to heat pipes. On right cold air entering furnace through pipe above ground. On left cold air duct under cellar bottom entering furnace on side.

basement until the final location for the heater is chosen. Also give the heating man a chance to figure with you on the

best place to bring in fuel, the best way to face the heater, etc., and he will be able to give you ideas because he is doing this work constantly and he catches on to lots of little points in other places and in other houses that will be valuable.

How to Compare Heating Plants

The first thing to do is to gather all the information you can for and against each heater and system of installation just the same as a judge or jury weighs and sifts the evidence in a court of law. You can make just as big a mistake in picking the proper equipment and installing it as you can in building the chimney wrong.

Now is the time when it is up to you to exercise



This illustration shows effect of wind currents on flues that do not extend higher than ridge of roof.

If building is over topped by high buildings near it, a revolving chimney cowl should be placed on top to prevent down drafts.

your ingenuity, shrewdness and business judgment.

Each bidder will, of course, claim he has the best and your problem is to sort out the strong and weak points in each man's proposition and put them on a level so you can compare them and sort out the essentials and separate them from the non-essentials.

In the first place compare the heater or furnace. Forget everything else for the time being but the central heating unit.

There are a good many talking points for and against every kind of furnace; but there are a few very important things that stand out above all the rest

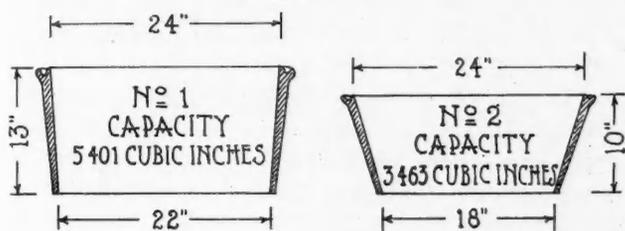
that you want to devote most of your attention to and not be misled by claptrap talking points or by little details that don't mean anything off of paper.

The wearing part of any heater is the fire-pot, and you want to give as much attention to the fire-pot as you would to the engine if you were buying an automobile.

Fire Pot Construction and Capacity

The fire-pot should be heavy to stand the severe heat it will be subjected to and be made of new soft iron to stand the strain of expansion and contraction due to constant heating and cooling. It should be deep and large to hold a large body of fire and should be almost as large on the bottom as it is on the top because if it has steeply slanting sides it will bank the ashes and they will kill its radiating power.

It has always been customary for manufacturers of warm air furnaces to rate them by the diameter of the fire-pot at the top and by the number of cubic feet



↑ FIGURE 3 ↑

Fire Pot Capacity Depends on More than Diameter.

of space each is supposed to heat; but both methods, although they are still almost universally persisted in, are inaccurate and entirely misleading.

The top diameter of the fire-pot does not govern the size of the heater or the capacity of the pot any more than the length of a horse's legs determine how fast he can trot; so do not let any heating man base the capacity of his furnace on the top diameter of the fire-pot.

It is the grate surface that has the most to do with the capacity of the heater, not fire-pot diameter.

See the two pots in the illustration (Figure 3); they are both 24 inches in diameter at the top. One has an 18-inch grate and the other a 22-inch, one is 13 inches deep, the other 10 inches, pot No. 1 contains 5,401 cubic inches of available fuel space, No. 2 only 3,463 cubic inches, and yet they are both 24-inch pots and many a man has bought a furnace with a pot like No. 2 at a lower price than the heater with pot No. 1, thinking he was getting a better price on equal equipment, when as a matter of fact he was getting stung.

Assume that fire-pot No. 1 has 100% capacity, then pot No. 2 is only a little over 50% capacity, and it is only a kindergarten question with these measurements and capacities in mind as to what is the relative heating capacity of two heaters with the two fire-pots illustrated embodied in their construction.

When the heating man tells you that he is figuring on such and such a diameter pot, tell him to forget it. What you want to know is how deep it is and how much grate surface it has.

Next, find out weight of pot and of entire heater and the way the metal is distributed. Of course the only way you can judge as to the durability is to judge from the way the heater is constructed, whether it has weak points of construction, by the weight and by the previous records of the same heater in other buildings.

If the heater is large and has lots of weight well distributed it will be more durable than one that is lighter, in the same general style of construction because there is more iron in it to withstand the action of the fire.

The joints should be made deep and in such a manner that the gas tight packing cannot fall out.

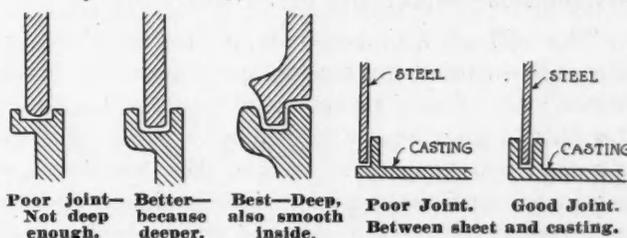
Grate and Radiator Construction

Next inquire into the grates very carefully because this is the working part, the part that the owner has to operate every day the heater is in use.

They want to be easy to operate and capable of removing the ashes from the bottom of the fire evenly and thoroughly without waste of fuel and have an unusually large proportion of air space inlet to insure proper combustion. They should also be heavy enough to sustain the weight of a heavy body of fire and be easy to replace.

The heater should also have a good fire travel, that is, the flame and smoke and gases should have a chance to pass over a large amount of surface before they escape into the smoke pipe and chimney; but this draft track or smoke travel space should be easily accessible for cleaning purposes.

A layer of soot 1/8 inch thick reduces the radiating

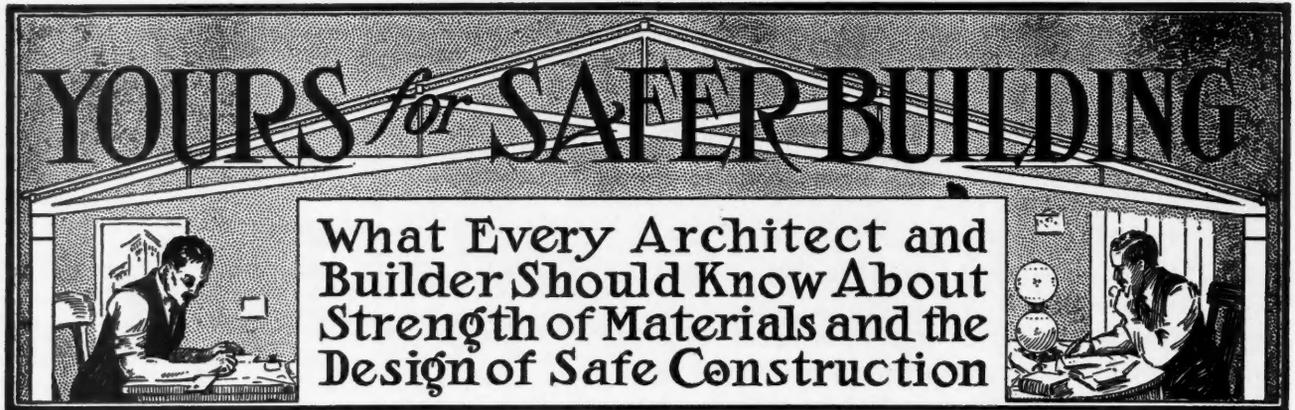


value in a heater from about 25 to 30%, so the cleaning feature is one that is important.

Find out how the ash pit door and feed door on each furnace are fitted. Tight doors are absolutely essential if the fire is to be controlled properly. If air leaks through the doors after the fire is checked for the night you may be unable to hold fire enough to have it warm in the morning.

The heater should have an abundance of radiating or heating surface, that is, metal in contact with the fire gases and hot smoke and this surface should be so arranged and proportioned to permit the passage of a large amount of air over its outside surface to carry the heat away and into the rooms as fast as the metal will radiate it.

(To Be Concluded in July Issue)



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

Noon Hour Talks by the Boss Carpenter

Talk No. 35—Sizes of Truss Members

THE BOSS SHOWS HOW TO DETERMINE THE CORRECT SIZE OF THE MEMBERS IN A TIMBER TRUSS UNDER DIFFERENT KINDS OF LOADING

“YOU will remember,” said the Boss, “that during our talk on joints for timber trusses I reminded you fellows that you could find the sizes of the truss members themselves by applying the ordinary rules for tension members and struts or columns in compression. Since many of the fellows are a little doubtful as to the exact method of applying these rules in the case of a roof truss, I am going to figure out the size of a tension member and a compression member and let you see how it is done.”

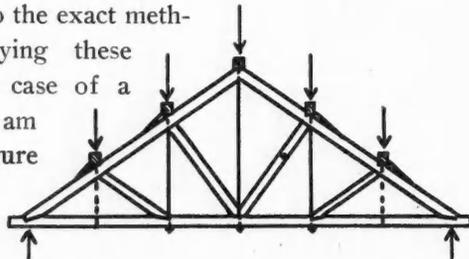


Fig. 44. Queen Truss with Loads Carried by Purlins Located at Joints of Upper Chord.

“We will use a timber truss of the type shown in Fig. 44. In this truss the top and bottom chords are either made of solid timber or of 2-inch timber bolted together to give the size of member needed. It is understood that the only stresses in these members are pure tension or compression and no bending. To have this condition true, the roof and ceiling loads would have to be carried by purlins supported at the joints

of the truss. A case in which the rafters are spaced along the upper and lower chords will also be given. The vertical ties are steel and take tension stresses only.

“As you will notice by the inspection of your stress diagram (Fig. 45) for the truss, the members of the upper and lower chords which are under the greatest stress are those located at the ends of the truss in this case. If we figure the size of these end members and then make the upper chord of the same size of material throughout its entire length, and then do the same for the lower chord, our truss will be strong enough to hold its load and we will not have difficulty in forming the joints and connections. If we tried to change the size of the various members between joints, and to have each member just of a size to carry its stress with a given factor of safety, we would meet with considerable difficulty in construction and the saving in timber would not make up for the loss of time in labor. It does not make so much difference with the web members, the main thing being to make them of a width equal to that of the upper and lower chord so that they will frame in easily. The vertical steel ties may be made of a size to carry the stress without thought of difficulty in framing.”

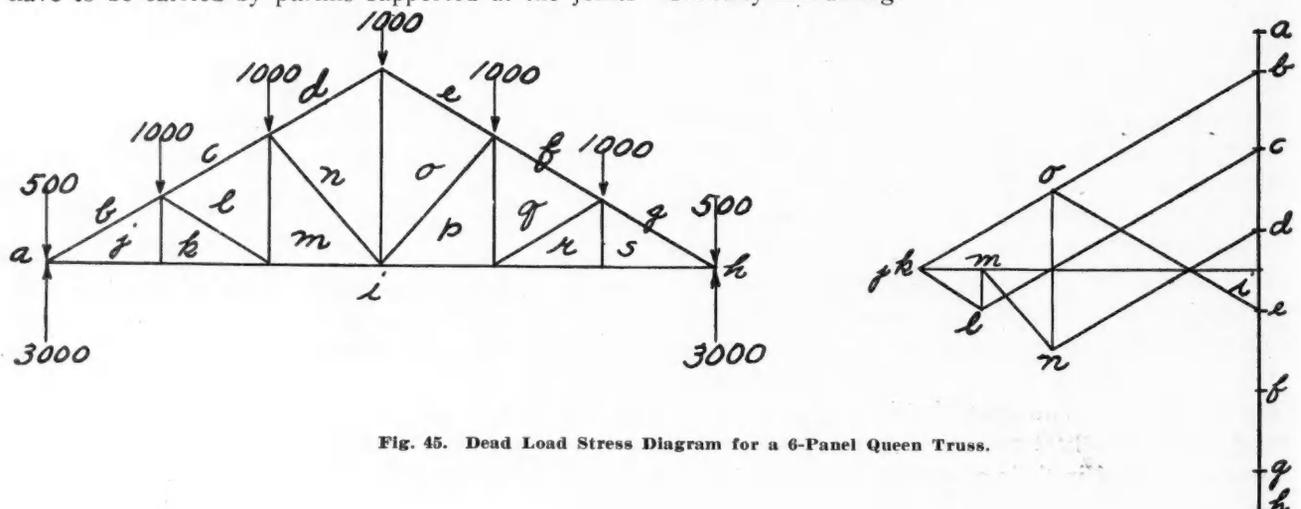


Fig. 45. Dead Load Stress Diagram for a 6-Panel Queen Truss.

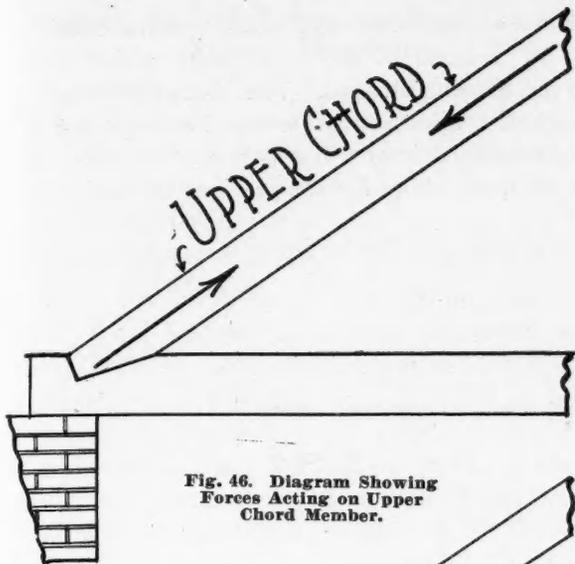


Fig. 46. Diagram Showing Forces Acting on Upper Chord Member.

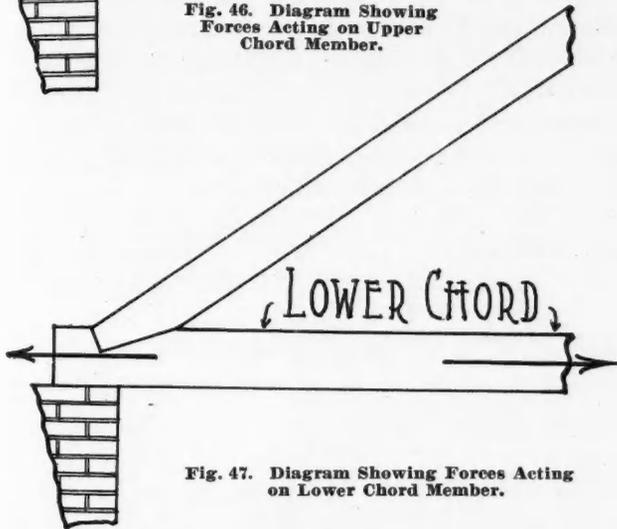


Fig. 47. Diagram Showing Forces Acting on Lower Chord Member.

“As a basis for our calculations, let us assume that the greatest compression stress in the upper chord of our truss is 20,000 pounds and that the timber is a good grade of yellow pine, free from bad knots or imperfections. We will use a factor of safety of 6 in this case since all the stress is not present in the member all of the time. If a very good quality of timber is used, a factor of 5 may be considered to be sufficient.

“We will consider that the part of the upper chord between the end joint and the second joint is a column with fixed ends. Also, assume that the distance between these joints is 10 feet. The formula that we will

use for calculating the size of this part of the upper chord will be the column formula which was discussed in Talk No. 10. This formula was as follows:

$$\frac{W}{A} = C - \left[\frac{D}{10} \times \frac{l}{d} \times \frac{l}{d} \right]$$

“In this formula W is the total stress in pounds multiplied by the factor of safety, A is the area of the cross-section of the column in square inches, l is the length of the column in inches, d is the least dimension of the cross-section in inches, while values of C and D are as follows:

	C.	D.
Georgia pine	4,000	8
Short-leaf yellow pine.....	3,300	7
White oak	3,500	8
White pine and spruce.....	2,500	6

“Applying this formula to our problem, we find that the filled in formula is as follows:

$$\frac{20,000 \times 6}{d \times d} = 4,000 - \left[\frac{8}{10} \times \frac{10 \times 12}{d} \times \frac{10 \times 12}{d} \right]$$

“Multiplying both sides of the equation by d × d and cancelling where possible, we would have
 $d \times d = 27$ (about)

This shows that a 6x6-inch timber would be the nearest commercial size which could be used.

“In case of larger timbers, a rectangular shape of cross-section may be used with the least dimension equal to d. This is of use in cases where a bending action is also present as shown later.

“We will assume that the tension stress in the lower chord between the end joint and the second joint is 15,000 pounds. If the tensile strength of yellow pine is taken as 9,000 pounds per square inch, a factor of safety of 6 would give us a working strength of 1,500 pounds per square inch for use in our tension formula.

“The size of the member would be found as follows: Divide 15,000 by 1,500. This will give the area of cross-section of the timber needed. Since the width of the upper chord is to be 6 inches, it will be well to make the width of the lower chord the same.

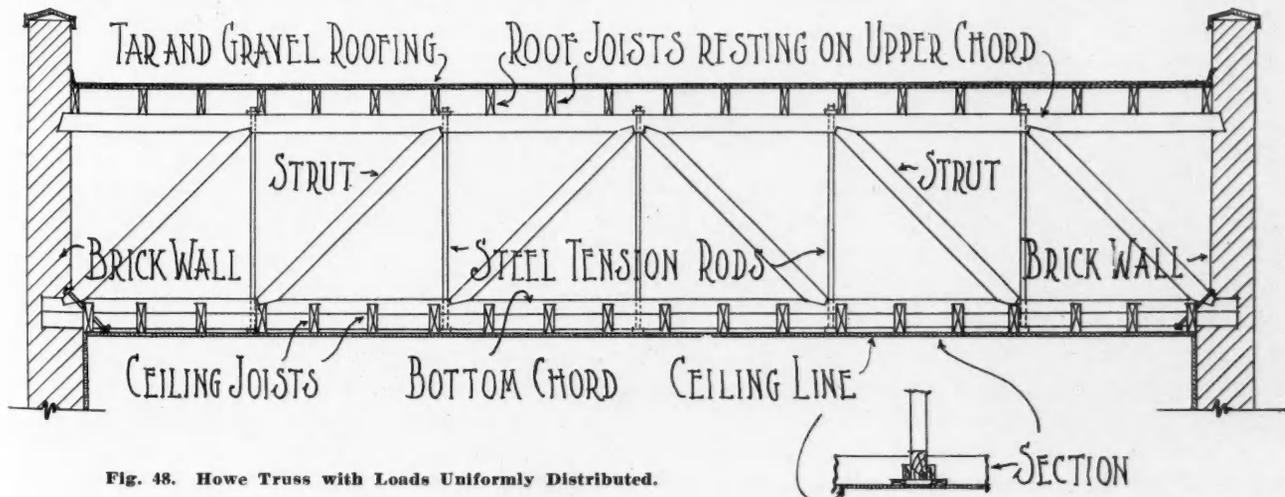


Fig. 48. Howe Truss with Loads Uniformly Distributed.

Sizes of Truss Members

Although the actual height of lower chord member by the formula needs to be only about 2 inches, it will be well to make it about 6 inches deep. This will allow for any reduction in area of cross-section due to the holes where the vertical ties pass through the member and make a more rigid form of construction.

"The size of the slanting timber web members which are in compression may be found by the same formula that was used for the upper chord. The length of member will have to be taken correctly in each case. It is advisable to make these of the same width as the upper and lower chords so that they will frame in easily.

"The size of the vertical steel tension members, or ties, may be found by dividing the pull on the tie, or the stress in the member, by 15,000 pounds per square inch, the working strength of the steel. The result of this division will be the area of the cross-section of the round rod, taken at the bottom of the screw threads. If the ends of the rods are upset so that the area at the bottom of the screw threads is equal to the area of the main part of the rod, then a smaller size of rod may be used.

"The diameter of rod needed may be found direct by using the rule given near the bottom of page 63 in Talk No. 33, where the size of a bolt was found. This rule in brief was as follows: Diameter of rod, in

Pull on rod, in pounds.
inches equals the square root of _____

11,000

Directions for handling the square root quantity were given in Talk No. 33.

"As an example: If the stress in one of the tie rods is 10,000 pounds, then the diameter of the rod at the bottom of the screw threads would be the square

root of $\frac{10,000}{11,000}$, or the square root of $\frac{9}{10}$. Writing

this number as a decimal (.9), we find that $.95 \times .95$ will give this number. Since $\frac{95}{100}$ is practically 1, we

would use a 1-inch diameter rod in our truss with the ends upset so as to give full 1-inch diameter at the bottoms of the threads. If the ends of the rod were not upset, it would be better to use a $1\frac{1}{4}$ -inch diameter rod. The nuts and washers for the tie rods were shown in Talk No. 33.

"If the roof loads are distributed along the length of the upper chord as shown in Fig. 48, or if the ceiling loads are supported from the lower chord as shown in the same figure, then a different method of calculation must be used. The members of the upper or lower chord of such a truss would be subjected to a combination of direct end stress and bending stresses as shown in Fig. 49.

"A common way of figuring the size of such members is to find the size of timber needed to carry the

direct stress, and then add enough extra width to allow for a beam of the same depth which would carry the bending stresses. The size of the member to carry the direct stress would be found by the methods outlined in the first part of this talk. The extra width to allow for the bending stresses would

be found from our beam formula $\frac{pI}{e} = M$, which was explained in Talk No. 1.

"As an example of this case suppose that we have determined from the methods given above that the size of the top chord member in Fig. 48 should be 6 inches by 10 inches for the largest direct compression alone. Then assume that each rafter brings a load of 1,000 pounds on to the beam. If the trusses are spaced 12 feet on centers, length of panels of upper chord 8 feet, and spacing of rafters 2 feet on centers, the load from the rafters would be equivalent to a uniformly distributed load of 4,000 pounds on this panel of the upper chord.

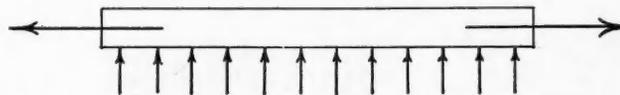


Fig. 49. Diagram Showing Combination of Direct and Bending Forces.

"The width of a freely supported beam 10 inches deep and 8 feet long would be found by the following formula:

Unit strength of the material in pounds per square inch multiplied by $1/12$ the width in inches, and then by the cube of the depth in inches divided by $1/2$ the depth, equals $1/8$ the uniform load on the beam in pounds multiplied by the length of the beam in inches.

"In this case, using 1,000 pounds per square inch as the working value of the bending strength of yellow pine the filled-in formula would be as follows: $1,000 \times (1/12 \times \text{width}) \times 10 \times 10 \times 10$

$$= \frac{1}{8} \times 4,000 \times 8 \times 12$$

5

"Solving, we find that the width should be about 3 inches. Adding 3 inches to the width 6 inches already needed and the size of timber for the upper chord will be about 9 inches by 10 inches. Probably a 10x10-inch timber would be the easiest to obtain, while an 8x10-inch might do if the lumber is of first class quality. These timbers could be built up of 2x10-inch stock if desired.

"A similar proceeding would be used for the lower chord. The size needed for the largest direct tension should be found, remembering the allowance for holes where the tie rods pass through. The width needed to resist the bending stresses may then be found from the method given above and the total width determined. It is probable that this width will be less than that of the upper chord, but it is well to make them equal. This extra width will allow for the tie rod holes and also for weakness in splicing, or in breaking joints if a built-up member is used."

Stucco Board Achieves Success as a Sound Deadener

Various materials have been used in insulating buildings from sound. In office buildings, apartment houses, flats and many other types of buildings, it is absolutely necessary that some preventive measure be taken against sound transmission.

"Stucco Board" has been giving fine results when used for this purpose. In apartment houses and in many other buildings, the walls are made double with a dead air space between. This cuts down the sound transmission to a large degree; but it is necessary to make the walls of some material that will help the air space in the work that is cut out for it.

This is where the "Stucco Board" comes in. The board is nailed directly to the studding and the asphalt mastic layer, to which the beveled laths are fastened, gives excellent results as a sound retardant. In sound-proofing floors and ceilings "Stucco Board" is used as a sub floor or is placed between the rough and finish flooring. It is also nailed to the under side of the joists in the place of other lath to receive the plaster direct and at the same time acting as a sound-deadening layer.

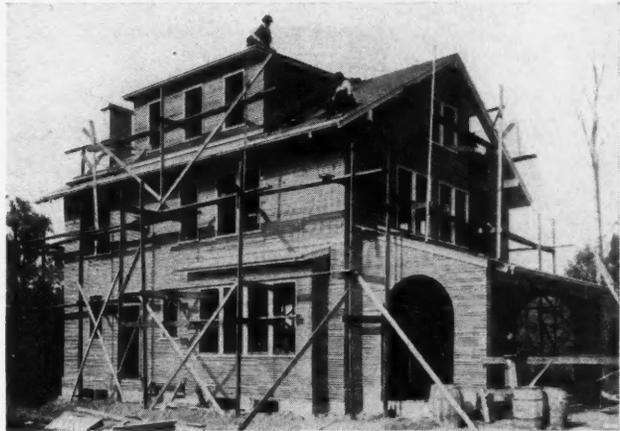
The reason the asphalt mastic coat is sound-retarding is due to its inelastic construction. A material such as this, which is not elastic or resilient, has very little ability to transmit sound.

The illustrations shown are of two buildings that have been constructed to a large degree of "Stucco Board." The larger building is eight six-family apartments in Boston. This material was used largely in this building and gives excellent results according to the contractor.

The smaller building shows the many uses to which this material is adapted. As shown in the illustration, the exterior is ready for its stucco coat. All the

interior walls are lathed with this material to cut down the sound transmission. The plaster on the ceilings is also placed on this material. Under the floors there is a layer of "Stucco Board" which retards the sound and also keeps the dust and dirt from coming up through the floor.

An unusual use of this material is shown in the smaller illustration. No sheathing was placed on the



Eight-Room House in Cincinnati wherein "Stucco Board" was used for exterior and interior plastering underneath floors and on rafters to shingle on.

rafters, but the "Stucco Board" was used in place of the sheathing and building paper. The shingles were nailed directly to the board. The strength of this material is shown to be remarkable, since it can be used in this way. Its ability to protect against temperature changes makes it also a valuable material for insulation.



WE learn that at the present time the farmers in Texas are becoming greatly interested in the silo proposition. Since there is no market for their present cotton crop they find it necessary to diversify and go into the hog raising and stock-feeding business.



Eight Six-Family Apartments on Commonwealth Ave., Boston. Built by F. A. Corbett & Co., Bishopric "Stucco Board" used.

Trade Training in Public Schools

CARPENTRY SCHOOL BOYS GET REAL TRAINING BY WORKING ON MUNICIPAL BUILDINGS WHICH OTHERWISE THE CITY COULD NOT AFFORD TO PUT UP

By Elmer H. Fish, Director

Worcester Boys' Trade School

ANY man who can worry a board with a dull saw till it falls apart, or who can hit the head of a nail two out of three tries, considers himself more or less of a carpenter. A boy goes to high school and gets two, three or four hours per week of manual training and he considers that he has taken a long step toward becoming one.

These two things only add to the difficulty of training men, because they add to the amount that must be weeded out of their minds before they can begin to be of any use to themselves or anyone else.

Apprenticeship seems the most natural way of making new men for the business, but there are fewer and fewer firms that do all around contracting that will bother with apprentices at all. On this account and because this is equally true in all trades, the public is getting to look to schools to furnish the necessary training for all trades. Their attitude is, that if the

government will support high schools, and in many states, colleges and technical schools, which train for the professions, they have a right to expect to have as much money spent in the training of their sons if their inclinations are toward trades. The position is undoubtedly sound, for America owes at least as much of its success to its skilled workmen as it does to its professional men.

Carpentry is one of the hardest, if not the hardest, of all the skilled trades to handle in a trade school. The writer has had charge of a good sized school offering seven or eight different trades for the past five years, and he has found the ordinary school methods a most unsatisfactory foundation on which to build. The trade must be taught by doing the work. The theory of the trade must be sandwiched in as the boys go along. Sometimes it is best for them to do a job by a conventional method first and then learn why they



Part of Class in Carpentry Work Building Stairs for the New Building at the Worcester Trade School.

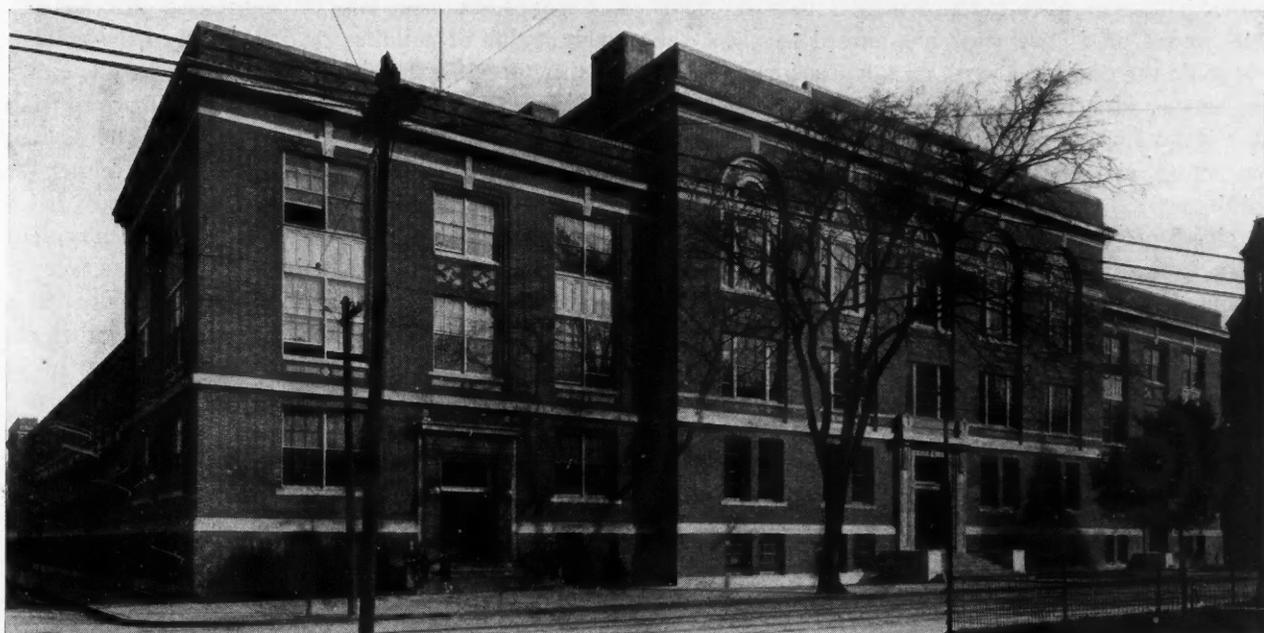


Photo of Main Building of Worcester Boys' Trade School.

did it that way afterward, sometimes the process should be reversed, but the work must be there, and it must be done by the pupils and not by the teacher.

The two most serious problems are to find the teachers, and to find the work. An instructor must first of all know his trade, and he must have a good working knowledge of the other building trades. He must be able to work with his own hands, and yet he must be willing to keep his hands in his pockets when he itches to give a job just the one last finishing touch that will make it right, or ruin it. It would seem as if he ought also to have been a foreman so that he has proved his executive ability, but my experience has been that such men are very apt to have too little patience with boys. Foremen expect them to become men as soon as they put on their overalls, and to put away childish things. That can be done in a shop where one boy is surrounded by a dozen men, but when a man finds himself surrounded by a dozen boys, unless he was born with the patience of Job, he is about ready to throw up the job before he starts in.

The boys will come from the public schools where they have been used to certain artificial restraints that are not good for them there, nor anywhere else, because they make the boys go to the opposite extreme of behavior as soon as they are out of the teacher's sight. If an instructor has a dozen boys working under him, and that is a small crowd, he will have to divide them up in three or four gangs each working on a separate job, only one of which he can watch himself at any one time. The only way he can maintain discipline is to get each boy more interested in the job than he is in fooling, and that is no fool of a job, for if the school is public, every boy must be given a chance to get over his kiddishness and get into the running.

An instructor must be willing to give up all his pet vices, he cannot chew, smoke, swear, nor can he get angry very often, or he will lose all control of his pupils. He must be able to express himself in passable English. He need not be a student of Shakespeare, but he must be able to make other people understand what he is saying. There is a vast difference between men in their capacity of giving instructions that cannot be misunderstood. A man who is a master of his own trade is very apt to assume too much understanding on the part of his pupils. Things that are perfectly obvious to him are not at all clear to them.

With all this, an instructor needs a personality that will carry with it conviction that he is right, and he must be so square in his dealings with the school and his boys that he leans over backward.

The other large problem is the supply of work. In manufacturing lines this can be easily gotten, because if orders do not come in things can be made up for stock, but there is not a great deal, especially in outside work, that can be satisfactorily done except on the job. In some schools, notably the State schools of

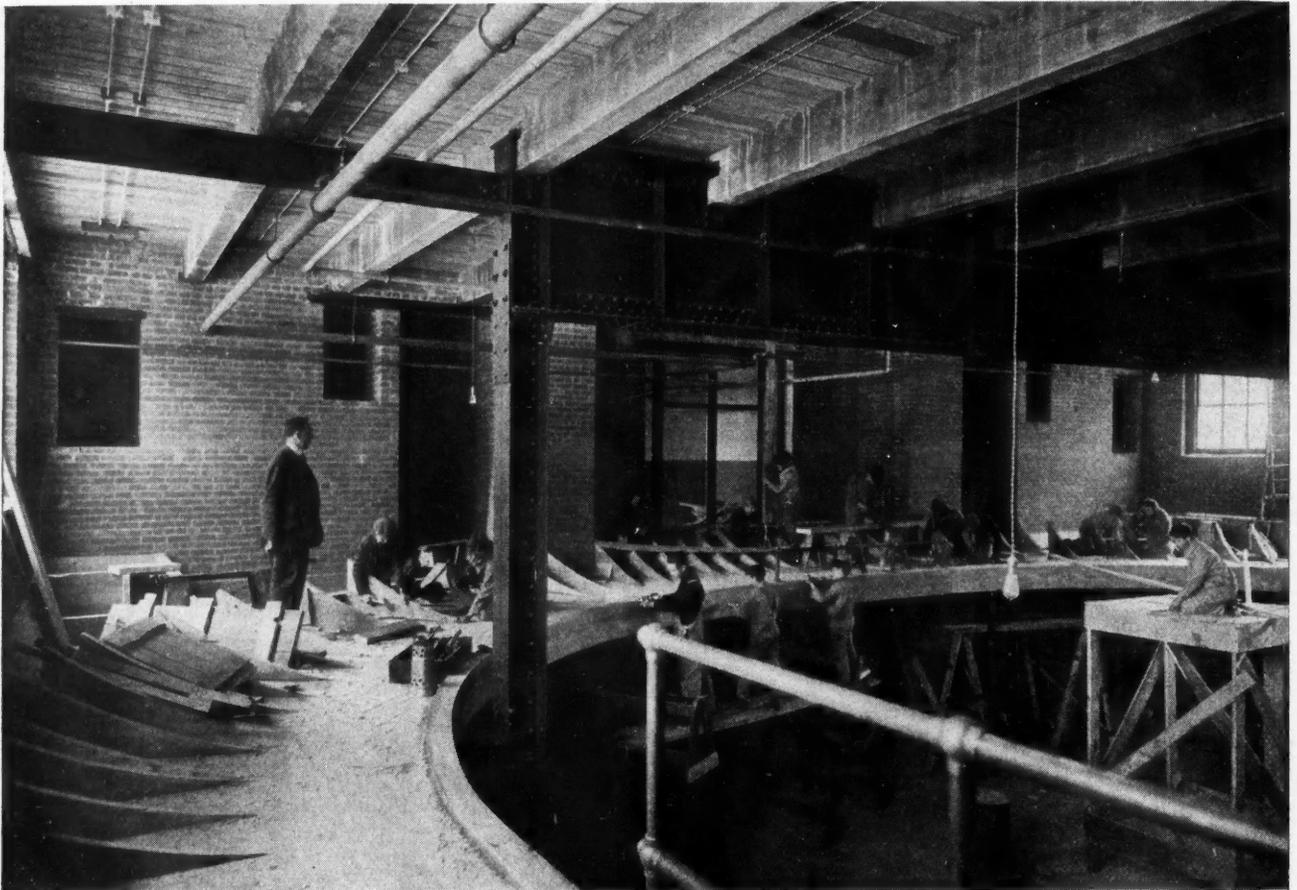


A Portable Garage Just Going Out from the Worcester Trade School, with the Gang that Built and Erected It.

Trade Training in Public Schools

Connecticut, they have taken contracts to build complete houses or a contractor has agreed to allow the boys to do the carpenter work on a house for which he has contracted. This is poor policy, not merely because it is a source of friction with both workmen and contractors who feel that they would otherwise have had the work, but because the building of a house does not give a properly balanced training for that one boy. There is too much floor laying in proportion to the amount of lacing shingles on the hips; there is too little roof framing. That is, there is a great deal of the work that requires little practice and only a little of what requires much.

Perhaps the most hopeful suggestion that has been made is that of building, or doing part of the building, of structures for the city in which the school is located that would not otherwise be built. As a matter of fairness to all, both workman and contractor, there should be no chance for criticism on the part of either that work has been taken away from them by a trade school. There is not likely to be much chance for such criticism on the part of workmen if the instructors are taken, as they should be, from their own ranks. Each such instructor leaves room in the industry for another man to take his place. There is little danger that all the boys he ought to handle will do as much work as he



Boys of the Worcester Trade School Building the Running Track in the New Gymnasium.

One solution that has been attempted is that of building corners of houses only and then tearing them down and using the wood for fuel. This is all right for grown men who come in nights, and who are working days on the general run of work. They can also learn roof framing from working on small size models, but boys are not appealed to at all by anything but the real thing. They cannot be held to do good work unless they know that it is going to be used. This is in a way unfortunate because almost every principle of carpentry could be taught by practice work, both on small sections of a house and by means of small scale frames, but there is no more use in trying to make a boy learn in that way than there is in trying to make a horse drink if he doesn't want to.

would have done had he remained in the trade. This may seem to some to be a radical statement, but if we consider that one of the functions of a trade school is to try out boys, and another function is to teach them to work, irrespective of what they learn of a trade, it will be apparent that an instructor is going to have a great deal to do beside producing work that is salable.

On the side of the contractor, however, there is no such offset. In extremely busy times it might happen that in some city the contractors would be glad to see a competitor come in to relieve them of some of their burden, but they would want to be able to push him out again on mighty short notice. A trade school that attempts to build houses for private customers would

be sure to be a constant contender for business, but every municipality has needs in the way of buildings, and alterations that have to wait over year after year because they would increase the tax rate so much that the mayor would not be re-elected.

These things are real necessities, the city is poor without them and too poor to get them. There is no chance that their being attended to by a trade school would decrease the amount of business which the local contractors would get, because when they are finally let out some other public improvement has to suffer.

In the Worcester (Massachusetts) Trade School this has been done with considerable success. The Girls' School was established some three years ago in leased quarters which had to be adapted to the needs of the school. The work was all gone over; such of it as was out of the line of the Boys' School was contracted for and then the rest was done, as it had its training value, by the boys. The result of this was that the rather meager appropriation which the city was able to make at that time was all spent, and the boys got a lot of valuable work to do, and the girls got much better quarters than could have been gotten by any other method. In the same way, when an addition was needed to the Boys' School building, it was found possible to interest some friends of the school to contribute a considerable sum of money conditional on the city putting in as much more, which it did without protest, on the understanding that the pupils themselves would do enough of the wood work to reduce the cost of the building; or rather to allow of a better building being constructed. They were able to put in a large amount of nice quartered oak panel work in the offices, reading room and corridor which would have been entirely impossible under any other conditions, and which, while very desirable could have been dispensed with, and would have been if any other conditions had prevailed. Outside the money gift the city got something over a ten thousand dollar better building by this means, and no one suffered at all.

If this is done, there should not be so much enthusiasm about it as to sweep reason aside. There should be co-operation. Boys should not be exploited for the sake of getting a building cheap. They should only do the part of the work that they need practice on. A contractor's only hope of making money out of an apprentice is to keep him at any one kind of work long enough after he has gotten so that he can do it habitually well so that he pays for being taught how to do it. A school which does that is open to criticism, on the score that the pupils are not working for wages, and that whatever they do after they have learned to do a job thoroughly well, would be in the nature of a payment for tuition which is not considered a proper thing to do in this country in a public school. If a school undertakes to build a playground shelter, or a park convenience station, for either of which there is need in every city today, it should not keep any one

boy at any one job to the point of exploitation. For this reason instructors in this work should have small gangs of boys who would come and go from job to job, preparing for journeymen to come in and do things that they either know already how to do, or that they are not yet trained to do. If a class in carpentry is large enough, it would probably be possible to divide it in small gangs and so divide the work that almost all of it on any structure could be done to advantage by one set of boys after another.



Unique Smokestack

No, this is not a photo of a minaret, nor is it a soldiers and sailors monument, but just a smokestack. It is used on the plant which supplies light and heat to the great tabernacle in Salt Lake City, and is so ornate as to be anything but an eyesore, as the average



Smoke Stack of Heating Plant of Mormon Tabernacle at Salt Lake City. Designed like a Minaret.

vent for smoke. The lower half is of great squared stones which lead up to a balcony, or observation tower, supported by four ornamental columns. Above that rises a dome of sheet metal and above it a shaft of the same material. The surroundings of shrubbery and trees add much to the attractiveness of the unique smokestack.

C. L. EDHOLM.

MACHINE WOODWORKING

How to Build a Cedar and Oak Chest

By Hugh H. Chambers

THE chest is built of oak and lined with Tennessee cedar. It measures 46 inches long, 22 inches wide, and 14 inches high without castors, but they should be put on as they raise it to the proper height for a seat, besides making it much more easily moved around. The oak on the outside of the chest adds much to its appearance and value, and it also makes it much easier to finish to match the furniture in use at the present time.

The chest is built by first thoroughly smoothing, jointing the edges square, and sand-papering the material. Then cut two pieces of 1 by 12, 43 inches long, and two pieces 1 by 12, 20 inches long, and join these at corners as shown on the detail at A, nailing and gluing well. After this is put together turn up the side which will be the top, square it, and nail a brace on it to hold it temporarily. The chest is now ready for the bottom. Turn the bottom side up and cut enough pieces 21 inches long to put this in. (The number cannot be given, as cedar comes in different widths.) These are nailed to the sides. Care should

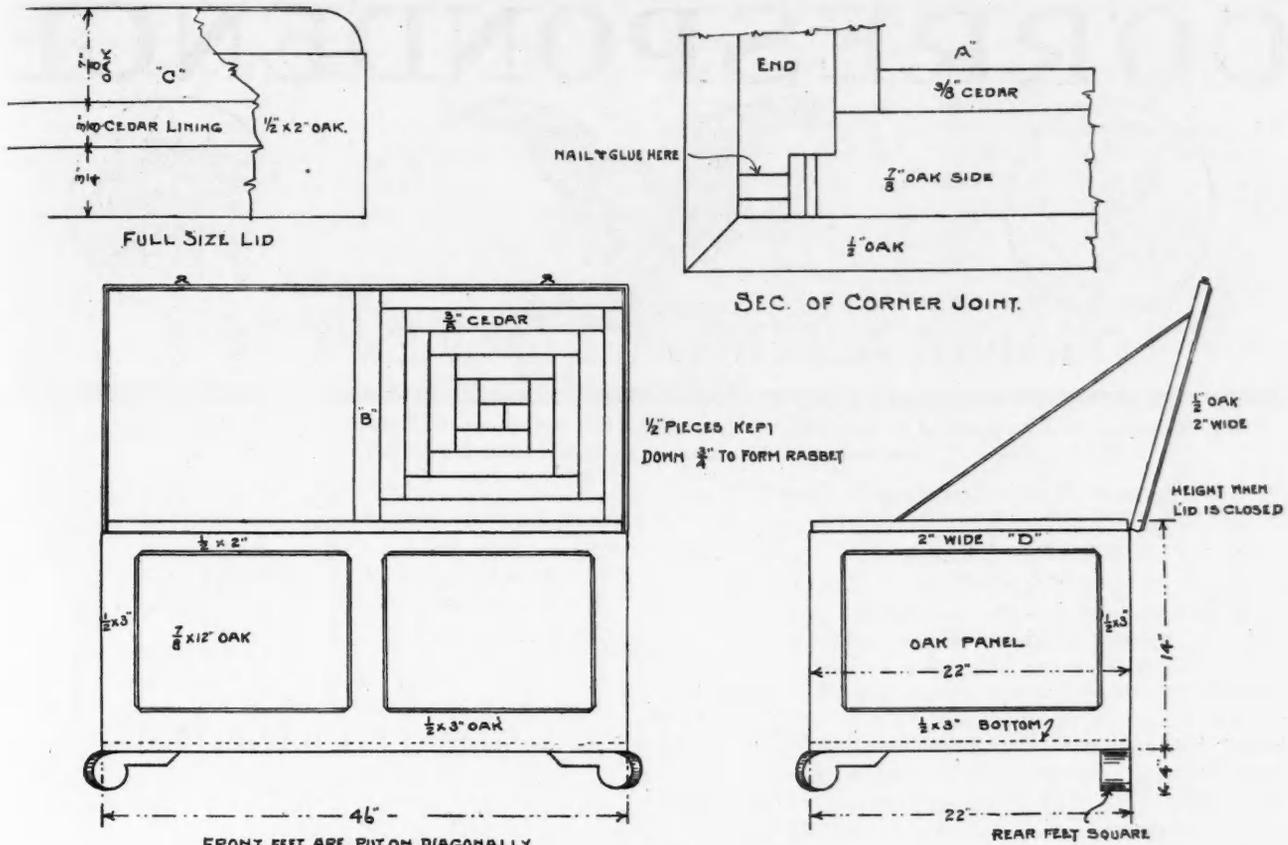
be taken to fit these square and tight as they are put on.

Now the lid can be made. It is made of oak in two or more pieces, glued and dowel-pinned together. After gluing lay it on the bench, first trimming it off to size so that when $\frac{1}{2}$ by 2 is put on the edge it will come flush with the $\frac{1}{2}$ by 2 on the sides of the chest. Turn the worst side up, find the center, and nail a $2\frac{1}{2}$ or 3-inch piece across the short way, as shown at B on detail. After this is done pick out the pieces with the prettiest grain and start at one corner and keep working around until it finishes up in the center with a square piece. Making the lid this way will show when finished two panels. It can be made, however, by leaving out the pieces marked B and starting at one side and working around it. A corner of the finished lid is shown at C.

The $\frac{1}{2}$ by 3-inch pieces are now fitted and nailed on temporarily and marked for the mould to be worked on them. Around the top and lid it will be noticed there is $\frac{1}{2}$ by 2 instead of $\frac{1}{2}$ by 3 as around the bottom. The mould should be the same style as shown on details of lid made C. The mould is worked up to $\frac{1}{2}$ or $\frac{3}{8}$ of an inch of the corners. This may be omitted if desired and a panel mould used instead, but I believe the mould worked on the material gives a much prettier effect. The pieces marked D should be kept down from the top $\frac{3}{4}$ of an inch to form a rabbet for the lid when closed. The $\frac{1}{2}$ by 3 around the bottom is also kept down enough to cover the cedar used in the bottom. After these are moulded they are nailed on permanently. The lid is now fitted and the inside ready to be lined. Three-eighths inch cedar is used for this, and it will be much easier done if the ends are lined first. The feet are sawed out of $2\frac{1}{4}$ -inch material. They are 9 inches long and 4 inches high. The ones on the back of the chest are



Oak Chest, 46x22x14 inches, Lined with Red Cedar; Built in the Chambers Shop.



Dimensioned Drawings of Cedar and Oak Chest.

put on flush and the ones in front are put on diagonally, as shown on the detail.

After the chest is all put together it should have a final sand-papering to remove any scratches it may have received. My usual way of finishing these is to give the outside a coat of paste filler and two coats of varnish or wax, as they may be ordered, with dull or gloss finish. The inside of the chest is left in its natural state, as any paint closes the pores in the wood, preventing it from emitting the scent.

Below is a bill of material and cost:

LUMBER.	HARDWARE.	
12 ft. 1 by 12 oak for sides and end.	2 glass knobs.	
4 ft. 1 by 12 oak for lid.	4 ft. nickel chain.	
4 ft. 1 by 12 oak for lid.	3 nickel surface shingles.	
22 ft. 1/2 by 3 oak.	1 set casters.	
22 ft. 1/2 by 2 oak.	1 lb. paste filler.	
8 sq. ft. cedar, 7/8.	1 pt. clear varnish or 1 lb. wax.	
24 sq. ft. cedar, 3/8.	1 lb. 6d finish nails.	
	1 lb. 1 1/4 brads.	
Cost of lumber.....		\$6.00
Cost of hardware.....		1.85
Total cost of material.....		7.85

Dangerous Sawdust

Sawdust from certain kinds of wood is annoying and injurious to those who work about sawmills and other plants where the objectionable woods are used. Some of these, and the resulting maladies, are described as follows in *The Hardwood Record*, which says:

"California laurel—which is not laurel but sassafras—is not widely known, and little of it goes to sawmills; but its reputa-

tion for annoyance is well established. The odor from the freshly cut wood produces headache, especially sharp pain over the eyes. The sawdust itself may not be directly concerned. The irritation is caused by oil from the wood, floating in the air, like that from a freshly cut onion. No permanent harm results, and the unpleasant malady ceases soon after the cause is removed. Another California and Oregon wood is clearly injurious to persons about sawmills where this wood is cut. The wood is the Port Orford cedar, also known as Lawson cypress. It grows in dense forests in the vicinity of Coos Bay, in southwestern Oregon. This wood was the material principally used in building Sir Thomas Lipton's yachts. The crews of mills which saw the logs can not work continuously, but must have frequent relief or they become incapacitated. The wood is so rank with oil that it resists the attacks of ants in the Philippine Islands, where cargoes are sold for building purposes. Some Oriental woods have bad reputations because of injurious effects upon sawmill-workers. Satinwood's odor is pleasant enough when inhaled in small doses; but too much of it works great harm. Walnuts of different species, but chiefly the black walnut of the United States, and eastern walnut, commonly known as Circassian, are accused of serious injury to workmen who cut much of the lumber; but the reputation may not be wholly deserved. Some workers in walnut experience no annoyance. Rosewood produces sneezing and headache among the workers. In this instance it is believed to be the finely pulverized sawdust floating in the air, rather than oil emanating from the wood, which produces the undesirable consequences. It is said that workers in Russian mills where larch is sawed suffer from headache, sore eyes, and blindness. No complaint seems to have been made against American larch or tamarck."

Osage orange wood is a source of dye and can be used to supplement the imported fustic wood, as a permanent yellow for textiles.

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.

House Full But Can't Quit

To the Editor: Valley Springs, S. D.
 Say, but you fellows are a hard bunch to get away from. I told you last year that would be my last subscription. I have taken the magazine ten years and got the house full of copies. I am one of those old chaps, 62 years old, that learned the trade as an apprentice, and am still building houses. Am in the harness every day. I really don't need the magazine. I know the square and I know framing. I have hewed timber and framed it and I have built bridges, barns, grain elevators, ice houses, dwelling houses, etc.; but I enclose \$2.00 for the 1915 subscription and one copy of Radford's "Guaranteed Building Plans" as per offer.

I have gotten lots of information out of the "A. C. & B." I'm not too old to learn and I'm not suffering with swelled head.

Here's looking at you,
 A Charter Member.
 WARREN RILEY,

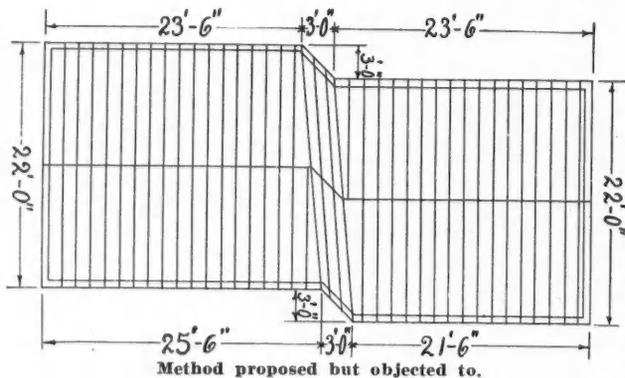
Two Ways to Roof a Hard Plan

To the Editor: Chicago, Ill.
 I am a subscriber to your valuable magazine, and read many of the problems in roof construction that you have solved for a number of your readers.

A problem in roof design came to me a few days ago. I want to design a one-half pitch roof over a building as shown in the accompanying sketch. This roof is to have its ridge in a straight horizontal line, and to be as simple as it possibly could be constructed. I designed the roof as shown in the sketch, but the chief man said it was not of the best construction.

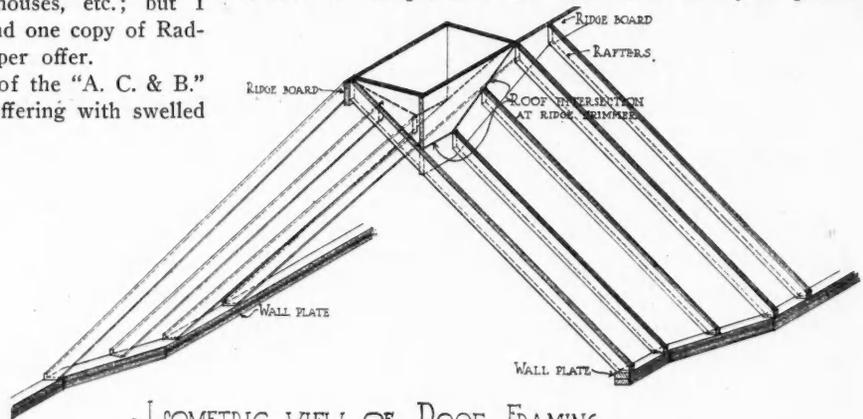
Is there any other way this roof could be built? Would any other methods be as simple as this for the carpenters? Would the other methods be of stronger construction?

EDWARD SIEJA.



Answer—We are submitting two sketches which will give you an idea of another method of constructing this same roof, using a center deck as a means of overcoming the slant in the ridge shown in your illustration. The isometric view will give you an idea of how the ridge boards will have to be extended in order to form a support for the shorter rafters which meet on each side of the deck. The ends of this slating ridge are made fast by a long rafter on each end of the deck.

While we do not think that this method has any advantage over the one shown in your sketch, we submit it as another solution of the problem. It seems to us that your plan is



ISOMETRIC VIEW OF ROOF FRAMING.

Deck with irregular sides solves the problem.

much simpler, and would probably be easier for the average carpenter to construct. As to strength we do not believe that there is much choice between the two forms of construction.

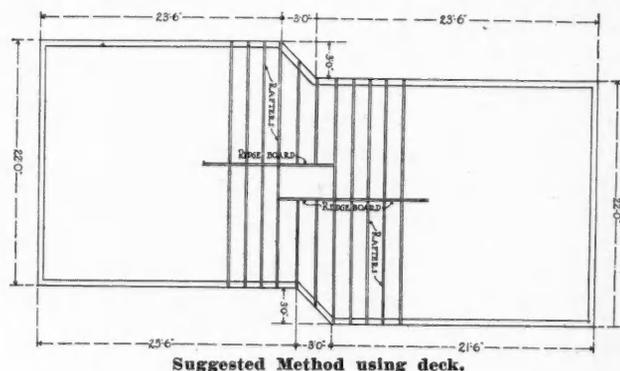
EDITOR.

Siding a Circle Corner

To the Editor: Drinkwater, Sask.

I would like to have you give me your idea of the best way to put bevel siding on a circle corner, the diameter of which is ten feet.

W. L. SANBORN.



Mistake—Not Nine Tons But One

To the Editor: Kewanee, Ill.
 In the May number on page 102, under the heading, "Lots of Nails, or Will It Stay Where You Put It?" you make me state that I used about 9 tons of nails in the house. I bought 2,150 pounds of nails for the job, and had some left. I used about *one* ton of nails on the job.
 Please correct this, as some of your readers might think I am a prevaricator, or worse.
 W.M. RULE.



This Man Saw it First

To the Editor: Turtle Creek, Pa.
 I noticed an item in last month's issue entitled "Lots of Nails or Will It Stay Where You Put It?" Now I have been in the carpenter business for 19 years, and I am also a believer in lots of nails; but at the same time too many nails deteriorate the strength of the wood. For the life of me I cannot see where this man used 9 tons or 180 kegs of nails in a modern frame building 28x32 feet. If this amount of nails is an error, I think it should be corrected before some of our amateur carpenters get to reading it.
 JOHN D. LINTON.



Checks Up on Nail Count

To the Editor: Vail, Iowa.
 On page 102 of the May, 1915, AMERICAN CARPENTER AND BUILDER is a letter from Mr. Rule, of Kewanee, Ill., saying that he built a house for himself at Grinnell, Iowa, 28x32 feet, two stories, in which he used about 9 tons of nails. Now, the average percentage of nails used on a frame building runs as follows:

Kind.	Percentage.	No. to Lb.	Lbs. to Job.
20d	6%	29	1,200 lbs.
16d	10%	46	1,800 "
10d	20%	74	3,600 "
8d	30%	106	5,400 "
6d	5%	200	1,000 "
3d galv.	6%	615	1,200 "
3d fine	6%	920	1,200 "
All casing and finishing nails	15%	214	3,000 "
		Total, 18,400 lbs.	
20d nails		29 x 1200 =	34,800
16d "		46 x 1800 =	82,800
10d "		74 x 3600 =	266,400
8d "		106 x 5400 =	572,400
6d "		200 x 1000 =	200,000
3d galv.		615 x 1200 =	738,000
3d fine		920 x 1200 =	1,104,000
All kinds of finished nails		214 x 3000 =	642,000

Total number of nails 3,640,400

The number of nails to the pound were taken from your calculator, so if there is anything radically wrong you can correct it.

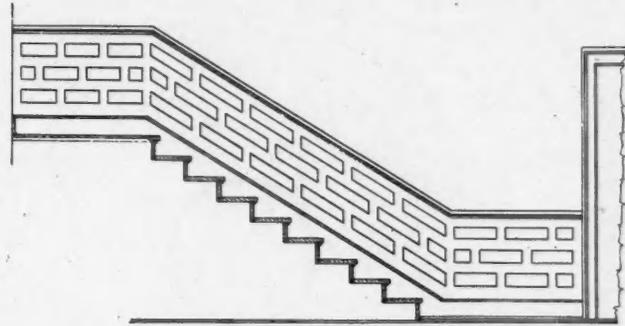
Also, about one-fourth of the weight of his house would be in the 9 tons of nails.

The average number of nails for putting on sheathing is not over 15 lbs. of 8d (1500) nails or 20 lbs. of 10d (1500) nails, and on shingling none but professional shinglers use more than about 14 lbs. of fine galvanized or about 8200 nails.

Dividing 3, 640,400 nails by an average of 1500 nails (the number a man could drive in a day), there would be 2427 days' work driving those nails. He sure would be driving some nails.
 J. A. HALL.

Which is the Correct Way?

To the Editor: Carbonear, Newfoundland.
 This is a sketch of a paneled wainscot hall and stairs. I have it the way I saw a foreman do the work for a No. 1 job. Note the pieces of panel-work going up stairway are narrower than the rest. I think it all should be the one width and intersect into each other. Will you kindly give a sketch of the right way to do the work in the next issue of your journal.
 BERTRAM POWELL.
 Answer: To get the panels same width, it would be neces-



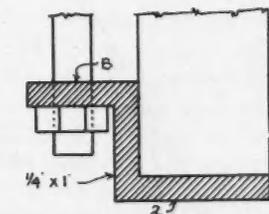
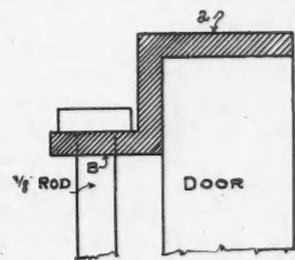
Approved Way of Paneling Stairway.

sary to make the height of the wainscoting at right angles from the stringer, the same as the vertical height from the floor and the panels would have to be so arranged as to miter at the angle at the foot and landing of the stairs, instead of a straight stile, as shown. This, in our judgment, is the proper way.
 EDITOR.



A Door Straightener

To the Editor: Easton, Pa.
 In your good magazine for April, Mr. A. D. Kenefick asks for a way to straighten and hold straight a warped door, and your answer seems to be the general and popular solution; like other answers heretofore given, it ends with "throw the warped door away." Now, I contend that if all things went smoothly and all carpenters put up work that is perfect and lasting, there would be no Correspondence Department in your valuable magazine. When the unexpected happens, we must meet conditions. Rise above them. Even assuming that most doors are made right, the next may act differently.
 In the case cited above, if it is the stile that warps, I can straighten and keep straight any door made. A twisted winding door is more difficult, but is worth taking a chance with the device I have used, and know best of all by experience what it will do. By way of introduction, would say: The door must have three hinges. Then make two cleats (a) 1/4x1 inch bent as shown; 3/8-inch holes are drilled in each at B. Next take a 3/8-inch rod, threaded both ends, and 1 inch less than height of door.
 Place on rounding side, screw both ends until stile is straight. Do not worry if you must keep it on a few months as the rod can be painted to match the door and can be used over and over. It is easily made and costs very little.
 FORREST REICHARD.



Tension Rod Draws Door Straight.

Sixteen-Sided Barn Gives Huge Capacity

To the Editor:

Pekin, N. D.

I am sending you, along with this letter, the floor plans, cross section and perspective view, of a large barn that I

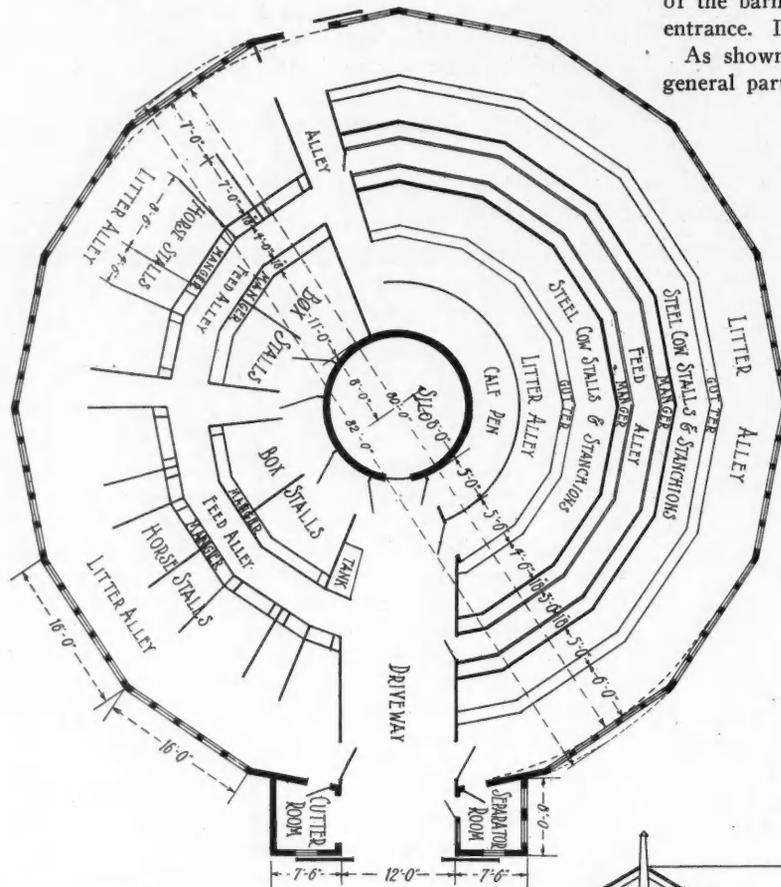
built during the last year for H. L. Knouss.

The barn is a sixteen-sided building with a silo in the center. The diameter is 82 feet and the extreme height to the top of the silo is 53 feet, so you can see this was no small job. The roof is of gambrel type which covers the main part of the barn. There is a gable projection over the driveway entrance. In this gable are the big doors to the haymow.

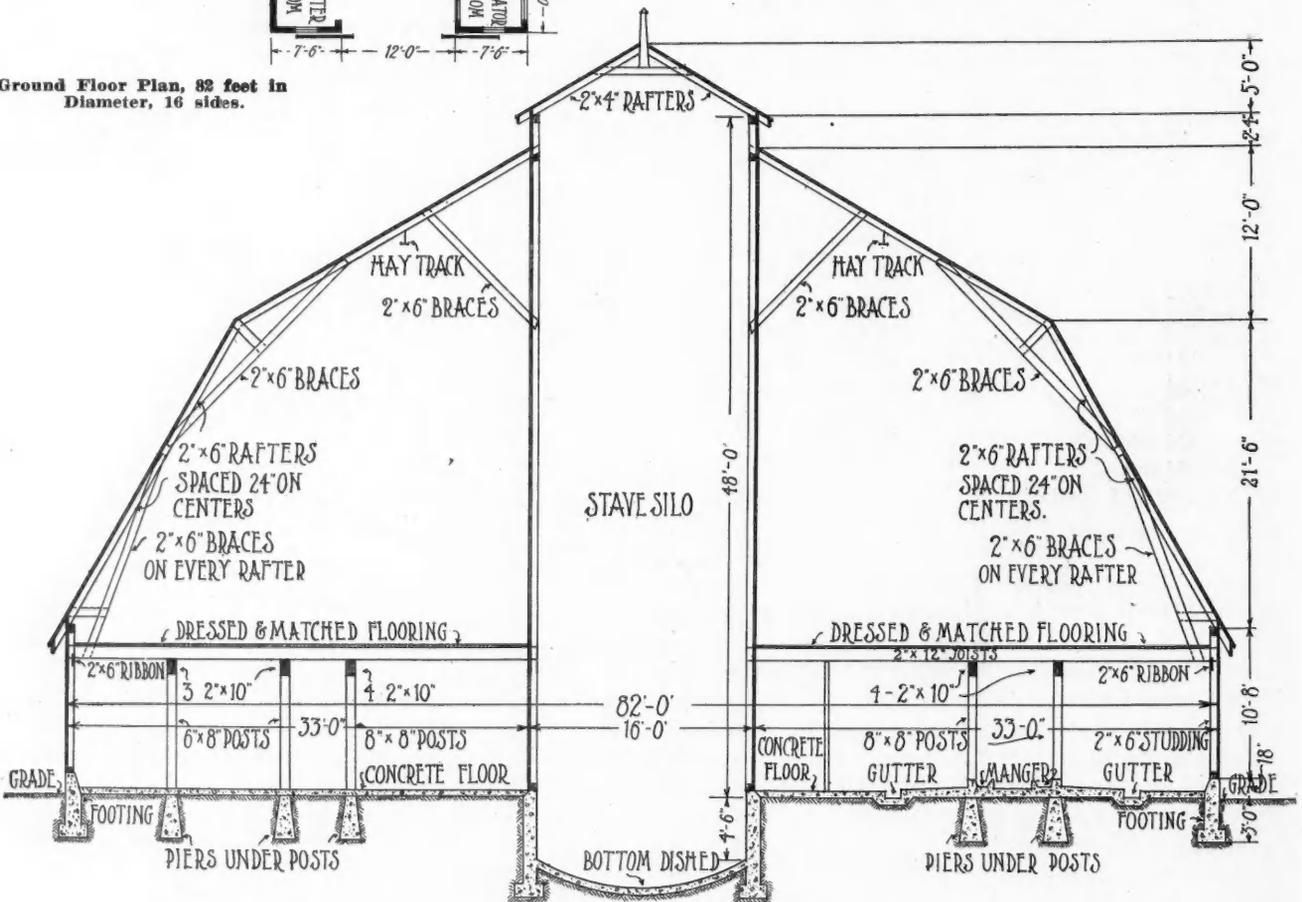
As shown in the floor plan, the barn is divided into two general parts; one for cows and the other for horses. The cattle occupy a little more than half of the floor and the horses the rest. The cattle are placed in two rows that face each other with a common feeding alley between. In back of each row is a litter alley. In between the inside litter alley and the silo is a calf-pen. The cow stalls are equipped in modern style with steel stanchions.

The horse stalls are also in two rows and have a feeding alley between them. The inside row of stalls are box stalls with doors hinging on the silo. The litter alley is in back of the stalls next to the outside wall of the barn. The driveway separates the horses from the cows on one side of the silo and the partitioned alley is in between on the other side.

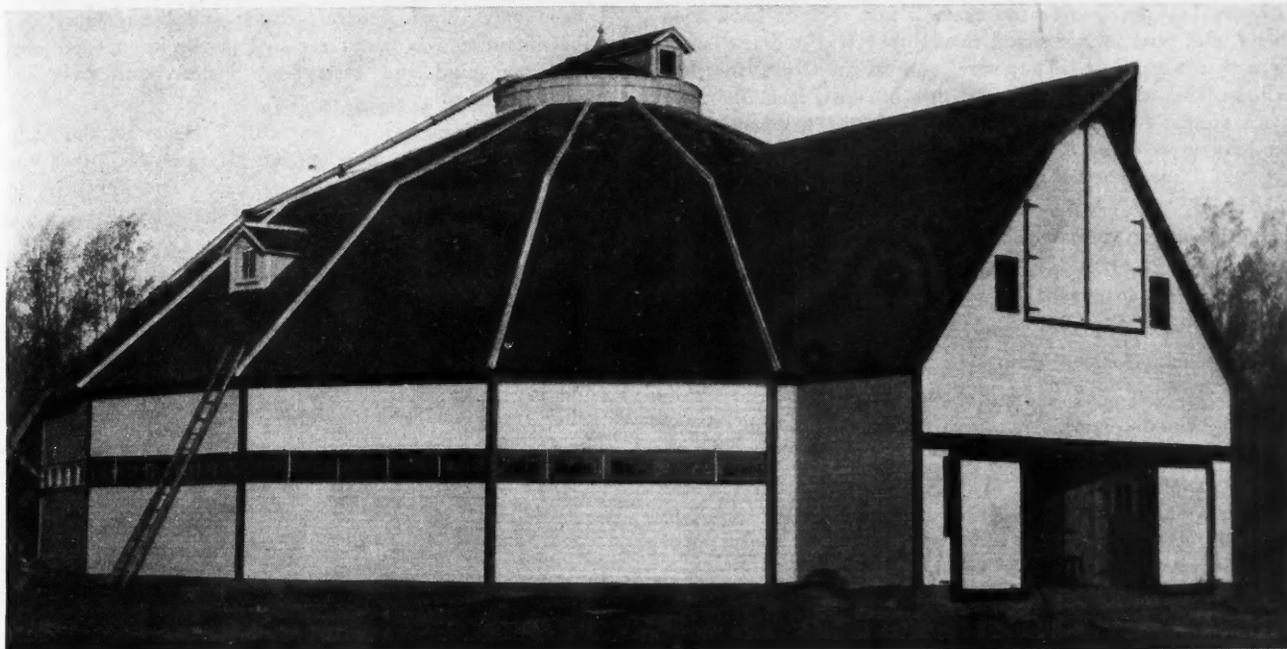
The cross section shows the light, yet very strong, "self-supporting" construction that can be used for a roof of this shape. All members go in to the center, so that the roof is braced from all directions. Two by six rafters and braces with this span and pitch of the two roof parts do the trick. The foundation and floor are of concrete. The floor is of



Ground Floor Plan, 82 feet in Diameter, 16 sides.



Section through 16-Sided Barn Showing Timber Construction—Light Frame Work Gives Strong Roof Because of Round Shape.



Huge Barn of Unique Design. Planned and Built by Contractor O. S. Houge, of Pekin, N. Dak.

the same material. The posts are heavy to support the large floor area of the hay mow. The floor above the stable is made of dressed and matched flooring so that the horses and cows below will not be bothered by the dust coming through. The silo in the center is made of staves. It is sixteen feet in diameter and has a total depth of about 53 feet.

On either side of the driveway is a room. One used for a cutter room and the other a separator room.

I also built for Mr. Knouss a machine shed, 50 feet in diameter; a farm elevator having a capacity of 8,000 bushels; and a residence 28 by 24 feet.

O. S. HOUGE,
Contractor and Builder.



Too Fast Even for a Woodpecker

To the Editor:

Sterling, Colo., May 8.

Mr. Pierce has contributed some good ideas in the April number about shingling; but when he tells us how many he has put on in a certain time I am of the opinion that he wouldn't last long on my jobs.

I expect a man to use nearly 3½ pounds of shingle nails to each thousand shingles, and if he falls very far short of that I get a new shingler. That would be 2,152 shingle nails, and if Mr. Pierce put on a thousand an hour he would have to drive 36 nails a minute, more than one each two seconds with no lost time, and I don't believe a woodpecker could keep that up eight hours.

If Mr. Pierce put on the shingles he says he did in that time given then he didn't half nail them.

NOEL HOGG,
General Contractor.



Fast Shingler Pierce Explains Further

To the Editor:

Boise, Idaho.

It was an Eastern man (D. M. Green, of Toledo, Ohio, mentioned in my other letter) that first put it into my head that our shingling performances are extraordinary. Really, there are lots of shinglers scattered from Denver west that have me beat forty ways when it comes to speed. I will think of a few names to which you can refer if you like. These are people who can discount me. I will give you one

more record that will perhaps sound big to some of the Easterners who have been writing.

I was shingling a bungalow in Gooding, Idaho, for D. M. Green. Side walls and all were shingled. It was putting them on the wall with the gauge, and D. M. was watching to see that the rows were kept straight, he being rather skeptical about the gauge for side wall work. As I had never worked for him before, of course I tried to show off a little, so was "going some," and he was interested enough to time me. According to his statement I ran on a bundle (250) in 25 minutes. Of course, I had a start and a good place to work; i. e., plenty of room for a bundle, and without working around windows, and I was working from the ground.

I will tell how I manage to make fast time on the walls. I break the bundle and let it lie flat on the ground or scaffold. I have the corner of the hatchet ground very thin and square, and pick up the shingles with the hatchet, and place them nearly right on the wall, then take the left hand and shift it into place on the gauge, and then hold it with the head of the hatchet while I get the nails. This sounds like a long drawn out process, but in fact it is very fast. Of course, it takes *some* practice to be able to run straight on walls with a gauge, but it is no trouble for me and many others I know of. Of course, I line about the level of the bosses eye, and what little curves appear above and below can't be noticed.

Never having worked in the East, I don't know what kind of shingles they get there. The grade of shingles makes a great difference. Sometimes we get shingles here that couldn't be put on at the rate of 1,000 per hour by anyone, but again we get nice, straight, wide ones that are a picnic to put on at that rate. Good shingles are half the battle, as will be shown by the following incident.

I was working with a crew on mine buildings in Oregon. We had a straight gable roof with about 12,000 on. Three men had started one side, and the boss started a "cub" and me on the other. I was young and foolish, and of course wanted to beat the other bunch to top. So I lectured the "cub" thusly: "Now, don't go down after shingles when any of those other 'boobs' are down on the ground or in sight, and when you go take a good look and get the bundles with widest shingles," and I showed him how to pick them. The result was a great handicap in our favor, and, of course, we beat them by a large percentage.

Now, it is needless to say that all fast records have been made with good shingles and maybe they will average better here than back East. They surely do on the Coast, for they tell me that they put them on for 65 cents per M. The price around here runs from 75 cents up. I have put some on here myself for 85 cents per M., and did well enough. By that I mean better than wages, as I put on an average of 5½ M. per day.

Following are the names of some fast shinglers:

Bert J. Davis, 1233 Acoma Street, Denver, Colo. (now with Denver Fire Department).

Will Towne, 24th and Goss Streets, Boulder, Colo.

Si Aumick, Boulder, Colo.

C. F. Thacker, 16th and Hill Road, Boise, Idaho.

Frank Goodroe, meat market, 700 Blk., Main St., Boise, Idaho.

Davis and Towne are the fastest in this bunch, but Thacker is a good one. Either one of the three could easily duplicate anything I said I could do, and if it is really necessary I will do it myself sometime later when I get used to one eye—I have recently met with an accident and lost the use of one eye. It would be hard for me at present, as I would be likely to hit my finger nail as the shingle nail.

By the way, some of the Boise shinglers tried the five-bundle stunt after seeing my photo. C. F. Thatcher told me his brother succeeded in duplicating the stunt, and by nailing the bundles together with lath and laying them on his shoulders crosswise he carried up seven. I have never seen him, but they say he is pretty "husky." I guess he is, alright.

O. P. PIERCE.



Music Cabinet Design

To the Editor: Rome, Georgia.
 In answer to a request from Mr. Miller, for a music cabinet design, I will try and help him.
 This cabinet is made of birch, panel work 3-ply veneer birch. The bottom, back and shelves are of pine.

I have only shown general outline and dimensions. My original intention was to have raised panels in the door, but changed my mind and used 3-ply veneer, and have not changed the drawing.

The mirror frame is put on with 2 cleats at the back, the frame can be made more modest. I used ¾x¾-inch embossed mould under the ledge or top. The bevel blocks at each side of drawer project ¼ of an inch; these could be omitted to receive a larger drawer.

I scraped and sanded most of the work before it was put together, and by being careful when glueing, you will not have much to clean off. It should be gone over well with 00 sandpaper just before staining.

The number of shelves can be determined best by the person it is for. I used four.

The drawer is 13x13x4 inches over all; the front and sides are birch, while the bottom and back are pine.

I used a pint of dark mahogany stain and two coats of Waxene.

All work on cabinet is mortised and tenoned, but could be doweled.

CLIFFORD H. FULLER.

Cabinet Maker and Draftsman.

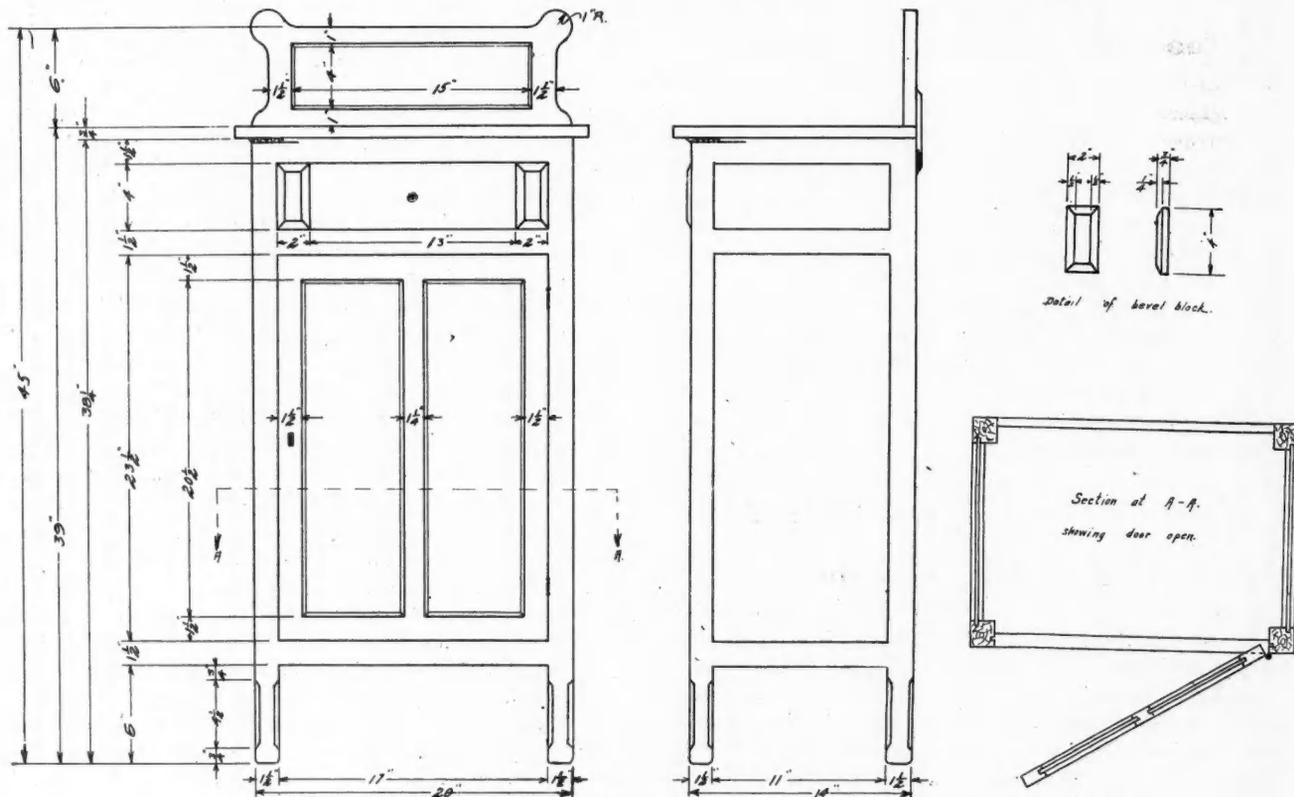


Planning Form-Work Ahead

To the Editor: Boston, Mass.

Some years ago when we simply sent the foreman a set of blueprints of the building and said "Go ahead and build it," leaving him to work out his own form designs, column forms used to cost, for direct labor, as much as 18c a square foot, and floors 12c.

Now we spend much time in the office making plans—sometimes as many as forty-five sheets of form details for a simple building. These designs may cost .2 of a cent per square foot of form-work. But now if the cost per labor for floor farms runs over 4c a square foot we want to know what is the matter; if it runs over 7c for a column we usually make a row. We have come to the conclusion



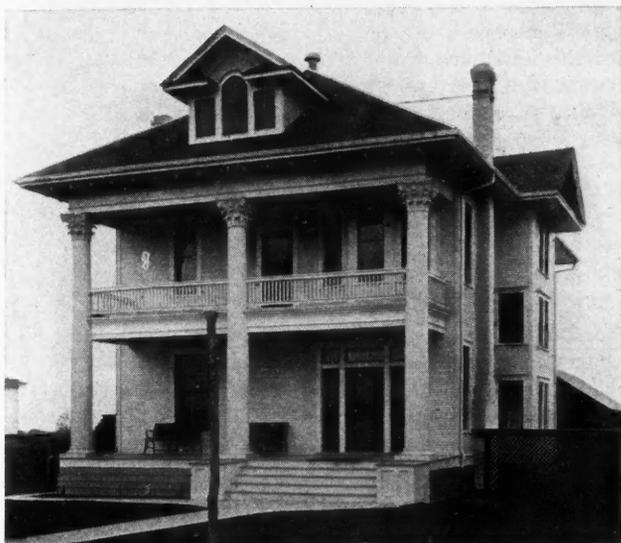
Working Drawings of Music Cabinet as Designed by Bro. Fuller.

that a dollar spent intelligently in the drafting room usually saves ten on the work—sometimes more.

LEONARD C. WASON,
President Aberthaw Construction Co.

Work of a Texas Builder

To the Editor: San Antonio, Texas.
I appreciate the "A. C. & B." above any paper that comes to my desk. I have many times gotten more than the worth of the subscription price out of one single copy.
For instance I called at a hardware store in this city and



Pretentious Southern Home of the Modern Sort.

asked the price of a "Little Giant" floor scraper, and they asked me \$50 for it here and I saw the ad. in the paper to ask for delivered prices on trial, and I did so—got the machine for \$25.00. You see that will pay for the "A. C. & B." for a good while. Besides the advertising that it has, there is a rich mine of knowledge that is placed right in sight of me every month, and from then on when I want to brighten up on certain subjects I can refer to the magazine for the wanted information.

I am enclosing a photograph of a house that I have built during the past year. It has been occupied by the owner till he decided that it was too much house for him and he sold it, clearing a little more than \$3,000.00 on it.

It was my pleasure to make the plans, and wrote the specifications from the one that you have in the "Radford Cyclopedia of Building Construction," and I have never worked for any one in my whole experience as a builder who was so well pleased.

The lumber bill in this house amounted to.....	\$2,100.00
The painting and papering.....	350.00
Plumbing	175.00
Electrical wiring and fixtures.....	150.00
Cement walks	110.00
Carpentry work and frames.....	1,500.00
Builder's hardware	100.00
Sheet metal work.....	115.00
Brick work	200.00
Mantels and spark guard.....	150.00
	\$4,950.00

The owner said to me after I had finished the work that he had as many as 19 houses *put up*, but this one is the only one that was *built*. It has always been my pride to do good work, and that is the only way to succeed in the business in a lasting way. The old "get-through" way is all right if you aim to pass on to another place but if you want to stay at home, strive to make each house a little better. As sure as the work and the tactful style is manifested in the general lay-out—there is nothing that tells like that—and back of that be a man as good as his word, and you will be a successful house builder: N. G. HILL.

Sound Proofing a Floor

To the Editor: Berkeley, Calif.

I notice on page 76 of the December issue an article on sound-proofing a wall. I have a pair of flats, the floors of which are not deadened, except for two thin strips of deafening paper between the rough flooring and the hardwood finish. Would it be possible to remove the plaster and lathing of the ceilings of the lower flats, and then deaden the floor as suggested in Fig. 1, page 76? Would this manner of deadening be effective, or would it be better to follow some other procedure? At present, walking, the sounds of conversation, and even the hum of this typewriter can easily be heard on the floor below. J. W. Howson.

Answer—As you will see by the following illustrations, the method which you refer to may be applied to floor construction as well as to walls. There are also several other ways of accomplishing this soundproofing. The method shown in Fig. A will cause a rise of about 2½ inches in the level of the old floor, and will mean that doors will have to be cut off where they are to swing inward across the floor. It will also mean that some type of step will have to be used at the entrance to this room.

Fig. B shows a more expensive method of deadening this same floor. This method necessitates the removal of the ceiling in the room below, and the installation of a separate set of ceiling joists which are entirely separate from the floor joists of the room above. The result of this method will be to lower the ceiling in the room below. The cost of the method in Fig. B will be quite a considerable amount, and we doubt if it would pay to attempt to remodel a building where the ceilings are already in place. EDITOR.



Fig. A. Ordinary Construction Complained of as Not Soundproof.

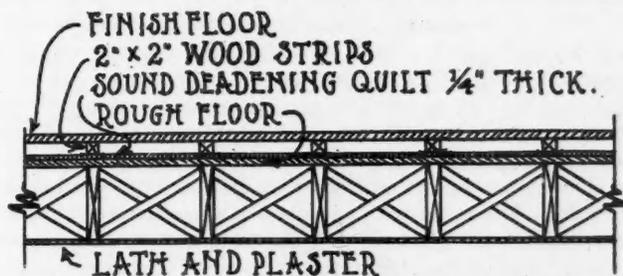


Fig. B. Remedy by Relaying Finish Floor Over 2-Inch Furring Strips.



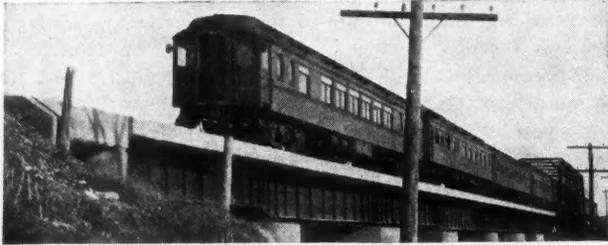
Fig. C. Remedy by Building Sub-Ceiling.



Fig. D. Remedy by Packing with Mineral Wool.

Concrete and Steel Bridge

To the Editor: Wymore, Nebr.
I have just received my May copy of the AMERICAN CARPENTER AND BUILDER, and it is a good one—all full of good things. Mr. Hedstrom on the Bungalow Cornice is good; H. Chambers on the Power Woodworking Shop, and the Man From the Lumber Yard are fine. Mr. A. W. Woods on the Square is certainly on to his job. "How to Make Bird Houses" by Warren Mason is good; and those house plans are what I like. I got a new subscription, and it was



Concrete and Steel Bridge Built by Contractor Hutson.

renewed this year on account of one of those neat plans of bungalows. I like to hear these Brothers' spat on the framing deal.

I am sending herewith a picture of a bridge with concrete piers, steel girders and a concrete deck, put in by me here near Wymore, Nebr. Wishing the AMERICAN CARPENTER AND BUILDER continued success. T. HUTSON.



Water Supply Question

To the Editor: Merna, Nebr.
This town is furnished with water by a pneumatic water supply system. The water is pumped from a 6-inch casing well into a pressure tank which is 8x30 feet, steel, carrying a working pressure of 65 pounds. Now, the water supply is not sufficient, from the fact that it will not supply a 4-inch pump without pumping air. The supply is not in the gravel.

Would it be possible to sink a concrete casing made in sections 3 ft. in height, 4 inches in thickness and 6 feet in diameter, reinforced with heavy galvanized rods, to a depth of 150 feet, by digging or excavating the soil from beneath and letting it settle of its own weight, and building the sections on the top as it goes down? This would leave a fountain head of water 6x50 feet, in which to submerge the pump to a depth of 40 feet, and would give a far greater supply. The water in this part of the state of Nebraska is in two strata or sheets known as first water in quicksand, and about 50 feet below this is a bed of gravel water in gravel and coarse sand about 20 feet in thickness. If this gravel stratum is punctured the water rises to the first water point, but a 6-inch hole does not give a supply sufficient for so large a pump, and will give abundance for a farm or stock well.

The forms are to be made with flat surfaces of galvanized iron to make the outside smooth. The lower end could be made larger on the bottom to cut the hole larger.

It seems to me this could be done.

B. C. BROWNING.

Answer: Generally speaking, I do not think your idea, to sink a 6-foot well, 150 feet deep and to line it with reinforced concrete dropped into place by building from above and digging beneath, is practicable. By this I do not mean that such an undertaking is impossible, but that it would require considerable engineering skill and a suitable contractor to perform the work and would involve expense that would probably be beyond what you would care to assume.

If such work were done, I should not favor making the concrete shell less than 8 inches in thickness, properly rein-

forced both vertically and horizontally.

I know of caissons having been sunk to a depth of 25 feet or more in the manner which you suggest, but I have never heard of any work being carried on to such a depth as you propose.

It seems to me that the best solution of your problem would be to sink an additional pipe down to the gravel water level or enlarge your present well. In fact, I believe it would be far cheaper to sink three or four such pipe wells than to make the excavated well that you propose. The 6-foot shaft would give rather small space for working at such a depth and after you have passed the sand water level you would have considerable pumping to do from such a hole that would greatly increase the expense on account of the height of lift for the water and would tend to make a contractor bid on the job with a very wide margin of profit for safety to himself.

With an additional pipe well or wells you can then adjust your pumping facilities to correspond.

H. COLIN CAMPBELL, C. E.



Of Little Real Value

To the Editor: Deposit, N. Y.
What will it add to the strength of a 2 by 12-inch by 28-foot beam to nail on 1 by 10-inch timbers, placed 2 feet on centers, in a staggered form; that is, one piece on the opposite side from the other? What will this add to the stiffness of the 2 by 12-inch beam? The fibers of the 1 by 10-inch timbers will run perpendicular to the 2 by 12-inch beam, which runs horizontally. J. H. PHILLIPS.

Answer—We do not consider that this construction would add to the strength, in any sense, of a beam of the length given, nor would it add to the stiffness of this beam. The only advantage that we can see for a construction of this kind would be in the case of a very short, deep beam which was heavily loaded and likely to fail by horizontal shear along the fibers of the beam. THE BOSS CARPENTER.



More Ripping, Less Planing

To the Editor: Freeport, Me.
When at the age of 21 years I started in to learn the leather business with a firm in Lynn, Mass. After a spell I worked up to a dinker at the block cutting counters. Now, many, many times have I had the foreman give me a call down about cutting so much leather to waste. He often told me, "you waste your wages in poorly cut leather." Soon I found out that it was better to cut more closely than to have a pile of scraps under the bench to be sold at 2c per pound when good counters brought three times that.

I find that the same fault exists with a great many carpenters. I have seen many a man when he had a piece of stock to fit, plane away $\frac{3}{8}$ inch. No doubt the singing of a good plane is music to the ear. I like to hear it, too. But if he had ripped that $\frac{3}{8}$ off with his saw and put that little strip to one side he would have saved that much.

I never plane away when I can rip and get a strip to put under my bench. It may be $\frac{1}{2}$, $\frac{3}{8}$ or even $\frac{1}{4}$ inch; but do your brother carpenters know that such strips as those come handy one hundred—yes, five hundred—times a year, especially if you do jobbing? Without doubt I have nearly one hundred such strips under my bench. Some are 2 feet long, some 3 and some 5, ranging from $\frac{1}{4}$ inch wide to 2 inches. I don't know how many times I go there and pick out a strip that I would have to cut from good stock if I hadn't saved those little pieces.

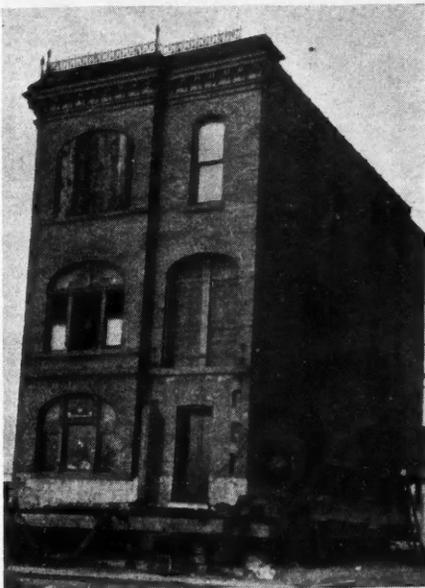
Foremen ought to make their men do more ripping and less planing, and the little pieces saved will almost pay a man's wages, especially when lumber is as high as it is here in the East. J. B. SYDLEMAN.

Made Good Thing Moving Flat Building

To the Editor:

Chicago, Ill.

The three story brick and stone flat building shown in the accompanying picture was bid in, standing on its original foundation, for \$1,010. The buyer paid \$1,200 to have it moved over decayed wooden pavements a distance of a mile, during which it had to be turned several times. He paid \$200 for lumber and heavy timbers, \$500 for new plumbing, \$1,000 for porches and other improvements. A new foundation and heating plant cost another \$1,000.



3-Story Brick Flat Building Moved One Mile in Chicago.

Today it is bringing in an annual rental of \$1,000, and is good for probably twenty years' use.

In this way flats and apartments have been moved around like men on a checker board. Some of them have been moved as many as three times. The extension of fire limits to the outskirts of Chicago mainly is responsible for the moving of structures of fireproof material over long distances. Most of the long moves are accomplished without producing the smallest crack or other injury to the buildings.

J. L. GRAFF.

Cost of Casualty Insurance

To the Editor:

Norristown, Pa.

Having seen your offer to furnish data on Casualty Insurance, I would like to have same for the state of Pennsylvania.

I did not realize until after I read your article the great risk I have been levying upon myself. Although, as yet, I have not been so unfortunate as to have anybody hurt while working for me, there is no telling when it is coming, hence the above inquiry.

HARRISON WEBER,
Contractor and Builder.

Answer—In response to your letter, "The Man From The Lumber Yard" has made special inquiry into the Casualty Insurance Laws of the state of Pennsylvania. In connection with this investigation, inquiry was made of Mr. Florian D. Wallace, of Chicago, who is a special expert along this line. We can do no better than to send you Mr. Wallace's letter. Please find it attached herewith.

EDITOR.

Referring to the inquiry from one of your readers regarding Liability Insurance protecting him against claims for injuries to employees in his business of contractor and builder, I find that the rates given below prevail at the present time in Pennsylvania, for this class of work. I judge that your correspondent does no bridge building, steel building erecting or other extremely hazardous construction. Otherwise, he would be more familiar with this class of insurance and would have carried it before now.

The policies, as they are commonly written in Pennsylvania, are a direct obligation on the part of the Insurance Com-

pany to hold the assured free from all claims, whether valid or otherwise, for injuries either to his employees or the public, for an amount not exceeding \$5,000 for injury to any one person, and \$10,000 for injuries to two or more persons in one accident. In addition to these limits, the companies of course pay all expenses incidental to first aid, investigation, settlement, court costs, interest on appeals, etc.

	Contractors' Employers' Liability	Contractors' Public Liability
Carpentering	\$ 2.025	\$1.00
Masonry	2.70	1.50
Plastering	1.35	.50
Painting	1.35	.50
Minimum premium	50.00	

It might be well to advise your correspondent that the above rates are for each \$100 of payroll. The cost of this insurance is based on the payroll. The assured furnishes a statement of his average payroll for several preceding years, and also an estimate of the probable amount for the coming year. This estimate is used as a basis for a deposit premium. The assured keeps an accurate account of his payroll, and when called upon renders a statement showing the amount actually paid out during the year, and final settlement is made from this statement, at the rates per \$100 of payroll listed above. If the deposit premium is higher than the actual premium, a rebate is made. If it is lower, an additional charge is made. It being agreed, however, that the company shall retain a minimum premium of \$50.00.

FLORIAN D. WALLACE.

Builders' Short Term Fire Insurance

To the Editor:

Lakeville, Ind.

Can you give me one or two names of insurance companies (fire) that insure buildings while in the possession of the contractor? Builders' insurance, I presume you would call it.

FLOYD O. RIDDLE,

Carpenter Contractor and Builder.

Answer: Any insurance broker will be able to handle a temporary construction fire insurance policy of the sort you have in mind.

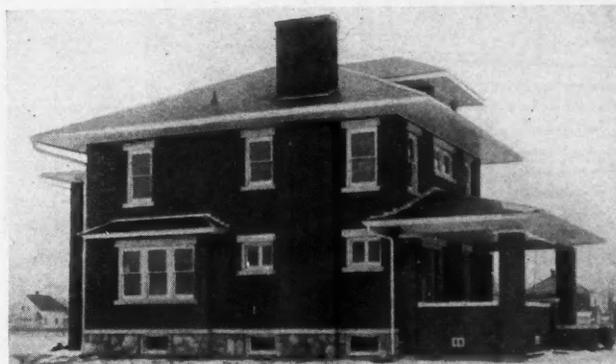
THE MAN FROM THE LUMBER YARD.

Modern Brick House

To the Editor:

New Paris, Ind.

I am sending you a photo of my new home. It was not completed at the time the picture was taken, but has been finished since, on February 16, 1915, costing \$3,800, including electric fixtures, pressure tank and electric motor pump water

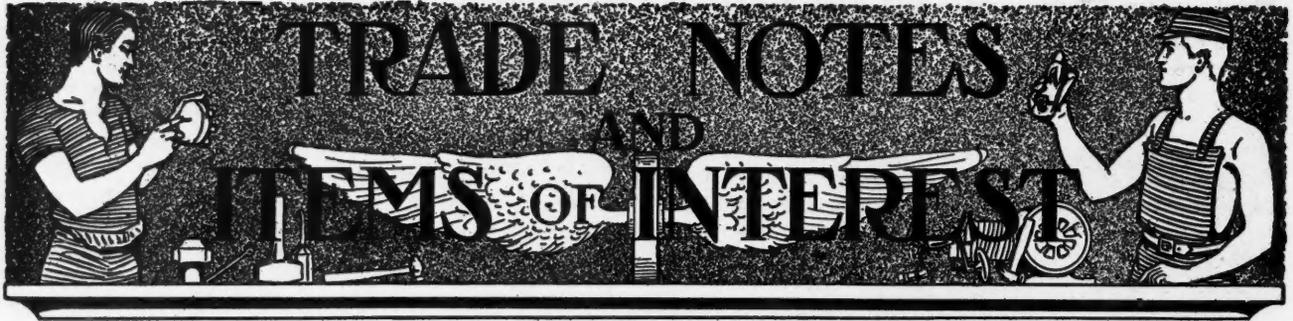


\$3,800 Brick Residence Built by Bro. Rock.

system. It has a 10-inch hollow brick wall, and stone wall, 2 ft., rubble stone above grade.

I have built a lot of nice brick houses in the last four years

CHAS. E. ROCK,
General Contractor and Builder.



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 advertised in this magazine. Suggestions for the betterment of this department are requested of our readers.

The Gifford Reversible Window

An improved window, differing radically in several essential particulars from anything heretofore offered, has come into prominence in Chicago building circles. It has received the enthusiastic endorsement of the leading architects, real estate men, and building contractors. This is the "Gifford Reversible Window," developed by Mr. Chas. P. Gifford of the Gifford-Pierce Co., 175 West Jackson Blvd., Chicago.

With the Gifford window, both sash are hung on rolled steel operating arms which permit the sash to be pulled open at the meeting rail, the lower sash folding downward and inward (thus giving perfect ventilation without direct draft). This downward motion can be continued until the sash stands at right angles to its original position (in this position giving practically 100 per cent open window), and then the movement of the window can be carried still further, swinging inward and upward until the sash is completely reversed—inside out, but still filling the window opening snugly and completely, as

in its original position. The upper sash operates in the same way.

Now consider what this means to the occupant of a building—perfect ventilation without direct draft is secured; open window space of practically 100 per cent secured; both sash completely reversed to be cleaned or reglazed from the inside of the room, thus cutting down window cleaning expense and danger of accidents. In the reversed position the window is completely closed so that even in coldest winter weather it is no hardship to wash windows.

The Gifford Reversible Window can be fully screened. The windows are absolutely storm tight, besides which they can be easily equipped with metal weatherstrips where desired.

A novel advantage of these windows is that, equipped with Hartshorn shades they are their own window awnings. The Hartshorn roller is attached to the sash instead of the window head, and as the upper sash is usually arranged to swing out the shade makes a perfect awning.

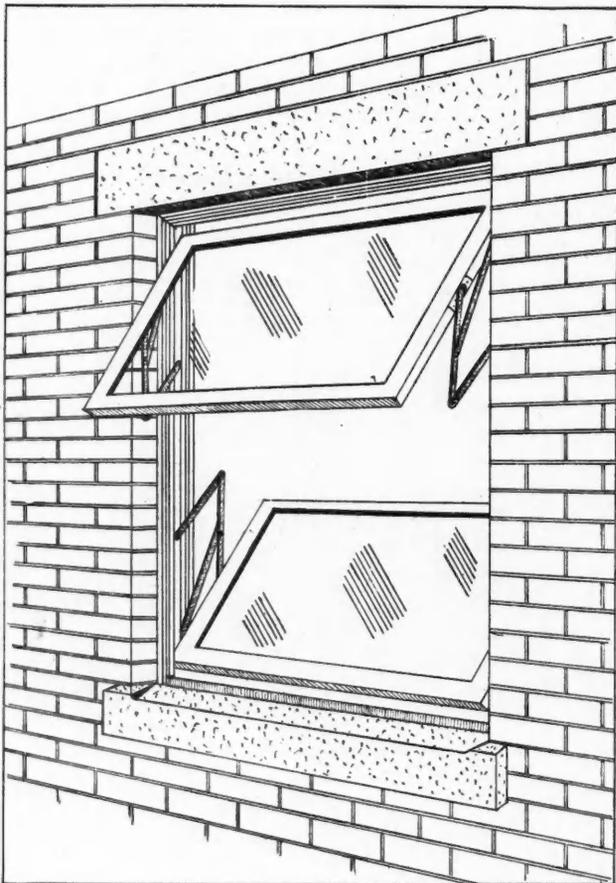
The Gifford window is furnished in wood, hollow metal or rolled steel as desired. It is undoubtedly the coming window for all hotels, office buildings, apartment houses, schools, churches, factory buildings, hospitals, etc.

As to cost, under most conditions these windows are a little less expensive than the ordinary double hung window, as money is saved by doing away with window box-frames, weights, sash cord, sash pulleys, window washing hooks, and awnings. The savings made on these items offset the cost of the operating hardware on the Gifford window.

The Gifford window is being used in several different combinations. For instance, the lower sash may be set to swing in—the upper sash to swing out; or vice versa; or both can be set to swing in; or both to swing out. A popular combination for residence work where there are draperies to consider, is to hang the lower sash on weights and make the upper sash reversible, swinging outward.

These windows make a fine appearance. The operating hardware is inconspicuous, standard finish being Sherardized positively preventing rust, or a baked enamel finish can be furnished to match mahogany or white enamel or any other style trim.

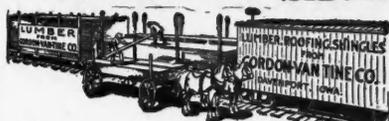
The best architects and building contractors all over the country are getting very much interested in the Gifford window—are investigating it and giving it serious consideration for some of their best buildings. We would suggest that you write today to the Gifford-Pierce Co., 175 West Jackson Blvd., Chicago, for full information. They will send you without cost detail drawings of these windows in any combination so that frames and sash can be furnished by your local millman. This window possesses so many advantages over the ordinary double-hung, casement, or pivoted window that it cannot help but interest you and please your clients.



Gifford Reversible Windows—Upper Sash Swings Out, Lower In.

YOU Can Profit By The Same Service That Makes Money For 10,000 Other Contractors!

LUMBER IN CAR LOTS SAVE \$100 to \$300



Our Special Latest Lumber List and FREE Catalog offer choice to you of millions of feet of clear, dry clean, seasoned lumber at Wholesale Prices. Millwork, etc., Dimension, heavy Joists and Timber, Drop Siding, Beveled

Siding, Ceiling, Partition, Wainscoting, Finishing Lumber, Laths, Shingles, Boards, Posts, Poles, Battens, etc. All lumber graded in accordance with rules of the Lumbermen's Association. All Millwork of High Quality Standards, established by the Northwestern Sash Door and Blind Mfrs. Association. Every stick guaranteed up to standard quality.

Estimates furnished FREE on guaranteed costs to you. BARGAINS in Moulding and Finish. Many special designs. All latest new stock. See Big Reductions in 1915 Grand Free Millwork Catalog, just out.

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Cypress built-up, lock-joint columns as low as \$1.50. Cannot possibly come apart and will stand all kinds of climatic conditions. Square, built-up cypress columns from \$2.07 to \$3.68. Turned porch balusters per carton of 25, from \$1 to \$1.90. For complete list of many other millwork bargains, send for our big Catalog. Everything ready to ship at once. Hundreds of special designs that local mills would take two to three weeks to turn out.

THIN OAK FLOORING

Cheaper to lay than carpet. A permanent hardwood floor at extremely low cost. A remarkable innovation! Size 3/8" x 1 1/4". Random lengths.



Price per hundred lineal feet only	80c
Clear Thick Oak Flooring, 13-16 inches x 2 1/4 inches per 1000 feet.....	\$56
Clear Maple Flooring, 13-16 inches x 2 1/4 inches per 1000 feet.....	47
Select Maple Flooring, 13-16 inches x 2 1/4 inches per 1000 feet.....	43
Clear Yellow Pine Flooring, 13-16 inches x 2 1/4 inches (Edge Grain) per 1000 feet..	37
Clear Yellow Pine Flooring, 13-16 inches x 2 1/4 inches (Flat Grain) per 1000 feet..	27
Clear Fir Flooring, 13-16 inches x 2 1/4 inches per 1000 feet.....	40
Clear Fir Flooring, 1 1/4 inches x 3 1/4 inches per 1000 feet.....	45

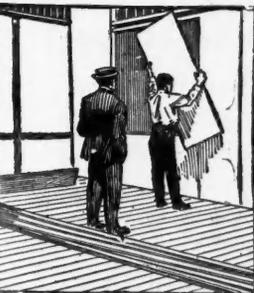
FIR DOORS

with most beautiful grain. Now being specified by many architects. Will match up with Yellow Pine Trim. We use Old Growth Yellow Fir. Edge grain stiles and rails. The one panel has a rotary cut veneered, flat panel Bead and Cove sticking. Panels are plump 3/8" thick. One panel doors \$2.10. Two panel doors \$1.86. See catalog, page 22.



WALLBOARD

Wallboard is The Great Modern Substitute for Lath and Plaster. Also fine for partitions to finish off rooms, attics, etc. Comes in sheets ready for use. Goes on dry. Cold-proof, vermin-proof, handsome, durable. **Costs Less** than Plaster. Wallboard costs 50 per cent less to lay. Lasts as long as building.



QUALITY WALLBOARD
1000 Square Feet, \$22

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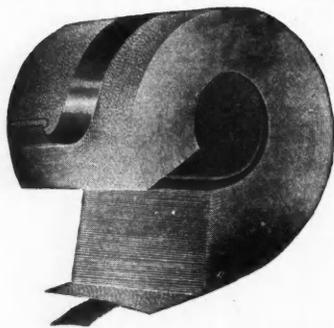
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A client's opinion of his heating plant is usually favorable or otherwise, according to the size of his coal and maintenance bills. The proper insulation of pipes is often to bless or blame for the net results.

Johns-Manville Pipe Covering Service contemplates and accomplishes but one result--the prevention of heat loss to the highest degree possible, under known methods. Consider the propor-

tionate reduction of fuel bills.

J-M Contract Departments are located all over the country and are at your service, while specialists are ready to co-operate on any problem that you may have under consideration.

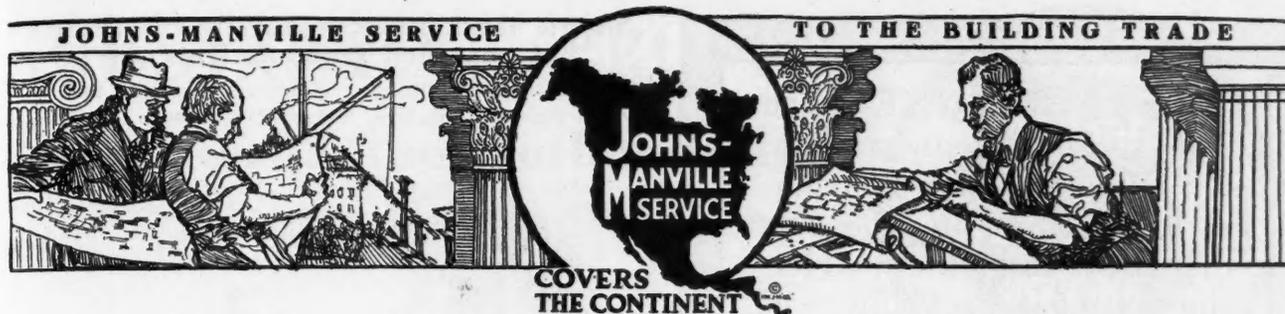
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J-M Transite Asbestos Shingles pay a two-fold profit---One on the sale and another on applying them.

J-M Transite Asbestos Shingles are as simple a roofing job to a good mechanic as "falling off a log;" but applying them is no job for a layman.

So you make two profits on every job. You sell the shingles and make one profit and you contract to put them on and make another profit. We don't say it is "easy money"; but we do say it is mighty good business.

These shingles are sold on their fire-proof, insulating and everlasting properties and on their highly artistic roofing effects. Made of Asbestos and Portland Cement in one piece and supplied in colors that are as permanent as pleasing.

Our literature will convince you of the sale of these shingles and prices, terms, etc., will demonstrate the profits on them.



*Washington County Insane Asylum
West Bend, Wis.
J. E. Henen, Arch., Fond-du-Lac, Wis.*

J-M Cold Water Paints are an absolutely safe Specification



These paints are made up in two lines—for inside and outside work—and are an economical and perfectly satisfactory substitute for lead and oil on practically all surfaces. They are not calcimines, contain no injurious chemicals and can be put on at about one-sixth the cost of oil paint. Applied by brush or spray.

When you make this specification, or find it in your contract, remember it is backed up by J-M Responsibility.

Ask Nearest Branch for Color Cards, Prices, Terms, etc.

J-M Cold Storage Insulation is planned by our engineers---but you can make money on the installation.

J-M Cold Storage Insulation is based on our fifty years of experience in the insulating field. Let our engineers plan your installation. We have no interest in building refrigerating boxes. We count on your co-operation in that. Our interests are mutual.

If you encounter this specification, call on us if we can be of assistance. When the butcher, grocer or fruit-man needs an ice box or a cool room, let us help you to secure the contract.

Ask our nearest branch to show you how they can work with you to get business.

H. W. JOHNS-MANVILLE COMPANY

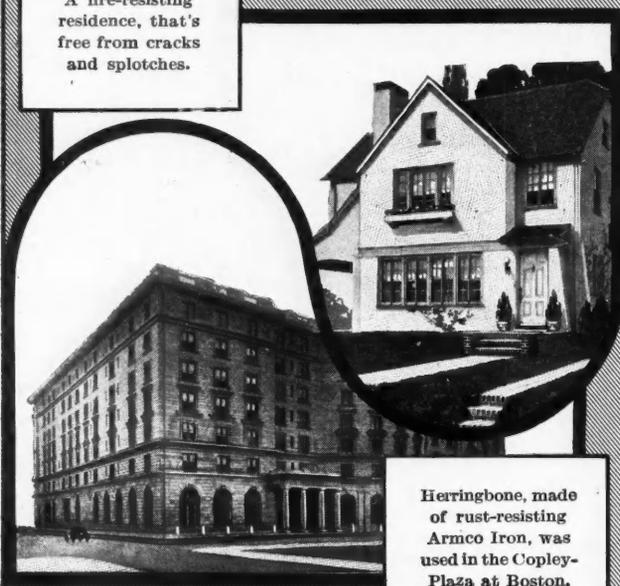
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HERRINGBONE Lath is a rigid metal lath. On studding alone Herringbone will save you 25% over the wishy-washy kind. Herringbone has backbone. It does not give under the trowel. There are no thick and thin spots.

A fire-resisting residence, that's free from cracks and splotches.



Herringbone, made of rust-resisting Armco Iron, was used in the Copley-Plaza at Boston.

Herringbone Rigid Metal Lath

saves stucco and plaster. Goes in place rapidly. Comes painted—cannot rust. Look for the job where Herringbone is specified. It means a good job easily done. Herringbone Book free. Send for it.

The General Fireproofing Company

6600 Logan Ave.

Trade Mark

Youngstown Ohio

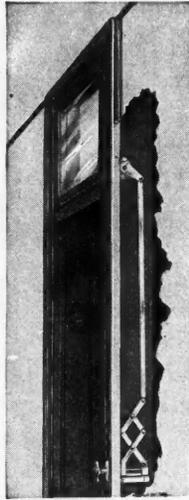
Makers of Self-Sentering—the combined reinforcing and centering.



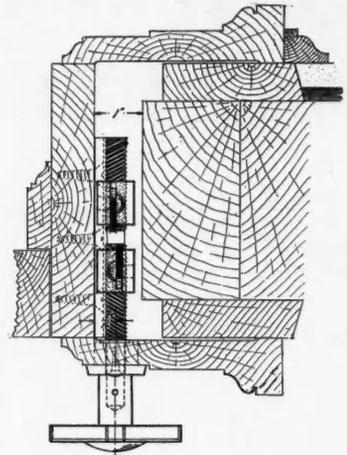
Reg. U. S. Pat. Off.

Simple Mechanism Feature of "Neuberth" Concealed Transom Operator

A device has recently been placed on the market that eliminates the main objections that have been made to concealed



Exposed View of Operator—Showing Simplicity of Mechanism.



Plan of typical jamb in stud partition. Section is taken just above the operating knob and screw which is usually about 4 feet from the floor. In all cases a 1-inch space is all that is required between the jamb and the buck to accommodate the operator. Cutting into the jamb is unnecessary.

transom operators in the past—namely, complicated mechanism. This is known as the "Neuberth."

The only visible part (see the illustration) is a knob on the door casing. This can be finished artistically to harmonize with other fixtures in the room. One turn of this knob will open the transom twenty degrees and the opening can be held at any angle up to fifty degrees.

The turning of the knob operates a screw that is made in two parts. Half of it carries a left-hand thread and the other half a right-hand thread. As the knob is turned, two nuts, one on each thread, are forced together, which operates a series of levers arranged like a pair of shears. This action forces the main connecting rod up, thus operating a bell-crank which is connected to the transom.

The working drawing shows a section through the door jamb and illustrates the operation of the knob with the sliding nuts and two screws. The other illustration is an exposed view of the entire operator and shows its simplicity with the small space necessary for its installation.

All our readers should become familiar with this new item of builders' hardware. A complete description of this as well as of several other interesting hardware specialties can be obtained by application to the Tabor Sash Fixture Company, 61-71 Polk St., Newark, N. J. Kindly mention "A. C. & B." when writing.



North Carolina Pine Bungalow

The North Carolina Pine Association have on exhibit in the hall of The Country Life Permanent Exposition at the Grand Central Terminal in New York City a life-sized eight-room bungalow.

A representative crowd gathered by special invitation on Thursday afternoon, May 27, for an inspection of this bungalow. This represents a new idea in exhibits. The bungalow is made of North Carolina pine for both exterior and interior.

This Association have an architects' and builders' reference book that they will gladly send to any of our readers. Address the North Carolina Pine Association, Norfolk, Va.

SUBSTANTIAL PROFITS

are assured the Builder Handling Roofings bearing the Label



We Want Responsible Contractor-Dealers in every town to handle

VULCANITE PRODUCTS

There are no better roofings made than those manufactured under our brand. Our roofings are made to give ultimate satisfaction to their users. We are the largest manufacturers of Roofing in the United States and it is our aim to have a dependable, live Contractor handle our product in every town where we are not already represented.

The mark "Vulcanite" on Roofing means that you can absolutely rely on it for full value in service and satisfaction.

We manufacture several styles of Asphalt Roofings, the best known being Vulcanite Asphalt Shingles. Vulcanite Ornamental Roofing in rolls, Vulcanite Continuous strip shingle, Vulcanite-Tile, Vulcanite Roll Roofings, etc. They come in rich colorings and each represents the best value.

When you roof a building with Vulcanite you and your client can feel satisfied that there is no better roofing made. A good roofing job is an important factor on every building and will be a permanent advertisement for you as a conscientious Builder who uses only the best and most serviceable of materials.

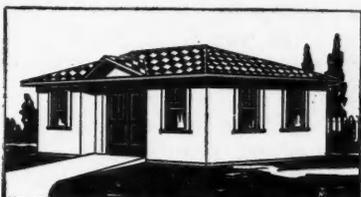
We Create the demand—You supply VULCANITE and put it on—thereby making two Profits

Our National Advertising works for you and in addition we furnish you individual letters, general publicity, etc. If you think you're the man, get in touch with us and we'll send our proposition.

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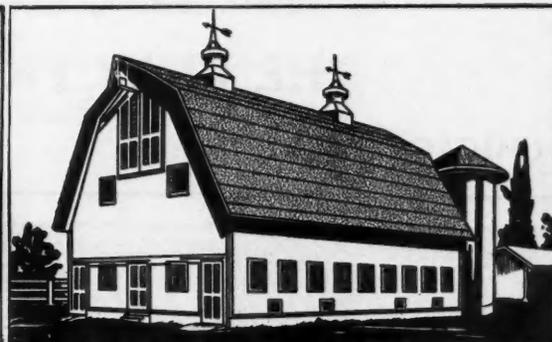
CHICAGO, ILLINOIS



For Garages, Shops, etc.



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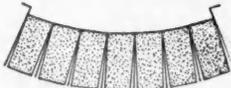


For Farm Buildings, Sheds, etc.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Unique Concrete Brick Mold

A concrete brick mold has been recently placed on the market that is of absolutely different construction than any we have seen. It is made of spring steel as shown in the illustration and is sprung to discharge the bricks.



The Mold is Sprung to Discharge the Brick.

The manufacturers say that it will make either common or face brick. Full particulars can be obtained from the maker, Merrill Moore, 411 W. Montgomery St., Creston, Iowa.



Looks Electric Fan, But Runs on Alcohol

A fan has been perfected that runs with alcohol. A little lamp operates it by heating air in a cylinder. The expansion and contraction of the air is ingeniously utilized to provide the motive power for the fan. Remarkable results have been obtained according to the testimonials that this company has from satisfied users.

More detailed information concerning this device can be obtained by application to the Lake Breeze Motor, 131 N. Jefferson St., Chicago, Ill.

How it was Accounted For

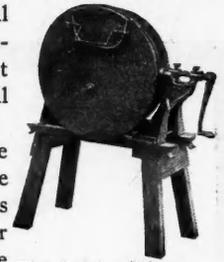
"How does it happen," said the teacher to the new pupil, "that your name is Allen and your mothers name is Brown?"

"Well," explained the small boy, after a moment's thought, "you see, she married again and I didn't."



A Small Mixer

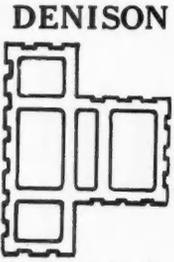
The Geisler mixer, made by the Galland-Henning Mfg. Co., 1124 Railway Exch. Building, Milwaukee, Wis., has a capacity of 2 cubic feet of concrete, about 350 pounds to the batch. The cement, sand and aggregate may be mixed dry, or may be put in the drum separately; six turns thoroughly mixes them, and the drum is quickly emptied into wheelbarrows or buckets. Easy work—a boy can operate it. (Pulleys to operate with gasoline engine, furnished at small extra charge.) Built strong and substantial to give years of service—yet weighs less than 200 pounds. You will find the price very low.



The Geisler Mixer.

The Galland-Henning Mfg. Co. have a catalog which gives full details of the construction of this mixer as well as describes the riskless trial offer under which the contractor may actually use the outfit on practical work before accepting it.

We are not prepared to say how long this offer will be open to our readers, so it would seem to be well to investigate the offer at once, read the catalog and try the mixer.



DENISON

It Interlocks



**Interlocking
Tile
Beats
Lumber
a
Mile**

A Fireproof Construction at Non-Fireproof Costs

You can build a Residence, Garage, School, Church or Store building with **INTERLOCKING Tile** almost as cheap as frame. The facing may be pressed brick, stucco or matt face exposed tile, and **INTERLOCKING Tile** is used from the cellar to the garret, preserving a thoroughly dry basement with an even temperature throughout—the walls will have a strength of 70 tons to the sq. foot.

The large number of small dead air pockets serve as a check to heat and cold. A big saving in fuel is secured in winter. The interior is cool and inviting in summer.

As a builder you should know about **INTERLOCKING Tile**. A complete set of 12 construction detail plates mailed free on request.

REMEMBER:—All Hollow Tile is not Interlocking.

THE CLAY PRODUCT COMPANY

911 Stock Exchange Building

CHICAGO

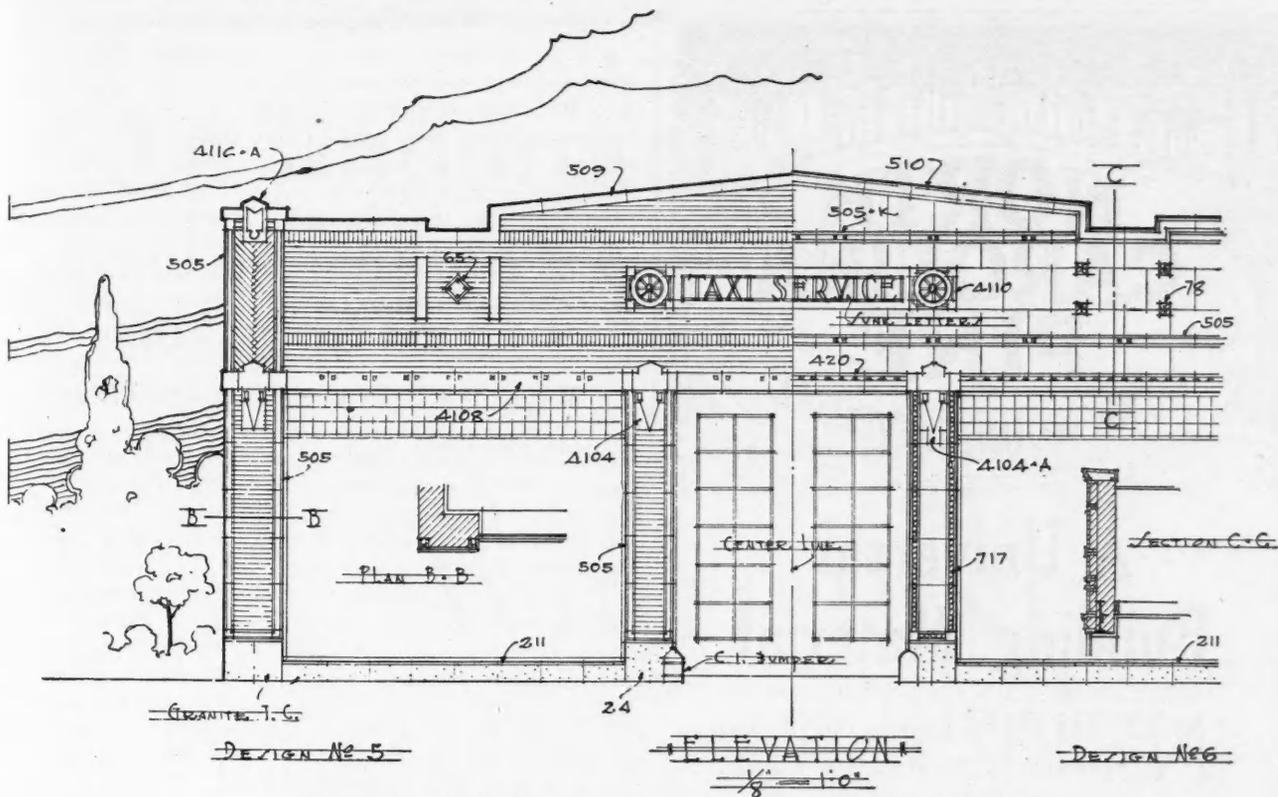
ILLINOIS



Light
Strong
Dur-
able

MAYES LEVELS are sworn stand-bys of good mechanics in every trade where levels are used. They cannot warp, will always stay true and are easy to read. **YOUR HARDWARE DEALER HANDLES OUR LEVELS.** Ask him to show you ONE. We also make a complete line of Plasterers' Tools, Aluminum Hawks, Aluminum and Wood Darbies, Wood Floats, Line Levels, Straight Edge Level and Plumb. Carpenters' and Bricklayers' Aluminum, Brass Bound and Plain Levels, etc., made from 18 in. to 72 in. long. Write us.

MAYES BROTHERS, 632-34 WEDBURY AVE., DETROIT, MICHIGAN.



Clipping of Plate 41, showing stock terra cotta garage designs No. 5 and No. 6.

BUILDING A GARAGE? Want Terra Cotta in a hurry? Then get in touch with MIDLAND.

¶ We present the designs shown above for the reason that they embody sections from our white enamel stock—ready for immediate shipment. You'll appreciate this exclusive NO-DELAY phase of MIDLAND service.

¶ Adopt either of these suggestions and you will obtain the very result you are striving for—namely; the most attractive garage in town.

¶ Send in your plan today—we'll be glad to submit suggestions and estimates.

MIDLAND TERRA COTTA CO.
1515 LUMBER EXCHANGE BUILDING, CHICAGO, ILL.



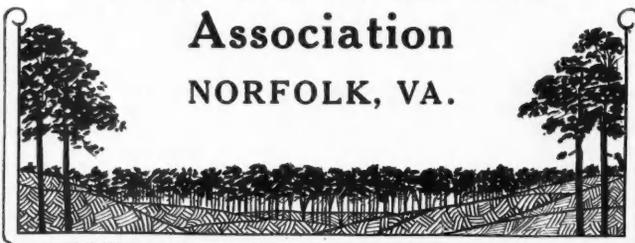
A Universal Building Material

NORTH CAROLINA PINE is rightly termed "the wood universal." It is readily adapted to all kinds of building construction, both exterior and interior. Can be used for apartments, duplex dwellings, farm-buildings and out-buildings, as well as for outside ornamentation such as porches, trellises, shingles, etc. North Carolina Pine is not "Yellow Pine," but is whiter and softer in texture, making an ideal substitute for White Pine.

Architects' and Builders' Reference Book FREE

Write for Architects' Reference Book, prepared in convenient size for filing. Describes the many uses of North Carolina Pine and illustrates in colors, the beautiful effects obtainable. Specimen panels sent on request.

North Carolina Pine Association
NORFOLK, VA.



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

The Carpenter's Key

In order to make it easy to screw pin tumbler cylinders into place, and to prevent the use of key as device for this purpose, P. & F. Corbin have provided a steel carpenter's key which is being packed with contract shipments. A red tag is attached to each key explaining its use and suggesting that the carpenter place it upon his key ring, as it will be found handy whenever it is necessary to attach or disconnect a Corbin cylinder.

Any carpenter who will write to P. & F. Corbin, New Britain, Conn., will be supplied with one of these handy little devices to be attached to his key ring.



Meadows Crib and Granary Plans

The Meadows Manufacturing Co., Pontiac, Ill., are making a specialty of granary and crib plans. The circulars and plans they are putting out should be of inestimable value to the contractor who is interested in one of the latest farm developments, the two-story grain crib and its labor-saving elevating machinery.

This literature will help in estimating granaries and contain information that can be used in giving the farmer expert advice as to the proper construction of buildings of this sort, and the proper elevating equipment to go into them. Write to the Meadows Manufacturing Co., Pontiac, Ill., and get this information, as it will cost you nothing, and they will be more than glad to furnish it. Information can also be found in their advertisement which appears on another page of this issue.



"Farmer's Friend" Cup Elevator

In a grain elevator it is important that all the grain shall be emptied at the top into the hopper. If any corn is carried over, the boot is likely to become choked and the operation of the elevator is hindered.

The manufacturers of the "Farmer's Friend" elevator say that their delivery part is so arranged that, no matter how slow the power is geared or how fast or slow the horses walk, there is no corn carried over and therefore the boot never becomes choked.

The grain in this elevator is not dipped up, but is thrown directly into the cups which, according to the manufacturer, eliminates the shelling of corn and protects the cups against bending and jerking.

The power can be furnished by horsepower, electric motor, or a gas engine. Extreme smoothness and ease of running are among the features that users have commented on in writing to the manufacturers.

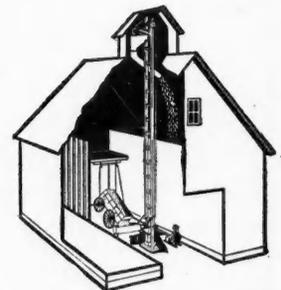
Full particulars of their line of elevators, which includes also portable outfits, can be secured by writing to the G. & D. Manufacturing Co., Dept. N, Streator, Ill.



"Camp" Granary Equipment

The success of granary equipment depends to a large degree on the strength, durability, and speed of various parts such as hoppers, jacks, etc. Camp Brothers & Co., of Washington, Ill., are making a feature of such appliances.

One of their special features is a hydraulic jack for emptying the wagons at the granary. The absolute freedom from gears and chains make it very desirable for this purpose. No power is required to lower the jack, as the oil which is



Modern Crib with G. & D. Cup Elevator Installed.

An Important Message— and a Helpful Free Bi-Monthly Magazine for Contractors

Every contractor knows that no other wood works so easily under his tools, holds in place so perfectly without warping, checking, or opening at the joints—or lasts so long as old-fashioned.

WHITE PINE

He knows that no other wood compares with it for the outside of a building, where it is exposed to and must withstand all kinds of weather.

But for some reason an impression prevails that the supply of White Pine is practically exhausted. And many contractors have come to believe it.

The fact is—White Pine is still abundantly available today, as it always has been, in all grades and in any quantities desired, and can be purchased in all markets at reasonable prices, when considering its value as a structural wood.

If the Lumber Dealers supplying the material for those for whom you are building are at any time unable to furnish it, we would appreciate the opportunity of being helpful in securing it.

A Magazine Every Contractor Should Have

Next month we will begin the publication of a bi-monthly architectural White Pine magazine for free distribution among contractors and architects. Every issue will be full of valuable and helpful information for contractors and builders.

If this magazine does not reach you, kindly advise us and we will be pleased to place your name on our mailing list.

Address, WHITE PINE BUREAU,
1635 Merchants Bank Building, St. Paul, Minn.

Representing
The Northern Pine Manufacturers
Association of Minnesota, Wisconsin
and Michigan, and The Associated
White Pine Manufacturers of Idaho

used passes from the lifting cylinder to the small reservoir and lowers the jack smoothly in about ten seconds. The jack is raised by forcing the oil from the reservoir to the lifting cylinder by means of a small power cylinder. No leather valves are used and the manufacturers say that the jack is almost perfect in wearing qualities.

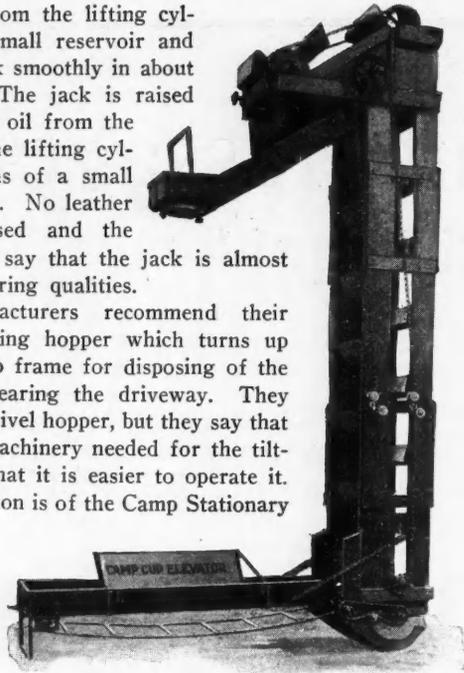
The manufacturers recommend their folding or tilting hopper which turns up against the cup frame for disposing of the hopper and clearing the driveway. They also make a swivel hopper, but they say that there is less machinery needed for the tilting type and that it is easier to operate it.

The illustration is of the Camp Stationary

Elevator adjusted to the cupola in a crib. The makers say that many times the boots of station-

ary elevators wear out and that they have taken special precautions to provide against this. The wear on the boot is due to the dragging of the cups along it. They have made this vulnerable part of the machine of cast iron with a No. 14 gauge steel bottom. This they say makes the boot almost indestructible.

In their well illustrated catalog are shown typical installations in various kinds of cribs. They suggest a comparison



Dump, Hoist and Head of "Camp" Elevator.

of their line with others before buying. Full information can be secured from Camp Brothers & Company, Dept. 15, Washington, Ill.



Selling Inside Cup Elevators

A builder can do considerable toward educating the farmers to erect large double cribs, in which all of the crop can be stored and held by the farmer until market prices justify his selling. By erecting a large double crib, similar to this description, the ear corn and small grain both are stored in the same building and one elevator satisfactorily handles all the grain.

These inside elevators, contrary to the old style drag machine, do not have to be moved, stored away or taken apart after the end of each season.

The "Meyer" style No. 1 is said to be the original inside cup elevator. This machine is manufactured exclusively by the A. F. Meyer Mfg. Co., of Morton, Ill. These people are also manufacturing a number of different styles, so the builder has a complete line to offer to his customers.

The illustration shown on page 102 is of the machine installed in an up-to-date crib and granary. This machine is handy, simple and easy running. The main drive shaft runs through babbitted metal bearings, the sprockets are mounted on cold rolled steel shaft; and heavy riveted pintle chains are used on the inside of the machine. The buckets are of No. 16 gauge steel and are 7 by 7 by 14 inches in size. The dump is composed of 6 by 8 timbers, and eliminates the ordinary lifting jack, receiving conveyor and other power requiring machinery. However, these people are also making machines with the dump and jack in connection for customers preferring this type of machinery.

The time of men is more valuable than machinery. Thus by educating the farmers to handle their crop with machinery,



M-60 Birch Morgan Door

Also made in Plain Red Oak. A grand door for interior work. 21 sizes kept in stock for immediate shipment. Our careful packing prevents any damage. See Morgan Millwork Handbook

Morgan Doors vs. "Specially Made"

Time was when everyone thought the "Specially Made" door was always the best in design, material and workmanship—the only door he would approve and like.

Times have changed. Today there are hundreds of architects and contractors who know from their actual experience that MORGAN DOORS are without question the best doors made from standpoint of A-1 material and expert workmanship. Their great variety of designs are original and correct and harmonize perfectly with any interior schemes.

Then, too, MORGAN DOORS are absolutely guaranteed against all defects and their delivery is quick, careful and sure. *These things you never get in "specially made" doors.*

Your dealer can supply MORGAN DOORS without delay from our immense stock.

Morgan Sash & Door Company Department A-23, CHICAGO

FACTORY: Morgan Co., Oshkosh, Wis.
Eastern Warehouse and Display:
Morgan Millwork Co., Baltimore

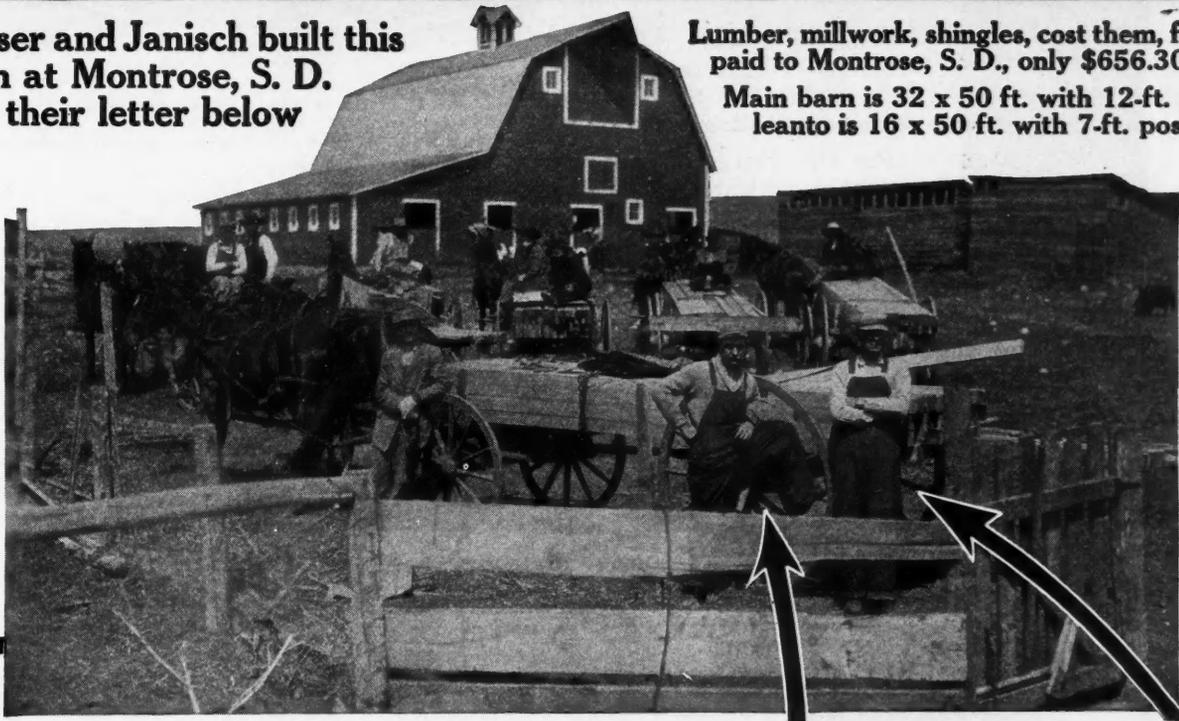
DISPLAYS: 6 E. 39th Street, New York
309 Palmer Building, Detroit
Building Exhibit, Ins. Exch., Chicago

Could You Build This Barn for \$950⁰⁰ (and Make a Fair Profit?)

Rosser and Janisch built this barn at Montrose, S. D. See their letter below

Lumber, millwork, shingles, cost them, freight paid to Montrose, S. D., only \$656.30.

Main barn is 32 x 50 ft. with 12-ft. posts; leanto is 16 x 50 ft. with 7-ft. posts



One of many H-L-F jobs built at Montrose, S. D., by two hustlers **Rosser and Janisch**

“What do you think of two such trust busters?”

What do *you* think of them? Don't you think they are pretty shrewd men? Is there any reason why *you* shouldn't do the same as they have? Read this letter:

Montrose, S. D., February 4, 1915

Hewitt-Lea-Funck Co.

Gentlemen:—The barn in the photo was built with your lumber, and the loads of lumber in photo are for a house to be built out in the country by us with your lumber. The two men standing behind first wagon are Rosser and Janisch—one with foot on wheel is Rosser, and beside him is Janisch. When you get us sized up right, let us know what you think of two such trust busters.

Well, as it might be of interest to know the size of this barn and what we got to complete it: size of main barn, 32 x 50 ft., 12-foot posts; leanto 16 x 50 ft., 7-foot posts. Floor over main barn, plank partitions; stanchions, hardware, hay track, slings, all complete by us for \$950. This barn is built in our own town, Montrose.

Yours truly,
ROSSER AND JANISCH

(H-L-F price for all lumber, millwork, shingles, freight-paid to Montrose, S. D., was \$656.30. Figure for yourself the cost of other items, and the profit Rosser and Janisch made on this job by buying materials from Hewitt-Lea-Funck Co. Do *you* do as well on barns of this size?)

Hewitt-Lea-Funck Co.
1008 Crary Building Seattle, Wash.
Capital \$1,000,000 Not in any trust or combine

The whole big H-L-F organization is at your service to help *you* make more money. The H-L-F Plan Book (10c), new and better edition just out, shows beautiful, practical, homes that *you* can sell. The Barn Builder's Guide (4c) shows practical barns that *you* can sell to real farmers. Get these books quick—they form a guide to profits. Use the Prosperity Coupon below

Quick proof of saving in H-L-F freight-paid price

Send right now the bill of the job you're figuring on. We'll quote you quick, by telegraph if necessary, the H-L-F price including freight to your station (no extras) with famous H-L-F million dollar guarantee as to quality, count and safe delivery. Do this now—be a “trust buster” like Rosser and Janisch, and *make money*.

This is the Prosperity Coupon; it steers you to more jobs at better profits; use it today

Hewitt-Lea-Funck Co.,

1008 Crary Bldg., Seattle, Wash.

Gentlemen: Please send me the following:

- Delivered, freight-paid price on enclosed list of materials. (No charge for quotation.)
- H-L-F Prize Plan Book (10c) Barn Builder's Guide (4c)
- H-L-F House Pricer (free) Millwork Catalog (free)
- Price, freight-paid, of all materials for grain elevator of..... bushels capacity.

Name

Postoffice..... State.....

R. F. D..... When are you going to build?.....



Make This Simple Test



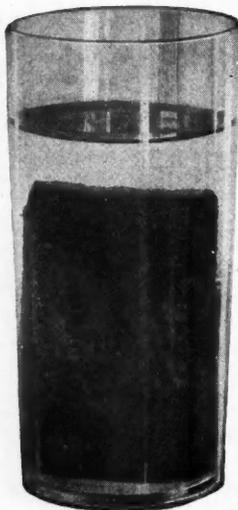
The Slab

Send for a slab of Ceresitized cement or concrete and make the following interesting test:

Put this test slab into a tumbler of water—keep it there a week, a month or a year. Then take it out and break the slab and note that there has been absolutely **no** penetration of water—a result that would be impossible without effective water-proofing.

Or we will send you the different materials separately and you can make your own water-proofed slabs.

The most perfect concrete and cement work contain voids. Water naturally penetrates these and carries a deposit of foreign matter which lodges in the voids and sets up a chemical action which causes disintegration. CERESIT makes passage of water impossible and resists capillary attraction and force of gravity.



The Test

CERESIT Waterproofing Compound is a plastic paste that readily mixes with the water used to temper the cement or concrete, thus insuring uniform distribution throughout the entire mass.

Unlike water-repellent powders, CERESIT does not retard hydration, therefore cannot affect structural strength of the mass.

Interesting and Instructive

Every Builder and Contractor should make this unique test. We send the slabs free of charge—prepaid.

Remember, that you obligate yourself in no way when you write for the slabs or engage the services of our waterproofing engineers. Ask for **YOUR** slab **NOW!**

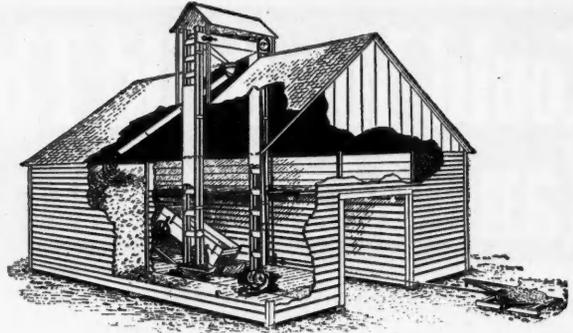
Ceresit Waterproofing Co.

910 Westminster Bldg., Chicago



The Broken Slab—
absolutely bone-dry

The Result



A. F. Meyer Corn Crib Equipment.

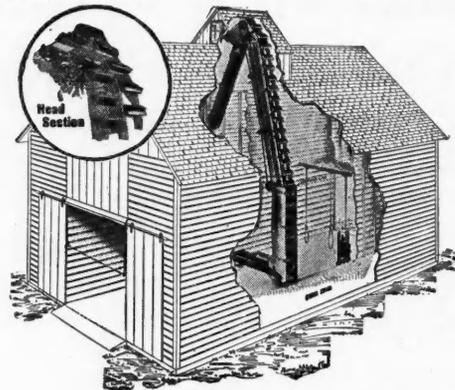
rather than to shovel hour after hour, may mean the sale of an elevator, and the building of a 2-story corn crib. An elevator of this type is a good investment of the customer's money. It will please and satisfy and enable him to unload his grain at the rate of 50 bushels in from 3 to 5 minutes. It will also cost about $\frac{1}{2}$ to 1 cent per bushel less to have the corn picked by having an elevator, besides the time and labor than can be saved. The A. F. Meyer Mfg. Co., Morton, Ill., invite you to ask them for their free literature, crib plans and new attractive catalog. If you write at once you may be enabled to protect yourself on some territory and cash in on the sale of these machines.



"National Giant" Elevators

One of the most important things to be considered in grain elevators is the length or height required for the elevator. The shorter the elevator to fill a certain bin, the less power is required to do the work; also there is a substantial saving in the expense of building.

The Portable Elevator Mfg. Co., 854 E. Grove St., Bloomington, Ill., makers of the "National Giant" inside cup elevator, have paid particular attention to this feature in their designs. They have reduced the length of their elevator through the



"National Giant" Cup Elevator in Crib.

design of the headpiece that takes up very little room. They say that in the ordinary type of granary with its fairly steep roof, no cupola is necessary and the granary can be filled very full as the headpiece fits close enough to the roof so that spouting can be done in good style.

Another feature which reduces the length of the elevator is the shallow depth to which it is sunk into the floor. The manufacturers recommend a depth of only $5\frac{1}{2}$ inches, which they say will be sufficient for all wagons even if they are of the low-wheeled type.

This company issues a book of granary plans that they will willingly send to our readers. It will be worth your while to get posted on their line of granary machinery as shown in this book, installed in various typical granaries. A request to the above mentioned company will bring full particulars.

What Do They Tell You?

When you ask in good faith for **Arkansas Soft Pine** are you advised that "all yellow pine is the same," or that "we have it but it didn't come from Arkansas," or that, "here is something better?"

Remember This!

We have reason to believe that more lumber was sold for or as "**Arkansas Soft Pine**," that was manufactured by the mills comprising the Bureau during 1914.

And the Reason Is

Other pines cost less than **Arkansas Soft Pine**. They cost less because they are worth less for the purposes for which **Arkansas Soft Pine** is recommended. *You may pay* as much for them as you should pay for **Arkansas Soft Pine** but they are not worth as much.

Nothing Just Like It.

Write for a list of manufacturers of **Arkansas Soft Pine**. It is worth your while to know if the lumber offered is the lumber we have recommended.

Ask, also, for a copy of "An Architectural Aid"

Arkansas Soft Pine Bureau

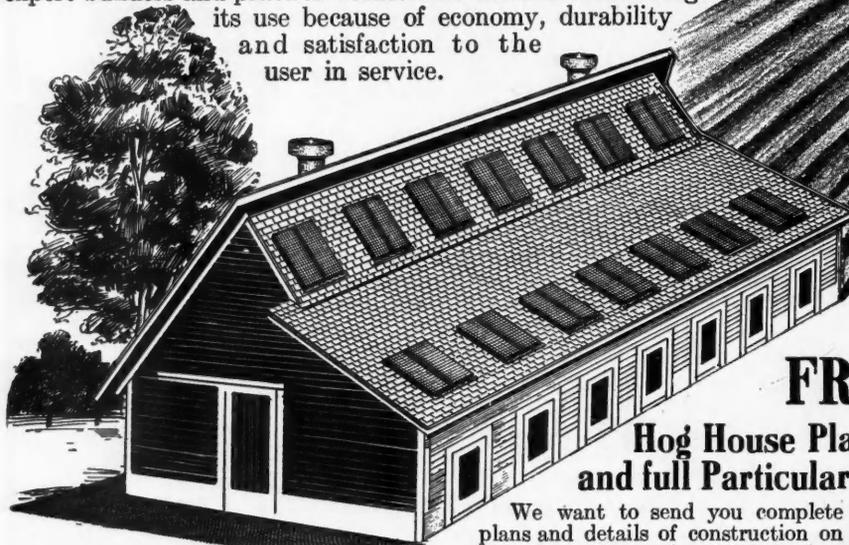
608 South Dearborn Street

Chicago, Illinois

Another Practical and Satisfactory Way to Use the "CHIEF" Sunshine Hog House Windows

Metal is superseding wood for window frames and casings, simply because it is better—proven so. It is approved and recommended by all recognized authorities on farm building construction. Architects, expert builders and practical farmers all unite in demanding its use because of economy, durability and satisfaction to the user in service.

Our hog house plans illustrate the best type of hog house design, embodying the modern metal windows, and full information is given to enable you to erect modern hog houses with the largest possible profit to you and the maximum of service-satisfaction to the farmer.



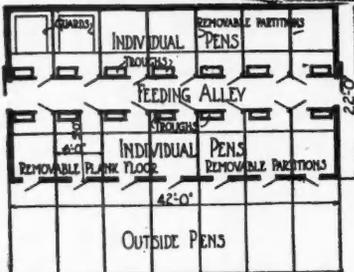
FREE

Hog House Plans and full Particulars

We want to send you complete plans and details of construction on the most modern and satisfactory hog houses you can put up.

These plans are absolutely free to you and will prove of value if you expect to do any work whatever in this line. They embody the latest and best ideas in hog house construction—the features that the up-to-date farmer is looking for and will insist upon having as soon as he knows that you can incorporate them into his hog house. The plans will enable you to get more business and to better satisfy every man you build for. "Sunshine" Windows will satisfy any man you build for, and can be put in more cheaply and easily than any others.

Write for our "Sunshine" Hog House plans and be ready to show any farmer who needs a hog house, the best and most modern type. It will mean business to you.



From March issue of American Carpenter and Builder

"Sunshine" Hog House

A winter hog house of a very practical design is shown on the opposite page. It makes use of a series of special "Sunshine" skylight windows set in galvanized metal, —this accomplishing the warming and lighting of every part of the interior. Another interesting feature is the row of "side wall" windows made of galvanized iron both sash and frame.

The New Cellar Window

Chief Everlasting Cellar Windows give real window satisfaction because they are made of the right material and they solve the cellar window problem for any man who wants perfect window service.

They are built of galvanized steel and are in complete units—casing and hinged window, together. They do away with all window troubles—never shrink or swell, leaving open cracks, and always open and close easily and fit properly.

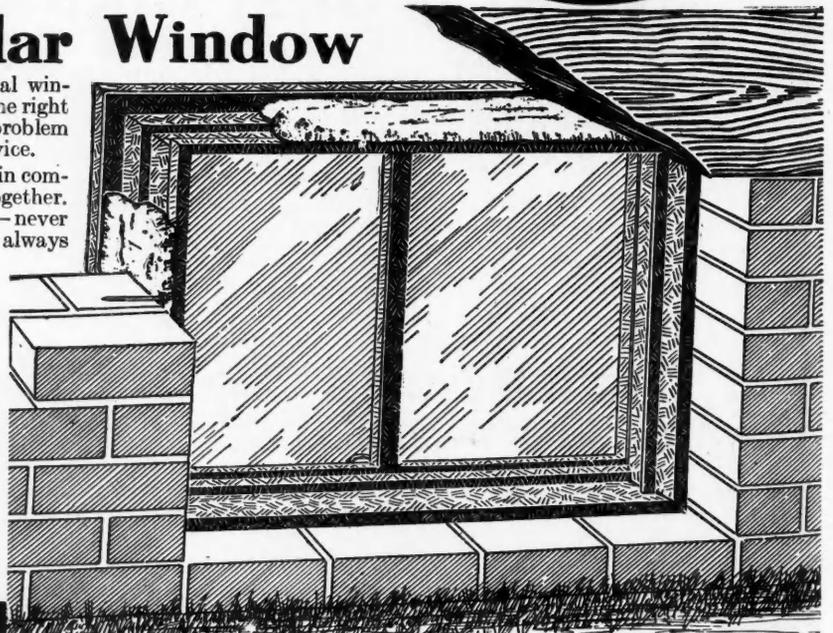
Chief Cellar Windows are leak proof, rust proof and rot proof. They are entirely unaffected by weather conditions and are good for a lifetime of service.

They are easy to install, cost no more than wooden windows and last three times as long. They will satisfy all your customers, increase your business and yield you a good profit.

Let us send you full description and prices. Write for them today.

Shrauger & Johnson

430 Walnut St. - Atlantic, Iowa



Listen, Mr. Contractor and Builder! Hog Raisers All Want Sunshine Hog House Windows

They Look to You for Modern Plans

There's a profit coming to you because of that, if you want it.

The average farmer now-a-days knows very well that his hogs need sunshine and that he cannot afford to keep them in damp, unlighted hog houses. He wants windows in that hog house that will give the hogs direct sunshine in the winter months without their being exposed to outdoor temperatures.

Sunshine Hog House Windows are the best made for the purpose and the farmer knows it—that's why he demands them.

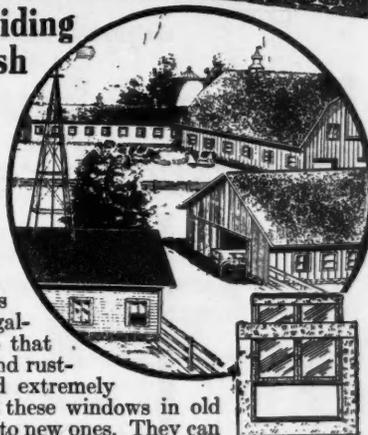
You Can Install Sunshine Windows More Quickly and Easily than any Others

They are made of heavy galvanized iron and fit into the roof of the house. All that is necessary to do to put them in place is simply to remove the shingles from a space large enough to admit the window, insert the window and then reshingle over the flashing. They can be put into either old or new hog houses and they'll please your customers—every one of them. There's more profit for you in the actual work if you sell and install Sunshine Windows than you can make on wooden windows. More than that, your customers will be absolutely satisfied—they get rust-proof, rot-proof and leak-proof windows that are good for many times the service wooden windows give. Sell Sunshine Windows—handle the modern product and pocket the profits that are yours for the taking.



Chief Sidewall Sliding Window and Sash Combined— For all Farm Buildings

The happiest, most practical, most economical and most satisfactory window you can install. Suited to any kind of a building where light is wanted. Made of heavy galvanized iron and made so that it can't leak. Rot-proof and rust-proof. Neat, strong and extremely durable. You can install these windows in old buildings or build them into new ones. They can be set to slide open, up, down or sideways, as desired. Window always slides easily in the frame. There's no shrink or swell to our metal frames. Glass is easily replaceable—no putty used. Chief Sidewall Windows satisfy users. They cost about the same, last longer and give more satisfactory service than wooden sash.

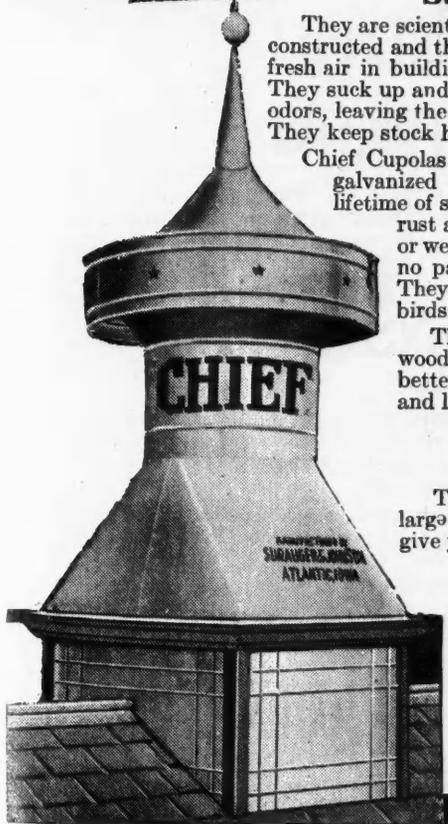


Chief Cupolas Give Stock Pure Air

They are scientifically designed and constructed and they absolutely insure fresh air in buildings where installed. They suck up and out the bad air and odors, leaving the barn full of pure air. They keep stock healthy.

Chief Cupolas are made of heavy galvanized steel—good for a lifetime of service. They won't rust and can't rot, break or wear out. They require no paint and no repairs. They won't leak, and birds can't nest in them.

They cost less than wooden cupolas, look better, ventilate better and last much longer.



Add to Your Profits

There's money in these windows and cupolas for you. The demand for them is large and is growing constantly. They satisfy every user, increase your business and give you a good individual profit—more profit, your time and labor considered, than you can realize from the installation of old-fashioned windows and cupolas.

Write for our literature and prices on Chief Products. We'll make you a mighty interesting proposition and we'll help you make sales and get the cream of the window and cupola business. Write us today.

Shrauger & Johnson

430 Walnut St. . . . ATLANTIC, IOWA

Features of the 1915 Lansing Mixer

Among the features of the Lansing 1915 mixer, the following three are especially well worth noting.

The first is the screw control hoist. This can be seen in the accompanying illustration. It is designed and operates on the same principle as the big hoisting drums used on large steam hoisting outfits. One-quarter turn of the handle elevates the loader by means of a friction clutch. A hand lever will hold the load in any position. It is directly geared to the counter shaft and there is nothing to wear out or require attention. A larger spool can also be furnished so as to fit the hoist for general purposes.

The single cable draw for the power loader is the second feature. The more cables there are and pulleys also, the greater the power necessary to overcome the resulting friction. The hopper can be elevated in 12 seconds with the single cable.

The third feature is the Diamond roller bearing steel chain drive. This is the same kind of drive as is used on many automobile trucks. It rolls over the teeth instead of slipping over them, and thus gives a driving mechanism of great strength and durability which is almost noiseless. Any slight wear can be taken up by shifting the engine a little. The friction clutch is of the same type as is used on automobiles, the internal expanding design with a simple adjusting screw on the outside.

This company has recently issued an extremely well illustrated catalog showing their many kinds of machines. Write to the Lansing Company, Lansing, Mich., for catalogs Nos. 12C and 132.

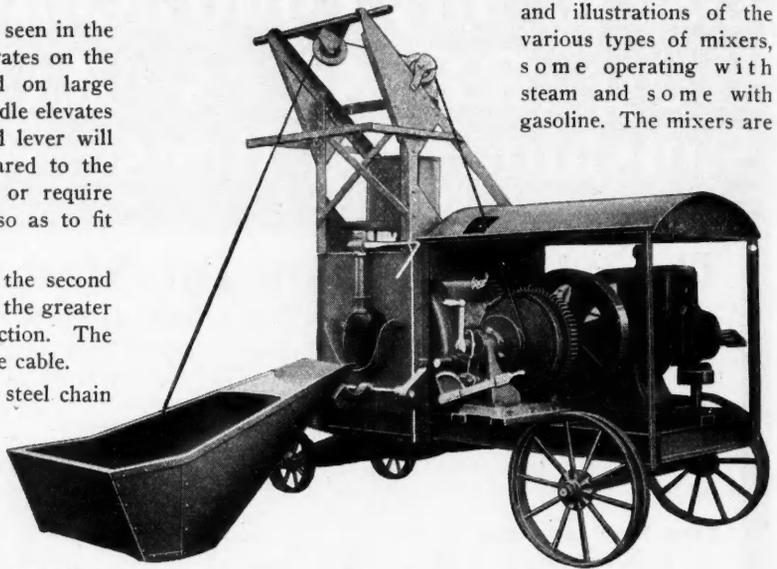


New "Standard" Concrete Mixer Catalog

The Standard Scale & Supply Co. has recently issued a

catalog describing their mixers, "The Standard" and the "S. S. S." low-charging.

The first part of the book is taken up with descriptions and illustrations of the various types of mixers, some operating with steam and some with gasoline. The mixers are



1915 Model Lansing Mixer.

of many different sizes suited to the various conditions that are encountered in actual work.

A discussion of the features of their machines takes up the middle part of the catalog. This part is illustrated with attractive pictures of the machines operating on the job.

The latter part of the book contains a table of weights and sizes of their mixers. There is also a page mentioning and describing some of the types of "The Standard" hoists,

Record-breaking *low* prices! Record-breaking *high* quality!

Cornell-Wood-Board

With the *Original* Cornell Fibre Sizing Process—the treatment which has revolutionized the Wall Board business.

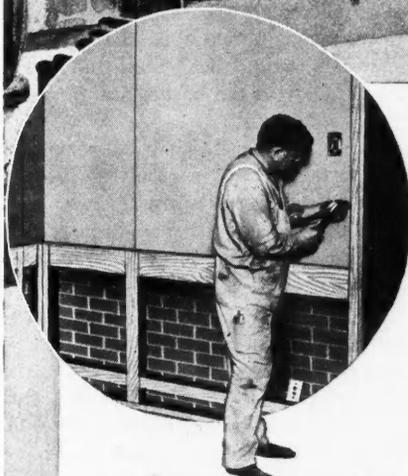
5 **BIG REASONS WHY**
It's Best—Yet Costs Less:—

1. **Raw Material**—Our timber lands, located adjacent to the plant insure a *permanent* and *economical* supply of highest quality raw material.
2. **Power**—The 20,000 H. P. water power development, a part of our plant, provides ample power at minimum cost.
3. **Facilities**—The only mill in the world combining all processes of Wall Board manufacture under one roof and one management. Factory-built *not assembled*, and therefore uniform.
4. **Capacity**—300,000 sq. ft. of Cornell-Wood-Board per day. Largest wall-board factory in the world.
5. **Distribution**—Stocks in all principal cities insure prompt delivery at lowest cost.

CORNELL-WOOD-BOARD, CORNELL, WIS.

WRITE! Contractors—Architects—Dealers! Valuable information awaits your requests. Send for literature, samples and prices.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



FIBERLIC
 Interior Flat Wall Paint
 Mill White Flat
 Mill White Gloss

We advise the use of the above paints on Fiberlic. They have been specially prepared to give the users of our product the best possible results. The quality is unexcelled.

Write for booklet

No More Wall "Boards," when
Fiberlic
 Makes Stronger, Safer, Cheaper
WALLS AND CEILINGS

Fiberlic is not only a vast improvement over lath and plaster, but it also overcomes the many objections in "wall boards."

Strength. Fiberlic is made from long, tough, coarse imported root fibers. This basic material accounts for the remarkable strength of Fiberlic.

Safer. Get a sample of Fiberlic and the best "wall board" you know and test them both with bare flame. We have made the test, but rather than make what some people may think exaggerated claims, we would have you make the test yourself. Seeing is believing—get the facts.

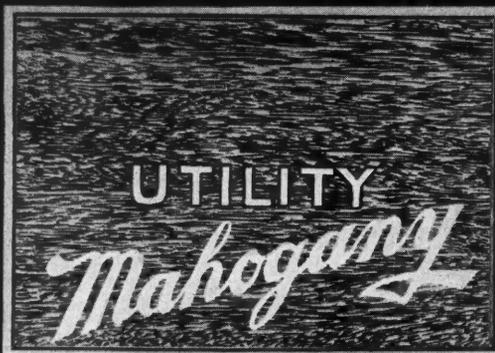
Cheaper. On account of its strength and rigidity Fiberlic will not warp, crack or split. Needs no repairing. Just you put up one Fiberlic interior in your neighborhood and see what a splendid and lasting advertisement it will be for you.

Samples and Prices on Request.

THE FIBERLIC CO., Camden, N. J.

New England Branch:
 Washington Street North, Boston, Mass.

New York Branch:
 Fuller Bros. Co., 139 Greenwich Street



Your Sample Panels of the new grained Utility Board are ready. Send for these today. Grained, not stained—the samples will show you the difference.

Write for them now

THE HEPPE'S COMPANY

"Giant" Flex-A-Tile Shingles No-Tar Asphalt Paint
Standard Flex-A-Tile Shingles Rubbertex Roll Roofing
Other Guaranteed Heppes Products

4503 Fillmore St.

Chicago



elevators, pumps, wheelbarrows, and carts.

Contractors and builders who are interested in any of the above mentioned machines should get this company's catalog. Write to The Standard Scale & Supply Co., at any of the following addresses, asking for their catalog 44-6: 1345-1347 Wabash Ave., Chicago; 136 West Broadway, New York; 243-245 Water St., Pittsburgh; 35 South Fourth St., Philadelphia; 1547 Columbus Road, Cleveland.



Automatic Control Distant Lighter and Timer

There is a very pronounced increase in the tendency to install a side or circulating tank heater in the cellar with a range boiler connected to a furnace coil.

Under this condition it is necessary for the housewife to make two trips down to the cellar; first to light the heater and later to turn it off.

A satisfactory form of distant lighter has long been sought by builders, and success in this line has now been achieved by the Gas Appliance Corporation, 1210 Arch St., Philadelphia, Pa., in the Modern Automatic Control Distant Lighter and Timer.

This device not only provides the means of lighting the heater from the kitchen or bathroom, but also extinguishes the heater automatically at the end of any pre-determined time.

With this appliance installed, the gas water heater may be located in the cellar, laundry, kitchen or elsewhere, and the timers may be located at any desired points in the house, preferably in the kitchen and bathroom.

The timer includes a thoroughly reliable clockwork device, on the face of which is a graduated dial. The simple act of turning the indicator to as many minutes as the heater is intended to burn automatically lights the heater, and at the end of as many minutes as indicated the burner automatically goes out.

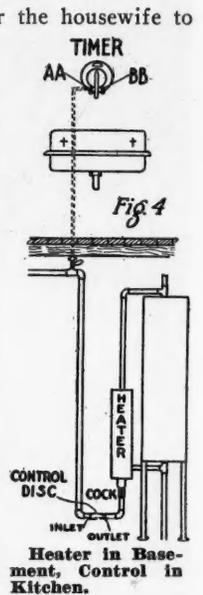
The idea has been enthusiastically greeted by those builders to whom it has been submitted, and as a result of the one year's test to which it was submitted before being placed on the market, its reliability and permanency in operation have been definitely established. Write the above company for full information.

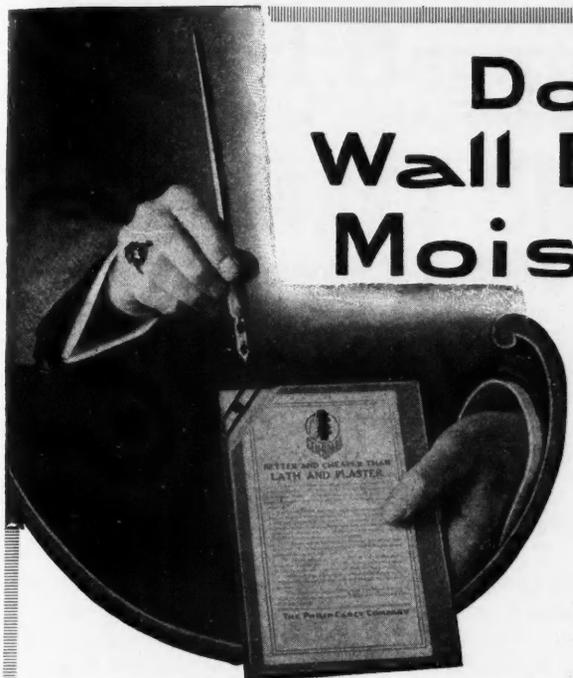


New Type of Construction

The Trussed Concrete Steel Company have a pamphlet just off the press illustrating a new type of construction, consisting of pressed steel frame work with metal lath, stucco, concrete and plaster. The Kahn pressed steel construction has a wide field of applications, its two principal fields being, first, in connection with floor of stores, apartment houses and small buildings generally; and second, in multiple or group houses for mines and industrial plants.

In floors the Kahn pressed steel beams eliminate inflammable wood joists, giving a permanent construction of great strength. Upon these beams, which are placed 23½ inches on centers, is laid ¾-inch "Hy-Rib" lath and concrete applied. Where wood floor is desired, wood sleepers are attached to the pressed steel beams by nailing between the channels. For the ceiling under the beams the ¾-inch "Hy-Rib" lath is readily attached by means of prongs on the under side of the beams. All of the pressed steel members are completely fabricated in the shops, eliminating all labor on the job. A floor of this nature costs very little more than wood joists and lath and is constructed more





Do You Handle Wall Board that is Moisture Proof?

The illustration shows a simple but effective test for all wall-boards. Cut off the corner on a bevel so as to expose the heart of the board. Place a drop of ink on it and watch results. If the ink soaks in, water will do likewise, and the board will buckle on the wall.

Send for samples of Ceil-Board made under our new moisture-proof process and make this test for yourself

CAREY

Ceil-Board

SUPERSEDES PLASTER FOR WALLS AND CEILINGS

A recent test of Ceil-Board showed that a good sized drop of ink remained for one hour and thirty-five minutes. And then it did not go into the board at all, but simply dried up just as if it had been on glass or metal. The heart of Ceil-Board is moisture-proof—not merely top and bottom as other boards are.

Ceil-Board insures you against wallboard troubles of any kind.

Ceil-Board is made scientifically throughout and in addition to being moisture-proof, it is an effective insulator and sound deadener. Furnished in Gray, Tan, Quartered Oak and Circassian Walnut finishes.

Ceil-Board is stocked at most of our branch warehouses shown below and is for sale by thousands of the best class of dealers



THE PHILIP CAREY COMPANY

GENERAL OFFICES: 1001 Wayne Ave. --:- Lockland, Cincinnati, Ohio

Atlanta
Baltimore
Birmingham
Boston
Buffalo
Charlotte

Chattanooga
Chicago
Cincinnati
Cleveland
Dallas
Denver

Detroit
Jacksonville
Kansas City
Knoxville
Little Rock

Los Angeles
Memphis
Minneapolis
Montreal
Nashville

New Orleans
New York
Philadelphia
Pittsburgh
Portland

Richmond
San Francisco
Seattle
Spokane
St. Louis

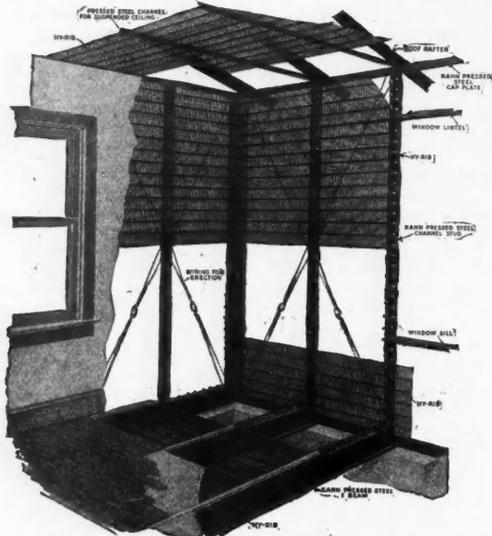
Toledo
Toronto
Wheeling
Winnipeg
Washington

rapidly and the manufacturers claim it to be more economical owing to its fireproofness and permanence.

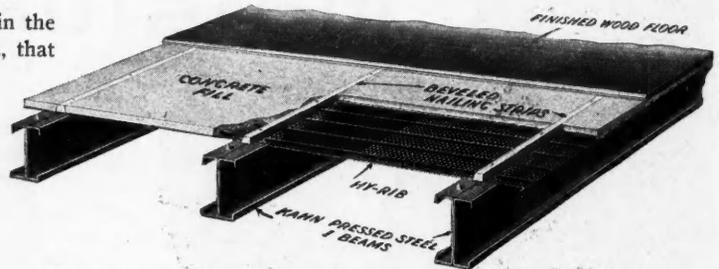
In multiple houses Kahn pressed steel construction furnishes a permanent house which can be erected at minimum cost. This construction is a result of long years of study and experiment. All wood is entirely eliminated in the structural part of the building. In spite of this, the construction can be erected more rapidly and easier than even the simplest wood construction, according to the manufacturers.

The pressed steel members are completely fabricated in the factory and provided with all connections, punching, etc., that

may be necessary. No labor whatever is required on them at the building site. The steel members are placed 23½ inches apart, as compared with 16 inches for wood construction. To join them together the simplest connection imaginable has been devised—one that entirely eliminates all bolting, punching or riveting; so simple, in fact, that a child who could operate an ordinary "Meccano" outfit could build it together. The "Hy-Rib" lath construction is merely hung



Kahn Pressed Steel Construction, showing studs, jambs, lintel and sill plates in outside walls; also beams in floor construction, roof rafters and suspended ceiling. The concrete, plaster and stucco are applied to the Hy-Rib attached to the Pressed Steel members.



Standard Pressed Steel Floor Construction with Wood Floor Finish and Plastered Ceiling.

over the prongs on the steel members, and the prongs are bent down by the blow of the hammer. After this all that is necessary is to plaster the inside and outside.

Kahn pressed steel construction has all the advantages of fireproofness, permanence and sanitation. There is nothing about it that can burn or rot out. It is germproof and sanitary in every way. A house can be designed so that you can move out the furniture and wash it out with a hose. These houses are quickly erected by an ordinary mechanic. The cost of construction compares very favorably with any other methods.

A card to the Trussed Concrete Steel Company, Department H44, Youngstown, Ohio, will bring a full description of this method of construction.

PEARL Screens Are Still New When Others Are Gone—

Does that sound like a pretty strong statement? Let us prove it. First of all, genuine Gilbert & Bennett PEARL Wire Cloth derives its rust-resisting qualities from the coating. This metallic protection is a secret composition, owned and controlled by Gilbert & Bennett. It will not crack, chip or peel off under any conditions whatsoever.



For Screening Doors, Windows and Porches—

Made in Two Weights Regular and Extra Heavy

PEARL is handsome—its original bright metallic lustre with a short exposure to the weather turns a permanent "invisible gray" and stays that way.

The thing that's making PEARL sales bigger every year is the fact that it requires no paint or repairs—it represents true screen economy. Don't be deceived. There can not be a "just the same as PEARL." The manufacture and application of the non-crack, no chip coating from which it derives its wonderful rust-resisting qualities is a secret process; the exclusive property of this company.



FREE Samples and Booklet Write our nearest office.

But to be sure of PEARL wear you must get genuine PEARL Wire Cloth two Copper Wires in the Selvage and the Round Tag bearing the Gilbert & Bennett name on each roll.

Write our nearest office for samples of both Regular and Extra Heavy PEARL, full details regarding same, and the name of the nearest dealer

The Gilbert & Bennett Mfg. Co.

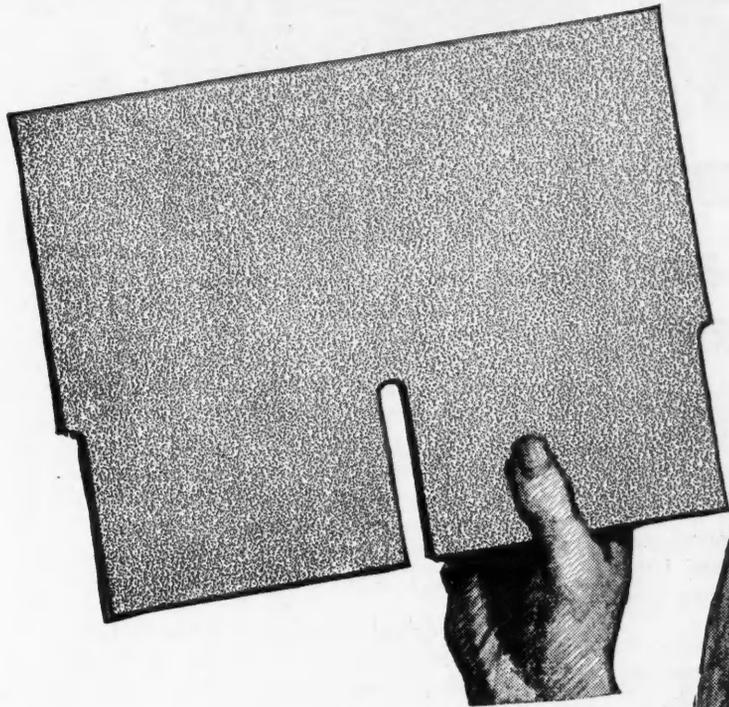
(Established 1818)

Dept. R31, 277 Broadway, New York
Dept. R31, 38 S. Dearborn St., Chicago
Georgetown, Conn.
Kansas City, Mo.



The Best Hardware Dealer in Your City Sells "PEARL"

“Why I Began Using NEPONSET Shingles”



“In the first place of course I *knew* they were durable—I *knew* the stuff that was in that heavy butt end.

“Then I found I could lay them twice as quick, because (1) you lay two at once, (2) every shingle uniform—no trimming, (3) the ‘notch’ enables you to slam them down one against the other *and yet* get the right spacing between the *butt ends*; in other words, no time lost in spacing.

“I found that the best architects were specifying them—that people in general were pleased with their appearance. I knew from experience that NEPONSET Roofing material is a protection from sparks and embers and all these things combined *convinced me that the NEPONSET Shingles were O. K.*”

The same materials are used in **Neponset Shingles** as in the well known **PAROID** Roofing; also used in **Neponset Proslate**, the highest grade colored ready roofing ever made. **Neponset Wall Board**, **Neponset Waterproof Building Paper** and **Neponset Floor Covering** are other well known **Neponset** products.

Bird & Son, Department C, East Walpole, Mass.

Please send me a sample of the NEPONSET Shingle. This does not obligate me in any way whatever. Also send copy of your booklet “Repairing and Building.”



Name.....

Address.....

COUPON

COUPON



Your Hands Can't Earn the Money You Need

You'll have to work for low wages all your life if you depend upon your hands to make your living. To earn more money you've got to learn how to work with your head—you must have *special training* for some particular line of work.

And you can get this training without leaving your home or losing an hour from your work—the International Correspondence Schools can bring it to you right in your *own home* during your *spare time*.

They can train you for the very job you want—where you can earn more than enough money to meet your needs.

If you want to advance in your present occupation, the I. C. S. can train you for promotion. If your present work is not pleasant, the I. C. S. can qualify you for a good position in the kind of work you like best.

Every month more than 400 I. C. S. students of all ages and occupations voluntarily report getting better jobs and bigger pay as a *direct result* of I. C. S. training. What these men did *you* can do.

Mark the Coupon

What occupation attracts you most or what position do you want? Mark it and mail the coupon now, and learn how the I. C. S. can help YOU to earn more money.

INTERNATIONAL CORRESPONDENCE SCHOOLS
Box 910-F, SCRANTON, PA.

Please explain, without further obligation on my part, how I can qualify for a larger salary and advancement to the position, trade or profession before which I have marked X.

<input type="checkbox"/> Architect	<input type="checkbox"/> Estimating Clerk	<input type="checkbox"/> Automobile Running
<input type="checkbox"/> Arch'l Draftsman	<input type="checkbox"/> Civil Engineer	<input type="checkbox"/> Motor Boat Running
<input type="checkbox"/> Contract'g & Build.	<input type="checkbox"/> Surveying	<input type="checkbox"/> Foreman Machinist
<input type="checkbox"/> Building Inspector	<input type="checkbox"/> Mining Engineering	<input type="checkbox"/> Sh.-Met Pat. Drafts.
<input type="checkbox"/> Structural Eng.	<input type="checkbox"/> Mechanical Eng.	<input type="checkbox"/> Bookkeeper
<input type="checkbox"/> Structural Draftsman	<input type="checkbox"/> Mechanical Drafts'n	<input type="checkbox"/> Stenographer
<input type="checkbox"/> Plum. & Heat. Con.	<input type="checkbox"/> Stationary Engineer	<input type="checkbox"/> Advertising Man
<input type="checkbox"/> Supt. of Plumbing	<input type="checkbox"/> Electrica'l Engineer	<input type="checkbox"/> Window Trimming
<input type="checkbox"/> Foreman Steam Fit.	<input type="checkbox"/> Electric Lighting	<input type="checkbox"/> Commerc'l Illustrat'g
<input type="checkbox"/> Plumbing Inspector	<input type="checkbox"/> Electric Railways	<input type="checkbox"/> Civil Service Exams.
<input type="checkbox"/> Heat. & Vent. Eng.	<input type="checkbox"/> Concrete Construct'n	<input type="checkbox"/> Chemist

Name _____

Street and No. _____

City _____ State _____

Present Occupation _____

Vacuum Cleaners Beat Brooms

Contractors should be always on the alert to suggest improvements in houses that will add to the comfort and satisfaction of the occupants. It means money in the builder's pocket because he will get more contracts if he leaves behind him the best advertisement in the world, a customer that is completely satisfied.



Thurman No. 2 Electric-Driven Stationary Vacuum Cleaner Installed in Basement of a Residence.

The Thurman Vacuum Cleaner Company, St. Louis, Mo., have a fine line of vacuum cleaners. They handle both the portable and stationary type which are suited to all conditions. They have a well illustrated descriptive

booklet showing the many uses and different types of installations of their machines. The name of this handsome booklet is, "I Can Make Yours a Dustless Home." It can be obtained of this firm for the asking, and is mighty valuable.

Their Engineering Department will be glad to take up any problem with you that may come up in the installing of either a stationary or portable system.

All communications should be addressed to the Thurman Vacuum Cleaner Company, Department N, St. Louis, Mo.

Special Monitor Ventilator

The B. F. Lichy & Sons Company have recently placed on the market a new ventilator which presents many good features.

Its price is much lower than usual and it is intended for buildings where a more ornamental cupola would be impractical. It still retains the well known Lichy dependability.

The ventilating head is made practically the same as the standard Monitor head; the cost has been cut down by making the base a trifle less ornamental. The manufacturers say that the base has not been weakened in any way.

These ventilators are made in four sizes. All are equipped with the lightning rod vane, to which lightning rods can be connected. They are all bird proof.

All our readers should be familiar with this line of ventilators and can obtain all information from the B. F. Lichy & Sons Company, Station A, Waterloo, Iowa.



Economy Model of Lichy Ventilator.

Cut Labor Costs And Leave a Better Looking Job By Recommending King Aerators and the King Sanitary Ventilating System

Why let one of your best men spend two or three days' time building wooden cupolas when a carpenter and a helper can install "King Aerators" while the crew is getting ready to leave the job?

Save that needless labor expense. It never shows its value in the eyes of the owner. Instead, recommend King Aerators and a King Ventilating system for every barn you build. You will please the owner, too. His building will be kept in a more sanitary condition—dry—free from foul air—stock live better—owner makes

more profits—speaks a better word for you.

Prevent Spontaneous Combustion

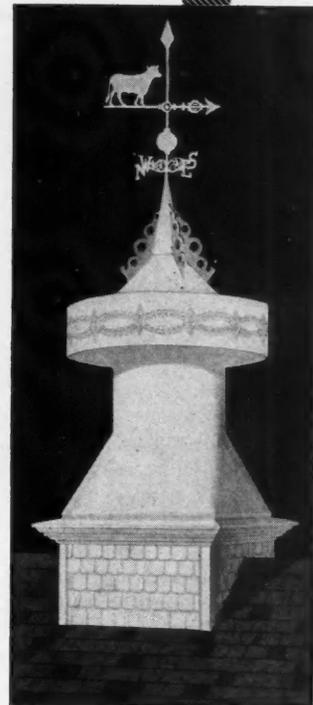
Lack of ventilation in the hay-mow has caused a large percentage of the fires in farm barns. Hay gets overheated—easily ignites—attracts lightning during thunderstorms. Efficient ventilation is the farmer's best protection against this trouble. Tell him about the King equipment.

Catalog mailed free on request.

King Ventilating Co.

1120 Cedar St.
OWATONNA, MINN.

Formerly
Galvanized Steel Cupola Co.



Our catalog will be a great help in showing your customers the beauty in architecture and efficiency of King Aerators. Let us send you a copy FREE

New Catalog of L. A. Sayre & Son.

L. A. Sayre & Son have recently issued a very interesting catalog describing their hardware specialties.

Their line of shingling tools of all kinds is most complete. It should be possible for a man to pick out the kind of a shingling hatchet he wants because of the many different styles that are shown. If you want to get in a class with the fast shingler as described in the AMERICAN CARPENTER AND BUILDER for April you should examine their line of materials. They have everything, even down to various styles of gauges.

They handle a full line of hammers, hatchets, chisels, nail sets, punches, creepers, etc. The catalog will be sent gladly to our readers who send a request to L. A. Sayre & Son, 8 Oliver Street, Newark, N. J.



Annual Meeting of the Joseph Dixon Crucible Co.

The annual meeting of the stockholders of the Joseph Dixon Crucible Company was held at the company's office in Jersey City on Monday, April 19, 1915.

There were present a large attendance of stockholders who expressed their satisfaction with the present management and re-elected the former board of directors for the ensuing year.

The vote recorded was the largest ever represented at an annual election—19,519 shares out of a possible 20,000.

The following named gentlemen are the directors elected: George T. Smith, Robert E. Jennings, George E. Long, E. L. Young, William G. Bumsted, J. H. Schermerhorn and Harry Daily.

The officers elected by the board of directors are: President, George T. Smith; vice-president, George E. Long; treasurer, J. H. Schermerhorn; secretary, Harry Daily; assistant secretary and assistant treasurer, Albert Norris.

Another New Money-Making Suggestion for Contractors

The growing popularity of the Heppes Company's new utility board in grained wood finishes has induced these manufacturers to make another new profit-building suggestion to contractors, carpenters and builders. This suggestion is to figure the paneling and decorating in one lump sum because of the simplicity with which both of these jobs can be handled simultaneously where Utility board in grained wood finishes is used.

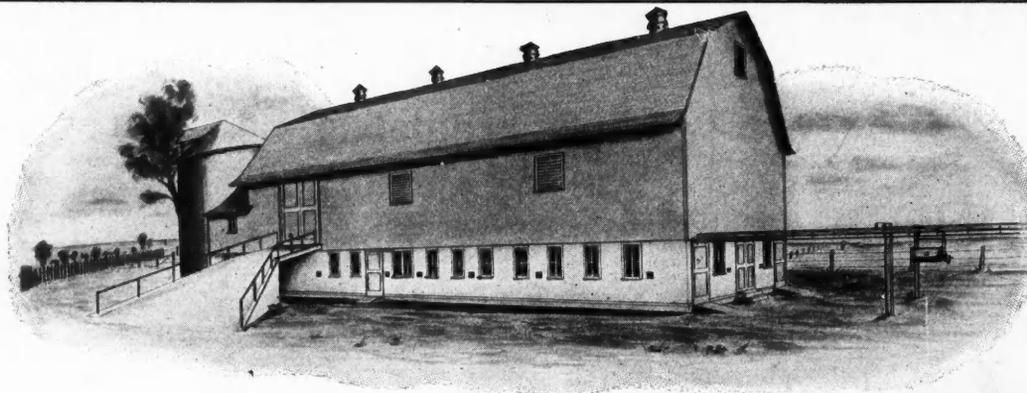
Many contractors have already written to the Heppes Company regarding the saving in time and overhead costs that this method of handling a job makes possible and in all their communications there is an enthusiastic note of approval of the Heppes Company's progressive methods in aiding the contractor.

The Heppes Company, who are located at Fillmore Street and Kilbourne Avenue, Chicago, will gladly give you full details about the interesting co-operation that they extend.

Besides grained wood finished Utility Board, the Heppes Company also make a standard finish Utility Board, as well as a complete line of high-grade stone surfaced asphalt roofings—roll and shingle—under the trade name "Flex-a-Tiles."

Perhaps the most interesting feature about these Flex-A-Tiles is the shingle known as the Flex-A-Tile Giant Asphalt Shingle. This shingle is really giant in every way—in size, weight, strength and stiffness. It gets its extra strength and extra weight from heavy wool felt, which is saturated with twice its own weight of rich, thick, oil-free asphalt and then coated with hot rubber-like gilsonite. Into this beautiful surface coatings of slate and granite are imbedded under tons of pressure.

Flex-A-Tile Giant Shingles are one of those things whose merits every contractor should be thoroughly conversant with.



Contractors and Builders

Are you going to secure your share of the barn contracts to be awarded in the near future? You will agree with us that this work is of a profitable nature, and especially so in view of the assistance we offer.

Our **Free Service Bureau** is maintained for the benefit of all those interested in better barn construction and equipment. **Floor Plans** are submitted without expense or obligation, and any additional information is promptly furnished upon application.

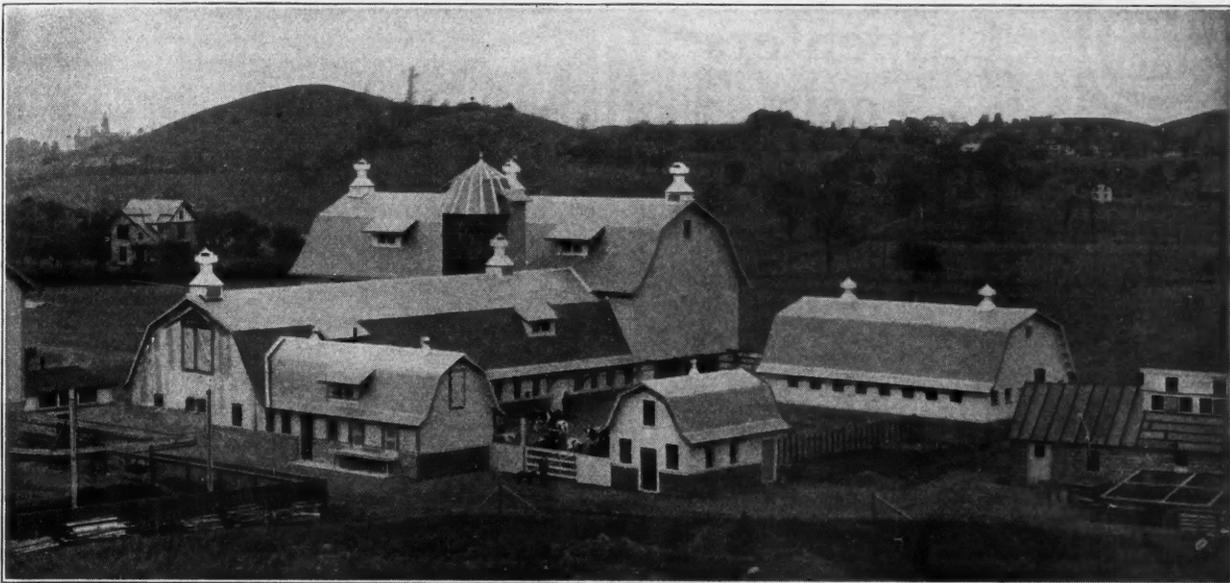
Investigate and determine the prospective barn builders in the community; then call on us for any assistance relative to the interior arrangement, construction, ventilation, etc., and see to what extent **Porter Service** serves.

New **Barn Plan Booklet** and **Complete Catalogue** furnished upon receipt of your letter containing the names of parties who expect to build or remodel barns.

Write **today** and learn more about modern barns and equipment.

J. E. PORTER COMPANY

620 Fremont Street, OTTAWA, ILL.



Make Barn Building A More Profitable Part of Your Work

Builders in all parts of the country have *made more money* after taking advantage of JAMES Barn-Building Service. Many of them have developed their business with dairy farmers until it has become the biggest part of their work.

The barn shown at the top of this page is a typical JAMES barn—one that any builder could be proud of, and the kind that makes every dairy farmer who sees it wish for one just as good. We have often told builders that one JAMES barn—built by the local man with the advice and assistance of JAMES experts—leads to many more good jobs in the same neighborhood, and this holds true in

every locality where builders have taken advantage of JAMES service.

It pays any builder to study up on the latest sanitary and economical methods of barn construction. We work with the builder, helping him in every possible way, and he gets credit for a fine, satisfactory job after it is finished.

Why not join us in getting more barn-building business in your neighborhood? Why not enjoy the bigger profits that are absolutely sure to come from this kind of co-operation with men who have devoted their lives to barn-building and barn-equippping problems? Why not avail yourself of this helpful

Free Service for Builders

This service tells all about the proved principles that have made the JAMES organization undisputed leaders in this line. It describes the plank-frame construction—describes proper ventilation principles, location of barn, lighting, size and arrangement, construction of floors, position of posts, drainage, equipment, etc.

We help you get the business. Just answer the questions indicated in the coupon—give us the names of dairy farmers in your section who expect to build or remodel their barns—and we will work with you in landing some good jobs and putting them through so they will be right. We have complete blueprints, specifications, floor plans and lumber bills for many different types and sizes of modern dairy barns. Ask about them—ask about our *Special Blueprint Offer* and learn how to get the free assistance of our Architectural Department.

JAMES MFG. CO.

C. Z. 75 Cane Street

FT. ATKINSON, WIS.

This Coupon Brings It

James Mfg. Co.,

C. Z. 75 Cane St., Ft. Atkinson, Wis.

I would like to have the benefit of your free service for Builders, including information regarding blueprints of dairy barns, etc., and your free book, "Building the Dairy Barn," by W. D. James. I am enclosing a list of those in my neighborhood who expect to build or remodel dairy barns, and number of cows to be accommodated in each barn.

Name

Postoffice

State



Carpenters Tools

ESTABLISHED 1869

Mr. Carpenter:

We want to get better acquainted with you because we can help make your work more profitable by furnishing tools that will give satisfaction.

The V. & B. All Steel Wood Chisel is designed for prying and cutting.

How often you want a tool that can be struck a hard hammer blow. Use this tool. It will not break or take a set.

Sizes...	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Price.....	\$0.50	\$0.55	\$0.60	\$0.70	\$0.80	\$0.90



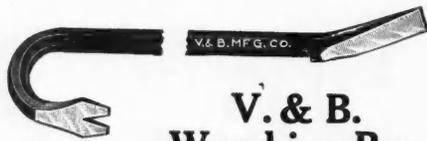
Hammers



Bell Face Pattern

V. & B. Hammers will please you because they are correct in the small details. You can depend upon the claw gripping the nail, the face has the correct crown. The Hang is right. Every Hammer is tested.

Weight, ozs...	24	20	16	13	10	7	5
Price, each...	\$0.85	\$0.80	\$0.75	\$0.70	\$0.65	\$0.60	\$0.60



V. & B. Wrecking Bar

V. & B. Wrecking Bars are not the common ordinary kind. They are tempered properly and will stand hard usage. Note the heel on the prying end. It gives additional leverage. The bend is painted RED.

Length.....	12	20	24	30	36
Price.....	\$0.40	\$0.65	\$0.70	\$0.75	\$1.25

If your dealer cannot supply you, write us.

Vaughan & Bushnell Mfg. Co.
 Dept. A, 2130 Carroll Ave.,
 Chicago Illinois

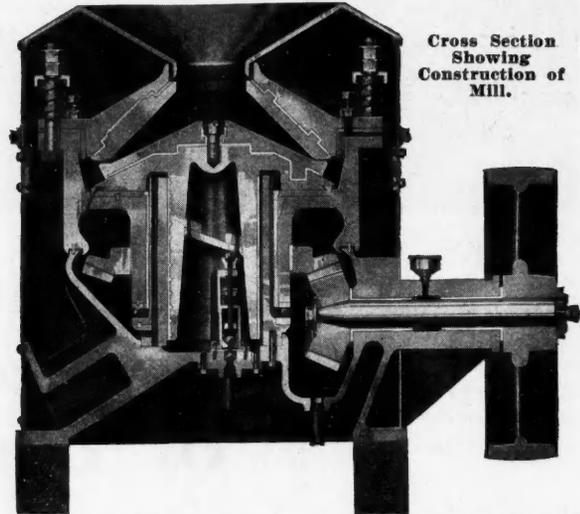
Their popularity is growing daily.

The many other roll roofing products of the Heppes Company have won high repute for quality, satisfaction and economy with the trade. Liberal samples of all their products—wall board as well as roofing—will be sent gladly on request.

The "TelSmith" Intercone Mill

The two illustrations shown here are of a new secondary crusher that has been placed on the market by the Smith Engineering Works. It is designed to take material of 3-inch size and crush it down to $\frac{1}{2}$ or $\frac{1}{4}$ inch.

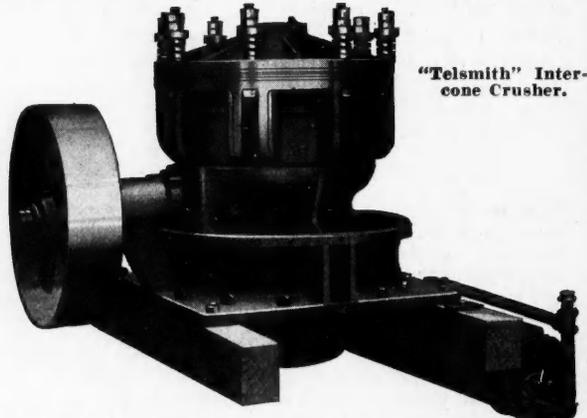
The cross-section view shows the main features of the construction of the machine. It consists of a stationary base, an eccentrically mounted cylinder fastened rigidly to



Cross Section Showing Construction of Mill.

the base, a main frame that revolves, and an umbrella shaped head that revolves on the inside. Both the main frame and the head, which are of manganese steel, rotate; but they revolve about different centers and thus the material is pinched as the two surfaces approach each other.

To guard against breakage in case a sledge or some other piece of steel gets into the crusher, the mantle above the head is attached to the main frame by spring bolts. Also the flywheels are fastened on by friction brass keys that will allow the wheel to slip on the shaft in case of unusual strain.



"TelSmith" Intercone Crusher.

The manufacturers have recently had a very attractive catalog printed which they say is the most complete they have had of TelSmith crushers. All their various styles are described and illustrations are shown of them. There are also screen tests showing what has been actually accomplished with their crushers. A request to the Smith Engineering Works, which is affiliated with the T. L. Smith Company, of 3123-G Hadley St., Milwaukee, Wis., or 1443-G Old Colony Building, Chicago, Illinois, will bring full particulars.

The Pinnacle

of Perfection



STEEL

LEVELS

Cost no more than wood

Practically Unbreakable

Cheaper than Aluminum

Easy to Read

Light and Strong

Can not warp

Durable

Accurate

With these Levels you can easily establish any grade in degrees or inches Rise to the foot—or find any Grade already established.

Think what that means—a level that indicates in inches or degrees the number of inches rise to the foot of the surface or place upon which the stock rests. No figuring—read it right on the graduated ring. Consider how valuable it is on Framing and all kinds of work.

A word about the construction of ACME STEEL LEVELS

Acme Steel Levels are all made of cold rolled steel strips, substantially put together. Frame is nickel-plated and the webs oxidized. Years of hard use has demonstrated the correctness of this construction, Acme Steel Levels remaining perfect, unwarped and in good condition. They are all provided with the best proved vials obtainable and are guaranteed to give accurate readings when in adjustment. Acme Steel Levels come in all sizes for all sorts of work. We call special attention to our No. 6 Casing and Graduated Ring, which can be inserted in long levels or Straight Edges. We also make try-squares equipped with our indicating vial. Acme Steel Levels come in various lengths, but are of a uniform width, being 2 3/4" wide.



Ask your Dealer for ACME LEVELS and Try-Squares. Every dealer should carry these up-to-date improved Levels. If he doesn't carry them write to us and we'll supply you direct. If you send us your name and address we'll send you a booklet showing 'all our styles and explaining "ACME" construction.

THE ACME LEVEL CO.

2104-A Detroit Ave.
Toledo, Ohio

No. 3

No. 8 Baby Level.

No. 7 Acme Square

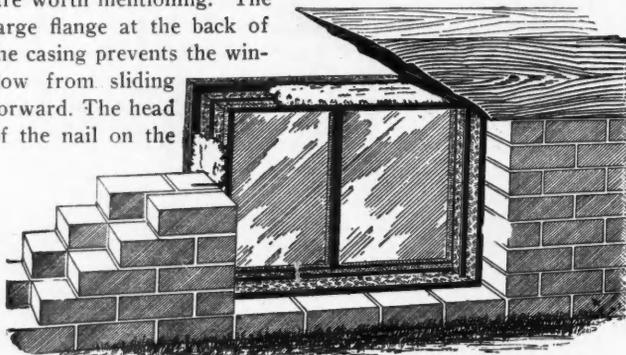
No. 6 Casing and Graduated Ring

This Window Lasts

We have often wondered why people stick to the old wooden window and frame in the basement of the house. The woods swell and rot so that whenever you are in a hurry it is comparatively easy to open one if the hatchet is handy. The only really quick way to accomplish the result is to throw the hatchet through the window. You may be able to pry it open in time; but this is doubtful.

The "Chief" cellar window eliminates this trouble because it isn't made of wood, but of galvanized steel. Wood is all right in some places, but not for cellar windows.

The illustration is taken of a section of the foundation and window in place. Several features of the construction are worth mentioning. The large flange at the back of the casing prevents the window from sliding forward. The head of the nail on the



The "Chief" Galvanized Iron Cellar Window is Weather Tight.

left hooks over the outside flange of the casing and prevents it from sliding backward after the nail is once imbedded in the foundation.

It is perfectly evident that the window cannot move sideways or up and down.

Get acquainted with this window. Take care of details such as this on the houses you build and you will build more houses. A card to Schrauger & Johnson, 430 Walnut St., Atlantic, Iowa, will bring full particulars concerning this window and their other metal building specialties of the well known "Chief" line. ❖

Clinton Lath and Plaster Books

The two books, "Clinton Handbook on Lath and Plaster," and "Successful Stucco Houses," published by the Clinton Wire Cloth Co., Clinton, Mass., are among the most interesting and instructive that we have seen in a long time. They are very attractively made up and in addition to their ornamental value they contain a great deal of information that is mighty important to the up-to-date contractor and builder.

The "Handbook" is profusely decorated with illustrations of many handsome houses that have been built with their wire lath, also with a series of detail sketches showing construction of walls of various types, ceilings, partitions, etc. These sketches should be very valuable for reference purposes to the man who is interested in modern construction.

The illustrations reproduced on page 120 give an idea of the character of the sketches in their handbook.

The quality of Clinton wire cloth needs no recommendation from us. It has stood the test of time and has come out a winner. It was used in a building in Boston, put up in 1856, and when that building was altered recently the wire lath was still in perfect condition and the plaster showed no signs of cracking. Such records as this speak for themselves. They can show many more examples where similar results have been obtained.

All the stock grades of this wire lath are made from No. 18 to 21 gage wire, spaced $2\frac{1}{2}$ meshes per inch. Where the furring strips are widely separated or where special rigidity is needed, the lath is provided with "V" stiffeners. These

Last Like Stone—Cost Like Wood

You can now give the builder columns that will last like stone, yet cost little more than a so-called good wood column.

UNION METAL COLUMNS

"THE ONES THAT LAST A LIFETIME"

will not split, check, rot, warp or open at the joints—things which sooner or later make trouble on every job where wood columns are used.

The shafts are of open hearth steel specially galvanized for this purpose and then fluted and tapered in correct proportions by patented machinery. The columns have the required entasis and stopped flutes.

Send for booklet showing designs and sizes with hundreds of buildings where they have been used.

Complete catalog in SWEET'S

THE UNION METAL MFG. CO.,

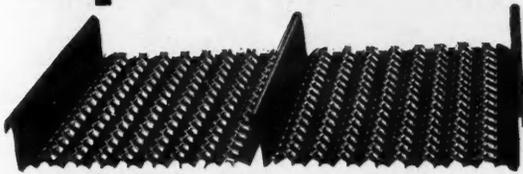
CANTON, OHIO

No. 224
Roman Doric



First Presbyterian Church, Murfreesboro, Tenn.
D. Anderson Dickey, Nashville, Archt.





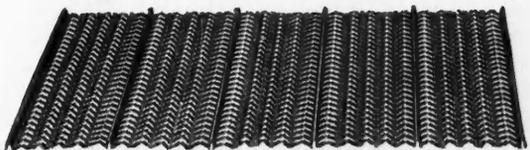
1 1/2" Hy-Rib—Very Rigid—For heavy loads and wide spans.



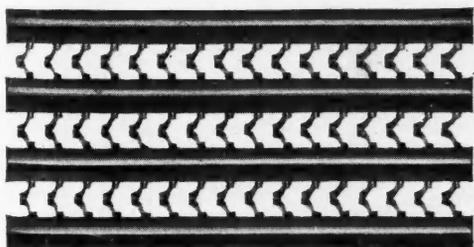
1/2" Hy-Rib for floors and roofs without forms—Sidings, partitions and ceilings without channels.



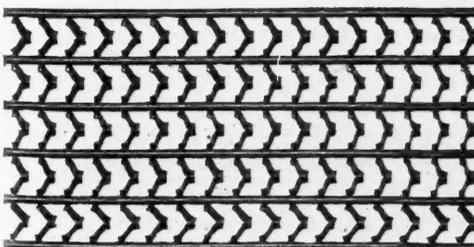
1/4" Hy-Rib—Widely used in partitions, sidings and ceilings.



3/8" Hy-Rib used as a self-furring lath and in partitions, ceilings, etc., for stud spacings 24 to 36 inches.



Beaded Plate Rib Lath—Permits two-coat work instead of three.



Standard Rib Lath in 3 Gauges—also "B" Rib Lath, similar in design.



It's the strength of the ribs that counts.

A Complete Line of Perfect Products for Concrete, Stucco and Plaster

When you build you want to use the best products and secure the most economical results. Our complete line is the result of years of experience and development, and includes a special product to exactly meet all requirements of construction — each product amply strong but not an ounce of material wasted.

Hy-Rib, Rib Lath, Steel Studs, Etc.

HY-RIB is a deep-ribbed steel sheathing combining in a single sheet, forms, reinforcement, lath and channels. Manufactured in four types from 1 1/2" to 3/8" and each of these in various gauges. Hy-Rib eliminates forms in concrete floors and roofs and eliminates channels in partitions, sidings and ceilings. 3/8" Hy-Rib is widely used in connection with Kahn Pressed Steel Channels permitting spacings of from 24 to 36 inches and providing most economical construction for partitions and ceilings.

RIB-LATH is the stiffest steel lath and in the heavier grades permits two-coat plaster work instead of three—saving in time, labor and materials —also allows wide stud spacing. Rib-Lath is manufactured in three types and various gauges.

DETROIT DIAMOND LATH—A diamond mesh lath furnished in various gauges and plain, painted or galvanized.

STEEL STUDS—Made of pressed steel in various sizes from 3/4" to 2"—Very true and rigid—Also Kahn Pressed Steel Hollow Studs for hollow walls and partitions.

We also furnish Steel Corner Beads of various types, as well as Metal Base Screens, etc.—No matter what your requirements in reinforcement for concrete, plaster or stucco work, we can fill your needs and save you money. Secure our estimates. Catalog free.

Trussed Concrete Steel Co.

Reinforcement, Metal Lath, Steel Sash, Armor Plates, Waterproofings, Specialties
Representatives in Principal Cities

Dept. H. 44 YOUNGSTOWN, OHIO



Kahn Pressed Steel Channels—Also Hollow Studs.





“ INTO THE DISCARD WITH IT ”

Those are words that you may hear any day in our factory. For, while only the most expert workmen are employed, the highest quality steel used, and the most modern machinery installed, human artisanship is never quite infallible. To overcome this every

GERMANTOWN MASTER BUILDER

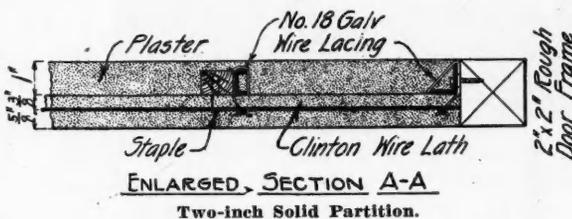
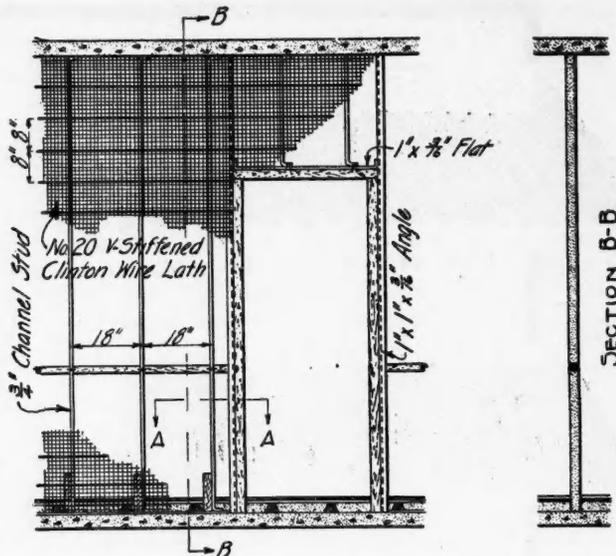
Tool goes through the most rigid inspection during every stage of its manufacture. All through the factory you will find long tables in charge of keen-eyed men, whose duty is to look for, and to spot, defects. Very often this defect is only a detail that not even the most exacting user would ever notice—a line not quite true, a balance some fraction of a degree under perfection. But the minute that “something-not-quite-right” is seen smack goes the tool into the discard pile.

This system of inspection is expensive to maintain—but we are proud of it, and would not allow it to relax for an instant. It is one of the factors that has operated for over 57 years in establishing the reputation for absolute quality enjoyed by every GERMANTOWN MASTER BUILDER Hammer, Hatchet or Ax.

Not a Tool can leave our hands unless it is right in positively every particular. Good workmen the world around know this, know that when they buy a MASTER BUILDER they are getting a Tool that they can depend on to do its work steadily and well for a long number of years.

GERMANTOWN TOOL WORKS
Philadelphia, Pa.

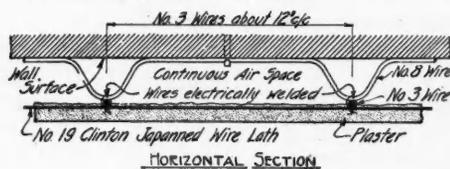
Branch: 62 E. Lake St. - CHICAGO



are V-shaped ribs made of 24-gage steel, which is fastened across the lath at intervals of eight inches. These ribs are held onto the lath by steel clips. These ribs can often be used as furring strips so that the lath can be applied directly to flat surfaces and there will still be clearance enough behind to furnish a satisfactory key for the plaster.

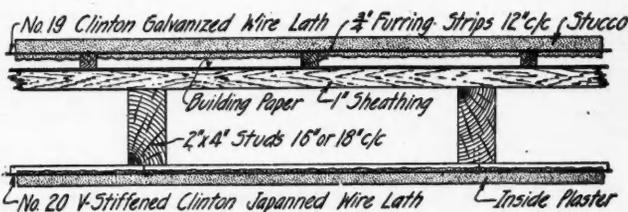
We think that these books will be mighty valuable to all

NOTE: Furring consists of "Clinton Electrically Welded Wire" with the No. 8 wires crimped as shown to give the No. 3 wires the desired offset from wall.



Clinton Welded Wire Wall Furring.

builders and we urge readers to send for them as they can be had for the asking. Send a request to the Clinton Wire Cloth Co., Clinton, Mass. Their engineering department, which has had years of experience, will be glad to assist you on any of your problems pertaining to stucco or concrete work.



Section of Stucco Wall with Sheathing.

Cut Nails

Make Safe Scaffolding

They possess a grip like a bull-dog and never give way. Actual tests by you and your men will give a feeling of perfect safety and security on scaffolding put up with Cut Nails.

Cut Nails are becoming more and more popular every day. Why shouldn't they?

Safety



First

They cost less than wire nails and are far better in many ways.

Cut Nails make for better and permanent building, a thing to be desired by both builder and owner.

They are practically rust-proof—the average wire nail becomes a thin streak of red dust in a few years. We have examples of cut nails that have seen over 200 years of service and are still bright and good for many years more.

Your Dealer carries cut nails, if not, write to the nearest manufacturer below and receive Free Samples and name of nearest local Dealer.

CUT NAIL MANUFACTURERS

Williamsport Iron & Nail Co., Williamsport, Pa.

E. & G. Brooke Iron Co., Birdsboro, Pa.

Van Alen & Co., E. G. Van Alen, Northumberland, Pa.

Geo. B. Lessig Co., Pottstown, Pa.

La Belle Iron Works, Steubenville, O.

Tremont Nail Co., West Wareham, Mass.

Norton Iron Works, Ashland, Ky.

"Highwood" Dumbwaiters at a Saving

The Highwood Dumbwaiter Company, 134 Highwood Avenue, Leonia, N. J., have a most complete line of dumbwaiters for all kinds of conditions and service.

They request you write to them and get acquainted with their extensive line. Their dumbwaiters are made to fit all the various problems that come up in this field.

They are well fitted by their years of experience to handle all the requirements as to speed, capacity, and quality. They want to deal directly with contractors and builders in the marketing of these high-grade dumbwaiters.

We think that our readers will find it worth while to get their literature and the benefit of their experience.



Cortright's Chicago Office Moves

The western office of the Cortright Metal Roofing Company, formerly located at 160 North Fifth Avenue, Chicago, has been removed to the Rand McNally Building, 538 S. Clark Street, Chicago.

The change in office location in no way interferes with their arrangements for carrying a large stock of their various shingles at their Chicago depot, permitting prompt shipment to all parts of the Middle West or Pacific coast points.



"Neptune" Water Supply Systems

The compressed air method of supplying water to farms and houses in towns where there is no public water system is coming into favor more and more. A pressure can be maintained that is adequate for fire protection and it is not always practical to do this with an elevated tank unless a tower is built, which is expensive. An outside tower tank is always in danger of freezing also.

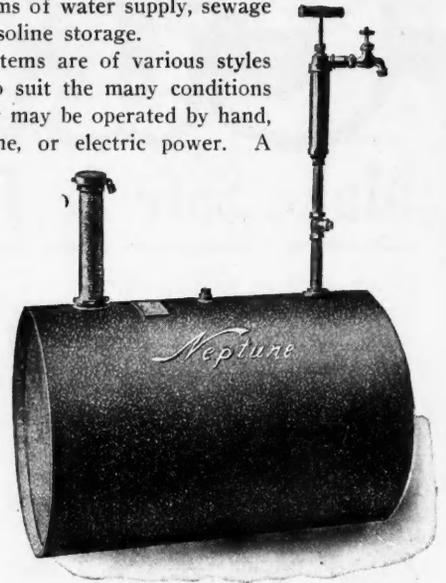
Fleck Bros. Co., 50 North Fifth Street, Philadelphia, Pa.

make various types of compressed air water systems that can be suited to all conditions. They make the well-known "Neptune" systems of water supply, sewage disposal, and gasoline storage.

The water systems are of various styles and capacities to suit the many conditions that arise. They may be operated by hand, windmill, gasoline, or electric power. A central plant supplying several houses makes an ideal arrangement.

They all operate by compressed air. The water is pumped into a tank which is closed and the air is compressed. The expansive force of the air drives the water to the various outlets. The water may be obtained from a well, spring or river; in fact, any convenient source of supply.

This company's Catalog No. "V. A. B." describes all the types of water systems as well as sewage disposal of gasoline storage system. Their engineering department will be glad to take up your problems with you. This catalog is well illustrated with cross sections showing typical installations. They will send it on request.



Fleck Bros. Co. Gasoline Storage Tank.



TRUCKS

NOTICE!

Special device for unloading long and bulky material.

PRICE CHASSIS

\$1800

Model "C" 3,000-4,000 lbs. Capacity

For ECONOMY and SERVICE the "DART"

is always foremost. A reliable and dependable Truck. The satisfaction you would receive from Motor Truck service in your business is most forcibly conveyed in the fact that the demand was never greater.

The "DART" is especially constructed to fill your requirements. Use the coupon for particulars.

DART MOTOR TRUCK CO.

DEPT. C-6
WATERLOO - - IOWA

DART MOTOR TRUCK CO., Waterloo, Iowa DEPT. "C-6"

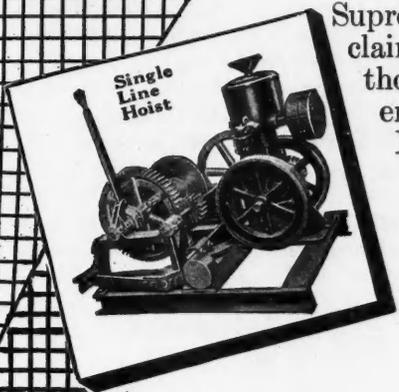
Gentlemen:—Please send "DART" Motor Truck information.

Name.....

Address.....

-Contractors
who want
"Constant
Service"
use **IDEAL**
Power

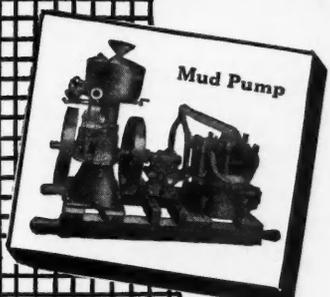
Your equipment needs the magnet power of "Constant Service" engines to realize highest profit percentage.



Supreme and conclusive are the successes of Ideal Power. Their claims of "Constant Service" are proven by the verdict of many thousand users. Power users find in Ideal Power a durable engine of simplicity, compactness and modern construction. Now—more than ever before, have power users realized the efficiency of **enclosed crank case, large valves, and cooling hopper.** In Ideal Power is represented the best of engine building designs. **Self oiling bearings,** quiet and effective action of all working parts **eliminates vibration.**

A power plant of the highest efficiency—Ideal Quality, Constant Service, all backed by the reputation and guarantee of the strongest of engine builders.

Ideal Type M Engines

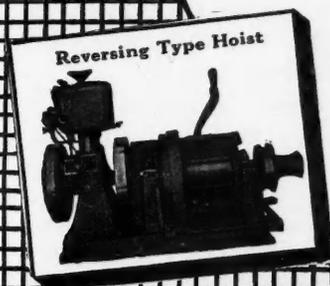


Ideal Single Line Hoists

These single drum hoists are without an equal. *Just the very thing* for the carpenter and general builder. Powerful and adapted to practically every line of hoisting. *Low first and operating cost. Why not put one on your job?*

Ideal Reversing Hoists

Especially for heavy work—operating double cage elevators, bucket and material lifts. Easily controlled, powerful lift, strong brakes, and exceeding sturdy build.



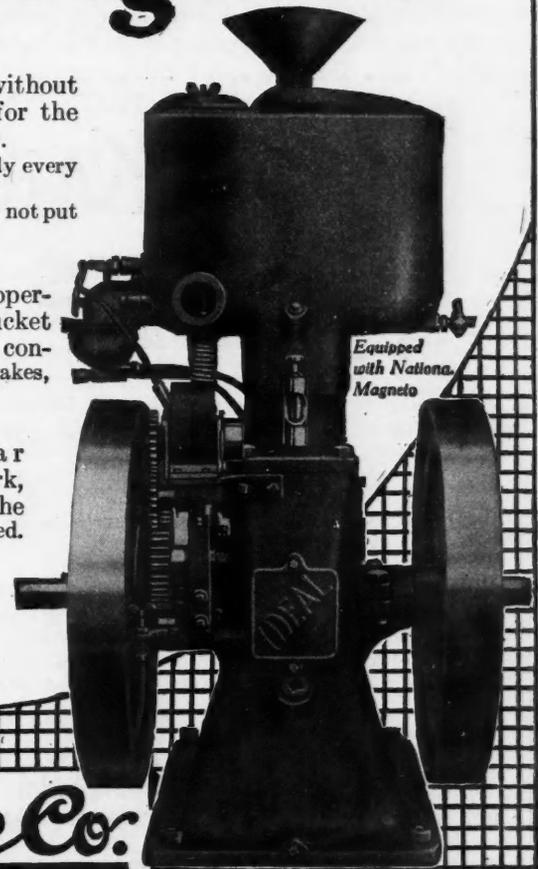
Ideal Diaphragm Pumps

Special designed worm gear pump jack. For quick work, and large capacity—This is the pump to buy. Skid or truck mounted.

We also build:—

- Ideal Double Drum Hoists
- Ideal Tank-Force Pumps
- Ideal Centrifugal Pumps

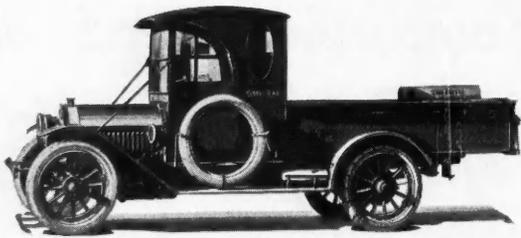
WRITE NOW for Prices and Catalog 415



Original Gas Engine Co.

R. E. OLDS, Chairman

630 Kalamazoo St., E., Lansing, Michigan



KisselKar Trucks Always on the Job

KisselKar Trucks are invariably spoken of by drivers and garage men as the best trucks they know.

And it's true that a KisselKar Truck is of better material, better built, better balanced than the average truck. It is a staunch, powerful, dependable, scientifically constructed vehicle—one that is always on the job.

KisselKar Trucks are furnished in six sizes and with bodies to suit any business or special requirement. The loading capacities are 1500 lbs., 1, 1½, 2½, 3½ and 6 tons, respectively.

KISSELKAR TRUCKS

In Six Sizes

Intelligent care is exercised by the Kissel Motor Car Company to furnish the exact truck needed by a customer.

Individual conditions, as well as those common to the line of business to be served, are minutely considered and advice given accordingly.

Write fully regarding your haulage problem—the mileage, the loads, the nature of cargo, the condition of roads, the number of stops, your present haulage equipment and all other facts that bear. And don't fail to ask for our illustrated portfolio.

Kissel Motor Car Co.

546 Kissel Avenue Hartford, Wisconsin

New York, Chicago, Boston, Philadelphia, St. Louis, Milwaukee, St. Paul, Omaha, Minneapolis, Cincinnati, Pittsburgh, Cleveland, Detroit, San Francisco, Los Angeles, Seattle, Buffalo, Rochester, Columbus and 300 other principal points.

Handbook of All Leading Brands of Metal Lath

The Associated Metal Lath Manufacturers have recently published a book which is of inestimable value to the architect and builder.

This association is composed of many of the leading metal lath manufacturers who have cast aside all differences to attain the common end of educating the public concerning the proper use of metal lath. The book is issued with this in view, and contains unbiased descriptions of the various types of metal lath as manufactured by the members of the association. The weights and sizes of all these types are given, together with the method of shipping. The book is well illustrated with pictures of the many kinds of lath, which show the special features of each.

Aside from the information concerning all the types, the handbook contains even more valuable information to the builder in the pages describing the methods of handling metal lath and the plaster coat so as to obtain the best results. There are full descriptions of the approved way of preparing surfaces for the application of metal lath and plaster or stucco for both outside and inside finish. Complete specifications are given for all the materials that enter into this method of construction. This part of the book is illustrated with fine working drawings, showing details of construction of all parts of building.

The first part of the book is given over to a series of tests made on metal lath construction to show its fire-resisting qualities. All the ordinary methods of construction were tested out under a treatment such as they might receive under the worst possible conditions at a fire. In special furnaces the panels were heated up to high temperatures and a stream of water was directed against the panel while at these temperatures. The results of these tests are all tabulated. Illustrations are shown of the panels at different times in the test.

The Association is composed of the following members:

The American Rolling Mills Company, Middletown, Ohio; The Berger Mfg. Company, Canton, Ohio; The Bostwick Steel Lath Company, Niles, Ohio; Consolidated Expanded Metal Companies, Braddock, Pa.; Corrugated Bar Company, Buffalo, New York; Penn Metal Company, 201 Devonshire St., Boston, Mass.; The Garry Iron & Steel Company, Niles, Ohio; The General Fireproofing Company, Youngstown, Ohio; North Western Expanded Metal Co., 918-950 Old Colony Bldg., Chicago, Illinois; The Sykes Metal Lath & Roofing Company, Warren, Ohio; The Trussed Concrete Steel Company, Youngstown, Ohio.

All of our readers should have a copy of this new Metal Lath Hand Book. For information regarding it, address the Commissioner's office, the Associated Metal Lath Manufacturers, 812 Wick Building, Youngstown, Ohio.



Pullmanize Your Windows

Dependable spring sash balances are coming into popularity more and more because of their simplicity.

The Pullman Manufacturing Company make a spring sash balance known as the "Unit Sash Balance." It gets this name because of the uniform size of the face plates which allows the mortises to be cut at the mill when the frames are made.

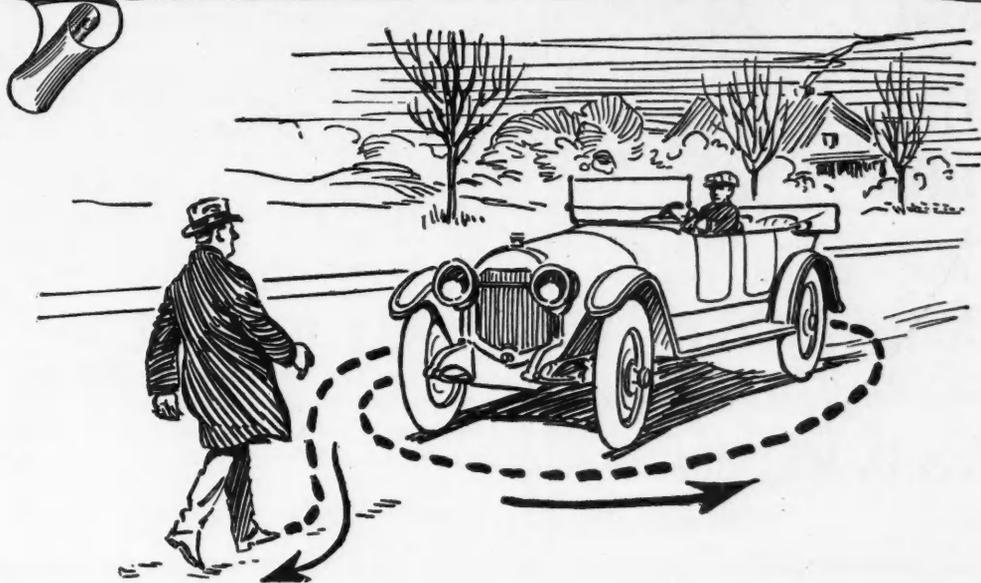
The Pullman sash balances are made of pressed steel and according to the manufacturer are unbreakable and absolutely noiseless. The balance consists of a clock spring inside a revolving drum with a special metal tape wound outside the drum and kept in tension by the spring inside.

"Unit Sash Balances" are made in various styles to suit all conditions. If very narrow mullions are used, they have a top balance that is placed over the sash; also they have a corner balance for cases where there is neither room for a top balance or an ordinary side balance. There are tandem balances for extra heavy windows and doors, and cabinet balances for show cases and wall cases with doors that either raise or drop.

*The result of
22 years' successful
experience in
building motor cars*



America's Greatest "Light Six" \$1485
TRADE-MARK REGISTERED



You Can Drive This Car *Slower Than a Walk*—on High Gear

You can throttle down to *one mile per hour* on high gear without causing the motor to labor—yet touch the mile-a-minute mark with *ease*, in America's Greatest "Light Six."

To convince him that the perfectly balanced motor of America's Greatest "Light Six" would permit throttling down to one mile an hour on high, at our request a business man got out, *walked alongside the car, walked around the car, and walked backwards in front*

of the car—while it was moving on *high gear* during a demonstration.

This low throttling feature—more than anything else—makes America's Greatest "Light Six" the *safest* car for women to drive.

Two Models—Three Body Styles

Model 30—America's Greatest "Light Six"—5 passenger touring car, 121-inch wheelbase, weight 2950 pounds	\$1485
Model 30—The Prettiest Roadster in America.....	1485
Model 30—The Haynes "All-Weather" Cabriolet.....	1750
Model 33—The Kokomo "Six"—a "light," 7-passenger touring car, 127-inch wheelbase, weight 3050 pounds	1550

This Coupon will Bring You Our Latest Catalog

WRITE NOW TO

THE HAYNES AUTOMOBILE COMPANY, 14 So. Main St., Kokomo, Ind.

Please send me your 1915 catalog with full particulars in regard to America's Greatest "Light Six."

Name....., Address.....

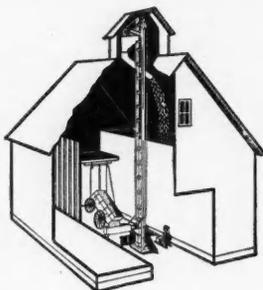
I expect to buy a car about.....

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Mr. Contractor

You can substantially increase your profits by recommending and installing the

Farmer's Friend Cup Elevator



for elevating grain, coal, sand, fertilizer and all products ordinarily handled with a scoop.

Big demand—substantial profits—best cup elevator on the market for general use.

Write today for Liberal Proposition

G. & D. Mfg. Co.

Dept. N. - Streator, Ill.

The manufacturers say that there are balances of this type that have been in use for 20 to 25 years and are still in fine working order. They will be glad to send a catalog describing their various balances and showing some of the buildings in which they have made large installations.

Address all communications to the Pullman Mfg. Co., 10 Industrial St., Rochester, New York.



Rustproof Screens

The attitude of the average person toward screens is expressed by the epigram, "Screens is Screens." When the fly footer is in need of repairs, the man who is doing the work gets a few yards of screen with no regard to its non-rusting and wearing abilities.

The Reynolds Wire Company, Dixon, Ill., say that it is not necessary to replace screens all the time. They guarantee the non-rusting characteristics of their especially finished screens.

According to the manufacturers, this rust-proof "Alumina" screen is finished with ten coats composed of three different materials. The copper coats are put on first; then the zinc coats are applied, and lastly a finishing material of lacquer is put on, which protects the zinc and also adds to the rust-resisting qualities of the screen.

All these coats are applied to the wire cloth after weaving by an electro-galvanizing process.

The color after finishing is a dull aluminum, making a handsome, distinguished looking screen.

The manufacturers of these screens with the "Sun-Red Selvage" are willing and anxious to send samples of their product to our readers together with a description of their processes. They invite comparison.

Address all communications to the Reynolds Wire Company, 85 River St., Dixon, Ill.

"Camp" Grain Elevator

Installed in the Cribs you build means that the owner will be more than satisfied

When you install the "Camp" Cup Elevator you can be sure of two things:

First—The "CAMP" is easily installed, it is constructed along most simple lines and takes up the least room in the crib.

Secondly—Every farmer will quickly realize that the "CAMP" Equipment is the modern, safe and economical product. This is the only Hydraulic machine on the market and appeals to everyone, everywhere.

FREE—Let us send you **Free** plans showing how the "CAMP" can be installed—they will assist you in building cribs, thereby, you are assured better results with less effort.

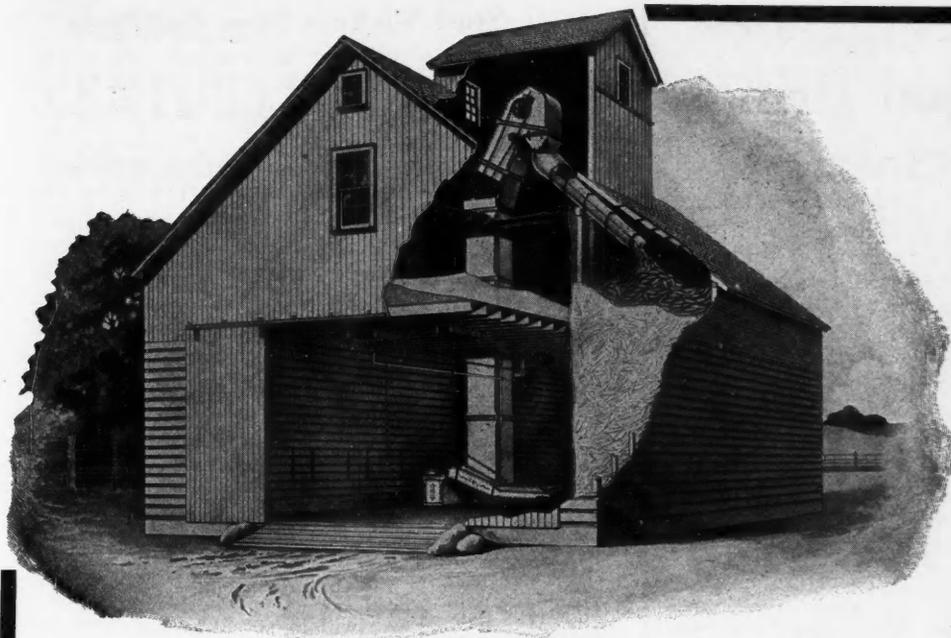
—also ask for our **Free** Catalog which explains the "CAMP" Portable and Stationary Cup Elevators in detail. It also explains the principle of operation as regards the Hydraulic Jack.

Today—right NOW write us—it's to the advantage of all concerned.

Camp Brothers & Co.

DEPT. 15
Washington, - - - Illinois





Increase the demand for modern cribs and granaries

by being able to furnish prospective builders with complete information about a practical means of delivering the grain to the bins and cribs. The Meadows Inside Stationary Cup Elevator that we build makes modern cribs and granaries practical.

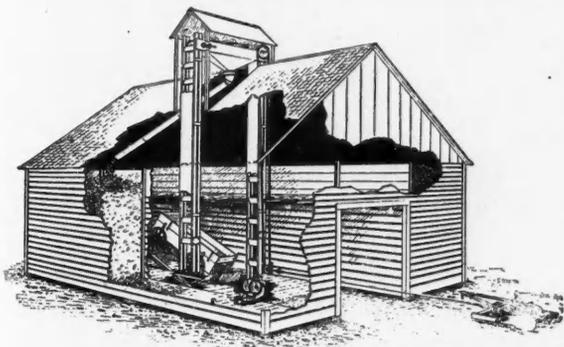
CRIB and GRANARY PLANS FREE

also a monster hanger showing the above picture, and a complete catalog giving detailed information and illustrations. Let us co-operate with you in furthering the building of modern cribs and granaries. Our services are free. We are reimbursed by the increased demand for our products. Write now. No obligation on your part. See our advertisement pages 129, April issue, and 145, May issue, of this paper.

The Meadows Manufacturing Co., Pontiac, Ill.

Free Crib and Granary Plans

Build Larger Double Cribs to Accommodate "Meyer" Inside Stationary Cup Elevators



8 Styles Sold on Guarantee of Satisfaction
Best, Handiest, Simplest and Easiest Running Elevator Made

Built from heavy riveted chain, heavy buckets, etc.

Carpenters are invited to ask for free crib plans, catalog, etc., and if you write at once we may be able to give you some territory.

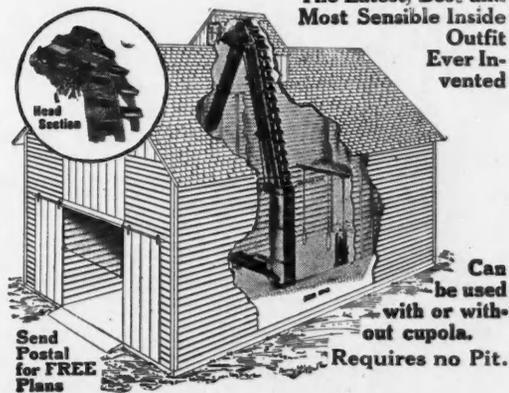
A. F. Meyer Mfg. Co.

Dept. 107 - - - - - Morton, Ill.

Get FREE Plans
Of this Modern Crib with the Famous

National Giant Inside Bucket Elevator

The Latest, Best and Most Sensible Inside Outfit Ever Invented



Send Postal for FREE Plans

Can be used with or without cupola. Requires no Pit.

The National Giant has more desirable features for the Carpenter-Contractor to base his recommendation upon and more sensible features for the FARMER than can be found on any other make of inside grain elevator.

Drop us a postal and we'll be glad to tell you how you can save the farmer \$15 to \$30 on the cost of a cupola; why our inside elevator requires no pit, of the extra large and heavy buckets with No. 77 Special Made Chain, etc.

We'll also give you full details of our attractive Carpenter-Contractor Proposition.

Write us today. It will pay you.

Portable Elevator Mfg. Co., 854 E. Grove Street BLOOMINGTON, ILL.

The Job That Brings Other Jobs

A well-laid Rex-tile roof is a long-lasting advertisement for the carpenter who did the work.

For appearance and durability it is unequalled.

Rex-tile Shingles are wind and rain proof, because fastened at the butt-end and lapped back over the nails; impossible for them to flap, warp or curl.

Rex-tile

TRADE MARK

"The Scientific Shingles"

is the easiest roofing to handle—lighter by a third than most prepared shingles, smooth and always clean, even in the hottest weather.

The carpenter and builder who lays Rex-tile roofs is safe from price-cutting competition. There is only one Rex-tile Shingle, because the turn-under fold for nailing—at bottom—no flapping or warping—nails perfectly covered—is patented, therefore sold at one price—a strictly exclusive material.

Will you write today for samples of these shingles, prices, and directions for laying?

Flintkote Manufacturing Co.

90 Pearl St., Boston, Mass.

67 Beaver St., New York, N. Y.

659 Peoples' Gas Bldg., Chicago, Ill.



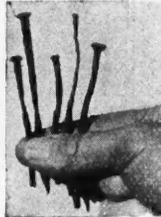
Also manufacturers of Paradux—a waterproof canvas covering for all surfaces on which walking will be done—such as sleeping porches, piazza roofs, roof gardens, balcony roofs, boat decks, etc. Easier to lay than tin or metal—far more durable—requires no special preparation of the surface to be covered. Can be painted any color desired.

Stud Sockets Save Buildings

Many of our readers are handling corn crib and granary construction; so it is up to us to do our best to keep you posted concerning the best methods and devices to use in this work.

In corn cribs, granaries, coal houses, etc., the settling of the contents causes considerable outward pressure on the sides of the building near the bottom. This pressure is carried entirely by the connections of the studding to the sill or foundation. You can't be too careful in making these connections right.

G. M. Ross & Co. make a studding socket that they particularly recommend for this type of building. In the illustrations the ordinary method of toe-nailing studding to a sill, which is in turn bolted to the concrete foundation, is given. The sill rots very rapidly, due to the fact that it is laid flat on the cement and thus collects water and moisture. Such a building as shown might stand up for a while under ordinary conditions, but if pressure is applied from the inside, as in a granary, the wall will burst out at the bottom.



Steel Wire Nails and Spikes Rust.

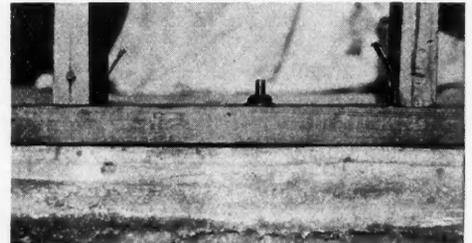
The Ross Studding Socket eliminates

the undesirable sill and the studding are set inside the cast iron sockets which are imbedded in the concrete foundation. The sockets are made to fit various sizes of studding, and also the different sized corner posts.

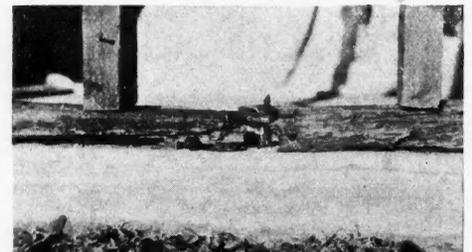
The manufacturers claim an increased speed in construction for this method.

Also greater strength and durability are obviously assured.

We suggest that builders write to G. M. Ross & Co., 544 Broad St., Grinnell, Iowa, and get a more complete description of these goods. It's worth investigating.



Cement Floors and Cement Foundations are Ideal in Farm Buildings. But the Wooden Sill and Toenailing Shown Here Will Not Last.



After Only a Few Years. The Wooden Sill is Rotted. The Toenailing and Steel Bolt are Rusted Off. Pretty Weak Supports. Aren't They?

Can You Afford to Make Money?

Many contractors are handling work that requires a great deal of haulage and they often admit that a motor truck would help them if they could only afford the initial cost of one. This is merely another way of saying that they can't afford to make money.

Now, suppose a responsible concern offers to help you with your particular problem and you can get a truck with a small down payment in addition to the expert advice that this company is ready to give. Is this idea worth considering?

The Dart Motor Truck Company, Waterloo, Iowa, have such a proposition for contractors and builders. Write to Department C-1 of this company at the above address and see what they have to offer. You can't lose anything and we have a hunch that it will mean money in your pocket in the long run.

Asbestos "CENTURY" Shingles



The Architectural Possibilities of this Artificial Roofing Slate

THE residence of James Hough, Toledo, Ohio, here shown is a fine example of a style of architecture where the roof plays an important part. Asbestos "Century" Shingles, because of their variety of shape and different colors, make a roof that has architectural character and is not a mere covering for a house.

The architect, Mr. Wm. Thurstin, and the contractor, Mr. J. McClintich, both of Toledo, are to be congratulated on its fine appearance.

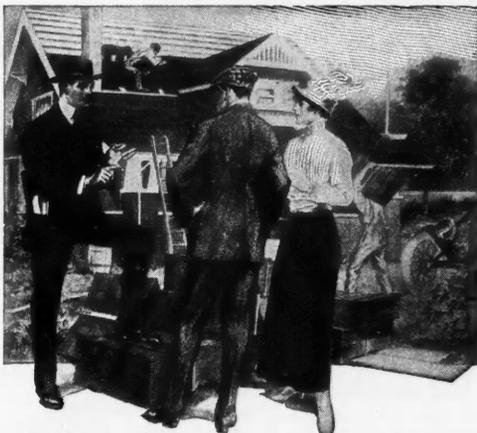
It is the PATENTED "CENTURY" PROCESS that makes these Shingles possible. A light-weight, fireproof roofing material—uniform in texture, with a durability never before practical with any artificial or natural roofing material.

If you have not the facts about the Asbestos "Century" Shingles—and there are many owners and prospective owners in your community who will want them—write us today for samples, terms and trade prices.

KEASBEY & MATTISON CO., FACTORS

Dept. B., Ambler, Pa.

Branch Offices in Principal Cities of the United States



They come in Bundles Ready to Lay.

One Color for Roof; Another for Side Walls.

Wonderful quality of shingles and permanent quality of earth pigment stains. They insure an artistic effect unequalled by other materials for roof and side walls.

"CREO-DIPT" STAINED SHINGLES

17 Grades 16, 18, 24-inch. 30 Different Colors.
Save muss, waste and expense of staining on the job.

Before you build or remodel send for our book of "CREO-DIPT" Homes. Get your lumber dealer to stock Green, Brown and Red.

Standard Stained Shingle Company

Main Office and Factory
1028 Oliver St., N. Tonawanda, N. Y.
Factory for Western Trade in Chicago



Your Opportunity

TO MAKE EXTRA PROFITS THIS SEASON

Use roofing material that gives service and satisfaction, that costs less than most others, is easy and inexpensive to lay, and that makes a neat, durable surface.

On Repair Jobs or New Buildings

your estimates will be much lower, your profits bigger if you use

CON-SER-TEX

It was laid on the roofs, porch floors, and sleeping balcony of the houses shown above. It is giving satisfactory service on thousands of bungalows, garage roofs, country clubs and homes, in boat houses and public buildings, in kitchen pantries, etc. In fact, wherever a neat, noiseless, waterproof surface is wanted that will not leak, buckle, crack, stretch, peel or rot—CON-SER-TEX should be used.

It is a canvas roofing, chemically treated to protect the fibre from mildew, and the detrimental action of the oil in paint. It's Waterproof, Weather-proof—Wear-proof.

Investigate—Samples showing widths, weights, prices, and complete details sent upon request

William L. Barrell & Company
8 Thomas Street - New York City

Chicago Distributor:
Geo. E. Carpenter & Co.
Wells and Michigan Sts.

California Distributors:
Waterhouse & Price Co.
San Francisco, Los Angeles

Declares Metal Roofs Would Lower Insurance

Material reductions in the fire insurance rate would be made by the passage of an ordinance to prevent the construction of any but fire-proof roofs, according to the annual report of George Wead, City Fire Marshal of Houston, Texas, which was filed with Mayor Ben Campbell recently.

The fire losses for the fiscal year amounted to \$285,183.41, with an estimated property value of \$3,965,815.24 involved.

Marshal Wead recommended in his report that the roof limit be abolished and nothing but metal, slate or tile be used in the construction of roofs, which would have the effect of reducing the city key rate; that the fire marshal be given authority to have arrested people disregarding notices that fire hazards on their premises must be abolished.

A striking example of the safety and protection afforded by the use of metal tile roofing when the fire danger is in close proximity is presented in the above illustration showing the residence of W. W. Boatman, Dallas, Texas, covered with Edwards Metal Spanish Tile. The building next door recently caught fire and the blazing sparks fell all over Mr. Boatman's roof without any damage, as fire practically has no effect on a metal roof. Another risk which all kinds of buildings have to withstand is the possibility of being set on fire when struck by lightning. The protection afforded by metal roofs in electrical storms has been widely recognized by the roofing trade and is being appreciated in other fields.

The Edwards Mfg. Co., 401-417 Eggleston Ave., Cincinnati,



An Interesting Example of the Fireproofing Qualities of a Metal Tile Roof.

Ohio, are perhaps the largest manufacturers of metal roofing of every description, and have a very complete catalog showing all of their products, including photographs showing the different materials in use which they will be glad to send to any one interested in good and serviceable roofing.

Recent sales by the government totaling 126,000,000 feet of saw timber in the Olympic national forest, in Western Washington, mark the opening of this hitherto inaccessible storehouse of timber, estimated to contain 33 billion board feet.

THICK
at the Butt

THIN
at the Top

Winthrop

Tapered Asphalt Shingles

are made like the wooden shingles you've used for years—Thick at the Butt, Thin at the Top

But they are far superior to wooden shingles in many ways. They come in soft rich colorings, being surfaced with chipped slate imbedded in the asphalt under heavy pressure, not merely coated. They are exceedingly tough and will never crack, curl or warp under extreme temperatures. They are as easy to lay as wood shingles and are very low in cost.

In Winthrop Asphalt Shingles You'll Find the Right Combination

A roofing possessing the beauty of Slate, the lightness of wood shingles and the durability of pure asphalt, which is impervious to decay. Winthrop Shingles are absolutely fire-resisting, and decay-proof. They will always retain their natural colorings and will look as well in the 10th year of service as in the first. Winthrop Tapered Asphalt Shingles come in three artistic colors—Red, Gray-Green and Slate-Black.

We will gladly furnish FREE samples and prices on request. Write.

The Beckman-Dawson Co.

1413 Y. M. C. A. Bldg.

**CHICAGO,
ILL.**



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

**BAYONNE
ROOF AND DECK
CLOTH**

Has No Equal
for Wear and
Waterproofness

Hear what these prominent builders have to say: "Our opinion of Bayonne Roof and Deck Cloth as a deck or roof covering is that it has no equal where a hard wearing and water-tight surface is required. We have had experiences in various places and conditions where other materials would have been a failure."—Jahnes & Welch, Seabright, N. J.

And remember that Bayonne can be laid direct on the dry boards, and only need be painted after laying—thus making a neat and easy job with the least cost for labor.

Other advantages are fully described in—

*Sample Book "N." Write for it to-day.
It has prices and laying instructions.*

JOHN BOYLE & COMPANY, Inc.

112-114 Duane St. New York City
70-72 Reade St.
Branch House: 202-204 Market St., St. Louis.

Would You Like

To Increase
Your Business?

BESIDES roofs on new houses, there are many old roofs which will have to be renewed this year. What will be spent on renewing roofs this year will amount to many millions of dollars. You can get some of this money by making a specialty selling or laying **Hudson Shingles**. Owners like them because they are artistic with soft red and green colors, durable and leak-proof. Builders like them because they are right in their line, they give satisfaction, increase their business, and can be laid quickly.

Send for our Builders and Dealers Proposition and samples of **Hudson Shingles**. It will cost you nothing and may make some good money for you.



Just write your name and address in the enclosed coupon now, and mail it to—

Residence in Roselle Park, N. J.
—R. Hayes, Builder—Roofed with Hudson Asphalt Shingles.



ASPHALT READY ROOFING CO.
9 Church St., New York, N. Y.

Dept. 453. **ASPHALT READY ROOFING CO.**
9 Church Street, New York.

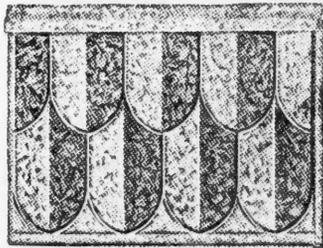
Please send information.....

Signed.....

Address.....

City..... State.....

Galvanized Metal Shingles



That Won't Rust or Blow Off

Easily and quickly laid by anyone. Securely locked on both sides; 44 shingles cover 100 square feet; cheap as good wood shingles when laid. Make a beautiful appearance and are fireproof; last indefinitely. Suitable for any pitched roof. Can be laid over other shingles.

Ask for sample, circulars and special prices to builders.

Metal Shingle Company

116 Oregon Avenue Detroit, Michigan

**Building Books
Absolutely Free**

Postage Prepaid

Your Choice of Any One of Twenty Building and Plan Books

Write for Descriptive Circular Telling About Our Great FREE Offer

AMERICAN CARPENTER AND BUILDER
1827 Prairie Ave., CHICAGO



The Best Selling Metal Shingle Ever Made

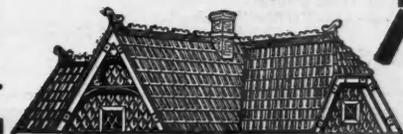
And the best roof ever put on a building. Fire proof, storm proof, lightning proof. People are waking up to the fact that the roof is the vital part of any building, and the business is going to the dealer who backs his claims with

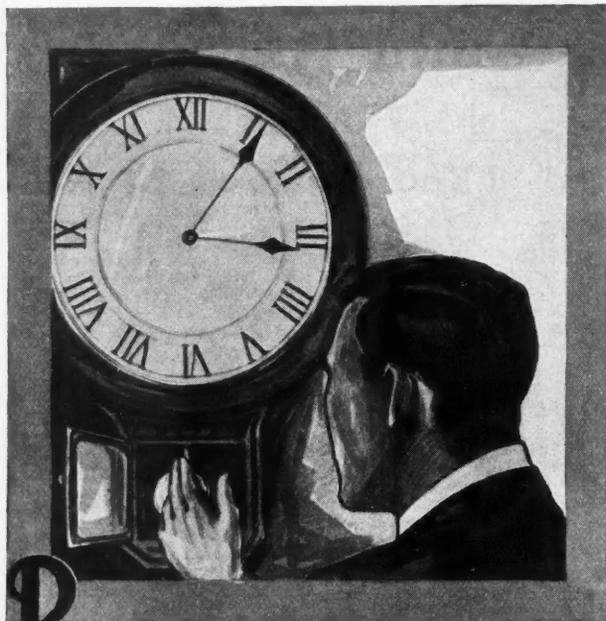
MONTROSS METAL SHINGLES

The indestructible roofing. They answer every requirement of safety, beauty and service. In addition are economical in price and easily laid. Every Montross Metal Shingle you put on is an advertisement that will bring business to you and you will control it because our selling plan is unique. One man in every section given exclusive territory and placed in business for himself. We estimate and furnish all engineering advice free. Write for information and make yourself independent.

Montross Metal Roofing Co.

102 Erie Street
Camden, N. J.





Buying Cheap Roofing to save money is like stopping the clock to save time~

You builders and contractors—you know that the homes you build are the lasting monuments of your reputation and if they don't last they are monuments of your inefficiency.

That is why you can't afford to use anything but the best roofing—a roofing that will stand up under the ravages of weather and time, that will retain its beauty permanently. The one roofing that best answers these requirements is

FLEX-A-TILE ASPHALT SHINGLES

Flex-A-Tiles have been tested in all sorts of climates and in all sorts of service. They are made right and look right. If you want to put handsome roofs on the next homes you build, a roof that will grow more beautiful with the passing of years, use Flex-A-Tiles; and Flex-A-Tiles are so beautiful and satisfying it is easy to get more for your house from the consumer.

Send for this free book

FLEX-A-TILED HOMES

This book shows actual roofs. It will be a big help to you in soliciting business, in showing your customers what their roofs will look like. Send for it now. It is yours together with samples of Flex-A-Tiles free.

THE HEPPE'S COMPANY

Utility Wall Board
Flex-A-Tile "Giant" Shingles
Other Guaranteed Heppes Products

No-Tar Asphalt Paint
Rubbertex Roll Roofing

1010 So. Kilbourne Ave.

Chicago

Combination Hammer and Wrench

The Eureka Improved Tool Co. has recently placed on the market an extremely novel tool that possesses many features that are worth noticing.

The tool is called the "E-I-T" Hammer-Wrench. Its construction can be seen from the accompanying illustration. Under the claw of the hammer, in the hammer head, are several notches. The nut that is being turned fits in between the claw and the hammer head as shown in the illustration. No adjustment is necessary as the various notches take care of quite a range of sizes.

The manufacturers say that in case a smaller nut is being handled, a sleeve can be obtained that slips over the handle of the hammer and is held by friction.

When tightening the nut, the hammer should be placed so that the pressure is toward the nose of the hammer. Its operation is thus seen to be similar to an ordinary Stillson wrench in that it can turn nuts in only one direction, and the position must be reversed when the nut is to be loosened or turned in the opposite direction.



Just as Good a Wrench as It is a Hammer.

The makers are offering to give demonstrations and they are willing to back their new combination against the two tools, the wrench and the hammer, separately.

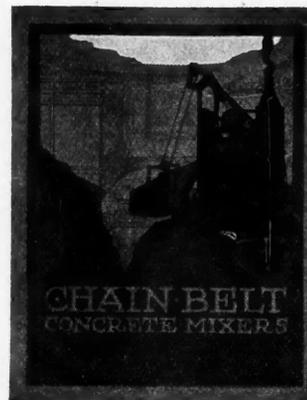
Such an arrangement should be mighty valuable to many contractors and we would suggest that you write to the Eureka Improved Tool Co., Inc., 405 Lexington Ave., New York City, asking for more information concerning their "Hammer-Wrench."



Chain Belt Catalog for Contractors

The most satisfactory sort of catalog for the contractor is one which not only illustrates and describes in a general way the equipment in which he is interested, and sets forth the claims in its favor, but which also gives detailed technical data as to mechanical make-up, dimensions, capacities, weights, etc.

Measuring fully up to this technical standard, and surpassed by none as a fine example of the engraver's and the printer's art, is the new Catalog 59A, just published for free distribution to contractors, by the Chain Belt Co., 730 Park St., Milwaukee, Wis. This catalog covers not only the company's well-known line of concrete mixers, but also its line of pavers for large road work, and its line of modern equipment for rapid and efficient handling of concrete, including hoist buckets, receiving hoppers, and U-shaped spouts or chutes for gravity distribution.

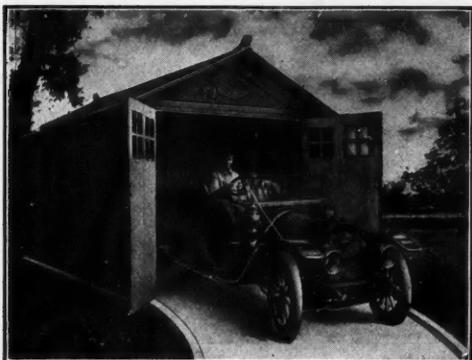


Catalog No. 59A of the Chain Belt Co. on Concrete Mixers, Pavers, Concrete Handling Equipment.

A recent addition to the Chain Belt line of mixers, designed especially for that wide class of contractors to whom moderate price combined with assurance of maintained high quality makes a strong appeal, is known as the "Rex" (Latin for "King"). It is a low-charging machine intended for the man who builds concrete silos, culverts, basements, floors and other relatively small work where a higher-priced machine would not be justified. The "Rex" mixer has a capacity of

YOU'RE MISSING A BET

**MR. CARPENTER
IF YOU ARE PASSING UP THE
METAL SHELTER GAME**



IT'S THE BEST BET YET

The METAL SHELTER Agency gets you more business, more customers, more work for your men, more money for you, better and quicker results, and—get this—

A REAL BUSINESS OF YOUR OWN

Don't wait. Get the agency for Metal Shelter Garages, Cottages, Bungalows, Stores, etc., before the other fellow beats you to it. You can sell 'em, and it's a cinch to set 'em up—a building a day. THINK! Investigation costs you nothing. Write right now.

Metal Shelter Co., Inc.

Whitehall Bldg. -- New York City



**Bay State
Brick and
Cement
Coating**

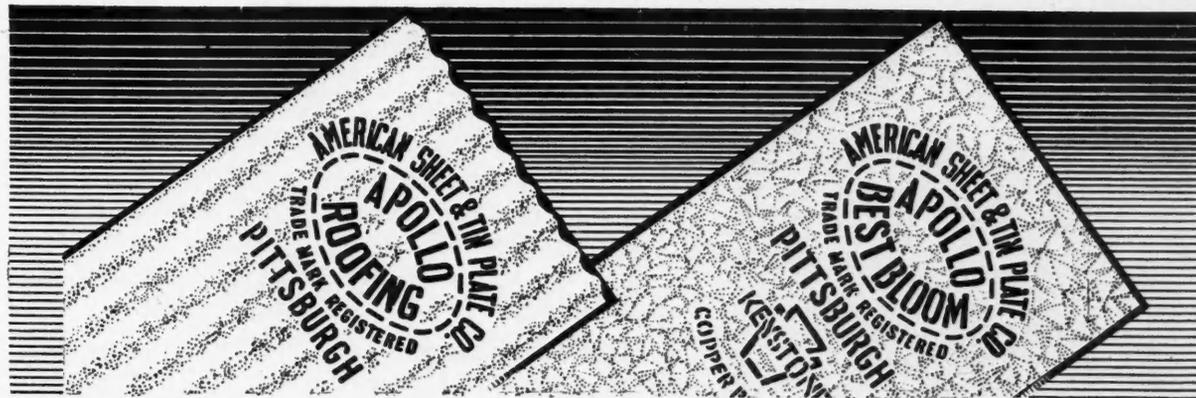
—Let it Rain!—



A PPLIED to concrete or stucco, it fills the pores and absolutely waterproofs the wall. Hides the ugly blue-gray and gives you any color you desire. Bay State Brick and Cement Coating becomes part of the material and will last until the wall falls.

We'll be glad to send you sample can and to tell you what other architects and builders have found out about Bay State Brick and Cement Coating. Ask for Book 30.

WADSWORTH, HOWLAND & CO., Inc.
Paint and Varnish Makers Boston, Mass.



Thirty-one Years Ago We laid the cornerstone in the manufacture of APOLLO BEST BLOOM Galvanized Sheets. This superior product now stands, as it has always stood, for achievement. But we have done more—an additional element of permanence is now incorporated. This is shown by the added stencil on KEYSTONE COPPER BEARING Apollo Best Bloom Galvanized Sheets. Unequaled for exposed sheet metal work.

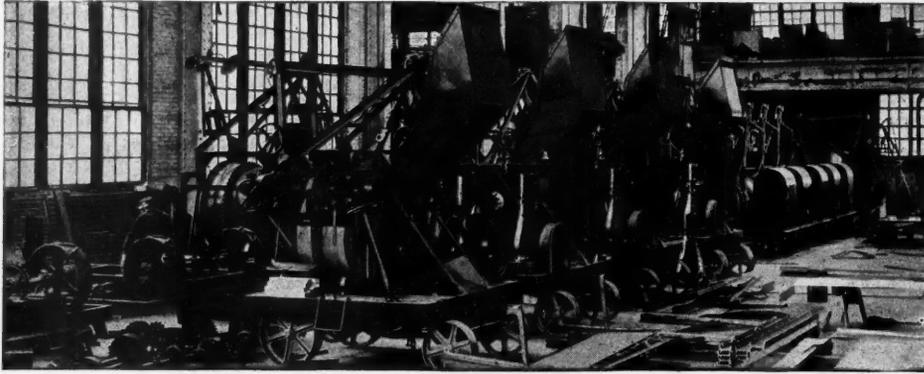
We also use Copper Bearing Steel exclusively for ROOFING TIN. Demand plates that bear the stamp "C. B. OPEN HEARTH" added to brand and weight of coating.

American Sheet and Tin Plate Company

GENERAL OFFICES: Frick Building, PITTSBURGH, PA.

DISTRICT SALES OFFICES:

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis
Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City
Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle



Part of Mixer Erecting Floor in Huge Plant of the Chain Belt Co. at Milwaukee.

6 cu. ft. of loose materials, or 5 cu. ft. of mixed concrete in about 45 seconds. The machine is driven by a "Novo" 3-h.p. gasoline engine, a reliable outdoor engine simple in construction. This engine, which is made by the Novo Engine Co., 336 Willow St., Lansing, Mich., is vertical hopper type, water-cooled, 4-cycle, and, being entirely enclosed by a steel housing, is frost-proof and cannot be damaged by water freezing, thus being particularly adapted for outdoor work in the severest climates. The fuel supply is carried in the base of the engine, and is sufficient for a day's run.

A feature of the "Rex" mixer is its low construction, the charging platform being about 18 inches above the ground, making it necessary only to run the wheelbarrow up a very easy incline in order to charge the mixer.

The machine is driven by riveted Chain Belt, which is declared to be the most durable and efficient drive ever placed on a concrete mixer. Having in view the fact that a machine of this type will be hauled over all kinds of roads,

the "Rex" is equipped with large-diameter road wheels with 4-inch face, and with the same gauge as the standard wagon gauge.

While the machines are sold at a low price, they are in no sense cheap machines, the low price being due to the fact that they are without some of the expensive accessories (such as side loaders) of the larger machines, are made in large quantities, and that all parts are made in the company's factory at Milwaukee.



Business Efficiency

Our readers are interested in having up-to-date methods in all business transactions. All business men prefer to receive typewritten letters. A typewritten letter assures you the best of attention and service and increases your personal standing. It is useless for a contractor to pay a big price for a typewriter at the present time. Mr. Harry A. Smith, one of our advertisers, has just started a special plan for contractors and business men to secure a standard L. C. Smith Typewriter at an exceptionally low price and he will let you dictate your own terms. His advertisement appears on another page and all readers desiring a typewriter should get in touch with Mr. Smith, as his offer is unusual and exceptional. In writing address Harry A. Smith, 721-231 N. Fifth Avenue, Chicago, Ill.



You Can Make More Money

Globe Fencing is Profitable for you and will appeal to your customers.

Easy to erect. Can be mounted on any style of post and uneven ground. We have many combinations of materials suitable for front, rear or division fencing — all of A1 materials.

Globe Fencing makes attractive appearing yards. Lets in the sun and permits a freer circulation of air.

Promotes sanitary conditions. Encourages the growth of flowers and vegetation.

Every **Globe Fence** you erect will lead to other orders from neighboring owners. It recommends itself on sight.

Let us send you catalog and special discounts to carpenters and contractors.

Globe Fence Company, (Un-Inc.)

20 - 22nd St., North Chicago, Ill.





**Chemists Guard
the Quality of
ALPHA CEMENT**

In every ALPHA Portland Cement Plant, the Chemists are the real bosses. Every hour, day and night, they make their tests. They see that the quality of ALPHA Portland Cement never varies from the high standard established by 24 years' experience. They analyze every boring in the ALPHA quarries; they see that the raw materials are proportioned accurately, and ground and burned exactly right. The result of this care is that

ALPHA THE GUARANTEED PORTLAND CEMENT

stands at the top in uniformity, strength and fineness. We warrant every sack to more than meet the Government standard and all other recognized tests.

Six great plants on six trunk-line railroads give us unusual facilities for cars and speedy shipments. Capacity, 25,000 barrels daily. Storage for 2,000,000 barrels. Specify ALPHA and be SURE.

Send for ALPHA book No. 10. This valuable book—illustrated—tells how to do stucco work, how to build concrete barns, silos, ice-houses and other small buildings, foundations, walks, tanks, storage cellars, steps, etc.

ALPHA PORTLAND CEMENT CO. EASTON, PA.

General Offices
Sales Offices: Pittsburgh, Buffalo, Baltimore, Savannah,
New York, Chicago, Boston, Philadelphia.



Kept Young with White Lead

Here, in 1775, Patrick Henry expressed the undying sentiment of America in his words, "Give me liberty or give me death."

These words have consecrated the little church, and it is fitting that it be kept young despite its hundred and seventy-four years.

Dutch Boy White Lead

and pure linseed oil are the materials that preserve it. You can make the houses you plan laugh at time by specifying that they be painted with Dutch Boy White Lead and Dutch Boy Linseed Oil. It is the economical, long-wearing paint.

Write for folders "B" which tell why. They include specifications and color chart.

National Lead Company

New York, Boston, Cincinnati, St. Louis,
Buffalo, Chicago, Cleveland, San Francisco.
John T. Lewis & Bros. Co.,—Philadelphia.
National Lead & Oil Co.,—Pittsburgh.



TRADE-MARK

**holds hardware to walls
with a bull-dog grip**

Holds fast to hollow tile, laths-and-plaster, expanded metal laths, metal window frames and sashes, and concrete walls.

The screws can't work loose, but they can be taken out and replaced at will, without losing Bolt. **Ankyra** is a permanent screw-hold. It can't work loose. The nut is an integral part of the Bolt. Insures safety of fixtures.

Ankyra combines the principles of the expansion bolt, toggle bolt and anchor bolt. It is the most efficient and economical screw-hold ever invented. Made of special steel, in sizes for No. 6, 8, 10, 12, 14, 16, and 18 Wood Screws.

Especially valuable to architects, builders, plumbers, steam-fitters and electricians. You can't afford to miss their economy. Investigate without delay.

Fill out coupon and send **FREE**
for samples and booklet

**ANKYRA
MFG. CO.**

149 Berkley St.
PHILADELPHIA

**Ankyra Mfg.
Co.**

Please send without
cost or obligation to
me, samples and booklet
describing Ankyra.

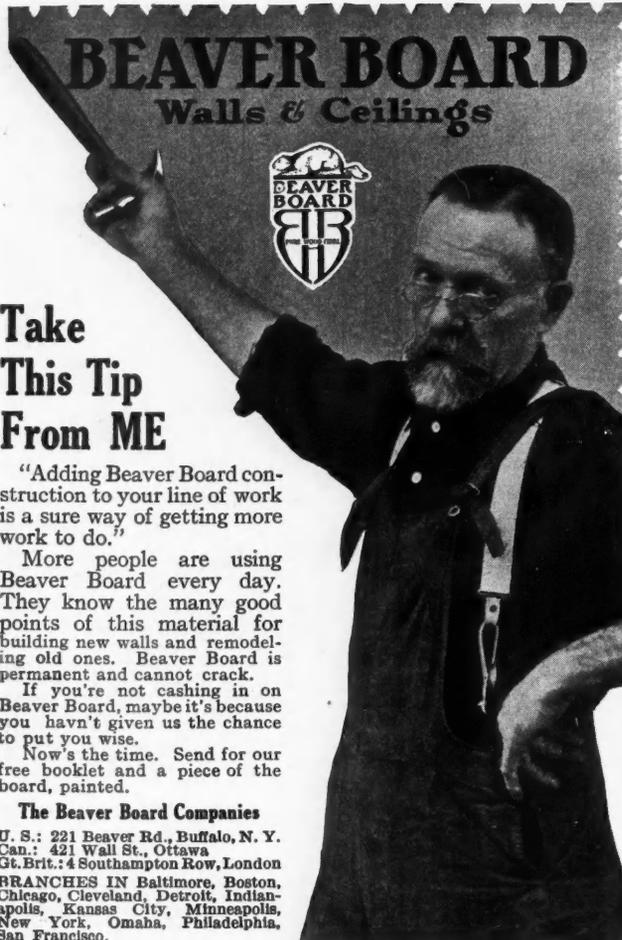
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State.....

BEAVER BOARD
Walls & Ceilings



Take This Tip From ME

"Adding Beaver Board construction to your line of work is a sure way of getting more work to do."

More people are using Beaver Board every day. They know the many good points of this material for building new walls and remodeling old ones. Beaver Board is permanent and cannot crack.

If you're not cashing in on Beaver Board, maybe it's because you haven't given us the chance to put you wise.

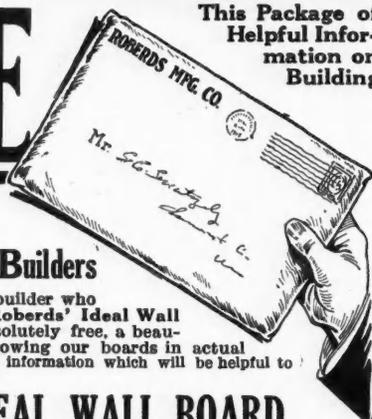
Now's the time. Send for our free booklet and a piece of the board, painted.

The Beaver Board Companies
U. S.: 221 Beaver Rd., Buffalo, N. Y.
Can.: 421 Wall St., Ottawa
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BRANCHES IN Baltimore, Boston, Chicago, Cleveland, Detroit, Indianapolis, Kansas City, Minneapolis, New York, Omaha, Philadelphia, San Francisco.

FREE

This Package of
Helpful Information on
Building



**TO ALL
Carpenters and Builders**

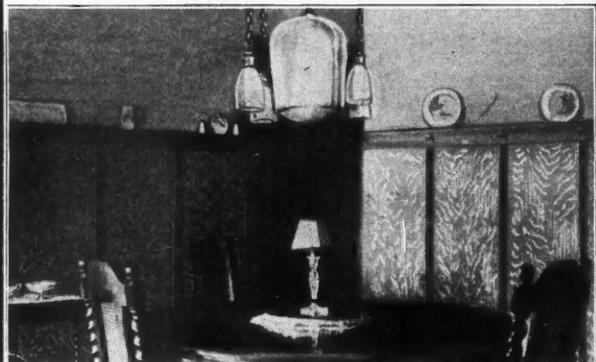
Every carpenter and builder who writes for samples of **Roberds' Ideal Wall Board**, will be given absolutely free, a beautifully designed panel showing our boards in actual colors together with useful information which will be helpful to you in your daily work.

ROBERDS' IDEAL WALL BOARD

"The Guaranteed Moisture Proof Wall Board"

Don't delay—Write today for the Free Package—It's yours for the asking; also samples of our wall boards in gray, tan, mission and quarter-sawn oak.

THE ROBERDS MFG. CO., 100 Railroad, Ave., Marion, Ind.



Roberds' Oak Wall Board used in paneled dining room in residence of Arthur G. Wade, Oak Park, Ill.

"Ceresit" at Frisco Fair

The "Ceresit" Water-Temple stands in the Palace of Machinery at the Panama-Pacific Exposition, a monument to the permanency and effectiveness of "Ceresit" waterproofing compound as well as to the prestige of the Ceresit Waterproofing Company, Chicago, whose exhibit it is.

In this exhibit the architect Mr. E. B. Brown, of Stockton, Calif., has successfully accomplished the difficult task of combining beauty with utility.

The fountain at the pinnacle of the Water-Temple pours a constantly flowing stream of water over the cement dome



Beautiful and Convincing Exhibit of the Ceresit Waterproofing Co. at Pacific Fair.

and this water runs along the eaves and then down through the eight supporting pillars of the Temple to its base, from which point it is pumped back to the roof again.

There are plate glass inserts in each pillar and the interior of each is lighted with concealed electric lights showing a miniature Niagara between walls of Ceresitized cement, while the roof of the same material further illustrates the effective and permanent waterproofing qualities of "Ceresit."

A semi-indirect electric light gives a restful and pleasing effect inside the Temple, while the drinking fountain in the center rejuvenates the tired and dusty sight-seer.

The "Ceresit" Water-Temple stands 16 feet high and is a prominent feature among the many exhibits in the Palace of Machinery.



Many Follow Kissel Lead

"Just a year has passed since the introduction by Kissel of the one-compartment touring car, and a survey of its influence on automobile body design conclusively proves that it was a happy idea," says John R. Buck, of the Kisselkar.

"Nearly a majority of the makers of high grade cars have since adopted the individual forward seats with a corridor between, while a number—mostly leaders in the industry—have one or more models with but two entrance doors. These ideas were, of course, not adopted by other builders merely to compliment Kissel, but to meet public demand for this type of car. Nevertheless it carries a tribute to Kissel originality and sound judgment, the significance of which has not been lost upon motorists generally.

"Less success has met the efforts of competitors in their experiments to produce a satisfactory All-Year Car, another Kissel innovation. The Kissel Detachable Sedan Top is one of the most important forward steps in the history of the automobile, and there were many difficulties to overcome before it was perfected. It is an open secret that nearly all the principal car makers in the country have been experimenting with this feature, but thus far the Kissel All-Year Car is without serious competition and we have not been able to build them fast enough."

**Federal Parquetry costs
Very little more
than Strip Flooring**

CASS GILBERT
Architect of the Woolworth Building
ERNEST FLAGG
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CARRERE & HASTINGS
Architects of the N. Y. Public Library
SPECIFY

Parquetry Floors
for
high class apartments and residences

They know from practical first-hand experience the **very facts** that are explained in our Special Circular No. 17.

Write for it!

Federal Parquetry Mfg Co
Flatiron Bldg. New York City

**When You Want —
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**Artistic Designs and
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For
**Bathrooms, Kitchens, Hallways
Etc.**

We carry a most complete line of Ceramic Mosaic Floor Tile and Sanitary Glazed Wall Tile for every purpose. Our designs are unusually artistic and correctly executed. The quality is **Lorenzen**—the best guarantee a builder can get. You can depend upon our prices being right.

Let us estimate on your next job or furnish you with an original design. At any rate, write for our Catalog No. 51 on Tiles and Mosaics. A postal will bring it and it is invaluable for your files.

Our large catalog "**Vogue in Fire Places**" is now ready, the most comprehensive and complete catalog ever issued on Fire Places in Tile, Brick and Wood. Write for it.

Send for our **Discount Proposition to
Carpenters and Builders**

Chas. F. Lorenzen & Co.
103 Washington St. CHICAGO

**Go As Far As
You Like**

—you'll never find another building material or wall lining like this—none so strong and flat, with so slight a tendency to warp or shrink; none so easily handled, sawing so clean and smooth with so small an amount of litter; none so durable; none with such a stubborn resistance to air, cold, heat, moisture and fire; none so adaptable to so wide a range of uses.



Trademark Reg. No. 94745.

has all these features in its favor, because it is the only material of its kind with a center core of kiln-dried wood slats.

How important it is, then, that you get **COMPO-BOARD**, when you ask for it. You can't be fooled, if you look for the wood core, for it is easily and quickly identified. The border cut of this "ad" gives you a fair idea of how it looks.

You can get just the amount you need for any job, in strips four feet wide and in even feet lengths up to 18 feet long.

Sold by dealers everywhere. Write for interesting book and free sample piece.

**Northwestern Compo-
Board Company**

5777 Lyndale Ave., No.
MINNEAPOLIS, MINN.

It Pays You in 3 Ways

PLASTERGON
TREATED
WOOD FIBRE
WALL-BOARD

PROFIT—SALES—SATISFACTION

The trade you have at present for wall board is sufficient to net you a good profit if you buy right. And it is easily doubled and trebled when you have a dependable board like Plastergon, which you can guarantee to your customers.

The Only Guaranteed Wall Board

means just as much to you as you can make out of it. It will help you sell Plastergon to people who would not listen to you if you had another board. It positively protects you and your customers and assures you of big sales, splendid profit and absolute satisfaction.

Costs No More Than Ordinary Boards

You've overlooked a good thing if you've gone without our samples and literature all this time. They're free, and you should have them for this Spring's business.

PLASTERGON WALL BOARD COMPANY
101 Fillmore Ave. TONAWANDA, N. Y.

Floor Finishers of All Kinds

It's too expensive to have a man scrape a floor with a piece of glass. If you have floors to surface don't be misled by false economy into doing a big job by hand. A machine will pay for itself on a few jobs of any size.

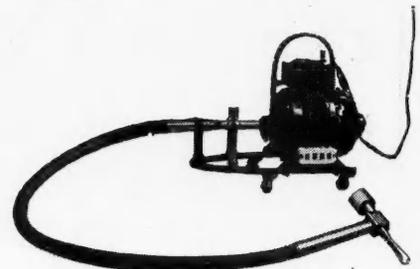
The American Floor Surfacing Machine Company, Toledo,



For Surfacing Wood Floors.



For Surfacing Mosaic and Terrazzo Floors.



Edger and Cove Finisher.

Ohio, make one of the most complete lines of floor surfacing machines. They manufacture three machines that handle all kinds of work. Their wood floor machine is known the world over and the work it has done speaks of its quality without the need of a recommendation from us. It is self-

propelling, which insures a uniform speed and consequently the work is finished with the maximum smoothness. The surfacing is taken care of by two rolls revolving in opposite directions. The dust is taken care of by an arrangement similar to a vacuum cleaner.

The other two machines made by this firm for floor work are both intended for use on composition floors, terrazzo, cement, tile, mosaic, etc. One is made for polishing cove-bases, edges, stairs, and all kinds of angle work. It is called their Cove-Base and Edge Polisher. It consists of a 1/2-H. P. motor, on a portable truck, to which is attached a 6-foot flexible shaft. On the end of this is a working head consisting of a carborundum wheel which is driven at a speed of 1,200 to 1,800 revolutions per minute.

The machine for surfacing various composition floors is called the Champion Double Disc Floor Surfacing Machine. It has two revolving discs which revolve in opposite directions. The grinding surface is composed of four carborundum blocks under each disc. The blocks are two by

REX
LOW CHARGING
MIXER

\$275⁰⁰ F. O. B. MILWAUKEE

Isn't this just what you want in a Concrete Mixer?

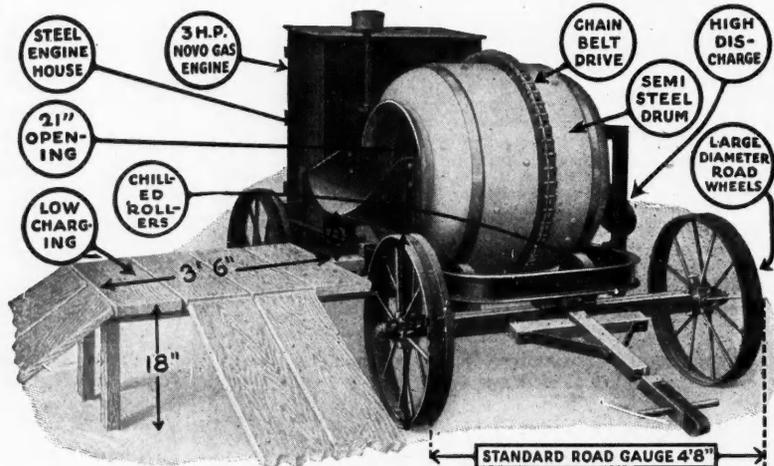
A Mixer not too big or too small, but just a handy, convenient size, capable of turning out a batch of 5 cubic feet of wet material in about 45 seconds. A Mixer that is very reasonable in price and at the same time of the very best Quality—Chain Belt Quality, world famous and unsurpassed. A Mixer very easy to haul around and with wheels spaced to standard tread. A Mixer very easy to load and very easy to discharge. A Mixer equipped with the best gasoline engine on the market—

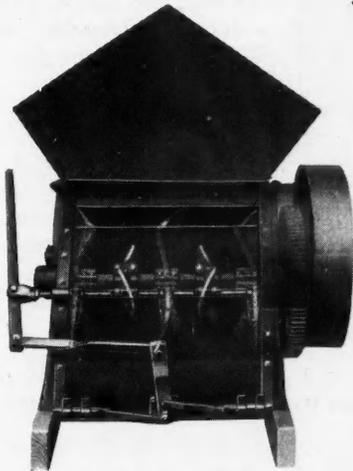
the "Novo." A mixer that is all steel and is driven by Chain Belt. Believe us the REX Concrete Mixer would be cheap at double the price—it represents the highest value in the small Mixer field.

Send for Details

If you want to invest less than \$500 in a mixer, get in touch with us right away and get your order in. Right now we can make prompt shipments. Ask for Bulletin 59-D. Write now—tonight—or telegraph, collect—before you forget it.

CHAIN BELT CO.
730 Park St. Milwaukee, Wis.





**MINSTER
MIXERS
MIX
Mortar
Concrete
and
Plaster**

Minster Batch Concrete Mixers are particularly adapted to the use of the Carpenter and Builder, they are low-priced, rapid, handy, easily moved from place to place, discharge directly into forms or into barrows as desired, and can be operated by one man or a gang.

Furnished as shown or on truck with engine.

**YOU CANNOT AFFORD TO BE WITHOUT ONE.
FULLY GUARANTEED. RIGHT PRICE.**

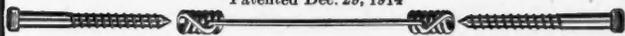
Get one and be in position to handle complete jobs. It will pay big returns.

Write TODAY. NOW. DO NOT DELAY.

The Cummings Machine Co.

209 Ohio Street - - - Minster, Ohio

Patented Dec. 29, 1914



"The Tie That Leaves an Anchor"

TYSCRU

TRADE MARK

Makes correct wall measurements **certain**; easily fastened; holds fast; the **one bolt** anchorage that distributes the strain; saves time and labor; eliminates sets of twisted wire

and bracing; made in all sizes. Write for prices and discount sheet X.

Unit Wall Construction Company

1328 Broadway -:- New York City, New York

\$28 Buys This Hand Concrete Mixer!

Only \$28.00 for a Giesler Hand Concrete Mixer—a machine that will stay on the job and work right always! Six turns of the drum produce a perfect mix. Easy work—a boy can operate it. Pulleys to operate with gasoline engine, furnished at small extra charge. Built strong and substantial to give years of service—yet weighs less than 200 pounds. Just the machine you need—and you can get it now at the low price of \$28.00.



Write for Catalog—today.
Agents—Write for Proposition.

Galland-Henning Mfg. Co.
1124 Railway Exch. Bldg.
Milwaukee, Wis.

The
**INCOMPARABLE
FIVE**

Contractors, to whom quality appeals, will be pleased to study the specifications of the

Number Five

**EUREKA
BATCH MIXER**

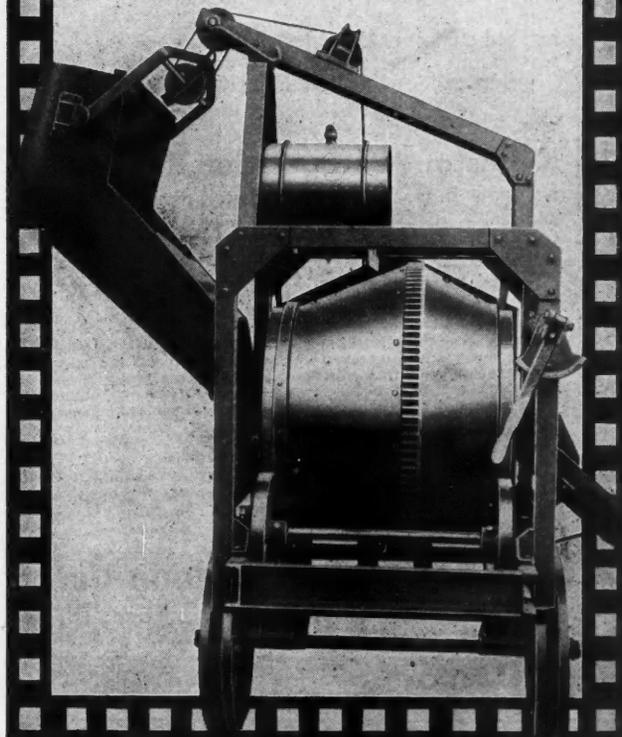
"Quality Wins"

Quality and approved engineering standards have been incorporated into this mixer to a remarkable degree. Your inquiry for bulletin will receive immediate attention.

EUREKA MACHINE CO.

"Builders of Quality Mixers"

103 HANDY STREET
LANSING, MICH.



Fellows! You Ought To Have These Books



You architects and contractors who want to get away from that monotonous sameness in the appearance of your jobs—you men who want to instill durability, character, dignity and unusual beauty into your building—you ought to have these books. One tells about the remarkably artistic effects secured with

KELLASTONE

IMPERISHABLE STUCCO

—how it embodies no Portland cement, lime or gypsum. How it is moisture-proof and fire-proof and withstands far greater settling strains than any other stucco without cracking.

How it is a non-conductor of heat, cold and dampness and how it possesses greater tensile and tension strength than cement stuccos and is not so brittle. It tells how easily Kellastone can be successfully applied over wood lath, metal lath, byrket sheathing, hollow tile, brick and stone walls, and how perfectly it bonds to door and window casings.

It tells how valuable Kellastone is in remodeling old buildings, how it is used as an interior plaster and the beautiful stucco and plaster effects it produces. And it tells how Kellastone can be applied with the same success in winter or summer. The other book tells about

Kellastone Composition Flooring

and how it is composed of materials in powder and liquid forms which, when mixed and spread, form a tough, seamless mass over the entire floor including cove and base, if desired, thus providing a sanitary, durable floor without seams or joints and easy to keep clean.

It tells how Kellastone Composition Flooring can be laid on bases of concrete, wood or steel. How beautiful border designs and terrazzo effects can be secured and how its lightness, warmth, resilience and quietness make it especially adapted for hospitals, schools, theatres, office buildings, public buildings, private homes, apartments and manufacturing establishments.

Send for These Books Today.

They're brief, interesting and instructive. Your name on a postal brings them. Kellastone is carried by lumber and building supply dealers. If your dealer cannot supply you, write us.

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

four on the grinding face, which gives a total surfacing area of 64 square inches. The discs are connected to the driving gears by universal couplings, thus insuring smooth, uniform wear on the blocks and eliminating disc marks from the floor.

The manufacturers say that this machine can accomplish the work of from five to seven men and will thus rapidly pay for itself in about thirty days. The truck that the machine is mounted on is balanced so that it can be easily tilted so that the weight will be carried on the truck wheels and the machine moved from one place to another. This machine certainly appears to have many advantages.

Contractors who are interested in cutting their costs ought to know more about this machine than space here has allowed us to tell. A card to the American Floor Surfacing Machine Company, Toledo, Ohio, will bring a full description of this well-known line of floor finishing machines.



Up-to-Date Mitre Boxes

Carpenters are considered generally to be most careful and painstaking about the condition and reliability of their tools. But did you ever notice the mitre boxes that are often used? Many times it is an old box that is all cut to pieces and no one has any idea how accurately he is cutting when he is using it. The saw waves around through the once narrow slit and the result is, to say the least, doubtful.

A good mitre box is just as essential to good work as a saw that can be depended upon.

L. H. Olmsted's Son has a most reliable line of mitre boxes. They include a solid iron frame and also a hardwood frame with iron slots.

In the hardwood frame, the distance between the two pieces of iron forming the slot can be regulated to fit any size of saw blade. The manufacturers say that an ordinary saw can be used as it will not spring out of the box.

The solid iron frame has a swinging arm that can be fastened at any angle. A board placed in the bottom of the box protects the saw when in use.

A request to this concern, L. H. Olmsted's Son, Hasbrouck Heights, New Jersey, will bring a full description of their dependable line.

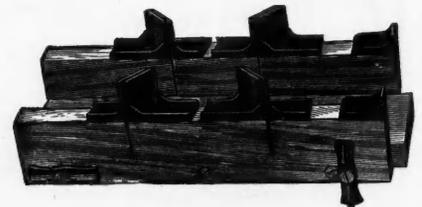


"Simonds Saw News"

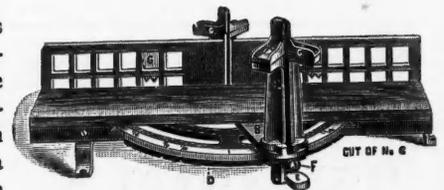
The saw people, the Simonds Manufacturing Company, have broken out with a new monthly bulletin that they call "Simonds Saw News" (a bulletin of fact and fancy about saws).

It is a small cardboard bulletin that is very attractively gotten up. It is intended for the retail trade and according to the editor they are intending to stick to facts and not indulge in a lot of "hot air." They have many valuable suggestions for dealers and will co-operate with the dealers to the benefit of the trade.

We wish them all the success in the world. They have made a good start. This nifty little bulletin is printed at and distributed from Fitchburg, Mass.



Wood Mitre Box.



Iron Mitre Box.

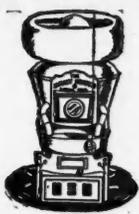


The Latest "MAJESTIC" Building Specialty

A Milk and Package Receiver that is 100% efficient.
 Consists of two cast iron frames and doors joined by a body adjustable to different thickness of walls. Locks with a gravity latch and can be unlocked only from inside.
 Can be easily installed in house already built as well as in new construction. Finished in baked enamel, nickel trimmed. Costs but five dollars.
 If you have not received your 1915 edition of **Majestic** Catalog, please write us and we will send you another.

THE MAJESTIC COMPANY
 505 Erie Street
 Huntington, Indiana

Outside view open and closed.



BE OUR AGENT—

Builders and Contractors can make good money acting as our agents. You can save the buyer 30% in Fuel Bills. Why not sell

Jahant Down-Draft Furnaces

On 360 Days' Trial

In your business you have the opportunity to make the sales. *Jahant Down Draft Furnaces* have a record for merit behind them. You are selling a first class article at a saving to your customer.

Send for Free Catalog

The Jahant Heating Co., 300 Steiner Ave
 AKRON, OHIO

Jahant Down Draft gives perfect combustion. Gives more heat. Saves one-third fuel. Burns from above. Ashes can't clog.



The "Ottomatic" Coal Chute

Patented Sept. 15, 1914

Fire Proof-Burglar Proof-Fool Proof

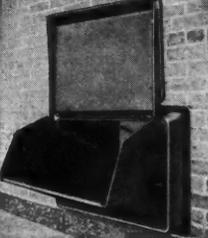
Best—Indestructible—the One Operation Chute—Locked in Both Positions.

No. 1, 17x24", wt. 100 lbs... \$12.00
 No. 2, 22x33", wt. 150 lbs... 17.00

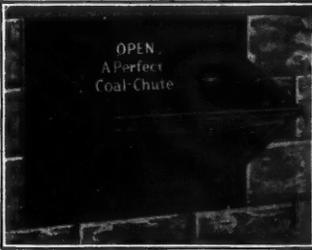
CAN BE PUT IN OLD OR NEW BUILDING

Special Discount to Agents

THE MAXIMILIAN CO.
 844 Monadnock Block Chicago, Ill.



The Window Chute



OPEN
 A Perfect
 Coal Chute

For Your Coal Bin

The Window Chute is a selling feature for any Residence or Building.

Ready for the Coal Man

THOUSANDS IN USE--- THE VERY BEST

If You Build,
 Buy, Own

Be up to date and Have the World's Best

Write for Booklet C



LOCKED Glass Window
 USEFUL 365 Days

A Light Basement

HOLLAND FURNACE CO. :: Holland, Mich.
 World's Largest Direct Installers of Furnaces.



"Best" Coal Chute

is becoming more popular every year. It locks automatically in two positions, Open and Closed. When open, it stands vertically in front of the wall and protects the building. When down, it is burglar-proof.

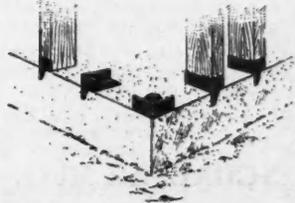
The "BEST" Chute is well constructed, the frame and door being of cast iron and the tube of steel. Furnished in two sizes and two styles—Glass Door or Solid Cast Iron Door.

"Best" Stud Socket

is made in one size only. Will fit all sizes of studding without cutting. Easily anchored to the concrete. Timbers fastened with nails, bolts or screws. The simplest and "BEST" Socket made.

Write for circulars giving description in detail. We have a new catalog showing our complete line of **Building Hardware**, which we will be glad to send to you.

Kindly give us your Dealers' name.



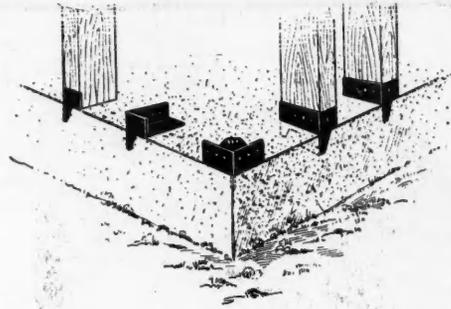
Sterling Foundry Co.
 8 Ave. A, Sterling, Ill.

Concrete Foundations Need Stud Sockets

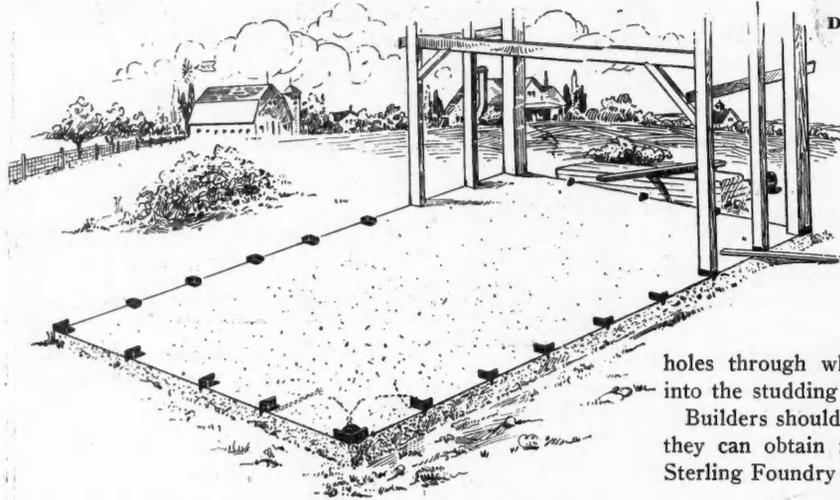
In many types of buildings having concrete foundations, the stud socket has become an absolute necessity. Perhaps you have seen the barn or granary which is gradually falling down because the sills are rotting and the connections of the studding to the foundation weakening.

The Sterling Foundry Company, makers of the well known "Best" line of cast iron specialties, have a cast iron studding socket that possesses many desirable features.

The illustrations show how these sockets are used. The larger is of a corn crib in the process of construction with the



Detail of Side and Corner Stud Sockets.



Layout of Barn or Crib Floor with Studding Sockets in Place.

floor laid and the studding sockets in place. The smaller view shows their special corner socket that will fit any size corner post. The adaptability of their sockets to any size timber

is an advantage featured by the manufacturers.

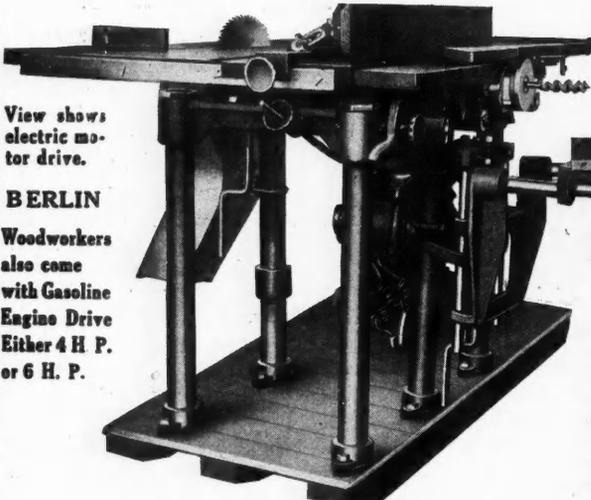
The special reinforcing feature of these sockets is shown in the larger illustration. In the leg which projects down into the concrete is a hole which furnishes a means of attaching a bolt, rod, wire, or any other reinforcing to the socket, thus connecting it rigidly to the body of the concrete. In the flange that projects above the concrete are

holes through which nails, screws, or bolts can be driven into the studding or post.

Builders should be familiar with the use of studding sockets; they can obtain full information concerning these from the Sterling Foundry Company, 8 Avenue A, Sterling, Illinois.



The U. S. forest service is using gasoline railway speeders for fire protectoin purposes. They follow up trains on steep grades where sparks thrown out by forced draft are likely to start fires along the right of way.



View shows electric motor drive.

BERLIN
Woodworkers also come with Gasoline Engine Drive Either 4 H. P. or 6 H. P.

BERLIN



Portable Woodworking Mills

The Berlin heavy duty portable Saw Rig is a combination of rip saw, cross cut saw, dado saw, grooving machine, jointer, jig saw, boring machine, sander and emery wheel with its own power plant so conveniently arranged that it can be moved from job to job in a light spring wagon at no more expense than a carpenter's tool box. It actually does the work of twenty men with one operator and 20 to 50 cents worth of gasoline.

Designed and Built for Durability plus Portability

The Berlin Saw Rig is easily moved from job to job—but strong and rugged enough to withstand the hardest service building contractors may put it to. Frame and main bearings are cast semi-steel, made in one piece without joints. Frame is then supported by two-inch extra heavy pipe legs on wood skids, which makes a very strong, rigid construction. "Berlin" Gasoline engines are four cycle, horizontal water cooled engines and have built-in magnetos, eliminating battery and ignition troubles. These engines are easily started in cold weather and are accessible by simply raising the wooden table. Machines are equipped with highest grade saws, knives and accessories.

Guaranteed for Two Years

All Berlin Saw Rigs are guaranteed against defective workmanship or material for a period of two years. During this time any broken or defective part will be replaced free of charge. Write for detailed specifications and information. The BERLIN Saw Rig is unsurpassed for combined durability and portability.

SCHAEFER MFG. CO.
BERLIN, WIS.

FREE A Hoist for a Name

**Contest Open to All Contractors
Hurry! Hurry! Hurry!**

Contests closes June 12 at 12 o'clock noon. Winner will be announced in the July issue of the American Carpenter and Builder.

We've figured it out that you men on the job and with practical experience would be the best men to suggest an appropriate name for our Improved Money-Saving Material Hoist, and so to the Contractor sending in the best name we will present absolutely free one of our Hoists. Think of it, a valuable Hoist for a few minutes brain work! Get busy!!

Send for Pictures and full information about this Hoist, study every detail and individual point, then originate a name and send it in. Everybody has an equal chance. Send for the descriptive matter now—no time to lose, send in your Hoist name before June 12.

**H. B. Sackett
Screen & Chute Co.
Main Office and Warehouse
1683 Elston Avenue
CHICAGO
Branch Warehouse
197 Medford Street
CHARLESTOWN, MASS.**



**Bores, planes
and rips at the
same time**

NOVO
REG. U.S. PAT. OFF.
**ENGINES
AND OUTFITS**

**They cut labor cost
surprisingly**

NOVO ENGINE CO.

495 Willow St., Lansing, Mich.

CLARENCE E. BEMENT, Secretary and Manager

HOT-WATER HEATING



**For Old
or New
Houses.**

We pay freight



**Get Our
Estimate On
Your Next Job**

**BIG
BOOK
FREE**

Profit for Contractors

Our steel boilers and piping systems "cut-to-fit" each job give contractors extra profit and enable them to install the best system made. Ask about our method.

**Andrews Heating Company
1470 Heating Bldg. Minneapolis, Minn.**

"NEPTUNE" Pneumatic Water Supply Systems

and

"NEPTUNE" Gasoline Storage Tanks Big Money Makers for Builders

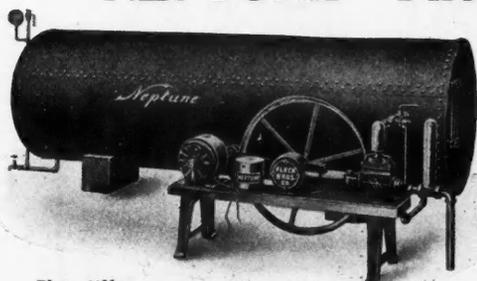


Plate 62V

This Water Supply System is easily and profitably installed by contractors. For country and suburban homes. For hand or power—electrical or gasoline engine. This outfit is gearless, noiseless, automatically controlled, compact, operated with minimum amount of current. Furnished in any size. Write for complete information and terms.

Our Neptune Gasoline Storage Tank is easily sold to building owners who have automobiles. Install it in building your next garage. Quick profits. Tank galvanized in and out; covered outside with preservative paint. Rivetless construction. All brass pump, lock, key, hose bibb, 2-inch fill pipe with hinged cap and lock. Approved by Underwriters. Low price makes the Neptune a ready seller.

Write today for prices and Catalog V. A. B.

**Fleck Brothers Co.
50 N. 5th St. Philadelphia, Pa.**

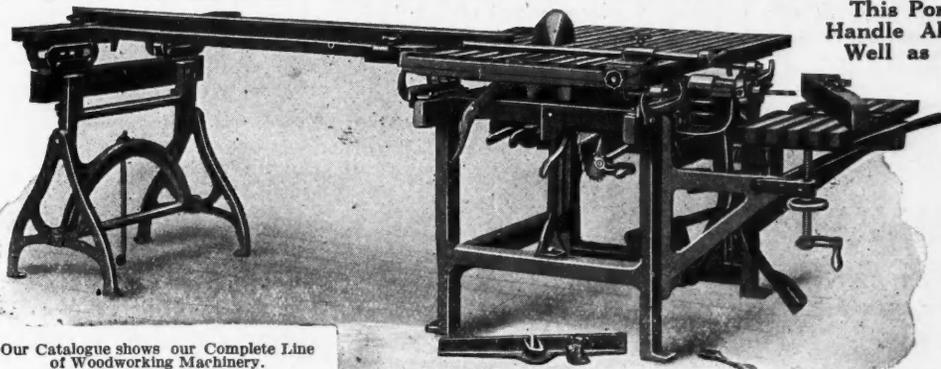


Bbl.
1. \$15.00
2. 22.00
3. 33.00
4. 45.00

Plate 65V

PUT THIS MONEY-MAKER ON THE JOB

**This Portable Woodworker Will
Handle All Your Fine Sawing, as
Well as Your Dimension Stuff**



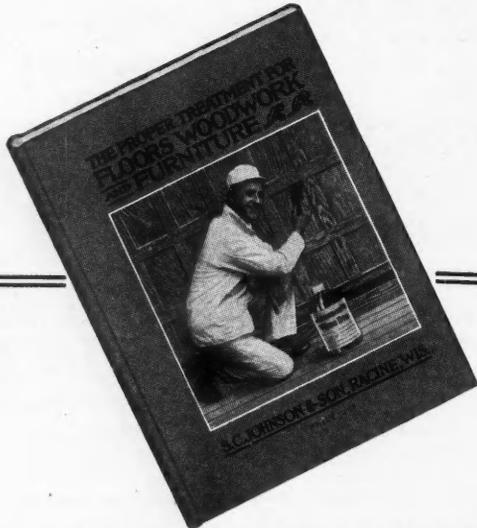
Our Catalogue shows our Complete Line of Woodworking Machinery.

THE BEACH

**Double Arbor Rip
and Cut-Off Saw**

Is very simple, durable and easy to operate. It is equipped with the Beach Patented Rolling Table. This table allows you to handle lumber up to 20 ft. and slides easily with 1,000 lbs. weight on it. It can be locked instantly for ripping. Either gasoline or electric drive. Write for details. Don't delay. Make this year the most profitable and successful of your career. Write for our Descriptive Catalogue.

**Beach Mfg. Co.
Montrose Penna.**



JUST OFF THE PRESS
NEW INSTRUCTION BOOK
ON WOOD FINISHING

This new book is 100% more beautiful and comprehensive than former editions—it is the work of famous experts—beautifully illustrated in nine colors. It gives complete specifications for finishing new woodwork and floors, and for refinishing old work of this character.

Every Architect, Contractor and Builder is entitled to one of these books absolutely free—we even pay the postage.

You will find this book full of valuable information—use it as a hand-book on interior finishing and your specifications will never go wrong.

JOHNSON'S WOOD DYE

is made in 17 beautiful shades for artistically coloring wood. With it your inexpensive jobs of soft wood can be finished just as attractively as hardwood. Specify it on your next job and convince yourself.

Johnson's Wood Dye is very easy to use—it does not lap or streak—any good brush hand can apply it with perfect results. Johnson's Wood Dye penetrates deeply into the wood without raising the grain—is economical and permanent.

If you are not familiar with Johnson's Wood Dye we shall be glad to furnish you with good size samples for experimental purposes.

Use the coupon for your book.

Please send free and postpaid my copy of your new 25c Instruction Book, "The Proper Treatment for Floors, Woodwork and Furniture."

NAME

ADDRESS

CITY & STATE.....

Fill out this coupon and mail to

S. C. JOHNSON & SON

"The Wood Finishing Authorities"

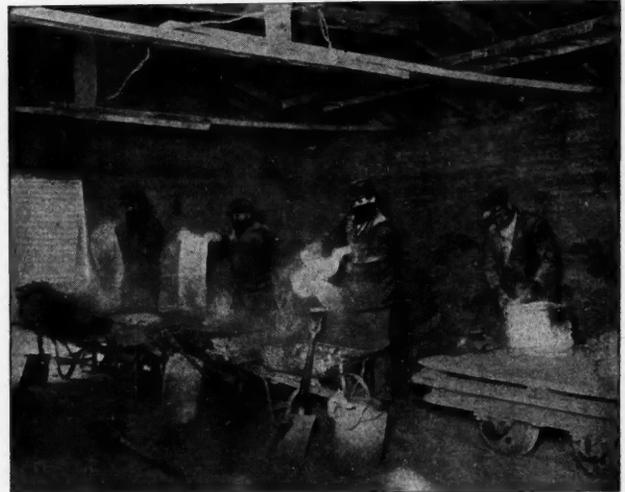
RACINE, WIS.

AC&B6

Bag Cleaner Saves Cement

Stopping the little leaks is a wise economy that ordinarily means more in the way of money-saving than most people realize. Few cement men have heretofore given any serious consideration to the real loss they incur by failing to empty bags thoroughly; yet this loss, some dealers have estimated, amounts to from one to two bags out of every hundred.

This very considerable loss is entirely preventable if the



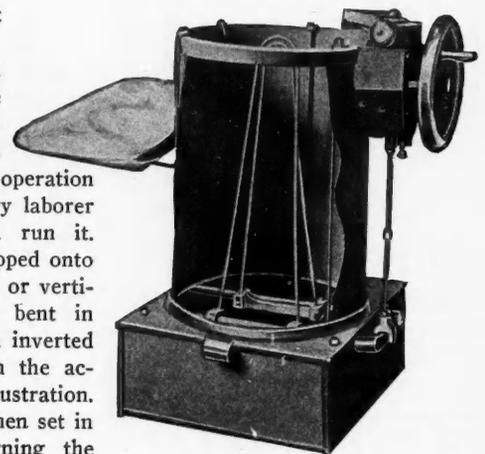
SHAKING BAGS BY HAND—THE OLD WAY.

The firm employing these men had 30,000 bags to clean, count, bundle, and return for credit.

contractor or dealer will provide himself with the "Century" Bag Cleaner, made by the Century Cement Machine Co., 220 Mill St., Rochester, N. Y. This machine offers a clean, easy, and efficient means of cleaning and counting empty sacks. It is simple in construction, light in weight, and easily moved from one job to another.

The machine is furnished for operation by hand or by power, and with or without counter.

It is claimed that either the power or the hand machine is so simple in operation that an ordinary laborer or a boy can run it. The bag is dropped onto the two beaters or vertical steel rods bent in the form of an inverted U as shown in the accompanying illustration. The beaters, when set in motion by turning the large wheel vibrate back and forth under the sack and cause the cement to drop out of the corners and from between the fibres of the sack. When 50 sacks are cleaned, a bell rings to notify the operator to tie up the bundle.



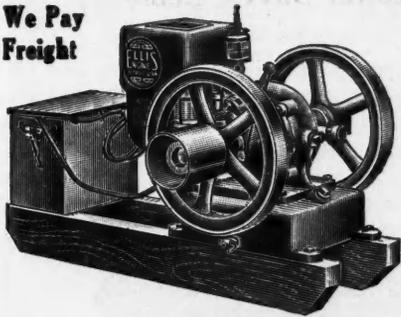
Century Bag Cleaner, Hand-Operated, with Counter Attached, also Bag Shelf; Frame Partly Cut Away to Show Vibrators over which Bag is Dropped.

It is said to take a boy from 30 to 40 minutes to clean and bundle 100 sacks.

Prominent Advertising Man Dies

Mr. Edward J. Brandel, advertising manager of the Beaver Board Companies, Buffalo, N. Y., died on May 12th.

We Pay Freight



All sizes for all purposes. 1½ to 18 H. P. Vertical and horizontal. Guaranteed 10 years

Don't Pay For Your "Ellis" without getting it

Every carpenter or contractor who does not use a reliable engine is paying for the engine without getting it. He pays for it in lost time, and in labor costs. You can buy an Ellis Engine out of two weeks' wages to one workman; and your Ellis will give you reliable service for many years.

Ellis Engines are America's favorite with carpenters, contractors and builders. Very compact in design; light in weight in proportion to power. Easy to operate; no cranking. Run either way; reversible while running. They work successfully on common cheap lamp oil at a fuel cost of

6 cts. for 10 hours

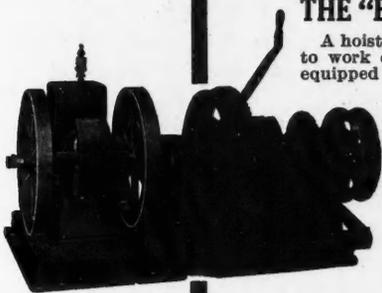
for each horsepower developed. Just the thing for wood-workers, rip-saws, planers, cement mixers, hoists; in fact for every job where power can be used. Write for free book "Engine Facts" giving valuable information and full details of our 30 Days' Free Trial Offer, with opinions of users from all parts of the world.

Ellis Engine Co., 2863 E. Gd. Boulevard, Detroit, Mich.

Sturdy — Powerful — Reliable

THE "BULL DOG" HOIST

A hoist that you can depend on to work every day, because it is equipped with a



3 Sizes:
5, 6 and 8 H. P.

"BULL DOG" ENGINE

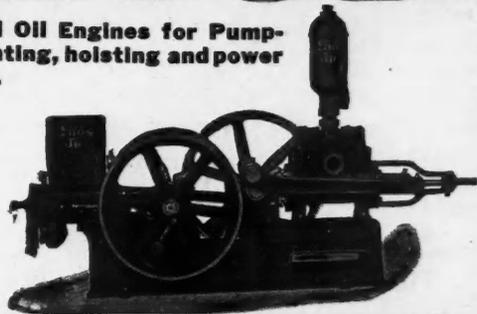
An engine that never quits, but will work all day, economically and efficiently. Don't take a chance, a hoist without a dependable engine is a waste of money. The "BULL DOG" Hoist and the "BULL DOG" Engine is an unbeatable combination. Why not let it work for you? Write for our Catalogue.

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

THE FOOS

Gas and Oil Engines for Pumping, lighting, hoisting and power service.

1½
to
400
H. P.



THE FOOS GAS ENGINE CO. SPRINGFIELD, OHIO

NO MORE Slamming Screen Doors if you use



Superior Screen Door Check



The Superior Door Holder

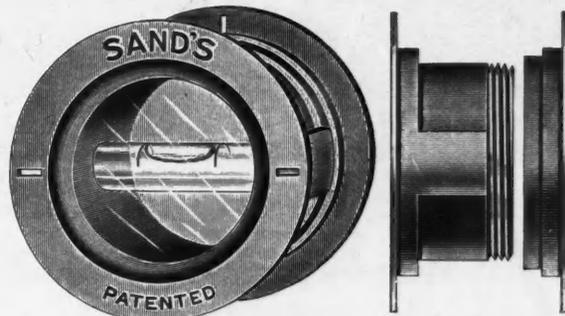
Superior Door Holder

A neat, strong, durable device, operated by foot pressure, to be used on all doors equipped with spring hinges or door checks to hold them all the way open or partly open; will not mar or injure any kind of door or carpet.

Ask your dealer for Superior Devices. If he doesn't carry them we will send prepaid the Superior Door Check for \$1.00 and the Superior Door Holder for 75c.

Superior Spring Hinge Co.

136 W. Lake St., Chicago.
New York Office: 16 Reade St.



SAND'S Plumb or Level Cases

are quickly detachable and adjustable to any straight-edge or wood stock. They are very simple, made of light Alum. metal, and can be used in many ways. Best to take the place of your broken vials in old levels. They are covered by plate glass same as in our Alum. Levels, protecting the vial, also making it dust, dirt and water proof. Instructions how to insert with every case. For sale by all hardware dealers or direct from factory for only 60c. ea., postpaid.



SAND'S Aluminum Levels

are in a class by themselves and are the very finest made. Send for free BIG circular showing full line. Made only by

J. SAND & SONS

1823-25 Rivard Street

Detroit, Michigan

Cement Bricks that are Right

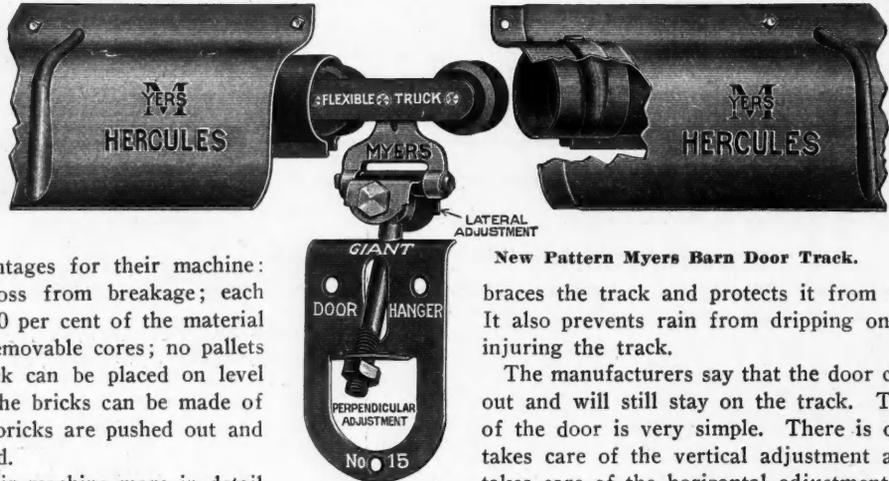
The La Grange Specialty Company, La Grange, Ind., report that the results being obtained by the users of "Little Giant" cement brick machines have exceeded their wildest expectations.

They have received many letters that speak most flatteringly of the work performed by the "Little Giant."

This machine is an extremely simple arrangement for making three bricks at a time. The manufacturers say that they have experimented with machines making more bricks, but they have never placed them on the market because of the fact that they are so awkward and hard to handle and the time lost could be more than made up with a smaller outfit.

The manufacturers claim the following advantages for their machine: There is absolutely no loss from breakage; each brick is a perfect brick; 20 per cent of the material is saved because of the removable cores; no pallets are necessary, as the brick can be placed on level sand or on a floor; and the bricks can be made of wetter material since the bricks are pushed out and troweled all the way round.

A booklet describing their machine more in detail will be furnished gladly to our readers upon request.



New Pattern Myers Barn Door Track.

braces the track and protects it from ice or snow. It also prevents rain from dripping on it and thus injuring the track.

The manufacturers say that the door can be swung out and will still stay on the track. The adjusting of the door is very simple. There is one bolt that takes care of the vertical adjustment and one that takes care of the horizontal adjustment. These are marked in the illustration.

Before putting on a new barn door it would be well to examine their proposition. Full information can be obtained from F. E. Myers & Bro., Ashland, Ohio.

They also handle a most complete line of pumps and hay tools.

This Door Track Will Not Rust Away

You doubtless have often seen the old-fashioned sliding doors on a barn that were considered very convenient when

A Big Business Booster

The New-Feed UNDERFEED Works and Wins for You

This is a banner UNDERFEED year. Carpenters and builders everywhere are reporting that orders for Williamson New-Feed UNDERFEED Furnaces and Boilers are coming in thicker than ever.

Why?—Because with the New-Feed UNDERFEED you can guarantee a saving in coal bills of $\frac{1}{3}$ to $\frac{2}{3}$.

Such a guarantee makes a fine talking point. When you can offer such money-saving assurance to your clients, the order is easy to close.

WILLIAMSON CUT COAL BILLS
NEW-FEED UNDERFEED
Furnaces and Boilers $\frac{1}{2}$ to $\frac{2}{3}$

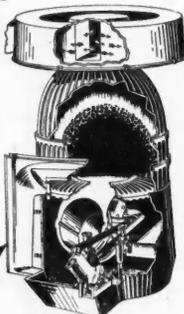
Get More Facts

Ask us to tell you of the natural coal-feeding principle on which the New-Feed UNDERFEED operates.

Write for a copy of "Money-Making Sales Plans for Underfeed Dealers" and full details of "Exclusive Sales Rights Proposition."

Write today — right now.

THE WILLIAMSON HEATER CO.
(Formerly Peck-Williamson Co.)
257 Fifth Avenue
Cincinnati, Ohio



Easy Picking Eh?

"They put coal in this cellar window today and look how the coal man left it. This is certainly soft. The other night I tried to 'jimmy' a coal chute, Gee Whiz! I wasted three hours on it. I'll never tackle another like it. It was a

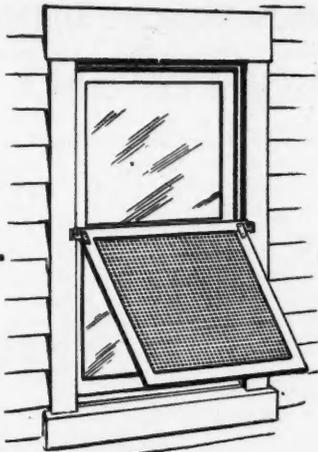
CANTON COAL CHUTE"

Canton Coal Chutes are very substantially built. They are burglar-proof and wear-proof and will out-last the building. They are most convenient for the owner, locking on the inside or outside, which ever is desirable.

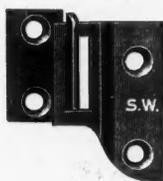
Canton Foundry & Machine Co.
Canton - Ohio

We will be very glad to send you a copy of our Catalogue, showing our complete line of builders' Iron Work. It's a handy Book to have around.

Write for it. Just say—"Send me a copy of Booklet B-2."



"Peerless" Screen Hangers and Fasteners



Just what you want to enable you to hang your screens correctly. Once applied no tools are needed to take down or put up the screens, and storm sash can be hung on the same hooks. No. 1726 Rotary Fastener locks the screen quickly and securely.

Write for circular "A" describing "Peerless" Hangers and Fasteners.



A Fine Knife for a Carpenter

For the little jobs that *only* a knife can do; for the quick, clean cut and the blade to plough hard wood or soft, with the grain or against it, you won't find the equal of

KEEN KUTTER

pocket knives, made from live English cutlery steel and with handles riveted to last. Your pocket couldn't hold better, and all Keen Kutter pocket knives are guaranteed to suit you or the dealer is authorized to hand you back your money.

Send for our Cutlery Booklet No. 1551.



Pocket Knife No. K2013 3 Blades Price \$0.55



If not at your dealer's, write us.

Simmons Hardware Company

St. Louis New York Philadelphia Toledo Minneapolis Sioux City Wichita



Cut shows Lever Raised Blade Loose

Send 50c for Sample

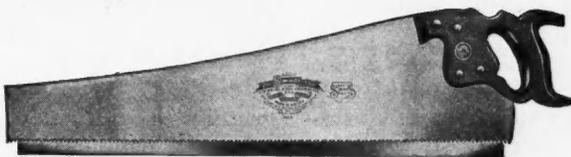
THE "HOLD-FAST" BEVEL
Sliding T Bevel with Wooden Handle

This cut shows the new "Hold-Fast" Bevel with the wooden handle. Note the patented device for locking the blade fast.

Made only by the

The Southington Hardware Company
Southington, Conn.

Also Wood Screws, Carpenters' Squares, Try Squares, Mitre Squares, Levels and other tools



GET THE FACTS

Do not be misled by unwarranted claims of quality in saws not bearing the manufacturer's brand but protect yourself and save yourself money by buying a saw like this **Simonds No. 8**. If we could make special offers or

give cash discounts on a saw of this kind, we would do it, but so much good material and workmanship have been put into the blade and handle that special offers are out of the question. Price 24 or 26-inch, \$1.75.

Sent direct upon receipt of price, when it cannot be obtained from a Hardware Dealer. Every one absolutely guaranteed. If, after trial, you are not entirely satisfied with your purchase the saw can be returned and your money will be refunded.

When you order, ask us to mail you a free copy of our booklet about filing and caring for saws, entitled "Simonds Guide for Carpenters."

SIMONDS MANUFACTURING COMPANY

FITCHBURG, MASS.

::

::

CHICAGO, ILL.

The rapidly increasing use of cement for garages, barns, corncribs, stables and other buildings has created a big demand for

WAGNER Studding Sockets for Cement Floors

—the easiest-to-use, most durable and best all around way of anchoring studding in cement floors.

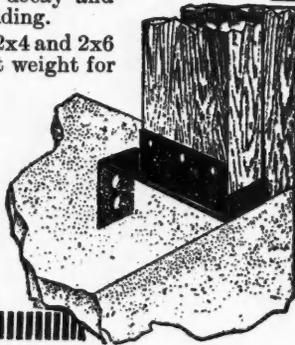
Set into the cement while fresh, they are tightly secured and hold with a grip of steel. Protect ends of studding against decay and insure long life to the building.

Made in two sizes—for 2x4 and 2x6 or 2x8 studding; also light weight for partitions.

**Your Dealer Can
Supply You**

We fill orders direct where we have no dealers. Write today for descriptive folder.

Wagner Mfg. Co.
Dept. F CEDAR FALLS, IA.



You Don't Know

real screen hardware until you get acquainted with the **Watrous-Acme line.**

No one who desires to safeguard their own interests as well as their customers should overlook our line of screen hardware and Wrought Steel Butts.

They're better—last longer and give real satisfaction.

Ask your dealer—he sells them. If not, he will order them for you.

A postal will bring you full information and samples if you wish.

Watrous-Acme Mfg. Co.
DES MOINES, IOWA

Chicago Sales Office: 180 North Dearborn Street

Handy Hoist for Builders

The H. B. Sackett Screen and Chute Co. have recently placed on the market a hoist that should be just about right for many contractors.

This hoist as yet has no name because the firm is right now running a contest in which the man suggesting the best name will be given one of the hoists. This contest was announced last month and the name of the winner will be given in the July issue. If you haven't taken a chance on this proposition, now is your last chance to get something for nothing. Everyone is always trying to do this, but it isn't very often that there is a chance. Here is one anyway.

This hoist is sold at a reasonable cost and will eliminate the expensive method of hod-carrying up a ladder.

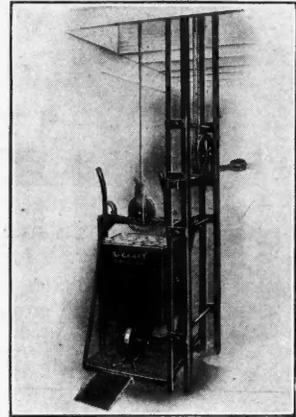
The hoist has two carriages each 24 inches square. They are placed at opposite ends of a continuous cable; one going down while the other is going up. The lifting can be done either by hand, horse, or engine.

Nine special carts are furnished with the machine; six holding 45 bricks each, and three with a capacity of 2½ hods of mortar apiece. More carts can be obtained if necessary. These one-wheel carts will go through standard doorways and can be easily turned at right angles on crossed planks.

The hoist can be used for lifting stone sills, small girders, etc. The carriages are fitted with grooved rollers that run in angle guides that are made in 12-foot sections. These sections are easily bolted together as the work progresses. Four sections are furnished with the hoist which is enough for a three-story building. Additional sections may, of course, be procured if necessity demands.

It is not necessary to leave large holes in the floor with this hoist, as it can be operated in a space 24 by 54 inches. Sometimes it is only necessary to shift one joist temporarily to provide space for it. The manufacturers say that the hoist can be shifted from one floor to another and made ready for operation in fifteen minutes.

If any of our readers haven't suggested a name for this hoist they should write immediately and get information concerning this contest. A hoist like this will be mighty handy for any man who is in the building line. Write to the H. B. Sackett Screen and Chute Co., 1683 Elston Ave., Chicago, Illinois.



Few Jobs Too Small for This Hoist.



Handy Cart for Brick or Mortar.



One Horse Runs It.

Use Wright Wire Lathing and Build for the Future

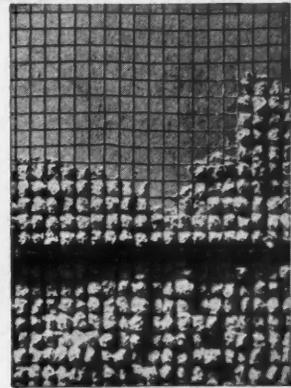


The magnificent Woolworth Building was built for generations yet unborn. All materials were selected to stand the test of time. The architects chose from the different makes and varieties of lathing Wright Wire Lathing for this building. They knew that no other make could equal it for rigidity, durability and resistance against fire and time. Let your specifications read Wright Wire Lathing. The illustration at the right shows Wright Stiffened Lathing with a light coat of plaster to show the key. When the plaster is properly applied, it covers thoroughly both sides, making an impenetrable barrier against fire.

Our Catalog W describes in detail various sizes of lathing for different types of building. Write for a copy today.

WRIGHT WIRE COMPANY,

Worcester, Mass.



Wright Wire Lathing is made in three finishes, plain, japanned and galvanized.



12c each
Sizes, 2-32 to 5-32
How Many Do You Want?

Can always be found just where you laid it, being square instead of round. The knurling is full and of the correct length to afford a firm grip, and the corners of the body slightly rounded to prevent injury to the fingers. We will send as many as you wish at 12 cents apiece. Our round Nail Sets, "the World's Standard," are obtainable at 10 cents each in the regular sizes, 2-32 to 5-32. Ask your dealer or send direct to us.

SYRACUSE TWIST DRILL CO.

SYRACUSE, N. Y.

Stays Where It's Put

THE "SYRACUSE NOROL" Nail Set



TAKES SQUARE
OR HEXAGONAL
-NUTS-

"E-I-T" HAMMER-WRENCH

NOTE ITS SIMPLICITY The enthusiastic approval the "E-I-T" Hammer-Wrench received after a thorough efficiency and convenience test by contractors and mechanics on some of the largest construction jobs in New York City, proves conclusively that the "E-I-T" Hammer-Wrench takes the place of two tools, the claw hammer and the wrench, on work where bolts, nuts and nails are used, because of its perfect combination of all good points of both tools.

Contractors found that it saved 30% of the time formerly wasted by the mechanics changing from one tool to the other; and mechanics found it efficient, convenient and economical.

Is solidly built in one piece of drop forged oil tempered steel; has no movable parts. It reduces the bulk and weight of the tool kit.

TWO GUARANTEES

Have your dealer show you one, or send \$1.25, together with the dealer's name, direct to the home office. EUREKA IMPROVED TOOL CO., Inc., 405 Lexington Ave., New York.

FIGURE THE KULOFF



Adjustable Portable Shower

in your bath-room estimates instead of the old-fashioned fixed overhead shower.

**Two-Thirds Cheaper
Infinitely Better**

You give more to the owner at less expense to yourself.

The KULOFF Shower may be attached or detached in a minute. It

is instantly adjustable to any height or angle. Its 160-needle sprays may be directed either horizontally or vertically to any part of the body.

Substantially Made Solid as a Rock

Send for circulars and trade prices.

WALLACE NOVELTY CO., Inc.

22 East 41st St.

New York City

We manufacture the Famous

WALLACE PORTABLE ELECTRIC LAMP

Write for circulars.

The lamp will interest you.

Save One-Half Regular Prices On Building Material

Write today for the Big Book pictured below. Read it! It will open your eyes! It will show you how to get the best quality materials direct from the mills for half regular prices. Hundreds of carpenters, builders and contractors are doing this very thing. They know that they can depend upon us because four of New England's staunchest banks vouch for our responsibility.

Buying Direct from the Mills Saves Carpenters Big Money

We guarantee safe delivery. We guarantee absolute satisfaction. We save you 1/2 regular prices. Think how buying direct will increase your profits. Write us at once if you live east of the Mississippi River. Ask for the big Free Book.

**Webber Lumber
& Supply Co.**

4914 Clyde Street

Fitchburg, Mass.

**BUILDING MATERIAL
Catalogue Number 87**



**WEBBER LUMBER AND SUPPLY CO.
Fitchburg, Massachusetts**

Dow Conveyor Goes to Cuba

The Dow Wire & Iron Works, Louisville, Ky., has recently shipped a Sanitary Cup Conveyor and Rinser to A. H. de Beche, at Havana, Cuba. This machine rinses the bottles inside and out, and delivers them to the workmen at the bottling machines. The cups or receptacles for the bottles are made of wire which do not break or chip the mouth of the bottles when being placed in the conveyor.



Boss 3700 lb. Paver

We show here illustration of a successful combination general utility and light paving mixer, which has just come onto the market. The machine is built of steel, resulting in a saving of over 2,000 lbs. useless weight. A team moves the machine any place. It has short wheel base, with 28-inch rear, 22-inch front wheels, 5-inch tires, running in wagon track. Can be moved by hand or furnished with traction and steering wheel, equipped with Hyatt Roller Bearings, automatic power loader, new chain tightening device, batch counter—in fact every modern improvement.

Its capacity is one bag cement—at 5-3-1 mix. Capable of putting down 800 sq. yds. paving, or 125 cu. yds. a day.

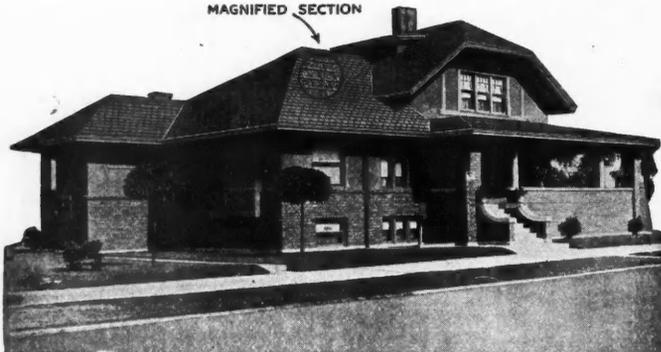
Because of its compactness, it is an ideal machine for all types of general concrete work, paving alleys, country roads, car tracks, sidewalks and curb and gutter work.

The American Cement Machine Co., Inc., 1006 Johnson St., Keokuk, Iowa, the manufacturers, also build a 11-foot "light" steam paver, and the famous "Little Boss" line of mixers.

The "Boss" Paving Mixer.



MAGNIFIED SECTION



ASPHALT SHINGLES INTERNATIONAL BRAND A WEAR PROOF ROOFING MATERIAL

The Roof is the most important part of the house and in planning the building be sure of the material used in the roof construction, as on it depends practically the life of the building.

A GOOD ROOF IS THE HOME'S BEST ASSET

INTERNATIONAL SHINGLES are an ideal roofing material. They are made to give the utmost service for the least possible cost. They add dignity to any residence.

Some roofs look well when **first made**. In building **your** roofs be sure that they look well and also that they keep their looks indefinitely. This is your best advertisement.

It Pays to Use INTERNATIONAL SHINGLES

WHY? Because there are no better shingles made. Further, ASPHALT SHINGLES are recognized as being the very best roofing material. By using INTERNATIONAL brand you are getting the Best of the BEST.

INTERNATIONAL SHINGLES are distinctive. They come in beautiful shades of Red and Green and being shipped in cartons are easily handled. Remember that the roof either makes or mars the beauty of the finished structure.

We Want Representation in Your Locality

Here is Our Proposition. We recognize that you builders are logical men to handle such a product as ours. There is a big field for you to work in, and wherever we are not already represented would like to get in touch with wide-awake men who are responsible to push our INTERNATIONAL SHINGLES. There is money in it for you. Write today for full size sample. It's Free.

INTERNATIONAL ROOFING MFG. CO., 5305-21 So. Western Avenue, CHICAGO, ILL.

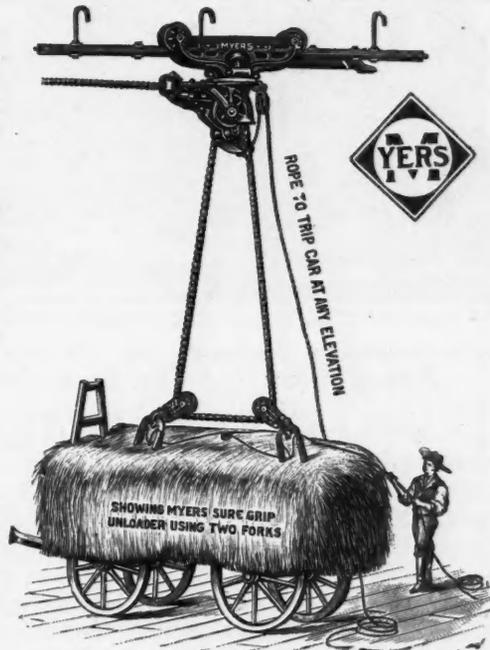
EQUIP YOUR BARN WITH MYERS HAY UNLOADING TOOLS

Myers Unloaders, Forks, Slings, Pulleys, Tracks and Fixtures represent the highest degree of perfection in Hay Unloading Tools—the standard for thirty-five years. You owe it to your hay-making customers to recommend and install the best—the Myers—the most practical and up-to-date line of machinery on the market for Unloading Hay or Grain from the rack into the mow or onto the stack.

Myers Hay Unloading Outfits are easy to install, and considering quality very low in price. They are built for continual hard service and stand up under the strain when rush harvest is on. Myers Unloaders are all large capacity, and are built to handle one or two forks, or slings. Different styles have extra long trucks and operate on single or double steel track, wood or cable track. Myers Forks, Slings, Pulleys and Fixtures are a standardized line and constructed to handle the extra heavy loads now required of this class of machinery.

Are You Posted on Myers Hay Unloading Tools?

If not, better let us send you our late Catalog and Circulars showing complete line—Unloaders, Forks, Slings, Pulleys, Tracks, Hooks and Fixtures, and also Myers Stayon and Tubular Door Hangers and Tracks Harvest will be here in no time and your trade will want Myers Hay Tools. Let us have your inquiry today. Circulars and name of dealer sent to anyone. Prices and terms to dealers and contractors.



F. E. MYERS & BRO., Ashland Pump and Hay Tool Works **Ashland, Ohio**



Here's an Earful of Skylight Logic

We'll tell you just why Willis Skylights are so popular with both Builder and Owner

They are simple in construction. Have greatest Glass Area. Give most light, Easiest to Erect, Hammer and Screw-driver only tools necessary. No Putty or Solder needed.

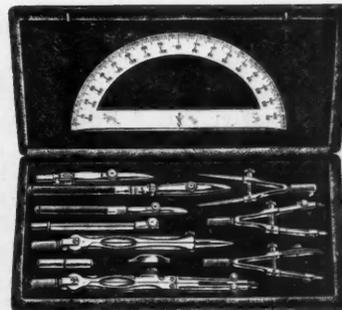
WILLIS SKYLIGHTS

Come in all styles and sizes. The one shown is a **Hipped Turret Skylight** with side sash that can be operated singly or in batteries by mechanical device. We are Headquarters for all kinds of Sheet Metal goods such as Ventilators, Fireproof Windows and Doors, Metal Ceilings, etc. Our Large 180-page Catalogue sent FREE on request. It contains valuable information to any Builder or Architect.

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Write For New Book

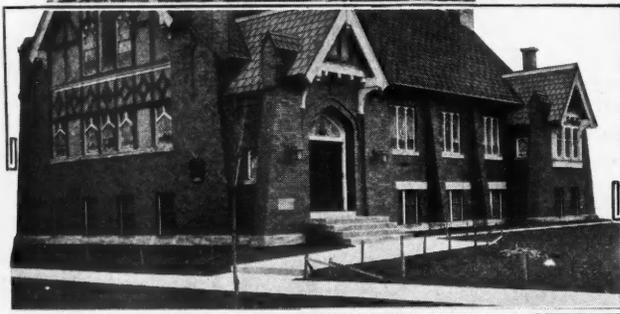
Send me a post-card or a letter today for the new book on Drafting. Read about the opportunities that are open to you. Read how you can learn in your own home during your spare time. Write today. No obligations. The Book is Free.

Chief Draftsman Dobe
Div. A-169

Engineers Equipment Co.,

Chicago

SLATE FOR ROOFING



Specification Issued by Bangor Slate Association for Flat Slate Roofs

The following specifications has been prepared to furnish reliable information to architects and builders on Flat Roof construction using slate: When incline exceeds one (1) inch to one (1) foot, special specifications will be furnished upon request. This specification is for use *over board sheathing*. Next month we will present the specifications for use *over concrete*.

SURFACE: All loose rubbish, chips and nails shall be swept from the roof by the contractors preceding the roofer, and the roof surface left perfectly clean. Ends of all sheathing boards to rest on rafters or purlins properly nailed and secured. Sheathing boards shall be free from loose knots and holes and properly graded to outlets, by the Carpenter Contractor.

APPLICATION: First—Lay one (1) thickness of Sheathing Paper or Unsaturated Felt weighing not less than five (5) pounds per one hundred (100) square feet, lapping the sheets at least one (1) inch.

Second—Over the entire surface lay two (2) piles of Specification Tarred Felt, lapping each sheet seventeen (17) inches over preceding one, and nail as often as is necessary to hold in place until remaining Felt is laid.

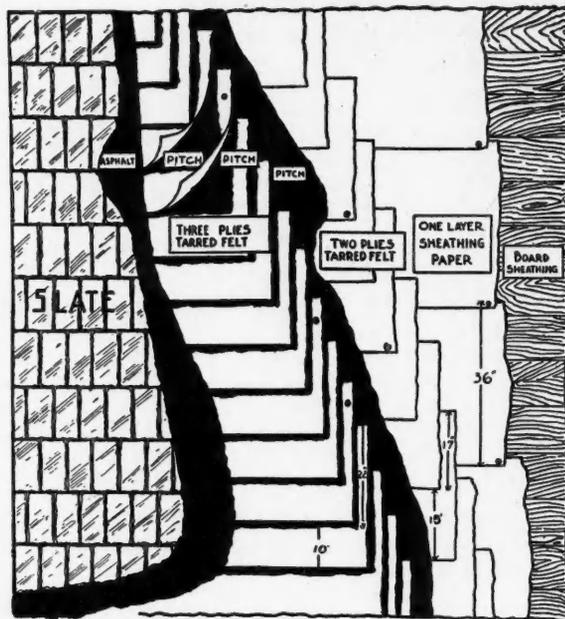
Third—Coat the entire surface uniformly with Specification Pitch.

Fourth—Over the entire surface lay three (3) piles of Specification Tarred Felt, lapping each sheet twenty-two (22)

inches over preceding one, mopping with Specification Pitch the full twenty-two (22) inches on each sheet, so that in no place shall Felt touch Felt. Such nailing as is necessary shall be done so that all nails will be covered by not less than two (2) piles of Felt. Use an average of eighty (80) pounds of Specification Pitch to one hundred (100) square feet of roofing.

Fifth—Spread over the entire surface a uniform coating of "Warren's No. 144 Genuine Bangor Roofing Asphalt," using an average of fifty (50) pounds to one hundred (100)

Roofing Details



Cross Section



Other Methods of Applying Slate



ISSUED MARCH 1, 1915

square feet, into which, while hot, thoroughly embed Genuine Bangor Slate; grade*....., size, inches by inches (grade and size to be inserted); Slate to be perfectly dry when placed.

FLASHINGS: Flashings shall be constructed as shown in detailed drawing.

INSPECTION: The roof may be inspected before the Slate are applied by cutting a slit not less than three (3) feet long at right angles to the way the Felt is laid. The cut can be repaired by sticking five (5) thicknesses of Felt over it, and the spot will then be as strong as any part of the roof.

*Full information concerning suitable grades and sizes will be furnished on request.

SLATE WE HAVE WHAT YOU WANT

*In Roofing Slate, Slate Blackboards
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SLATE BLACKBOARDS**

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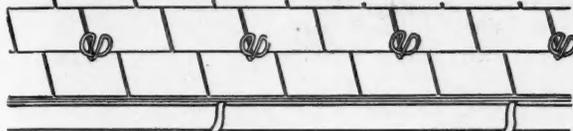
The Slatington-Bangor Slate Syndicate, Inc.
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The roofing whose first cost is the only cost and that retains its superb richness of color as long as the building stands. **Genuine Franklin Tunnel Slate** is absolutely Fire-proof, Water-proof and Decay-proof. Free Samples and Prices on request.

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It costs you nothing to find out about this plan. Don't you think you can afford to spend a penny for postage on it? Fill out the enclosed coupon and write us today.

GENUINE BANGOR SLATE CO.

Quarries: Bangor, Pa. Easton, Pa.

GENUINE BANGOR SLATE CO., Easton, Pa. June, 1915.

Please send information about your plan:

Signed

Address

City State

NOTE—We advise incorporating the full wording of the Specification and inserting roofing details in plans in order to avoid any misunderstanding. If an abbreviated form is desired, the following is suggested.

ROOFING: Shall be a Genuine Bangor Slate Roof For Flat Surface (for use over Board Sheathing) laid as directed in printed Specification, issued March 1, 1915, using materials specified, and subject to the Inspection requirements.

Issued March 1, 1915.

ENGINE POWER

Costs Less Now

Besides our lower prices, WITTE engines use less fuel, and cost less for up-keep—enough saving, in a year, to pay entire engine price.

WITTE Engines

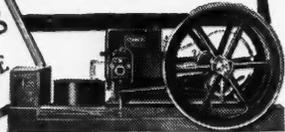
Gasoline, Kerosene, Distillate, Gas.
 2 H-P \$34.95; 4 H-P \$69.75; 6 H-P \$97.75;
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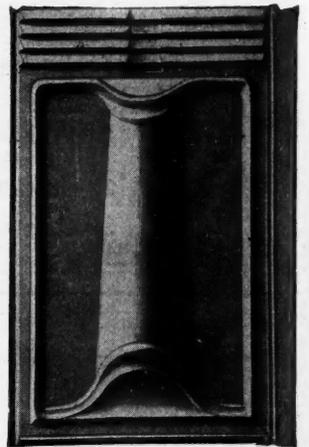
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The progress made in the construction of metal shingles has been remarkable in the last few years. The Canton Metal Ceiling Company has added another feature metal shingle to their line.

This is an extremely handsome shingle and gives the effect of the best clay tile. In addition to this effect, it also has interlocking device that has characterized their “Safe-Lock” shingle. The new shingle is known as the “Kant-Leak” pattern.



“Kant-Leak” Metal Shingle.

It has the special nesting device at the top of the shingle that has characterized their former designs. It insures the roof from all leakage and at the same time it keeps the shingles aligned as they are laid so that they keep to their courses almost automatically. The manufacturers say that the ease of alignment makes it possible to lay more shingles in a given time.

This proposition certainly looks as though it were worth investigating and our readers can get all the information they require by writing to the Canton Metal Ceiling Company, 1947 Harrison Avenue, Canton, Ohio.

I Made \$50,000 In 10 Yrs.



—and you can do as well in the house moving business. Let me show you how to get started. You can have the benefit of my experience and save yourself many of the hard knocks I got at the start.

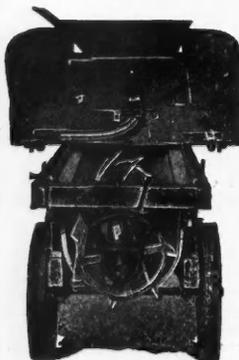
\$200 to 300 Starts You

With this small investment you can start in a profitable, big paying business that is just teeming with opportunities for the live wide-awake fellow. When you get full details of my proposition and learn how easy it is, you'll say “why on earth didn't I ever think of it before?” Write me tonight. Just say, “Show me how I can make \$3,000 to \$5,000 a year moving houses.”

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The Knickerbocker Mixers



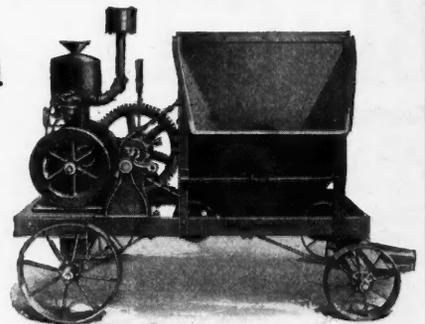
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