

JULY 1915

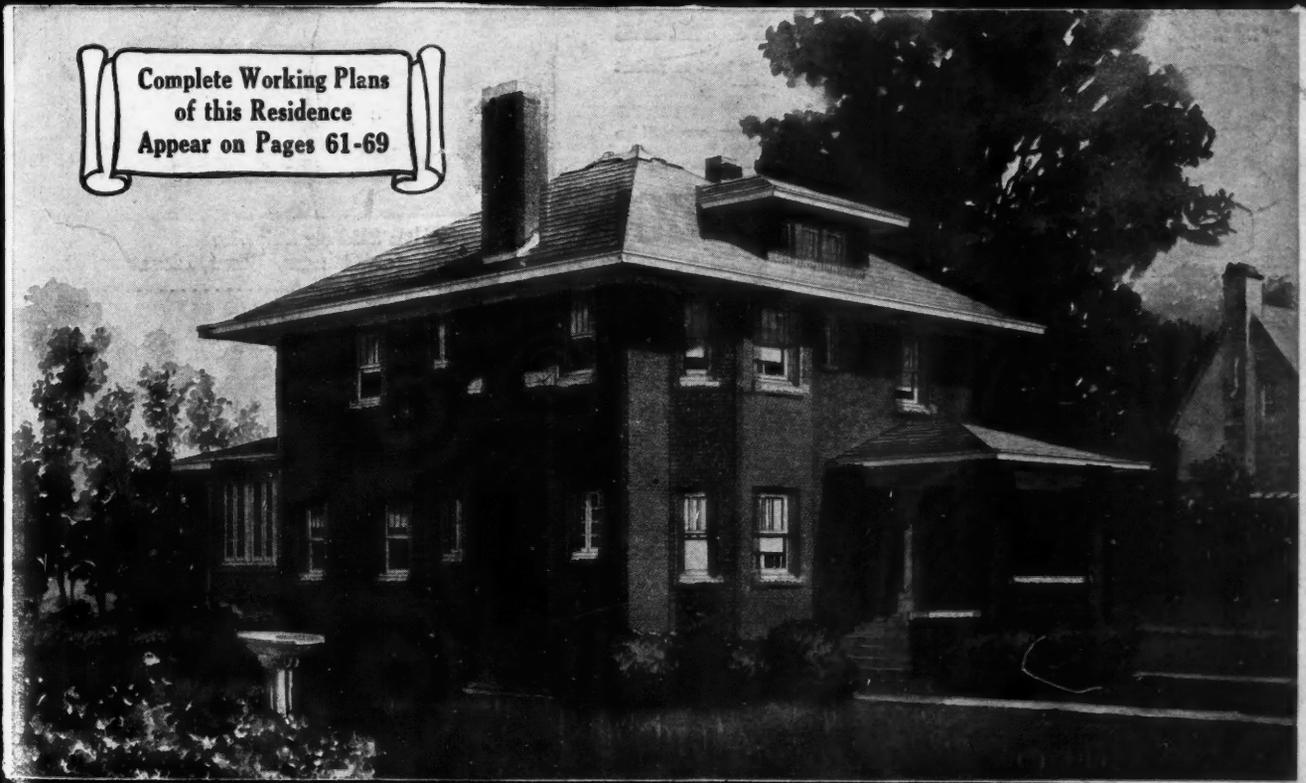
★ JI 4 '15 W ★

AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER

Complete Working Plans
of this Residence
Appear on Pages 61-69



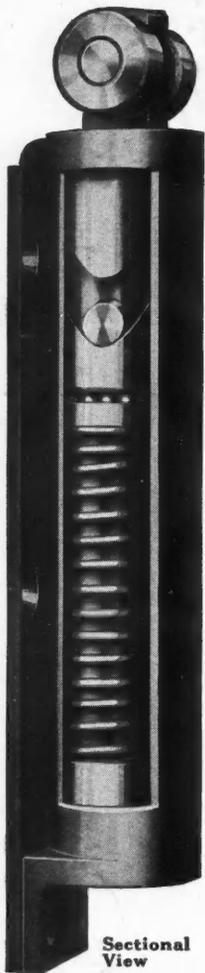
Price 0 Cent

THOBEN

HARDWARE SPECIALTIES

Improved Hardware at Lower Prices

We offer this new line of Hardware Specialties confident that their simplicity, durability and improvements will be appreciated by every up-to-date Carpenter and Builder and their customers as well.



Sectional View

Smith Checking Hinge For Double-Acting Doors

Closes the door quickly and silently and stops on center. Unlike other hinges it is placed at the top of the door instead of at the bottom. It works in the radius of the thickness of the door, leaving no opening between the door and jamb when door is opened. This feature eliminates all danger of children getting their fingers crushed. It is very easily installed, saving you time and labor and needs no adjustment whatsoever. The bottom pivot carrying the weight of the door is a simple hardened ball and socket joint. The Smith Checking Hinge comes in all Standard Finishes.

Smith Double-Acting Door Hinge (Non-Checking)

This Hinge will last a life-time, being made of best materials obtainable. All parts are inclosed and work in oil, insuring quietness and ease in operation. Spring is large in diameter and made of flat wire. We guarantee this spring to be strong and resilient for the life of the Hinge. This Hinge is also fastened at the top of the door and the door's weight swings on a ball and socket joint at the bottom. This Hinge only closes the door and does not support it with the result that it outlasts any other hinge.

Smith Sliding Door Lock A Reliable Lock for Garages, Barns, Elevator Doors, Etc.

They are very simple, strong and easy to operate. These Locks fill the demand for a lock that will withstand hard and long service. A compression spring acts directly on each latch. The mechanism locks both latches and opens and locks from either side. This Lock is half-mortise and can be applied to a 5-inch style and fits doors from 1 1/4 to 2 1/4 inches thick. Made in 42 changes, can be master keyed in sets of seven.

Smith Sliding Door Hanger

This Hanger is a departure from any other sliding door hanger on the market, the track being placed on the door and the Hangers on the Building. This design will positively stop the warping of doors and doors will always roll freely, and cannot lift off the track.

These Hangers are adjustable and can be easily kept in perfect alignment. They are bird-proof and storm-proof.

Get THOBEN Hardware at Your Dealers

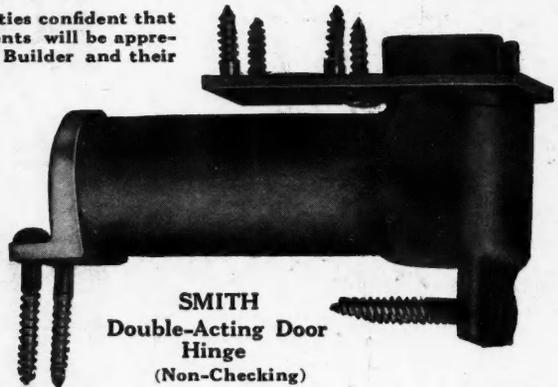
If he doesn't have it or will not get it for you, we will be glad to supply you direct at price named F. O. B. Chicago, or we will send you Free on request our little booklet showing the THOBEN Line.

THOBEN MFG. CO.
115 E. So. Water St., Chicago, Ill.

Smith Checking Hinge
To be applied at top of door.
Price for 1 1/4" door \$4.20
" " 1 1/2" " 4.80

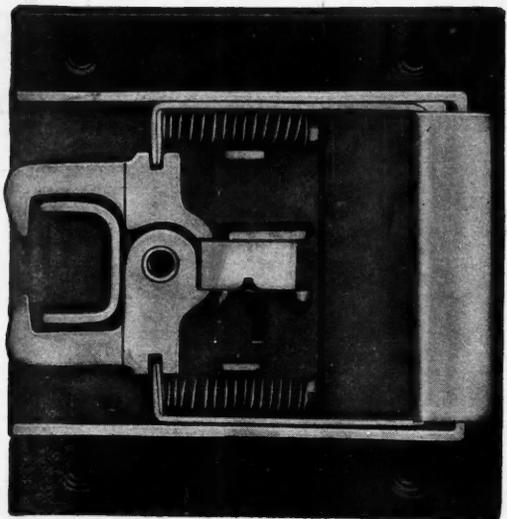


Pivot for bottom of door



SMITH
Double-Acting Door Hinge
(Non-Checking)

A neat well-made hinge, working in oil—silent and easy in action. Easy to install, with the minimum of mortising. Price, per set.....\$2.00



Smith Sliding Door Lock

A Reliable Lock for Garages, Barns, Elevators, etc. Durable and strong. Price, each.....\$2.00

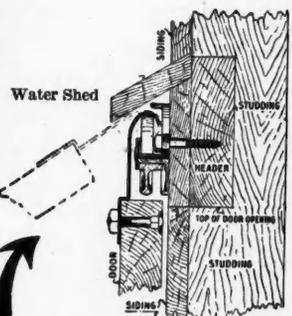


Showing Door Closed



Showing Door Open

Smith Sliding Door Hanger
Note track on door—cutting track cost in half—this slides on Hangers. Steel track 16 cents per foot, (6, 8, or 10 ft. lengths.)
Hangers, 7 in. set.....\$2.80



SECTIONAL VIEW
Note Simplicity

This shows how door can swing out. Door always rolls freely and cannot be lifted off.

"As Good as a Course in Drafting"

HOW MANY AMBITIOUS CARPENTERS AND BUILDERS LEARN TO DRAW PLANS

WE are not among those who find fault and raise a big yell about amateur plans and the architecture that is hammered out by carpenters. We realize that everyone, even the most skillful, was a beginner once. He had to make a start, and that start was just as often in the hard school of practical experience as in some technical college.

Many of our leading architects today were in the first place builders, and rose from the ranks through their own powers of observation, close study, and hard work.

There is a right and a wrong way to do most everything, and nowhere is this more evident than in the preparing of working drawings for a building. Usage has established certain conventions, as they are called, by which the draftsman indicates on his drawings the various elements of a building. For instance, on a floor plan, windows are indicated in a certain way and doors in another. So long as the draftsman indicates these in the conventional way anyone familiar with plans can know exactly what is meant. But let him devise some new convention, some way all his own, of indicating doors and windows and the other building elements, and the result is a Chinese puzzle. The man who drew the plans knows what he intended but no one else does.

O, dear! If you could only see some of the plans that really good builders occasionally send in! They are terribly and wonderfully made!

The trouble is in not following established architectural conventions. The remedy is to study carefully the plans turned out by professional architects, observing closely all the little points.

Many good builders get along with

little or nothing in the way of regularly prepared building plans. They carry it all in their heads without thinking it necessary to put the definite instructions down on paper.

Perhaps this may be O. K. for a builder who has a small gang and can supervise all the work personally, but it is certainly N. G. as the work grows larger.

Definite directions in the shape of blue-printed working plans and type-written specifications should control every building job. Such plans and specifications are in the first place the only safe basis for the contract; then as the work gets under way they prevent mistakes that are costly both in time and in material. The foremen know just what they are to produce, and the customer is bound to be satisfied when the work is done.

One of the greatest advantages of using a good plan book such as our newest offering, "Guaranteed Building Plans," is that it lets any builder obtain at a very reasonable price complete working plans and specifications for any building illustrated in the book. As these plans are prepared by our own architects (Illinois Licensed) who have made a specialty of this kind of work, they can be accepted as safe models. Many carpenters and builders redraw these plans for practice during slack times, or make minor changes in them to fit special needs. As one builder said recently, "They're as good as a correspondence course in architectural drafting." Ambitious men in untold numbers are climbing the ladder in the building world through using these helps that are so freely offered them.

Yours for advancement,
 Editor AMERICAN CARPENTER AND
 BUILDER.

June Prize Winners

The Following are the Winners in Our June Ad Study Contest:

First Prize, \$5.00—C. W. MORGAN, 49 Wellington St., Worcester, Mass.

Second Prize, \$3.00—GEO. P. SEIFERT, Rolfe, Iowa.

Third Prize, \$2.00—S. E. CARTER, Architect and Contractor, McLemoresville, Tenn.

\$1.00 Prizes as Follows: R. F. SULLIVAN, Contractor and Builder, 1714 Timea St., Keokuk, Iowa; GEO. K. WELLS, Instructor of Manual Arts, Kansas State Normal School, Emporia, Kan.; LOUIS S. DRAKE, Contractor and Builder, New Palestine, Ind.; F. A. PREISEL, 933 N. Schuyler Ave., Kankakee, Ill.; H. H. RUPE, Contractor, 313 Elm St., Quincy, Ill.; E. B. HARSHBERGER, Architect and Builder, Minot, N. D.; C. C. FOX, Hubbardston, Mass.; G. H. ORTHWEIN, Bucyrus, Ohio; OTIS COULOM, P. O. Box 100, Charleston, Mass.; M. L. TAYLOR, Carpenter and Woodworker, Tom Bean, Tex.; C. H. BELTZ, Contractor and Builder, 612 Thompson St., Pendleton, Ore.; J. A. DUNN, 237 Faceland Ave., Clarksdale, Miss.; FRANK C. MEINHARDT, Carpenter and Building Contractor, Malabar, Fla.; ALBERT F. SCHLUTT, General Contractor and Builder, 711 Court St., St. Joseph, Mich.; L. B. HARMON, 111 Bartlett St., Somerville, Mass.; C. A. CLARK, General Builder, 1384 Grace St., St. Paul, Minn.; VICTOR L. PHILLIPS, Manufacturer Contractors' Machinery, 7th & Delaware Sts., Kansas City, Mo.; THOMAS W. KELLY, Contractor and Builder, Room 4, 213 2nd Ave., Cedar Rapids, Iowa; EDWARD H. TINGLEY, Manual Training Teacher, 356 Auburn Ave., Buffalo, N. Y.; HENRY W. KEIPER, 935 Beech St., Scranton, Pa.; W. E. ROESE, Architect and Builder, 507 W. 27th St., Sioux City, Iowa; S. V. PARKER, Contractor and Carpenter, 1554 S. Fountain Ave., Springfield, Ohio; LEE BAYS, JR., Lebanon, Va.; R. J. SCHLONERGER, Contractor and Builder, Vestaburg, Mich.

Contents for July, 1915

| Page | | Page | | Page |
|------------|--|--------|---|--------|
| 72 | Advantages of a Two-Story Grain House from a Farmer's Standpoint | 72 | Foundation of a Two-Story Granary | 72 |
| 56 | Artistic Boathouses for Lake Resorts | 54 | Garages by the Barrel | 54 |
| 39 | Bungalow with Unusual Roof Design | 77 | General Farm Barn | 77 |
| 52 | Cement Stucco Construction | 39 | Guaranteed Building Plans | 39 |
| 73 | Cleaning Grain for Market | 73 | Handling Shelled Corn | 73 |
| 40 | Column Supported Hip Roof House | 55 | Heating and Ventilating | 55 |
| 61 | Complete Set of Plans for Fine Brick Residence | 55 | How to Select a Warm Air Furnace | 55 |
| 52 | Concrete Driveway Leading to Private Garage | 70 | How to Use a Pitch Board | 70 |
| 76 | Construction of Farm Barn—Full Page Detail Sheet | 59 | How to Use the Steel Square | 59 |
| 41 | Corner Entrance Bungalow | 96 | If Door is Warped, Warp It Back Again | 96 |
| 83 | Correspondence | 68, 69 | Interior Construction Details—Full Page Detail Sheets | 68, 69 |
| 86 | Cutting Extra Windows in Concrete Wall | 38 | Interior of Living Room—Full Page Photo | 38 |
| 85 | Cuts for Gambrel Roof Rafters | 81 | Liquid Gas Cools Ice Box Besides Furnishing Heat and Light | 81 |
| 65, 66, 67 | Details of Construction of Brick Residence—Full Page Sheets | 60 | Living Room View—Full Page Photo | 60 |
| 78 | Economics of Home Building | 44 | Man from the Lumber Yard | 44 |
| 81 | Editor's Drawer | 86 | Mystery Table | 86 |
| 81 | Effective Saw Guard | 51 | New School Building for Lawton, Mich. | 51 |
| 80 | Excelling King Solomon's Temple | 83 | New Wrinkle for Hens' Nests | 83 |
| 92 | Exhibition Bungalow Graduates Into Regular Home Class | 48 | Noon Hour Talks by the Boss Carpenter | 48 |
| 78 | Explanation of Specification Provisions—Rough Carpentry Work | 53 | Oil-Mixed Concrete for Damp Proofing | 53 |
| 72 | Farm Buildings Arranged for Convenience | 53 | One-Story Woodworking Shop Built of Hollow Tile | 46 |
| 90 | Fault of the Plaster, Not the Wallpaper | 72 | Planning and Building a Modern Corn Crib Equipped with Elevator—Part II | 72 |
| 94 | Figuring Sash Weights | 81 | Practical Cooler for the Home | 81 |
| 62, 63, 64 | Floor Plans of Brick Residence—Full Page Plates | 51 | Public Buildings | 51 |
| | | 71 | Ran Into the Rough Outfit | 71 |
| | | 71 | Read and Observe More—Talk Less! | 71 |
| | | 37 | Reasonable Desire | 37 |
| | | 61 | Residences | 61 |
| | | 72 | Roof for a Two-Story Grain House | 72 |
| | | 82 | Sanitary Filter and Aerator for Cistern Water | 82 |
| | | 85 | School Room Window Regulation | 85 |
| | | 81 | Self-Adjusting Nut and Pipe Wrench | 81 |
| | | 43 | Seven-Room Modern Farm House | 43 |
| | | 74 | Shed Roof Poultry House | 74 |
| | | 84 | "Soldiering" on the Job | 84 |
| | | 59 | Steel Square | 59 |
| | | 42 | Substantial Two-Flat Brick Building | 42 |
| | | 78 | Summary of Timber Sizes | 78 |
| | | 84 | Tackle for Barn Raising | 84 |
| | | 81 | Three Complete Die Stocks with the Bulk and Weight of One | 81 |
| | | 54 | Three Four-Room Bungalows in Twenty-Six Hours—Who Can Beat It! | 54 |
| | | 96 | To Approximate Area of Steel Angle | 96 |
| | | 71 | To Lay Out Ellipse | 71 |
| | | 69 | To Mend Blazing Gas Main | 69 |
| | | 71 | Tough Luck!—Always Too Late or Too Early for Christening | 71 |
| | | 100 | Trade Notes and Items of Interest | 100 |
| | | 70 | Tricks of the Carpenter Shop | 70 |
| | | 82 | Unique Vertical Drafting Board | 82 |
| | | 83 | Unspeaking a Floor | 83 |
| | | 85 | Van Ornum's Power Shop | 85 |
| | | 83 | Ventilating a Kitchen | 83 |
| | | 86 | Vouches for Fast Western Shingling | 86 |
| | | 83 | West Has Nothing on East | 83 |
| | | 50 | What a Well Built Tank Can Stand | 50 |
| | | 75 | Winter Hog House | 75 |
| | | 90 | Wood Carving | 90 |
| | | 78 | Wood Frame of the Building | 78 |
| | | 48 | Yours for Safer Building | 48 |

CHICAGO

SPRING BUTTS

REPUTATION

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



Chicago "Relax" Spring Hinges

are in great demand. They are substantial in construction and readily applied. The **EXCLUSIVE FEATURE** of spring action release, allowing the door to be placed at any desired position and automatically re-engaging when the door is closed, is of recognized merit and utility.

Send for Catalogue C 29. It fully 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

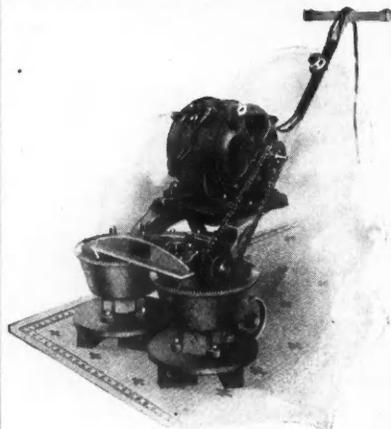
Morrill

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



AMERICAN

Floor Surfacers

for
Terrazzo
Mosaic
Marble
Tile
Cement

FLOORS

Sent on
FIVE DAYS' TRIAL

Get Our
Special Proposition

AMERICAN FLOOR
SURFACING MACH. CO.
515 S. St. Clair St.
TOLEDO, OHIO



Guarantees Comfort

MINERAL WOOL

The Low-cost Insulating Material

Buildings whose walls and roofs are insulated with Mineral Wool will not be like ovens when the boiling summer sun beats on them all day. Neither will the penetrating cold of winter pierce them. Just think of all the comfort for so little additional expense. Mineral Wool is positively damp-proof, vermin-proof, fire-retarding, and sound-deadening. **FREE SAMPLES.**

We will be glad to send you three Samples together with full details, showing the many uses of Mineral Wool for building. Talk it over with your customers. You'll find them willing. Write for your three Samples today.

U. S. Mineral Wool Co. 90 West St., New York



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 July 25, to avoid missing the August 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 |
|--|--|--|

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

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

EDITORIAL DEPARTMENT
WILLIAM A. RADFORD, *Editor-in-Chief*
BERNARD L. JOHNSON, B. S., *Editor*
WILLIAM REUTHER
ALFRED W. WOODS
ALFRED S. JOHNSON, M. A., PH. D.
CHARLES E. PAUL, S. B.

} *Associate
Editors*

BUSINESS DEPARTMENT
WM. A. RADFORD, *President and Treasurer*
E. L. HATFIELD, *Vice-President and General Manager*
ROLAND D. RADFORD, *Secretary*
New York Office: 345 Fifth Ave.
E. B. WOLFROM, *Eastern Representative*

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."

A Reasonable Desire

STRUCTURAL ENGINEERS WANT NEW ILLINOIS STATE LICENSE LAW TO PERMIT THEM TO PRACTICE ENGINEERING

WITH regard to the proposed structural engineers' license law, it is not the purpose of engineers to practice architecture, nor to pass a law which will enable them to practice architecture without a license. What is wanted, writes Mr. Earl L. Wood of Chicago to The Daily News, is the right to practice structural engineering, and to practice as engineers, and not as architects, without violation of law.

As the law now stands, no one but a licensed architect may design a building in the state of Illinois; and "building" is defined as any structure having walls, foundations and roof. This is a very broad definition, and includes a great deal of what is properly engineering work, and not architecture. Under a strict and literal interpretation of the law an engineer cannot legally design shop and factory buildings, grain elevators, warehouses, mine buildings, including coalbreakers and tipples, in all of which architecture has little or no part, the whole design being made with reference to stability and economy, which is the

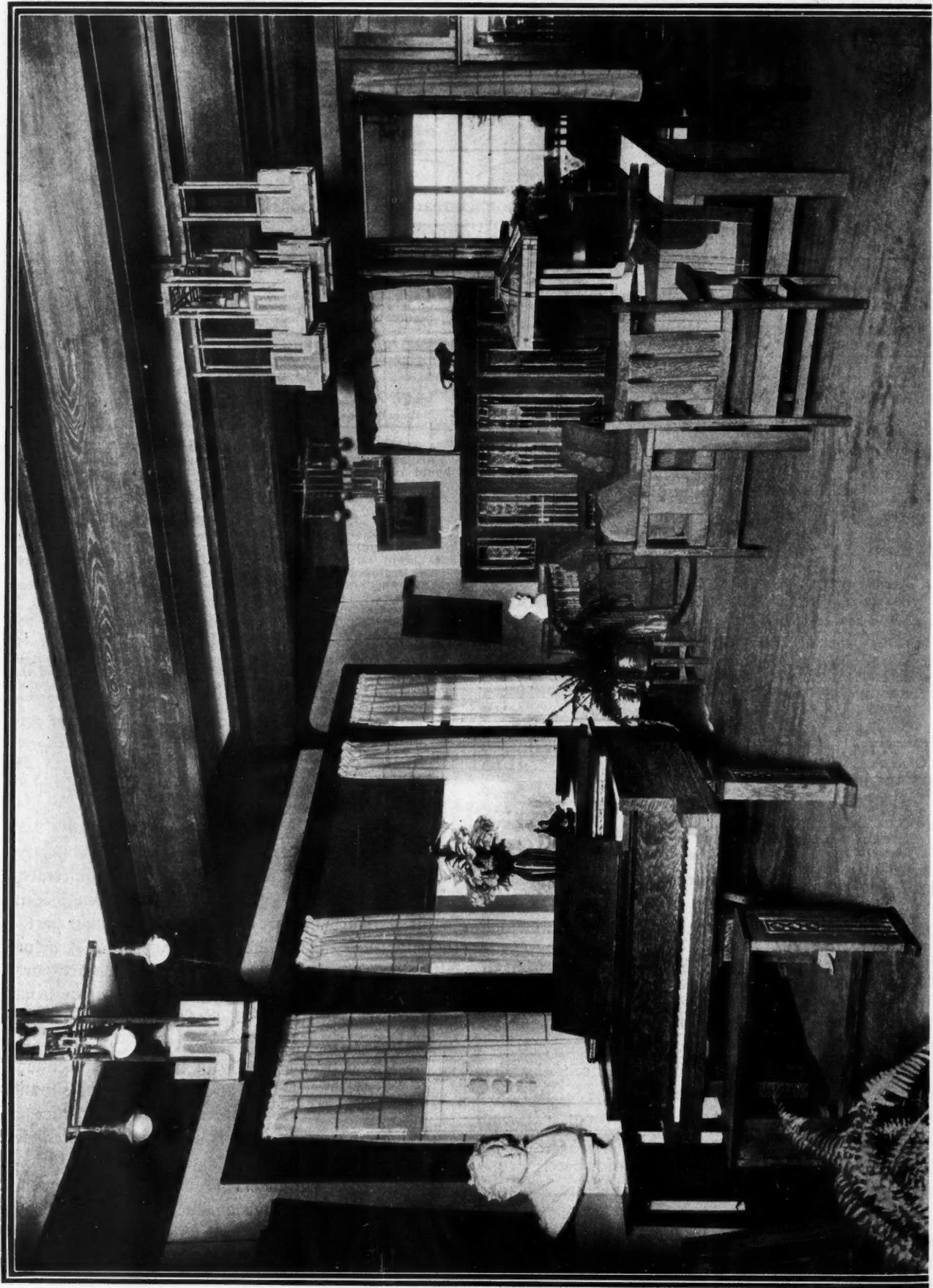
engineer's special field.

Architecture is the art of building beautifully. Very properly, the engineering features of any architectural work are subordinate to the architectural requirements.

However, the design of the structural engineering features of architectural work is but a small part of the engineer's field. There are many other structures which he is competent to build, and which are purely engineering works. And it is in order that he legally may perform this work that such a law as has been proposed is needed.

The whole trouble lies with the present architects' license law, which has created the ridiculous situation whereby an engineer, in order legally to practice engineering, must take out a license as an architect! This is truly an astounding state of affairs!

The proposed engineers' license law would exempt engineers from the provisions of the architects' license law. This is necessary in order that the two acts shall not conflict. But it does not follow, as a consequence, that a licensed engineer is a competent architect. He cannot advertise himself as such. He must remain what he is, an engineer.



A Combined Music Room and Living Room in the Modern Straight Line Style—A Comfortable Room which Demonstrates the Soundness of the Current Mode of Dividing a Residence Plan into a Few Good-Sized, Well-Lighted Apartments Instead of Many Small Parlors, Dens and Other Cubbyholes.



Bungalow with Unusual Roof Design

The exterior features of the bungalow shown in the accompanying illustrations are worth noting. The projecting roofs with the brackets supporting them and the unique fascia treatment give the place a look of decided originality. This roof treatment combined with the heavy stucco pillars on the porch and the field stone chimney all combine to attract attention. Another handsome effect is created by the loggia or private porch in the front of the house—well protected.

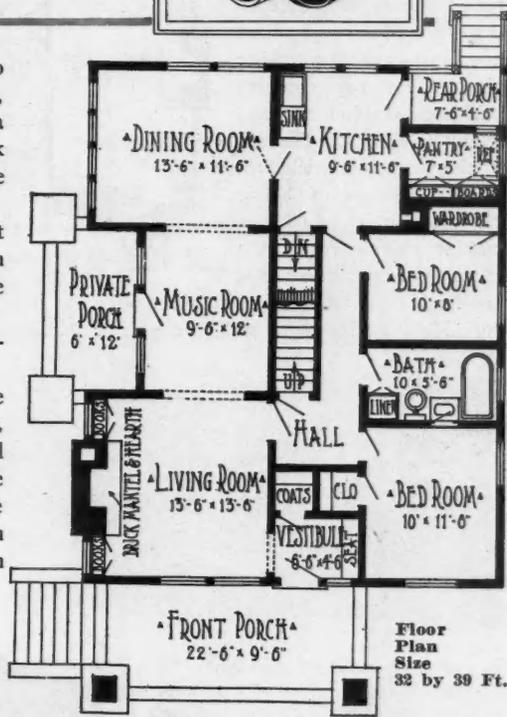
The interior of the house is in keeping with the exterior. The entrance from the porch is on the side

into a small vestibule that opens into the living room. This is a square, handsome apartment, featuring a brick fireplace flanked with book cases in the wall across from the entrance.

Along the front of the house next to the living room is a music room which opens out on to the private porch.

The well-lighted dining room occupies the far corner in front.

Along the back of the house are two bedrooms, a bathroom, pantry, and kitchen. The bathroom is placed between the two bedrooms. The kitchen, pantry, and back porch are arranged to provide the maximum convenience with the minimum amount of waste space.



Artistic six-room bungalow. Size 32 by 39 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$6.00 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. 6730.

Column-Supported Hip Roof House

The accompanying illustrations show a seven-room house of artistic and pleasing, yet unusual, appearance. It is a style coming into high favor throughout the West.

The feature of the lower floor arrangement is the large, comfortable living room, extending along one side of the house and measuring 13 by 21 feet. In one end of the room facing the front of the house is a broad square bay, extending out between two pillars as shown in the lower floor plan. This bay contains one large window and has a built-in seat. On the side of the room is a brick fireplace, which is of heavy construction so as to harmonize with the rest of the room. On each side of the fireplace is a window which combine with the wide bay window to make a cheerful,

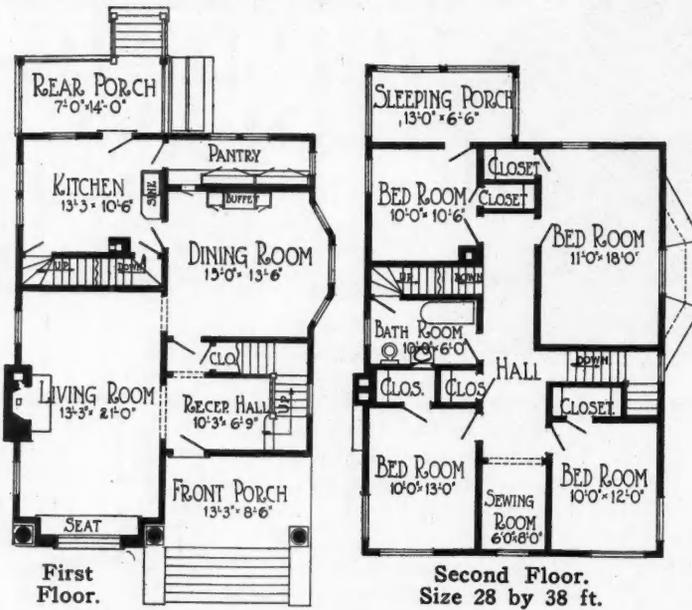
well lighted room. On the opposite side are two cased openings, one to the dining room and the other to the reception and front stair hall.

ond floor. There is a door to the dining room from this closet hall.

The curved bay of three windows is a feature of the dining room. In the back of the dining room a buffet is built against the wall. On the side opposite the window is a door entering the kitchen.

The long, well lighted pantry, extending off the kitchen, should add much to the convenience of the working part of the house. The entrance to the basement and also the back stairs to the second floor are reached through the kitchen. There is also an outside entrance to the basement.

The second floor plan calls for a sleeping porch, a bathroom, and four bedrooms. A little alcove between the two front bedrooms has been partitioned off to serve as a sewing room. The closets are large and convenient in all bedrooms.



The reception hall has a closet in the back, underneath the stairs to the sec-

ond floor.

There is also an outside entrance to the basement.



Ornamental house with heavy supporting columns. Size, 28 by 38 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$8.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections, and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6720.

Corner Entrance Bungalow

A house presenting a very distinctive and artistic room arrangement is shown in Design No. 6682. The exterior is also designed so as to be a little different than the average bungalow.

The front porch is built around one corner of the house and the front door is built into this corner, which is cut off to make this possible.

The front door is one of the many unusual exterior features of this house. Heavy brass hinges extend almost across

and the porch pillars above the top of the railing are also finished in the same way. Rough brick columns extend from the bottom of these pillars to the ground.

The front door opens into a little reception hall, which has doors into the living-room and the dining-room. The triangular closet for wraps in this hall is a feature.

The door to the right as you enter the reception hall goes to the generous living-room. Four windows cover one side of this room almost completely and make it extremely bright and cheery.

At the far end of this room from the reception hall is a colonnade with a cased opening into one of the coziest little dens you ever saw. This den isn't very big, but it can be made into a most attractive nook. Along the rear wall of the den is a big brick fireplace with a bookcase on each side. Light is furnished by a double casement window.

There is an unusually large unobstructed floor space in this plan. In addition to the opening between the den and the living-room, the dining-room is connected to the living-room by a broad



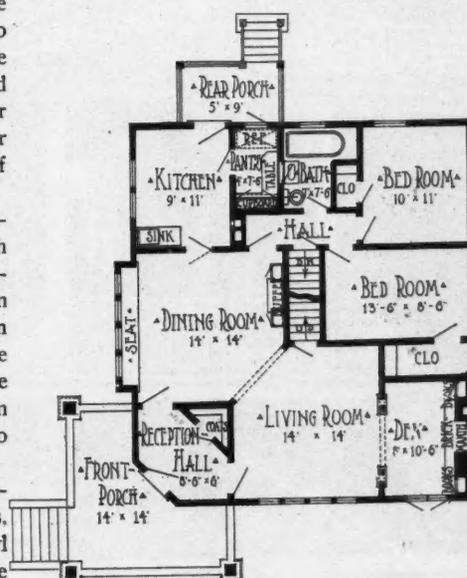
Corner-lot bungalow of six rooms. Size, 32 feet 6 inches by 35 feet 6 inches. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$7.00 per set. Blue-prints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6682.

the door and the door knob and plate are of heavy, substantial construction to harmonize with it. The windows at the top of the door are narrow strips and are different from the usual front door windows. The appearance of this door shows what can be done by the use of artistic door furnishings.

Builders are apt to forget that builders' hardware should deserve as much consideration as any of the other decorations of the house. It has often been said that a door can either make a plain house beautiful or a beautiful house plain. A door as handsome as this one will certainly have a marked effect on anyone and will put them in a mood to appreciate the interior decorations.

The sides of this bungalow are covered with rough siding up to the gables, which are shingled in alternate wide and narrow rows. The contrast between the two methods is striking and makes a very pleasing appearance.

The trim is white around all the windows and the door. The porch railing



Arrangement of Corner Entrance, Five-Room Bungalow, size 32' 6" x 35' 6"

cased opening set at a 45° angle. The dining-room is delightfully arranged. On the side is a square bay with four windows in it and having a seat in front. Across from the seat is a buffet built against the wall.

The kitchen is back of the dining-room and is equipped with a model pantry. This pantry has a cupboard in one end, a refrigerator at the other, and a table along the side. No time and energy are wasted in getting things from the pantry, as it is so compact. The refrigerator is of the type that is iced from the outside, from the back porch.

There is a hall in the back of this design that opens into both bedrooms, the bathroom, the kitchen, and the dining-room. The stairs into the basement are also reached through this hall. The basement is large and can be utilized in the various ways a basement is suited for.

In the attic is a storeroom, which can be used in many ways.

Substantial Two-Flat Brick Building

A two-flat building of square design is shown here. It is of the substantial type and is built much in various localities.

The lower flat contains five rooms, while the upper one has six, due to the fact that no room is taken up by a vestibule and reception hall. In the upper flat this extra room can be used either as a bedroom or as a den, according to the wishes of the occupants.

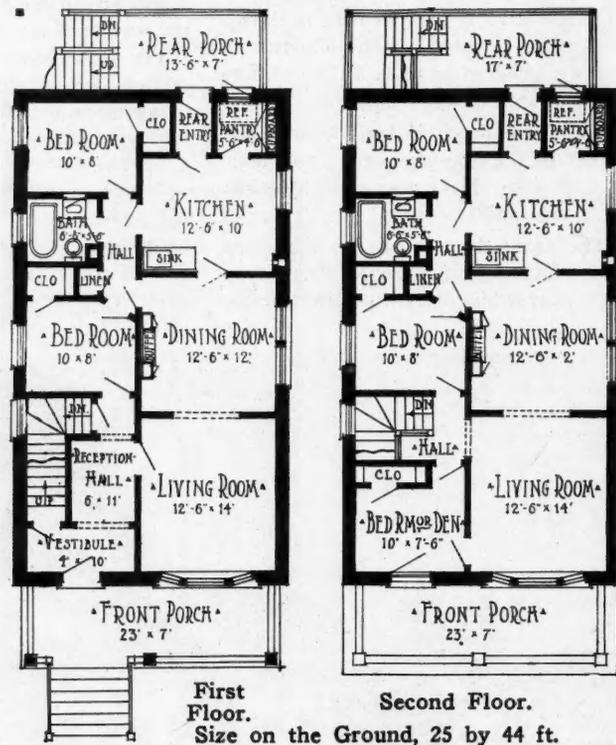
The front porch for both flats extends practically the width of the house. The entrance from the lower porch is into a vestibule from which there are stairs to the upper floor and a cased opening into the hall leading to the basement.

The living-room is large and has a three-window bay facing out on to the front porch. There is plenty of wall space in here, which can be made very attractive by the use of well-chosen furniture. The entrance to the dining-room is through a wide-cased opening, which improves the appearance of both rooms.

The living-room is very well arranged. On one side is a wide double window, which provides plenty of light, and across from this is a buffet of generous proportions. From this room is a door to the kitchen and also one to the small back hall, which communicates with the two bedrooms, the bathroom, and the kitchen. This hall adds a great deal to the convenience of getting from one room to another.

The kitchen is designed to insure the maximum amount of comfort and pleasure. In the back of this well-arranged room is a pantry and an entry which will come in handy in

working around the kitchen. In the pantry is a cupboard and a refrigerator, to be iced from the back porch.



A well built two flat building. Size, 25 by 44 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$9.00 per set. Blue-prints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6706.



Well arranged seven-room farm house. Size, 26 by 41 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$6.00 per set. Blue prints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6721.

Seven-Room Modern Farm House

A farm house of modern, convenient design is shown in Design No. 6721. The rooms are placed so as to provide for the many conditions that are common to the farm and are unknown in towns and cities.

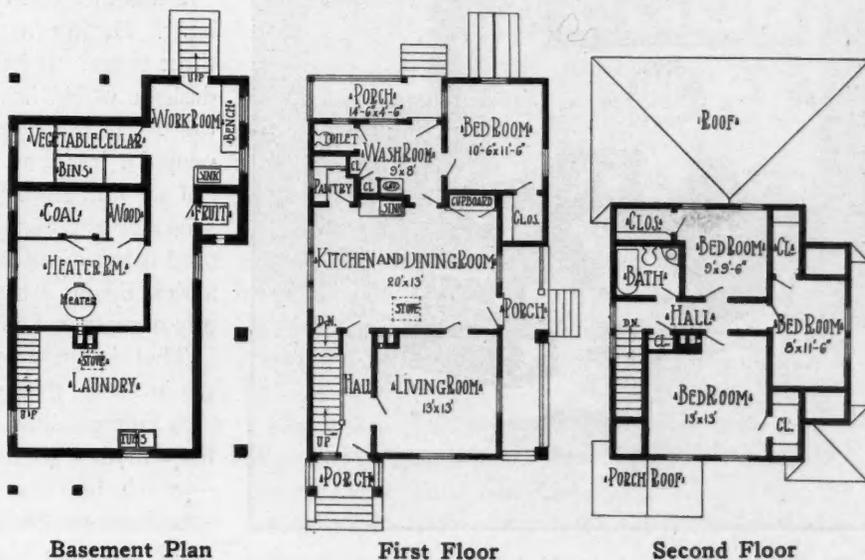
The sides of the house are finished with clapboards and the roof is of the gable type shingled. There is a small porch in front over the entrance, while along the side is a long porch that can be used as the out-door sitting room.

On the main floor, the dining room is the largest room and is combined with the kitchen. In a farm house plan it is necessary to have a large dining room because at certain times of the year a large number have to be fed and it would not be particularly convenient to feed them in installments. The combining of the dining room and kitchen is more convenient for handling a large number of hearty eaters than a separated arrangement. This room is made readily accessible from both the back and front of the house. A long hall reaches to the front porch, and the wash room for the men opens into the dining room and also has a door to the back porch. The door from the side porch also opens into this room.

In back of the combination dining room and kitchen is a wash room, which assists considerably in keeping the house clean. The men can come in from the back porch without having to go into the kitchen and can wash in this room and the kitchen will not be crowded up just before meal times when working space is most needed.

The basement has an outside entrance and is equipped with a workshop, vegetable cellar, fruit closet, heater room and laundry. The vegetable and fruit rooms are placed away from the heating apparatus as far as possible so that they can be kept cool.

The second floor plan calls for three bedrooms and a bathroom. These are arranged with a hall opening to the stairs so as to be convenient. There is also another bedroom on the first floor for the help.



Basement Plan

First Floor

Second Floor

Arrangement of Farm House, Size 26' x 41'

"Equipment Counts in the Bloodless Commercial Fight in America, the Same as in the Gory Battles of Europe"

THE MAN FROM THE LUMBER YARD

We are so impressed with the imperative necessity of every reader, who would be a winner, being properly equipped in all departments, that we have established a bureau to enable us to give information relative to the essentials that may be required in any capacity. This is at the service of our readers. EDITOR.

THERE was considerable interest in the subject of "partnership" in the June letter. One reader inquires as to how he can get his partner to do his part. My first suggestion to this inquirer is: *Be sure you yourself are right.* It may be that you are as aggravating to him as he is to you.

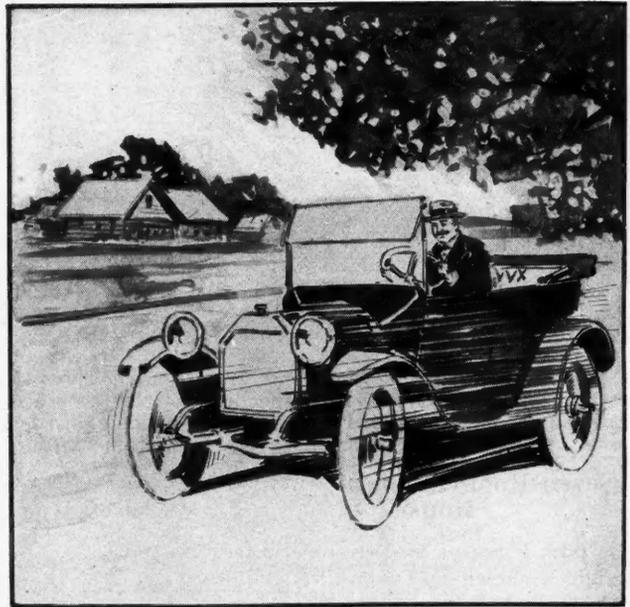
Some three months since, I was coming north on a slow train through Egypt—Southern Illinois is given that name because of her rich black soil—the frost was out of the ground, and the bottom also seemed to have dropped out of the wagon road.

At a junction station where we had to wait for a connecting train, we were treated to an exhibition of "horse psychology." The heavily loaded wagon was mired to the hubs, and the driver knew no better than to beat his horses. First one would make a desperate struggle, then the other. Conditions seemed to be getting worse until a man whose nasal twang proclaimed him to be a down-easterner, asked the driver to let him try his hand. He petted the horses and talked to them a moment and gave each a piece of the apple he was eating. After both horses were calm, he took hold of the bridles and with an encouraging word led them out. Both horses settled into their collars and with a

pull together soon had the wagon on firm ground.

Business friction is often a case of "nerves." No partnership matters should be taken up for discussion when either partner is unstrung.

Another reader says he does not like to have to take another man's views into account, but he feels the need of multiplying his own efforts. I would like to suggest



An Auto is the Best "Partner" a Contractor Can Have—It Saves His Strength and Doubles His Effectiveness.

some partners that will be of great help and never "fuss you."

I was in a contractor's office last week for about an hour. During that time he was called to the telephone three times. If he had had an extension-phone on his desk he would have saved at least three minutes each time. He could get this help from the telephone company for less than two cents a day.

I see numerous portable-saw rigs are offering themselves as assistants on the job. The cost of the juice used is practically nothing, and such a partner will put a saw through a piece of timber much quicker than any partner you could get to divide your earnings with.

That is the trouble with a partner. He wants to get in on the divide, no matter if he sulks or shirks.

A young fellow I knew several years ago in a small town made a good move when he installed a typewriter—which his wife was able to use—for making out specifications, bids, bills, etc. His competitors always made out their bids on scraps of paper in an illegible way. My friend had good business-like letter heads.



The Dictating Machine is on the Job Early or Late, Ready to Take the Contractor's Letters Whenever He Can Snatch a Few Moments' Time.

The business-like way in which he got up his bids always begot confidence, and he got the cream of the business at prices always equal to or above other quotations.

Every buyer of a building that does not exist knows that in addition to buying certain specifications, he must buy the mental attitude of the man who does the work. Only a short sighted buyer would hesitate at paying a two or three per cent more for *dependability*. A neatly typed bid on a good quality paper carries a feeling of dependability that cannot be gotten any other way.

A number of readers of the "A. C. & B." find they have been able to increase their own capacity (and reduce office expense) by the use of dictating machines. This machine is always ready to work, always accurate; and is on the job ready to take letters before the contractor goes out to oversee the work.

It is perfectly safe for you to say to your wife after supper, "I am going down to the office to dictate a few letters and will be back about ten o'clock," when she knows that the dictation is taken by a machine and not feminine fingers.

No flesh and blood partners with a breast-drill can keep up with an electric drill: and the cost of a chew of tobacco will pay for a day's use of power.

Last July, I combined a pleasure and business trip up north and spent some time with a contractor in a small city of 15,000 population. The town was built at the junction point of two rivers, which spread it out. The various buildings this man had under way were widely separated. He consulted me relative to taking a partner to help him in overseeing the work. In



The Electric Drill Marches Right Through Steel and It Is Just as Good for Heavy Wood Boring.

talking the matter over I suggested an automobile as being the solution of the matter. He acted on this suggestion. I had a letter from him a month since, in which he mentioned incidentally, that he had never been able to accomplish so much with so little strain, as since he had bought his machine.

I can count a dozen acquaintances that have made motorcycles pay for themselves in a season. They never get tired and they don't eat when you are not using them. They stand without hitching. When equipped with an extra saddle, it will place a man and his helper with their tools on a job instanter.

Everyone knows that dull tools make dull, tired, inefficient workmen: and contrariwise, everyone knows that sharp tools make for efficiency and speed. This means that a tool-grinder can be added with profit to every kit of tools.

Equipment counts in the bloodless commercial fight in America, the same as in the gory battles of Europe.

You know what would happen to an army equipped with muzzle loaders, no matter how numerous, how brave, or how brainy.

Efficiency is now spelled with a big "E."

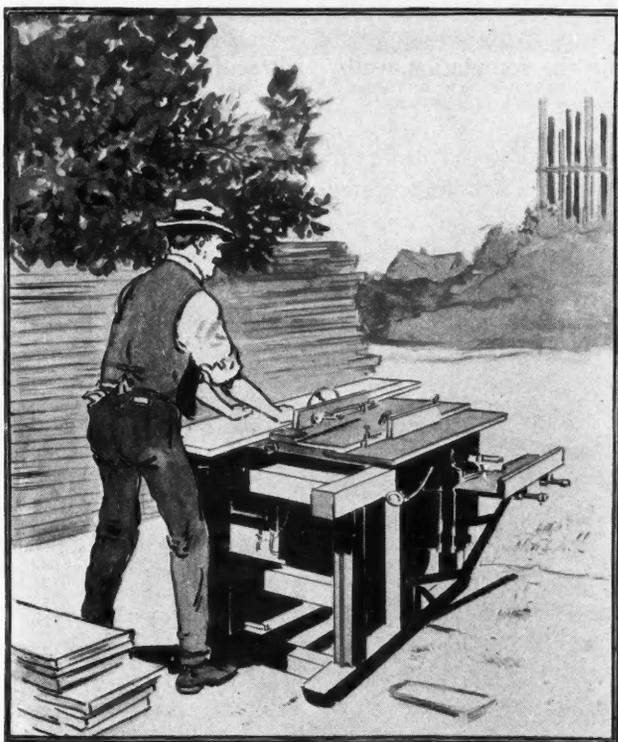
I give a dozen efficiency thoughts for your consideration:

The more independent a man is, the more is he dependent on mechanical aids.

Don't lift by hand when you can use a hoist.

It isn't how hard you work, but what you accomplish.

Poor men and poor equipment, will break any con-



Let the Power Saw Rig Do Your Heavy Work. It is a "Partner" that Works Hard and Delivers the Goods but Never Wants a Divvy.

tractor, carpenter, or builder.

Interest and depreciation are all you can figure against an investment in equipment.

Don't save the cost of a telegram when a delay will cost you more.

A makeshift tool is a handicap to any workman.

Don't travel when you can telephone.

An equipment that saves minutes for a good man,

mints money for the employer.

The man who knows the value of time appreciates the value of perfect tools.

When the margin of profit is small time and labor-saving equipment is all that will prevent loss.

Don't use ox cart methods, when you can use an air ship system.

THE MAN FROM THE LUMBER YARD.

One-Story Woodworking Shop Built of Hollow Tile

INTERESTING DETAILS OF BUSINESS-LIKE SHOP AT PARK RIDGE, ILL.

By Edwin G. Zorn

BEGINNING with a small shop—we might call it a “shack”—the owner of the mill shown in the accompanying illustrations has, in a few years, expanded to a point where he now has a substantially built factory housing fourteen different woodworking machines and turning out a large quantity of window frames, doors, sideboards, colonnades and other interior finish daily.

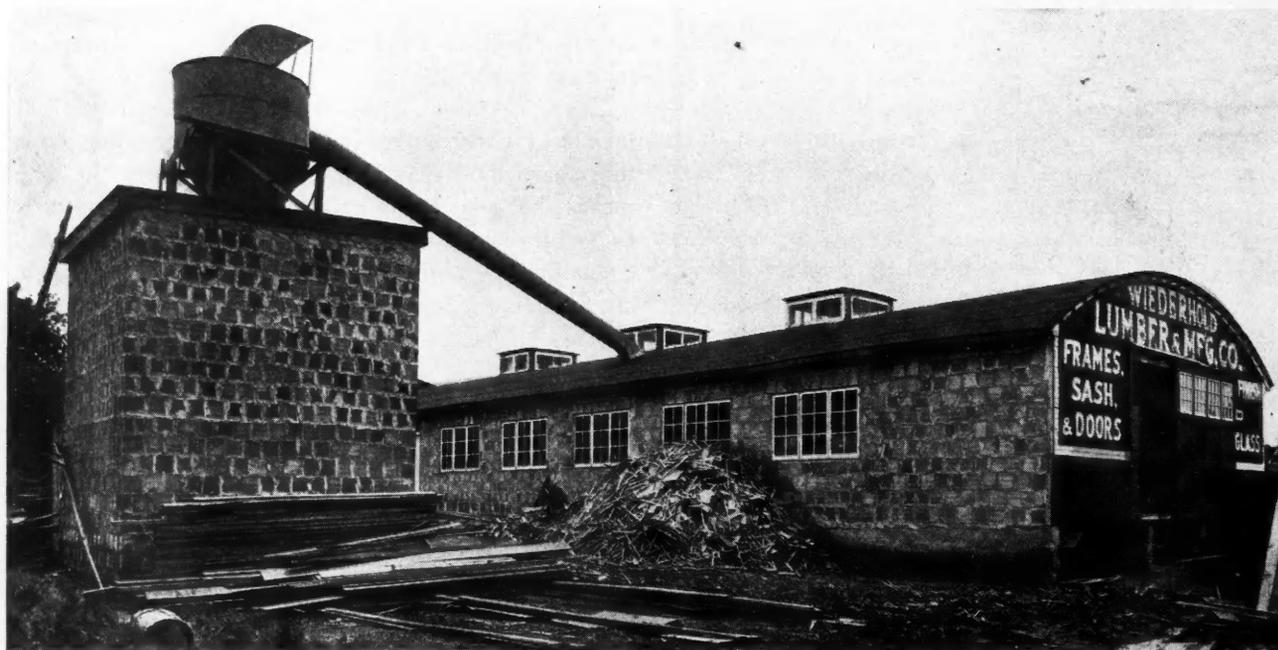
It was not more than six years ago that Martin Wiederhold established his little shop in Park Ridge, Ill., then a suburb of Chicago in the making. The possibilities were there, however, and the constantly growing exodus of city residents to fresher air and green fields was accompanied by an increased need for new homes. This, in turn, created a larger demand for millwork and interior finish, the results of which may be seen in the large addition to the “pioneer” factory with still further provision for expansion.

The new addition which is shown herewith was built last summer and is of more than passing interest because of its construction. This building is 38 ft. wide and 100 ft. long. The foundation is of concrete,

eight inches thick, upon which is laid a wall composed of 6-inch hollow clay building tile with double air spaces. The interesting fact about this wall is that it carries the entire roof load, which is of no mean consideration in a building of this type where there is a great deal of vibration due to the operation of machinery.

A straight wall was first built without piers of any kind. After it had set and the mortar was dry, the mason constructed 12-inch piers of tile every 12 feet along the wall. The tile were laid on edge for these piers, a hole 12 inches square being made in the inner wall of the tile every 2 feet to permit the insertion or tying-in of the pier tile. When completed, these piers were filled with concrete, making a substantial brace for the wall. At two points in the wall where these piers are located, a weight of three tons is carried, beside the roof thrust.

The floor of this building is of heavy lumber and is carried on joists measuring 2 by 10 inches, the joists in turn being supported by two walls of concrete beside the foundation walls. Three feet of room is al-



New Shop of the Wiederhold Lumber & Mfg. Company, Park Ridge, Ill. Side Walls of Hollow Building Tile. They Carry the Roof Trusses, the Lattice Type, Without Intermediate Supports.

Satisfactory Shop Construction

47

lowed underneath the floor for lumber to be stored.

The roof rests on lattice timber trusses supported by the two side walls, there being no posts or columns anywhere in this building.

The ends of the building are constructed of studing and siding. This is indicative of the foresight of the owner and his confidence in the future expansion of his market. It is his intention to add to the building

the walls of this structure, stuccoed on the outside, two coats of cement being applied directly to the tile, over which a coat of rough cast will be placed.

The masonry work for all of these buildings was done by a local contractor, while the owner took care of the carpentry work with his own forces, the lumber for which was supplied from his own stock. Mr. Wiederhold says that the buildings as constructed are



Interior View of the Wiederhold Lumber & Mfg. Company Shop. Blower Exhaust System Carries Away All Sawdust and Shavings to Outside Fireproof Bin of Hollow Tile Construction.

as the business grows, which can more easily be done by removing the ends as constructed and continuing the walls and roof, giving the building a uniform appearance at a minimum cost.

In order to reduce as much as possible the fire hazard about the shop, a fireproof shaving vault was built a short distance away and entirely separate from the mill. Like the walls of the main building, this structure is built of hollow tile and acts as a receptacle for the shavings and sawdust gathered from the machines and transmitted from the shop by means of a suction fan. This suction or blower system has an inlet over each machine where the sawdust and shavings are snatched away directly from the knives, saving considerable labor which might otherwise be consumed in cleaning up these wastes from around the machines.

There is now being built in the front part of the mill, and facing the street, an office building which, when completed, will be a worthy addition to the grounds. Hollow clay building tile was also used for

entirely satisfactory, the walls of the factory having withstood the vibrations set up by the machinery, the operation of which requires seventy horse-power, without the least sign of failure. In addition to that strain, these walls carry an additional load in the shape of stock lumber, which is stored on the roof trusses.

As to the cost of the masonry work in these buildings, the contractor gives a figure of twelve cents per square foot as the cost of both material and labor. This, however, does not include the stucco covering on the office building, which is extra.

Taking everything into consideration, the type of wall used in the shop here shown has not only proven to be thoroughly substantial and able to stand the wear and tear to which it is subjected, but it also has demonstrated its practicability from an economic standpoint. And further, when it is remembered that these walls will stand for a long period with little or no repairs and without paint, there is no doubt but that the owner has secured in this an expense-proof construction.



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. 36—Trussed Beams

THE BOSS TELLS ABOUT THE USE OF TRUSSED BEAMS AND SHOWS HOW TO DESIGN THE DIFFERENT PARTS OF SUCH A MEMBER

“SEVERAL of the men,” said the Boss, “have asked me about the use of trussed beams and how such a beam should be figured. A great many of you fellows seem to have the idea that all that is necessary in building a trussed beam is to run a steel or iron rod from end to end of a timber beam, dropping it below the beam and holding it in place by using one or two short struts or compression members as shown in Figs. 50 and 51. This is not the case, since there must be a correct balance between the sizes and strengths of the different parts of the beam as in the case of any other structural member. Otherwise the strength of the combination is no greater than that of its weakest part, and there is the place where the ordinary carpenter or builder is entirely lost.

“Trussed beams are used where the length between supporting walls is about thirty feet or over and where it is desired to use timber instead of a plate girder or steel beams. In many instances the trussed beam is the cheapest and most easily constructed member for use in supporting a given load. The beam proper is made of timber, the entire length consisting of one piece if possible. The tie is of steel or iron bent into the shape shown in Fig. 50 or Fig. 51, threaded at the ends and fitted with nuts resting on plates or large washers. The strut, shown in Figs. 52 and 53, may be either of hard wood or cast iron. Oak is very often used for this member where only a small

number of struts are needed and where it would not pay to have special iron castings made. The oak strut shown in Fig. 52 is intended for use with two beams and two tie rods. If three beams are to be used, another tongue will be needed at the top, each tongue spaced so as to project up in the spaces between the three beams as shown in Fig. 53. If a single rod is used, the bottom of the strut may be made narrower, but the top should always be made equal to the width of the whole beam.

“If a member of this kind is made up of pieces of timber shorter than the total length of beam, the splices should be made at the middle when one strut is used as in Fig. 50, or at points one-third the distance from the ends if two struts are used, as in Fig. 51. It is common to place the struts in a beam like Fig. 51 just as near the one-third points as possible.

“As an example of the design of a trussed beam, we will figure the sizes of the members of a beam similar to Fig. 50 for a porch 30 feet long and 10 feet wide. We will assume that the roof load of 40 pounds per square foot is brought to the beam by rafters spaced evenly along the beam as shown in Fig. 50. One-half of this total roof load will be carried by the trussed beam and the other half by the walls of the building. The total uniformly distributed load on the beam will be $\frac{1}{2} \times 30 \times 10 \times 40$ pounds, or 6,000 pounds.

“We will assume first that the lowest point that the

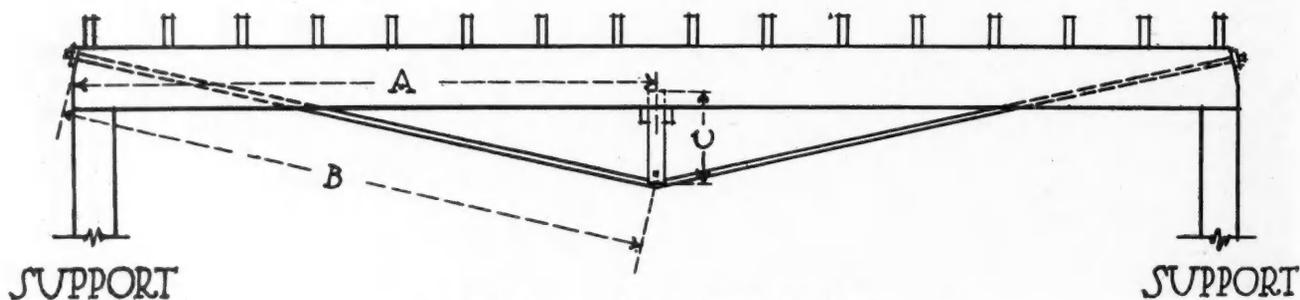


Fig. 50. Trussed Beam with Central Strut.

rod can be located is 12 inches below the bottom of the beam and that two yellow pine beams 12 inches deep are to be used with two mild steel rods held in place by an oak strut at the center of the beam as in Fig. 50. What we wish to find is the breadth or thickness of the yellow pine beams, the size of the steel rods, and the size of the oak strut. The beam will have to be designed to take care of a direct compressive stress and a bending stress due to the distributed load resting on it. The steel tie is subjected to tension, or a pull. The oak strut will be designed to take the compression acting on it.

"Kidder, in his 'Architects' and Builders' Pocket Book,' gives the following rules for finding the total amounts of stress in the various members of the beam:

"For total compression in beam in Fig. 50, multiply one-half the load on the beam in pounds by one-half

width of 2½ inches for the two yellow pine timbers.

"Now applying the bending formula which we have used so many times in other problems, $\frac{pI}{e} = \frac{1}{8} \frac{W}{2} l$, we find that the width necessary for bending alone is found by solving the following equation:

$$1000 \times \frac{1}{6} \times b \times 12 \times 12 = \frac{1}{8} \times \frac{W}{2} \times l$$

Where b is the width in inches, h is the height of the beam in inches, W is the total load on the beam, and l is one-half of the total length of beam in inches. Filling in values for this problem and solving, we have

$$1,000 \times \frac{1}{6} \times b \times 12 \times 12 = \frac{1}{8} \times 3,000 \times 15 \times 12$$

$$b = 3 \text{ inches (nearly).}$$

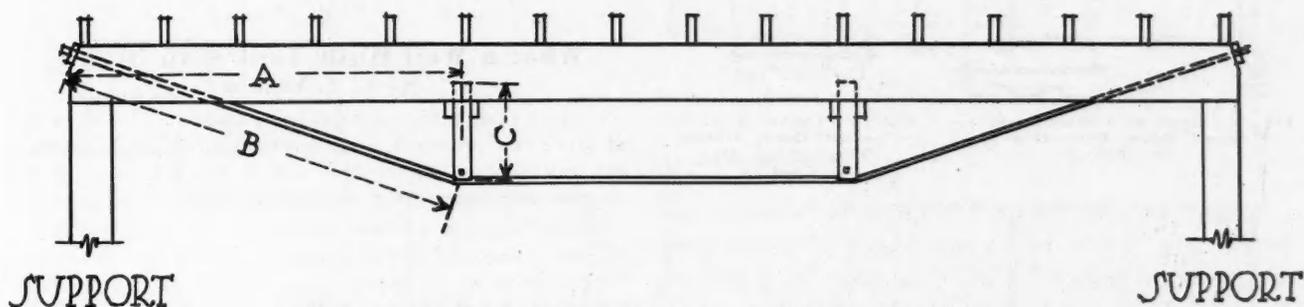


Fig. 51. Trussed Beam with Two Struts Located at the One-Third Points.

the length of the beam in feet, and divide by the length of the strut, C, in feet.

"For total tension in the tie B, multiply one-half of the load on the beam in pounds by the length of the tie B in feet, and divide by the length of the strut C in feet.

"For total compression in the strut C, take one-half of the load on the beam in pounds. If beam is in one piece, use five-eighths of the load.

"In the above, all lengths are taken from center of piece to center of piece. For example, the length of the strut C is taken from the center line of the beam A down to the center of the tie rod.

"In our problem, the width of the beam would be determined by finding the widths needed for direct compression and for bending separately and adding these two. Applying the rule for finding the size of the beam for direct compression, we find that we have the following equation:

$$\text{Total compression} = \frac{6000}{2} \times \frac{15}{1.5} = 30,000 \text{ lbs.}$$

In the above, the 1½ feet is obtained by adding one-half of 12 inches to the length of the oak strut, 12 inches, below the bottom of the beam.

"To find the width of the beam which is to be 12 inches deep, divide 30,000 by $12 \times b \times 1,000$, where b is the width desired and 1,000 lbs. per square inch is the working strength of the yellow pine in compression. The result of this division gives a

"Adding this value of 3 inches to the 2½ inches obtained above, we find that a total width of timber of about 5½ inches is needed. Two pieces of 3-inch by 12-inch dressed yellow pine would do for the beam.

"To find the size of steel rod needed, we will apply the rule for total tension in the tie, B, and then find the area of rod by using 15,000 pounds per square inch as the tensile strength of mild steel.

"In applying the tension rule, we find that we need the length of the tie B in Fig 50. This is found by laying off the truss to scale and measuring the length B according to this scale. In our problem, B is found to be about 15 1/10 feet long. Filling in values, we find that the result is as follows:

$$\text{Total tension in rod} = \frac{6,000}{2} \times \frac{15.1}{1.5} = 30,200 \text{ lbs.}$$

Dividing 30,200 by 15,000 we find that about 2 square inches of steel are needed. From a table of areas of circles, or by trial, using the formula: Area = .785 × diameter × diameter, it is found that two 1¼-inch diameter steel rods with the ends upset before threading, will be needed to carry this stress and to give the area of circular cross-section required above.

"Now apply the rule for total compression in the oak strut.

$$\text{Total compression in strut} = \frac{6,000}{2} = 3,000 \text{ pounds.}$$

Since the strut is at least the width of the two beams and the two rods, we should make the part that rests on the beam about $8\frac{1}{2}$ to 10 inches wide. If a unit compression strength of 800 pounds per square inch is used for white oak, the thickness of the oak may be computed by the following:

$$3,000 = 800 \times 8\frac{1}{2} \times t.$$

From this it is seen that the theoretical thickness is too small to be used in practice. A thickness of at least 2 inches would be advisable.



Fig. 52. Type of Timber Strut for Trussed Beam, Consisting of Two Pieces.

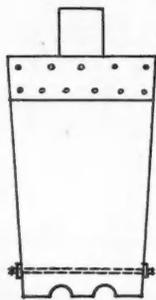


Fig. 53. Timber Strut for Trussed Beam Where Three Pieces are Used.

"Since two rods are used, it might be better design to use three 2-inch by 12-inch pieces of yellow pine for the beam instead of the two pieces of 3-inch by 12-inch. This would allow one of the rods to come between each of the pieces.

"If a heavier load is to be carried, it would be advisable to use a truss of the type shown in Fig. 51. Let us assume that a 15,000-pound uniformly distributed load is to be carried on a span of 36 feet under a floor, and that a trussed beam like Fig. 51 is to be used. We will also assume that only 26 inches of head room is available and that the beam is to be made of timber 14 inches deep. This would allow about 18 inches as the length of the strut C.

"The rules for total compression in beam, total tension in tie rod, and total compression in strut C are just the same as those given above with the exception the one-third of the total load on the beam is used instead of one-half the load.

"For the values given above, the calculations for width of beam, size of tie rods, and size of strut C would be as follows:

"For width of beam for direct compression,

$$\text{Total compression} = \frac{15,000}{3} \times \frac{12}{1.5} = 40,000 \text{ lbs.}$$

$$\frac{40,000}{14 \times b \times 1,000} = 2\frac{9}{10} \text{ inches approx.}$$

For width of beam for bending,

$$1,000 \times \frac{1}{6} \times b \times h^2 = \frac{1}{8} \times \frac{W}{3} \times l$$

or,

$$1,000 \times \frac{1}{6} \times b \times 14 \times 14 = \frac{1}{8} \times 5,000 \times 12 \times 12$$

$$b = 2\frac{8}{10} \text{ inches (nearly).}$$

$$\text{Total width of beam} = 2\frac{8}{10} + 2\frac{9}{10} = 5\frac{7}{10} \text{ inches.}$$

If three beams are used, each should be 2 inches by 14 inches in size.

"For size of tie rod,

$$\text{Total tension} = \frac{15,000}{3} \times \frac{12.1}{1.5} = 40,330 \text{ pounds.}$$

$$\frac{40,330}{15,000} = 2.7 \text{ square inches of cross-section.}$$

By trial or from a table of areas of circles it is seen that two $1\frac{3}{8}$ -inch diameter steel rods with ends upset will be needed. These rods are placed in the spaces between the three beams.

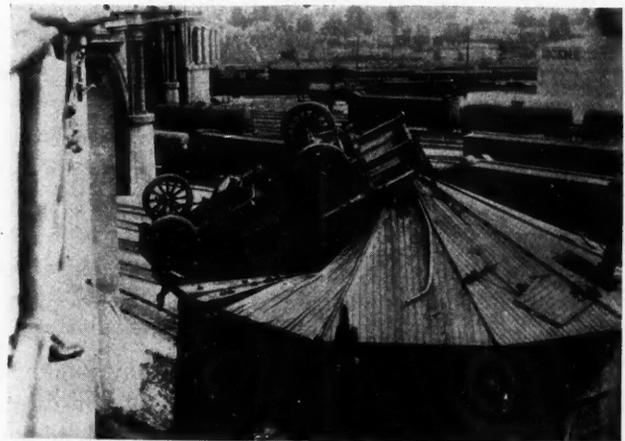
"The total compression in the oak struts will be $\frac{15,000}{3} = 5,000$ pounds. By inspection it is seen that a strut $8\frac{3}{4}$ inches wide where it joins the beam and 2 inches thick will be amply strong."



What a Well Built Tank Can Stand

By C. L. Edholm

A water tank that can stand being bombarded with a five-ton truck as a projectile, is undoubtedly a well built structure, and as the photo shows, the roof is the only part of this one that was damaged by the impact. It is a redwood structure standing on a concrete foundation, and is situated alongside and below the North Broadway bridge in Los Angeles. The occasion of its severe test for stout construction was when a loaded truck ran off the high roadway, made a half turn in the air and landed squarely on the roof of the tank. It was carrying a big load of ripe tomatoes from a Japanese truck garden in the suburbs, and a couple of Japs were in



View of Unique Accident Showing Overturned Motor Truck on Tank Roof. Road Bridge Shown to Left.

charge of the machine when it got out of control. By a lucky accident, they were shot through the hole in the roof made by the falling truck, and after floundering about in the water they were rescued, unharmed. Next to the congratulations to the drivers, the warmest expressions of satisfaction were for the carpenters who could set up a tank that would withstand the impact of a truck dropped 15 feet upon it.



Tender it if Tender, if Not, Tender it

Precise Boarding Mistress—"Mr. Blunt, shall I tender you some more of the chicken?"

Mr. Blunt—"No, thank you! But if you can tender this piece you have already served me, I shall be greatly obliged to you."

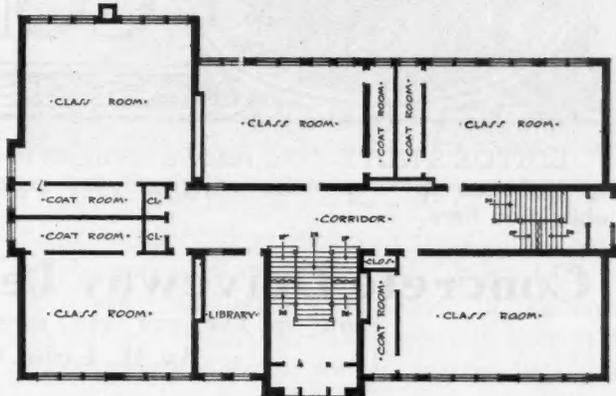
Modern Schoolhouse for Lawton, Michigan

The design shown here is of a new school that is to be built for the city of Lawton, Michigan. Architect G. W. Ashby, of Chicago, whose school house work is attracting considerable attention, is the designer of this building.

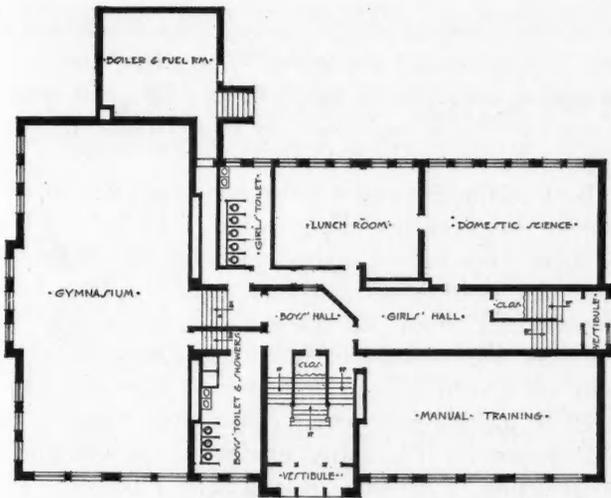
The arrangement of the rooms is according to the Gary, Indiana, plan and is known as the double six. The lower six grades, on the second floor, are handled in the usual way, that is, each grade has a room in which both studying and reciting are done. The seventh and eighth grades and the high school are located on the first floor and are seated in one large assembly room. Recitation rooms are provided for the various classes.

In the basement are several other necessary parts of the modern school building. There is a room for

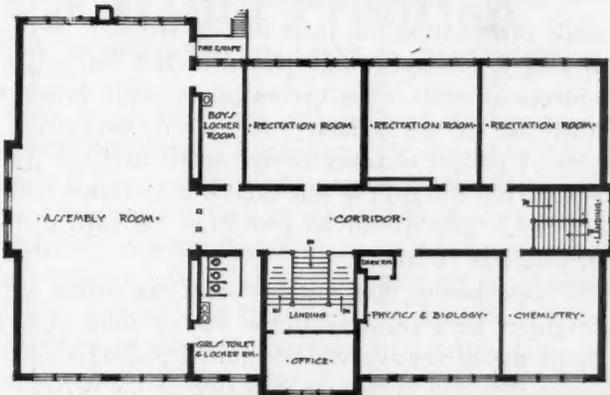
domestic science, one for manual training, a lunch room, and a gymnasium. There are also toilet rooms provided in the basement. The floor of the gymnasium is placed slightly lower than the rest of the basement floor so that a high ceiling can be provided.



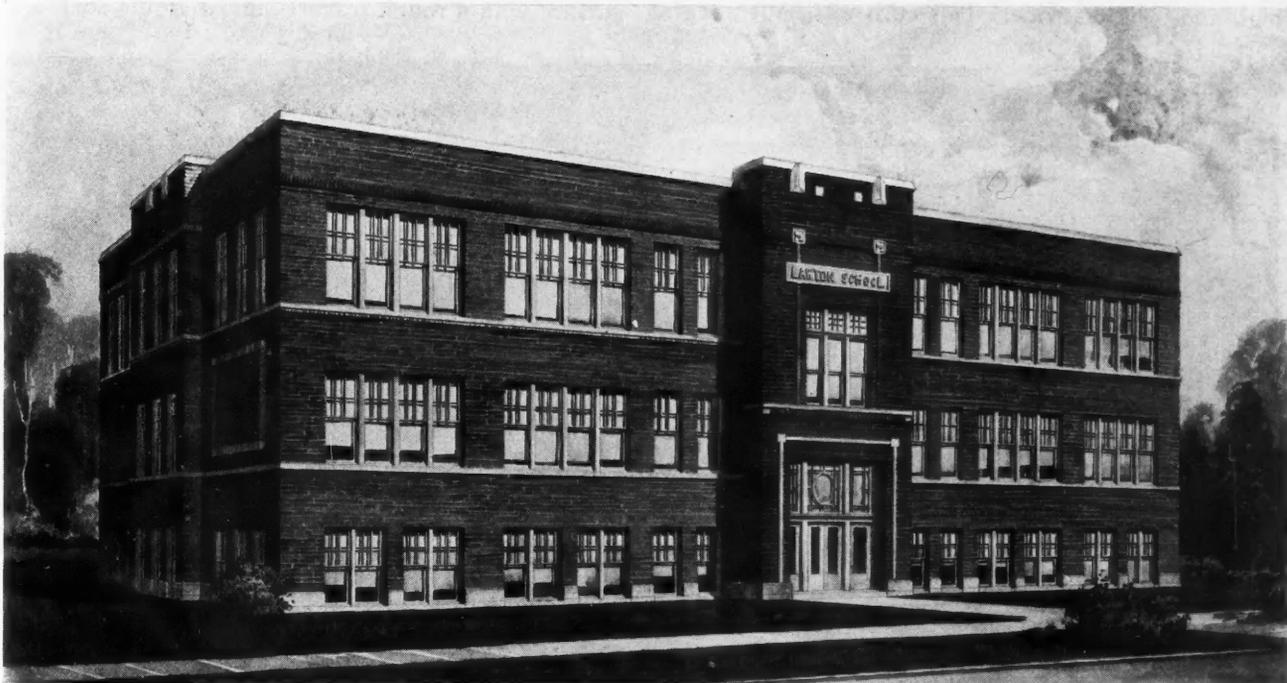
Second Floor Plan.



Basement Floor Plan.



First Floor Plan.



Strictly Modern Building Designed for Lawton, Mich., Public School.



CEMENT BUILDING CONSTRUCTION

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.

Concrete Driveway Leading to Private Garage

HOW TO LAY OUT AND CONSTRUCT A DOUBLE-PATH DRIVEWAY

By H. Colin Campbell, C. E.

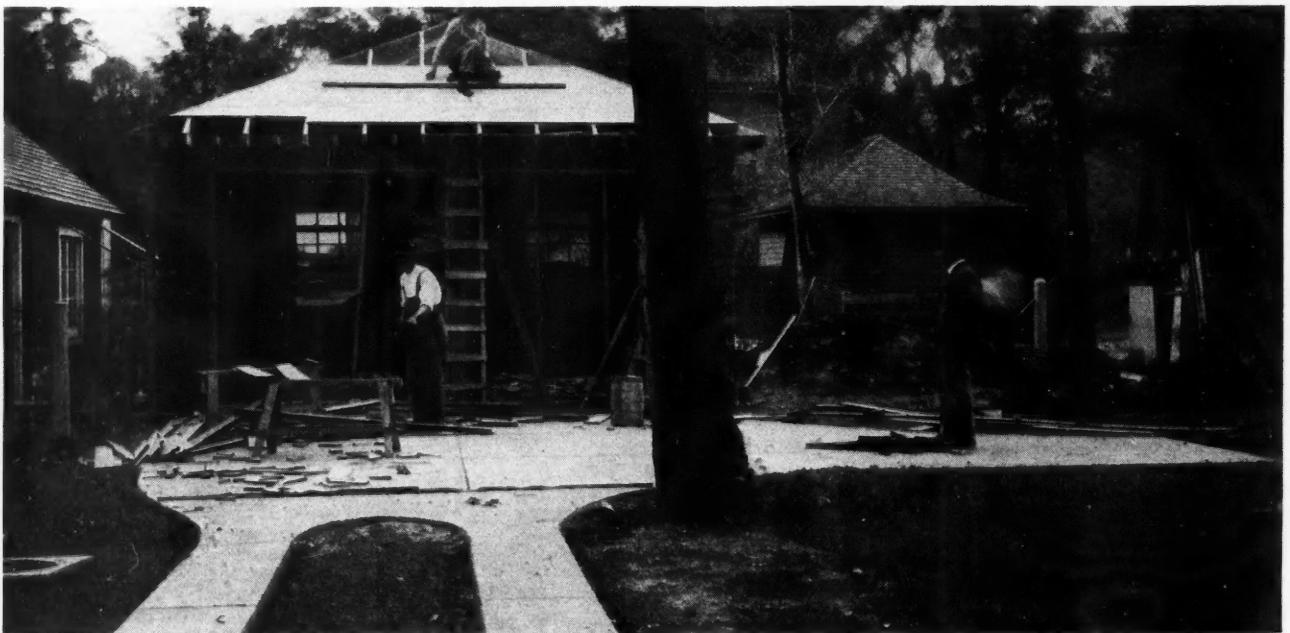
THE accompanying photographs are alone almost sufficient to illustrate a satisfactory and economical method of constructing a concrete automobile driveway in the form of two strips, to permit reaching a private garage placed at the rear of the residence grounds. The driveway approach shown, is rather out of the ordinary, in that it was given a width of 11 feet 6 inches at the street curb and from there curved toward the sidewalk to a minimum width of 8 feet. The rise in 20 feet from the curb to the sidewalk was 18 inches.

In constructing this entrance way, the street curb and gutter were removed to the nearest joint at each side of the driveway, which required placing about 3 feet of curb and gutter on each side of the drive, the intervening gutter being made monolithic with it. The curb at each side of the driveway is about 5 inches high and 6 inches wide. This curb was built integral

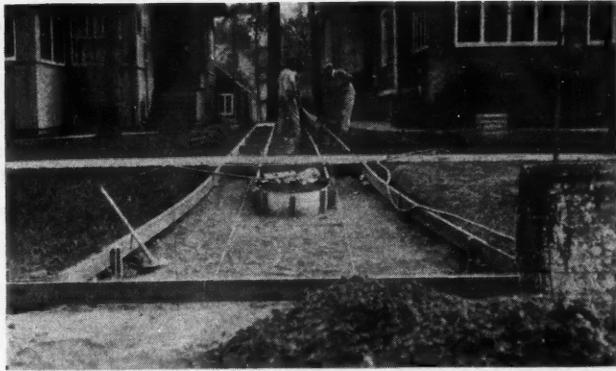
with the driveway itself curving into the driveway and sloping toward the sidewalk, becoming similar in height and width and being warped into a rounded surface until it straightened out at a distance of about 3 feet from the sidewalk line.

Back of the sidewalk the driveway has two concrete rails or strips, each 20 inches wide. The inside edges of these strips extend beyond the sidewalk toward the approach about 8 feet and then shape a curve. Continuing back from the sidewalk, these two concrete rails are laid in slabs 10 feet long, with every other joint filled with $\frac{1}{4}$ -inch asphalt joint filler, the intermediate joints being merely construction joints.

Concrete for the entire driveway was one-course construction, consisting of a 1:2:3 mixture. The concrete was deposited in a continuous operation, struck off and floated with a wooden float, leaving the surface with a rough texture similar to the surface of



Immediately in Front of the Garage the Double-Path Driveway Merges into a Concrete "Turn Around" of Ample Size.



View of Double-Path Driveway from Curbing, Showing Arrangement of Forms for the Approach.



Two Strips of Concrete Make the Driveway and Do Not Appreciably Interfere with the Green Lawn.

concrete street pavements. The approach and curb were built in the same manner, being divided into three slabs with expansion joints $\frac{1}{4}$ inch wide at the intersection of gutter and brick pavement, and at the sidewalk line.

Forms for the driveway were 2 by 6-inch planks,

staked into position as shown in the photos. Short, round bends were made with sheet galvanized iron for forms. Bulkheads were placed in the forms where joints would occur and slabs laid alternately. After bulkheads were removed, intermediate slabs were finished.

Oil-Mixed Concrete for Damp Proofing

EXPERIMENTS IN THE DEPARTMENT OF AGRICULTURE DEMONSTRATE ITS VALUE IN MANY KINDS OF BUILDINGS

AFTER extensive laboratory and service tests the Department of Agriculture has secured results which appear to establish definitely the value of oil-mixed concrete for damp-proof construction. Detailed results of these tests, which were carried out in connection with the work of the Office of Public Roads, are contained in the new bulletin, No. 230, of the Department, entitled "Oil-Mixed Portland Cement Concrete." Briefly summarized, the conclusions to be drawn from them are that the admixture of certain mineral oils in small proportions, not to exceed 10 per cent of cement used, does not lessen the tensile strength of mortar; that the decrease in the compressive strength of mortar and concrete is not serious; that concrete mixed with oil takes much longer to set hard, perhaps twice as long, but that the increase in strength is nearly as rapid in the oil-mixed material as in the plain concrete. The use of oil does not make the concrete impervious to heavy water pressure, but it does make it practically non-absorbent under low heads.

The value of oil-mixed concrete is said to be particularly great in the construction of basement floors and walls, watering troughs, cisterns, barns, silos, and in all parts of concrete structures that are to be made damp-proof.

The oil should in no case exceed 10 per cent of the weight of the cement and for the most part, 5 per cent is all that is necessary. Since a bag of cement weighs 94 pounds, 4.7 pounds of oil, or about $2\frac{1}{2}$ quarts, should be added for each bag of cement used in the mixture. The sand and cement should be first mixed with the proper amount of water into a stiff mortar, to which is added the correct amount of oil, and the whole

mass again thoroughly mixed until all traces of oil have disappeared. Particular care should be taken to insure that the oil is thoroughly incorporated in the mixture and the time of mixing should be practically double that when the oil is not used. For this reason a continuous mixer should not be used in oil-cement-concrete work, as it is difficult with this type of machine to increase the time of mixing sufficiently.

The kind of oil is also important and the following technical specifications are suggested in the bulletin in order to prevent the use of certain oils which might tend to impair the strength of the mortar or the concrete:

- (1) The oil shall be a fluid petroleum product and shall contain no admixture of fatty or vegetable oils.
- (2) It shall have a specific gravity not greater than 0.945 at a temperature of 25 deg. C.
- (3) It shall show a flash point of not less than 150 deg. C. by the closed-cup method.
- (4) When 240 cc. of the oil is heated in an Engler viscosimeter to 50 deg. C., and maintained at that temperature for at least three minutes, the first 100 cc. which flows out shall show a specific viscosity of not less than 15 nor more than 30.
- (5) When 1 part of the oil is shaken up with 2 parts of hundredth normal caustic soda, there shall be no emulsification, and upon allowing the mixture to remain quiet the two components shall rapidly separate in distinct layers.

For practical use the addition of oil will be found particularly useful in the construction of basement floors and walls. Many of these now in existence are continually damp and such a condition may be remedied by the application of an oil-mixed mortar coat to the old surface. A mortar composed of one part of cement and two parts sand and containing 5 per cent of oil should be sufficiently non-absorbent for this purpose.

Watering troughs and cisterns made of oil-mixed concrete should also prove of considerable practical value in the conservation of water. In the construction of barns, where oil-mixed concrete is used, the interior will be noticeably drier than when ordinary concrete is used. Owing to their durability, cleanliness, and resistance to fire, concrete barns are becoming more and more popular, but they suffer from the disadvantage that during a long beating rain the side walls are inclined to absorb much moisture, which ultimately penetrates into the interior. The addition of oil to the extent of 5 per cent of the weight of cement in the concrete used in the side walls obviates this objection. Barn floors can also be constructed in the same way with advantage. A damp-proof floor is warmer because of the lack of evaporation from its surface, and it is also more sanitary than an ordinary concrete floor because of its non-absorbent character.

There are, of course, any number of other types of buildings and structures of all sorts in which oil-mixed concrete may be used advantageously, or, if this is not necessary, a coat of oil-mixed mortar may be applied effectively.

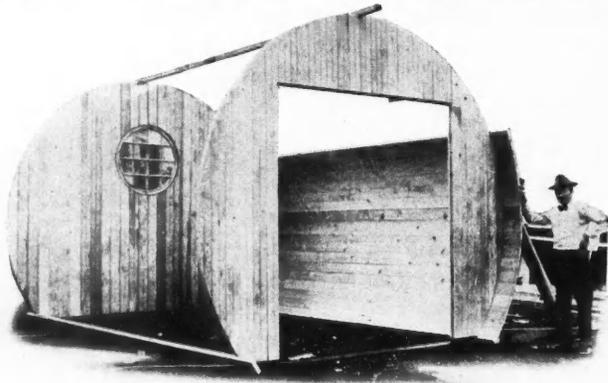
Attention is called, however, to the fact that extreme care in proportioning, mixing, and placing the concrete is absolutely necessary if the addition of any waterproofing agent is to be of value. The process of mixing oil with concrete has been covered by a public patent, so that any one is at liberty to use it. The methods of using this material are discussed more fully in the bulletin already mentioned.

Garages by the Barrel

A NEW FORM OF GARAGE CONSTRUCTION
By C. L. Edholm

A practical idea in the construction of a small garage is the barrel-like design of the one shown in the photograph. It has the great advantages of strength and durability coupled with economy of material and labor, for the building comes from the mill all ready to set up and about an hour's work will be sufficient.

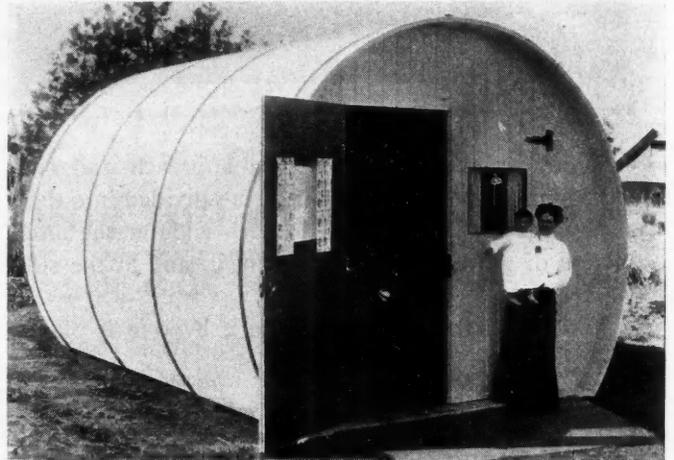
The parts all fit together and not a nail is required in the construction as the heavy two-inch boards that form the sides are jointed by tongue and groove, and are secured by four thick hoops. The latter are joined at the top by bolts, so that they can be drawn



The Barrel Garage is Easily Assembled and Makes a Substantial Structure.

tight or cast loose by a few minutes work with a monkey wrench.

A feature of importance is the ease with which the building can be taken apart for removal. In about half an hour it can be dismantled and may be carried as a single wagon load to be set up elsewhere. This feature makes it available for other purposes besides a garage. As a summer camp house it is O. K. It is ten by four-



Garage Built of 2-Inch Tongue and Groove Staves, Secured by Four Iron Hoops. A Coming Garage Style in the Northwest.

teen feet, a practical size for either garage or summer cottage. While the walls are almost air tight, light and air are admitted through the openings at each end. There is a circular window in the rear and a double door in front with glass in the upper half of each.

The barrel garage is not a mere curiosity but a successful type of portable structure which is coming into use in the west. The one shown in photo was built by E. S. Mower, 1102 Paulsen Bldg., Spokane, Wash.

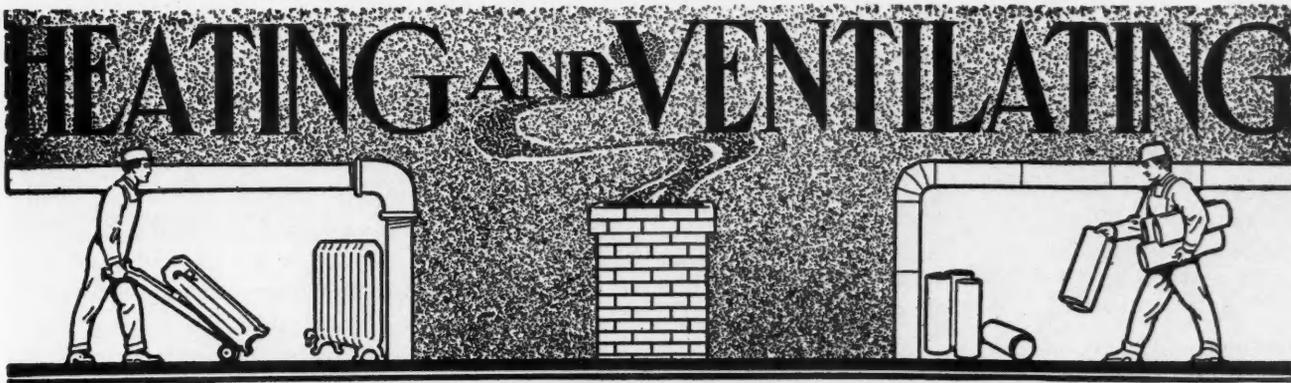
Three Four-Room Bungalows in Twenty-Six Hours—Who Can Beat It?

An interesting building race has recently been staged in Binghamton, N. Y.

Binghamton has a law that no saloon can be established unless it has a two-thirds vote from all the residents within a radius of 300 feet. Taking advantage of this law, the liquor interests applied for a license for a vacant lot with no houses within a radius of 300 feet. A wealthy Binghamton man had an estate directly opposite the proposed saloon. He heard of the license proceedings over the long distance phone and the race was on.

Authority to erect homes within the 300-foot limit was received at four o'clock Monday, and at four o'clock Tuesday morning a complete four-room bungalow with a family occupied the adjoining property to the saloon. This made the vote even. While this house was being built through the night, the liquor interests were endeavoring to build a temporary saloon, so they could apply for a license. Side by side the workmen labored through the night, cheered on by an extremely interested throng which often participated in the race by interfering with the wheelbarrows of the saloon builders. The bungalows were built by the Jones-Beers Construction Company.

The saloon men then moved a family into a barn inside the 300-foot limit and claimed a two-thirds vote and once more applied for the license. Two more bungalows were then built in fourteen hours and one was occupied, which gave the advantage to the dry interests again.



How to Select a Warm Air Furnace

FOURTH ARTICLE—VALUABLE HINTS FOR CONTRACTORS AND BUILDERS REGARDING THE HEATING PLANT AND ITS RELATION TO THE REST OF THE JOB (CONCLUDED FROM JUNE ISSUE)

By C. S. Stout

(Secretary, Marshall Furnace Co.)

The next point is the diameter of the casings or outside jacket and its method of construction. The casing should be large enough to allow sufficient quantities of air to pass up over the heating surfaces and properly insulated with some nonconductor like asbestos or an air cell between two linings to prevent radiation through jacket into cellar.

The space between the jacket and the castings of the furnace should be at least equal in capacity or opening to the cross sectional area of all of the warm air conductor pipes that are used to carry the heat away. If the casing is too large the air will go through insufficiently heated, if too small heat will radiate through casings even if insulated.

The heater should also be equipped with a suitable water-pan or humidifier with sufficient surface and so placed in the heater as to evaporate a considerable quantity of water.

A checkdraft and damper for smoke pipe.

A coal and ash shovel of proper size and shape for feed door and ash pit door and with handle bent enough to reach rear of ash pit.

A clean out brush and poker

Registers and Pipes

After you have made a careful comparison of the heater itself then find out what is planned to go with it.

Find out what kind of registers the heating contractor is going to furnish, whether of stamped steel or cast iron and the finish of each. Find out all about the cool air supply, where it is to come from and how it is to be conducted to the furnace, what the wall or partition pipes are to be composed of and how protected, how the cellar pipes are to be constructed and placed and what the combined capacity of all the warm air pipes is to be and the same information about the total cold air supply.

The great trouble with most people in buying a furnace is that they hear so much from the heating contractors that they get confused and are liable to be overpersuaded by some minor good sounding talking point that will not mean much to them when they come

to get the heater in use. The best plan is to pin your faith on a few of the things that are always important. Make the heating contractor furnish you with the following data and compare it with the same data furnished by all the other contractors. With the help of this information any building contractor with his good buying experience cannot go far wrong.

| | |
|--|-------|
| No., style and make of furnace..... | |
| Diameter of grate..... | |
| Depth of fire pot..... | |
| Weight of fire pot..... | |
| Weight of furnace complete..... | |
| Combined capacity of all warm air pipes..... | |
| Combined capacity of all cold air pipes..... | |
| No., kind and finish of registers..... | |
| No., kind and finish of cold air faces..... | |

Now before you decide, judge from the talk and the information you receive from outsiders who have already done business with him, the ability of each heating man in his work and also find out who is going to install the job. The best furnace made will not work right if it is not connected to a well planned heating system and a brainless installer can botch the finest product of the most expert heating engineer's intellect.

Buy brains and experience along with the iron and steel and you will not regret it.

What to Demand of the Heating Contractor

When you have the different furnaces, methods of installation, etc., explained to you fully and a compiled comparison of essentials prepared, you are ready to place the order.

A great many statements have been made by each heating contractor which you may not doubt but which you want to protect yourself against in case they have been overestimated or will not be substantiated by the goods.

So you want to protect yourself or your principal by a guarantee in writing covering the following,—

That the furnace when installed as the heating contractor has it planned will warm the building in the coldest of winter weather that you are accustomed to have in the locality in which the building is situated.

Then as there is a chance of castings or steel parts

being defective when they are built into the furnace, you want to have some kind of a guarantee against flaws and defective materials. And in the written contract there should be a statement that the heating contractor is to replace any defective materials free of charge that develop or make themselves manifest within a certain time. This period of guarantee ought not to be less than one year and the greater the length of time the heating contractor is willing to extend this guarantee on the parts of the furnace, the greater faith he must have in his goods and the greater faith you should have in him.

If the heating contractor is not entirely responsible the contract should be drawn up so that the heating system will not be paid for in full until you have had a chance to test it out in coldest winter weather.

What to Do as the Job is Being Erected

Now that you have the order placed it is a good plan regardless of what kind of a contract you have or how careful the mechanic is or how much faith you have in the heating contractor to be on hand as much as possible and watch the plant being erected to see that the work is being done in a workmanlike manner and that everything is up to the standard promised and guaranteed by the heating contractor.

Another advantage of watching the work at this time is that you can become familiar with the construction of the heater; and as it is being erected the mechanic can explain to you the functions of the various parts, their relation to each other and the best way to get the

most satisfactory results from the heater and you can help the owner to get better results.

The average owner knows about as much about the hidden parts of the home building business as you know about his business, and although he may not say so, he depends on you for help even if he has an architect.

How Does This Concern the Builder?

You are the practical man on the job and he believes in you and expects the best from you or you wouldn't have his job.

If the owner places his own heating contract or the architect does it, don't say, "O! Well, it is none of my business. It's no skin off of my nose if he gets stung on his furnace." That is not the right attitude to take. It is true you have no legal responsibility but you do have a moral responsibility because the owner is making a home of the building you are erecting for him and that building must be comfortable and complete in its equipment to make it a real home and to make the owner happy and satisfied.

Another thing this completed building is *your* work, the offspring of *your* brain and intelligence, and you should be and are proud of it. So see that it is completed in every requirement and go beyond the letter of your contract to make him happy, comfortable and satisfied, and remember the first requirement of comfort is bodily warmth—and bodily warmth makes a man happy—and a happy man is satisfied—and he boosts you to his neighbor—and his neighbor is going to build next year.

Artistic Boathouses for Lake Resorts

HOW TO PLAN AND BUILD THEM

By George Ethelbert Walsh

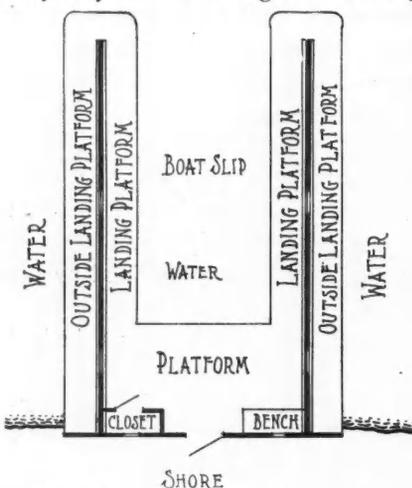
ONE of the building problems confronting owners of summer residences on lakes or rivers is the construction of buildings, for the housing of the boats, that will conform to the general style of the residence architecture and in nowise detract from the natural beauty and harmony of the water front. Anybody can knock together a cheap wooden or canvas

boathouse that may answer all practical purposes in the protection of the small craft from the elements; but the owner of a picturesque waterfront does not want to mar the scenery of a lake or river view by an ugly building, nor have his neighbors do the same. Before the coming of the

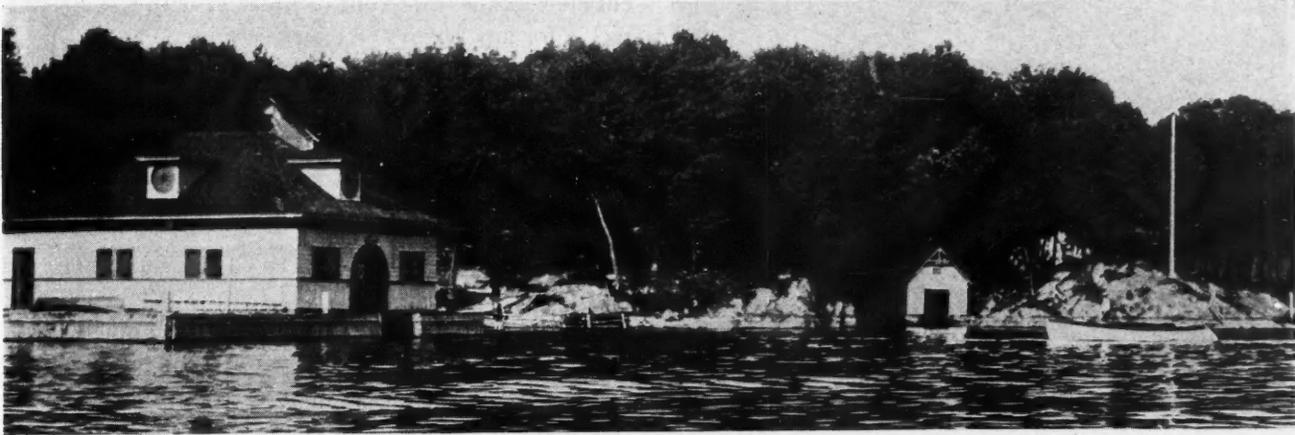
motorboat, this question did not call for solution, for the sailboat could be moored at the dock or to a buoy off shore, and its appearance there in front of a country residence did not detract from the view or produce a sense of incongruity.

But the modern motorboat is a different product of our times. Its handsomely finished decking must be protected from the rains and dews, and even its engine and machinery last much longer if not exposed to the elements. The mahogany decks of some of these motorboats are as handsome and as finely finished as the case of a piano. They must, therefore, have a proper house for summer, and a good storage place for winter.

There is no small or large lake in the East or West where this problem is not now important. By reason of its location right on the waterfront, the boathouse is really more conspicuous than the residence itself. It may, therefore, mar or make the scenery of a lake or river. On Lake Hopatcong, New Jersey, forty-five miles from New York as the crow flies, over 450 motorboats are in commission every summer, and most of these are housed there through the winter. The lake is only nine miles long and four to five miles wide, but it has a waterfront approximating fifty miles. Still



Floor Plan of Motor Boathouse Having Both Outside and Inside Landing Platforms. Double Doors (not Shown in Sketch) May be Used to Close in the Front.



A Community Type Boathouse on Lake Hopatcong, N. J., that Will Shelter a Number of Boats.

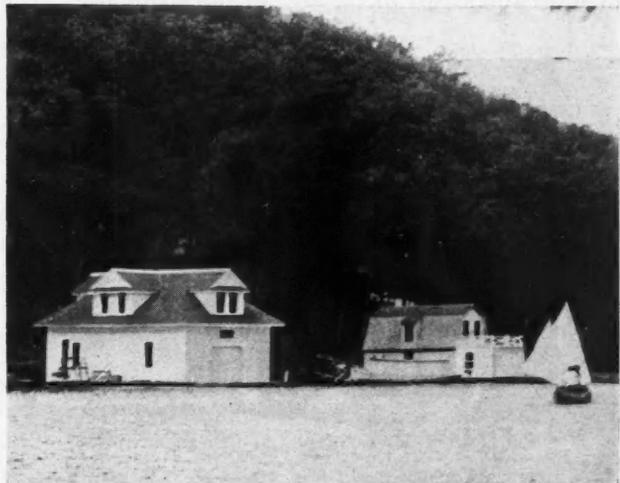
even with this extensive water line, the housing of 450 motorboats has become a problem that has more than once threatened the entire beauty and natural picturesqueness of the lake. The cheap boathouses have sprung up in places, and at a few points they have sadly injured the view. On the other hand, the owners of the country homes there have in a great number of cases co-operated in protecting their views, and the appearance of the numerous boathouses has not disfigured the landscape.

The ideal boathouse consists of something more than a covered slip to run the boat in for the night. It includes a covered slip, with a platform on either side for landing, a tool-house at one end where one can make ordinary repairs to the boat or machinery, a storage closet for cushions, awnings and accessories, a contrivance for lifting the boat out of water overhead, and a general dock or landing place on the outside of the house. A good many of the more ambitious boathouses on Lake Hopatcong are two-story affairs, with rooms above for resting on warm days or even for dancing purposes or for card playing. These upper stories are put to a variety of purposes, and are often used for sleeping and even cooking purposes on special occasions.

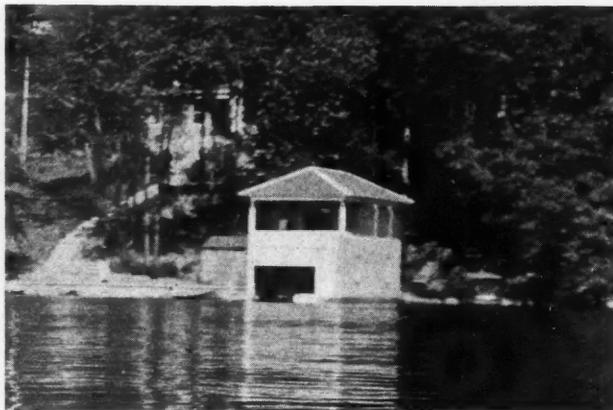
A boathouse of this character must have a firm foundation on which to rest. The usual way is to construct a foundation of timber cribbing filled in with stones, and topped off with cement and boards. The frame of the house is then laid on this foundation in the usual manner. A stone or concrete foundation, however, must have the sides protected with boards, or the boat chafing against it will quickly cause irreparable injury. All types of boathouses may be seen on Lake Hopatcong, from the ancient rough, undressed timber affair rising from the water without any apparent effort to make it ornamental up to the two-story houses costing several thousand dollars. These latter are often of considerable architectural beauty, and they suggest the key-note to the architecture of the residence partly visible through the trees in the background. Between these extremes are many which

make excellent accommodations for motorboats at a cost of only a few hundred dollars.

The winter storage of a motorboat must always be considered in building a house for summer use. Very little extra cost is necessary to provide storage facilities in the building. The chief essential is that sufficiently strong cross-beams are placed over the bow and stern to lift the craft out of the water with tackle. Slings are placed under the boat at bow and stern, and by means of a chain or rope tackle it is lifted above the level of the inside landing platform. Then three planks, two or three inches thick, are passed under the boat with ends resting on the top edge of the platform. These planks should be placed at the bow and stern and the middle of the boat. The craft is then lowered gently until the keel rests on the planks. The tackle is tightened so that it carries a part of the strain. There is no possibility then of any part of the hull being strained while in winter storage, for the weight is distributed over the three planks and the two end tackles overhead. Hanging a boat by tackle alone is unsafe, for if anything should happen to the rope or chain the boat might drop down and smash some part of it. In the spring the boat can be launched within a very short time in the boathouse slip, or the hull can be painted



Hip Roof and Gambrel Roof are Equally Favored for Two-Story Boathouses.

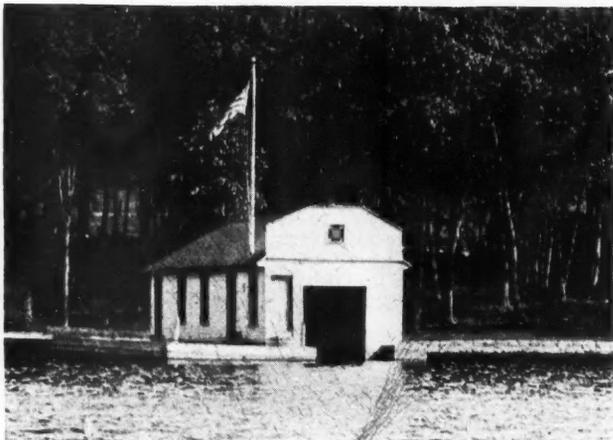


Boathouse with Second Floor Largely an Open Pavilion Overlooking the Water.

and calked up while resting on the planks. All the old difficulties of hauling the boat out of the water on some sandy beach to paint and calk it up are thus avoided. Not only that, but the boat can be hauled out of the water any number of times in the summer for inspection or repair of the hull underneath.

A rope tackle can easily be rigged up to haul the motorboat of twenty feet or under, but for boats longer than this a chain tackle should be employed. A couple of these automatic-acting chain tackles may be purchased from \$15 up, depending upon its size. They are graded to lift from half a ton up to any weight desired. One man can adjust and haul out a boat with such a chain tackle.

The workshop and storage room in the boat house need not take up much room, and the extra cost of providing space for these is inconsiderable. There should be a small but stout work bench, and a hand vise of sufficient power to hold a piece of iron piping when being sawed off with a hack-saw. Tools for working both in wood and metal should be a part of the equipment. Purchased singly and with an eye to their special fitness, they would not cost more than ten or fifteen dollars. With such tools the owner of a motorboat could repair and tinker away at his boat in rainy weather and save within a season enough to pay for the tools and a part of the cost of the boathouse. The

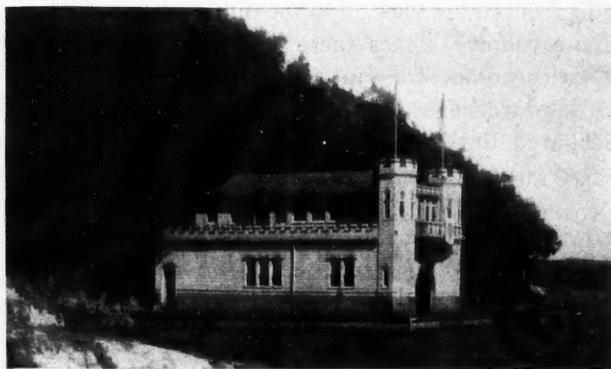


Popular Type of Inexpensive Motor Boathouse.

engine could be lifted out of the boat with the hoisting tackle for any repairs or for re-setting.

The upper story of the boathouse can be designed to suit almost any need or taste. Various styles and arrangements may be noted in the illustrations.

In the construction of any boathouse a good deal depends upon the depth and the nature of the water. Where the land drops off suddenly at the water's edge, and the depth exceeds fifteen or twenty feet, the cost of building a foundation for the boathouse may equal or even surpass the total cost of the house itself. Consequently in making estimates upon the cost of a boathouse it is necessary first to study the nature of the water approach. At Lake Hopatcong the water is often so deep within a few feet of the land that the work of building boathouses is difficult. At one place the water is upward of forty feet deep at the end of the boathouse, and it was impossible to build a foundation up from the bottom at any ordinary cost. The boathouse was built on two big pontoons, which float on the surface, but are securely anchored in position.



Elaborate Boathouse, "Sans Souci," on Lake Hopatcong, Owned by Dr. Van Wagener.

Another boathouse rests on huge timbers extending over the water, with half of them braced by under-shoring near the land. The outer half of the timbers have no support, but they are so securely braced that they carry the boathouse safely even with a second story built above.

Where the bottom of the lake or river is muddy or sandy piles may be driven down to form the foundation of the piers, but on the shores of Lake Hopatcong the bottom is almost entirely of rock near the shore, and piles cannot be used very well. The foundations are, therefore, made almost entirely of timber cribs filled with stones and sunk in position. They withstand the action of the winter's ice remarkably well, and a few slight repairs made each spring are sufficient to keep the foundations in good condition indefinitely.

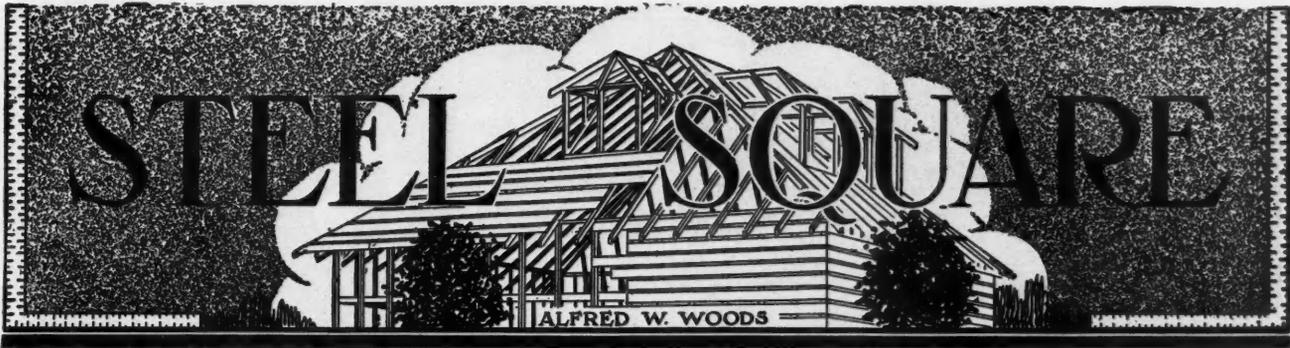


Bill's Measure

Silas—"The fishing is very good here. A bass was caught yesterday weighing nearly four pounds."

Hank—"Who caught him—Bill Yapp?"

Silas—"Heavens, no! If Bill had caught him he'd have weighed nearly eight!"



How to Use the Steel Square

THE CONCLUSION 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 on the same subject—a ten-sided roof, with a 10-inch rise. We have no doubt you are beginning to think we have been doing a good deal of talking on this one subject, but we wish to remind you again that our remarks are not confined to a single example, for the principle involved applies to any other shape the building may have. The main thing is to get started right—to know you are right and then go right ahead.

In the three foregoing lessons we believe we have covered all of the points that enter into the roof, regardless of size or pitch, and so we have decided to conclude the subject by running circles around it; but not as a grand finale, because it is really the beginning. In other words, we have made the round trip, accomplished our purpose and are back to the point from which we started; and we have not brought forth a thing but what is based on mathematical principles established by mathematicians thousands of years ago. We have tried to look it up to see to

whom credit is due. The encyclopedias tell us that it was Ptolemy, a Greco-Egyptian astronomer who, in the second century, perfected the system of circular measurement. We mention this merely to show that the system we are advocating is not so new as it might appear, and to further show that the principle involved in roof framing antedates the so-called steel square by a long way—how long we cannot say, but to a point we believe the memory of man runneth not. To our mind, it had its inception in the circle as it can be made to represent a part of the whole thing; and the whole secret lies in the fact of knowing how to apply one to the other.

We are not going to take up space here to explain circular measurement, because any one that has passed the eighth grade of our common schools, should know that without further explanations on our part.

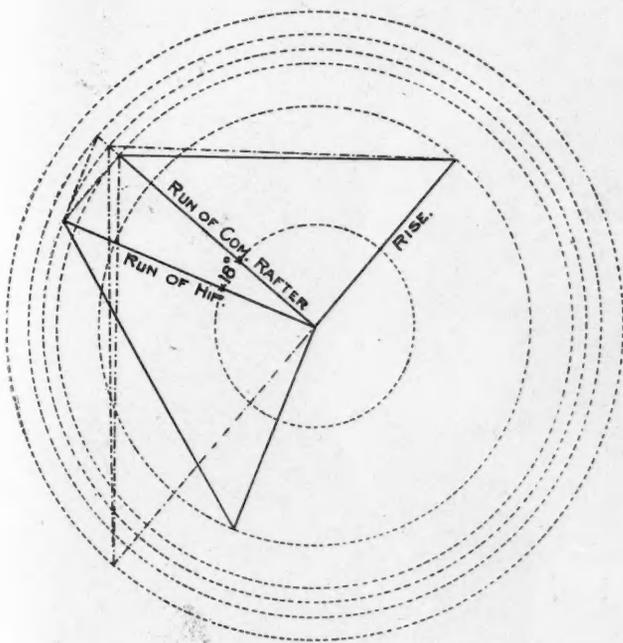
The illustration shows all of the angles that we have mentioned in the previous three articles, and we leave it now with you to study the relationship of one to the other. The only figure shown in the illustration is that for the angle in degrees between the runs of the common rafter and hip. This is the angle to take on the square to obtain the miter, and furnishes the starting point for the level plane work for any pitch we wish to give the roof. In this, it is a 10-inch rise to the foot; and all of the lengths and bevels for the cuts are developed accordingly. In some countries the rise is reckoned in degrees, and in that case we have the reckoning in circular measurement in both the horizontal and perpendicular.

In connection with the angles, which you will note are all right angle triangles, we have shown other circles to illustrate relative parts in the way of lengths, tangents, etc.

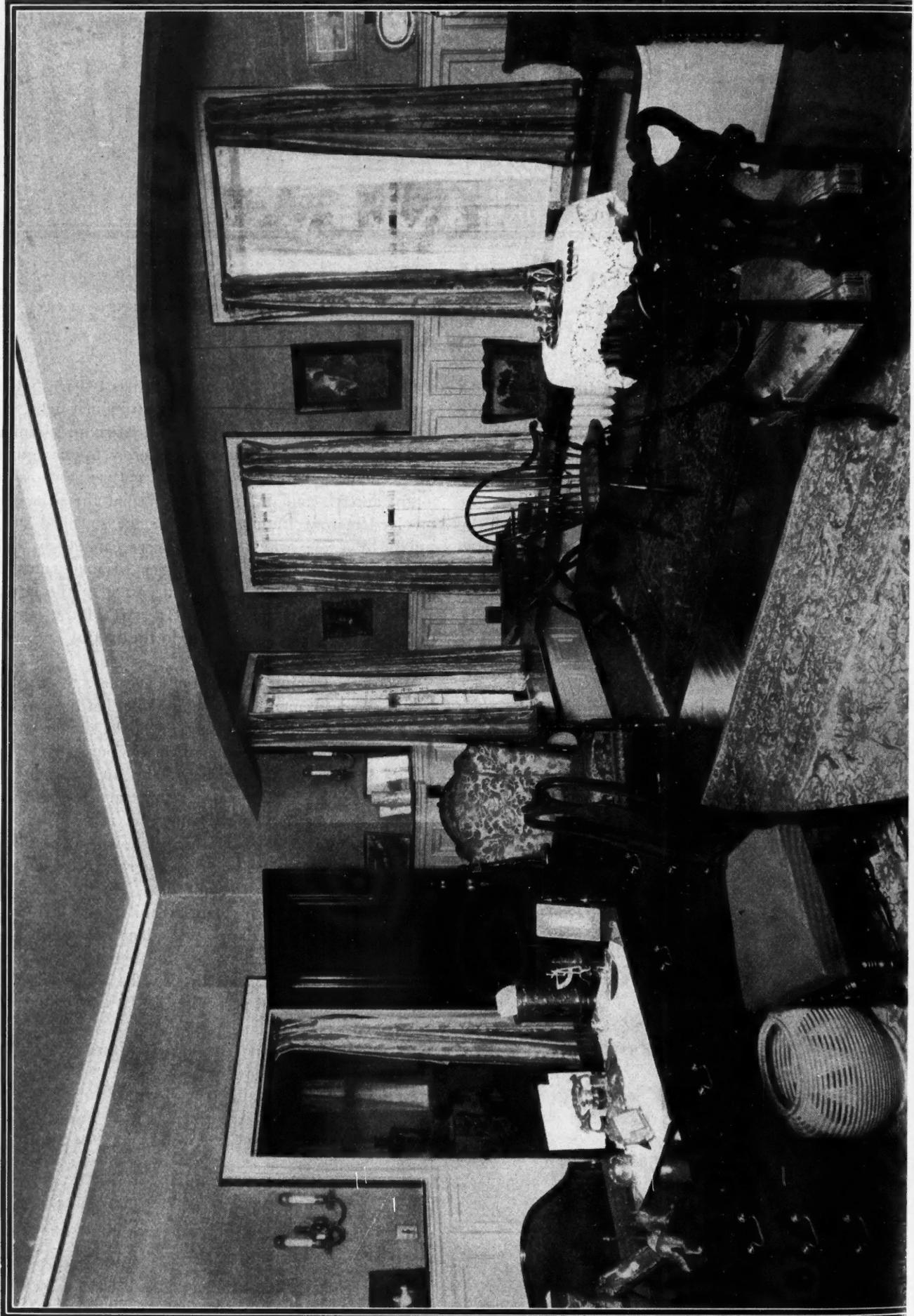
With this, we close with the hope that our efforts to enlighten have given a clearer insight into the mysteries of intricate roof framing to those who want to understand the true principles involved.



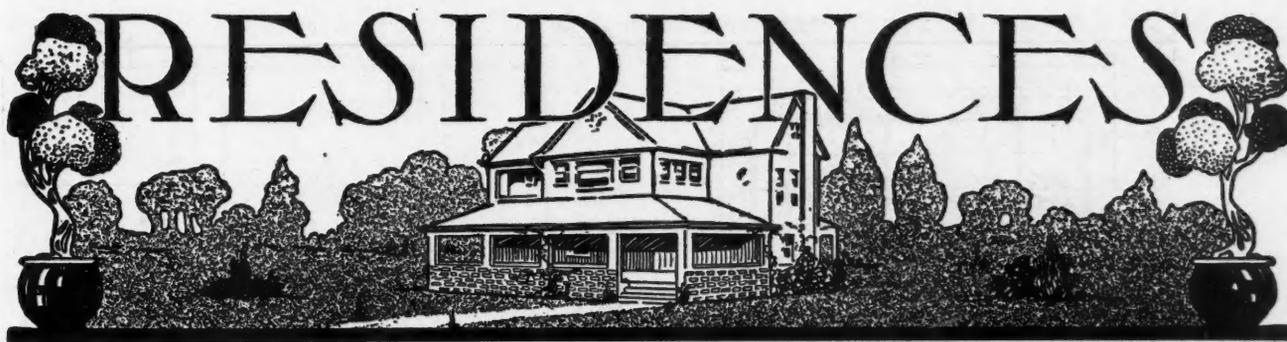
LAUGH less at your neighbor's troubles and more at your own.



The Angles and Their Relation One to Another Made Use of in Framing 10-Sided Building.



Study or Boudoir in Mahogany and White Enamel. Notice the Distinctive Touch Given by the Mahogany Edging All Around the Windows and Doors and Along the Dado. Fencing is All White; the Window Seat Top, the Shoe Mould and the Door, Mahogany.



Complete Set of Plans for Fine Brick Residence

MODERN 8-ROOM BRICK VENEERED DWELLING OUTLINED IN ARCHITECT'S WORKING DRAWINGS

A DIGNIFIED, substantial residence, possessing all the modern improvements, is illustrated on this page, and the complete set of working drawings from which this structure can be built are presented on the pages following. This is a brick veneered house of the square, hip roof design. It measures approximately 32 feet in width and 31 feet in depth, not including porches or sun parlor.

This residence is of the style that is now being preferred by all of the best people for average sized, comfortable homes of the better sort. There is nothing

pretentious about this design, yet it is plenty large enough, is nicely arranged both upstairs and down, and contains just enough of the little luxuries and improvements to make it a thoroughly appreciated home.

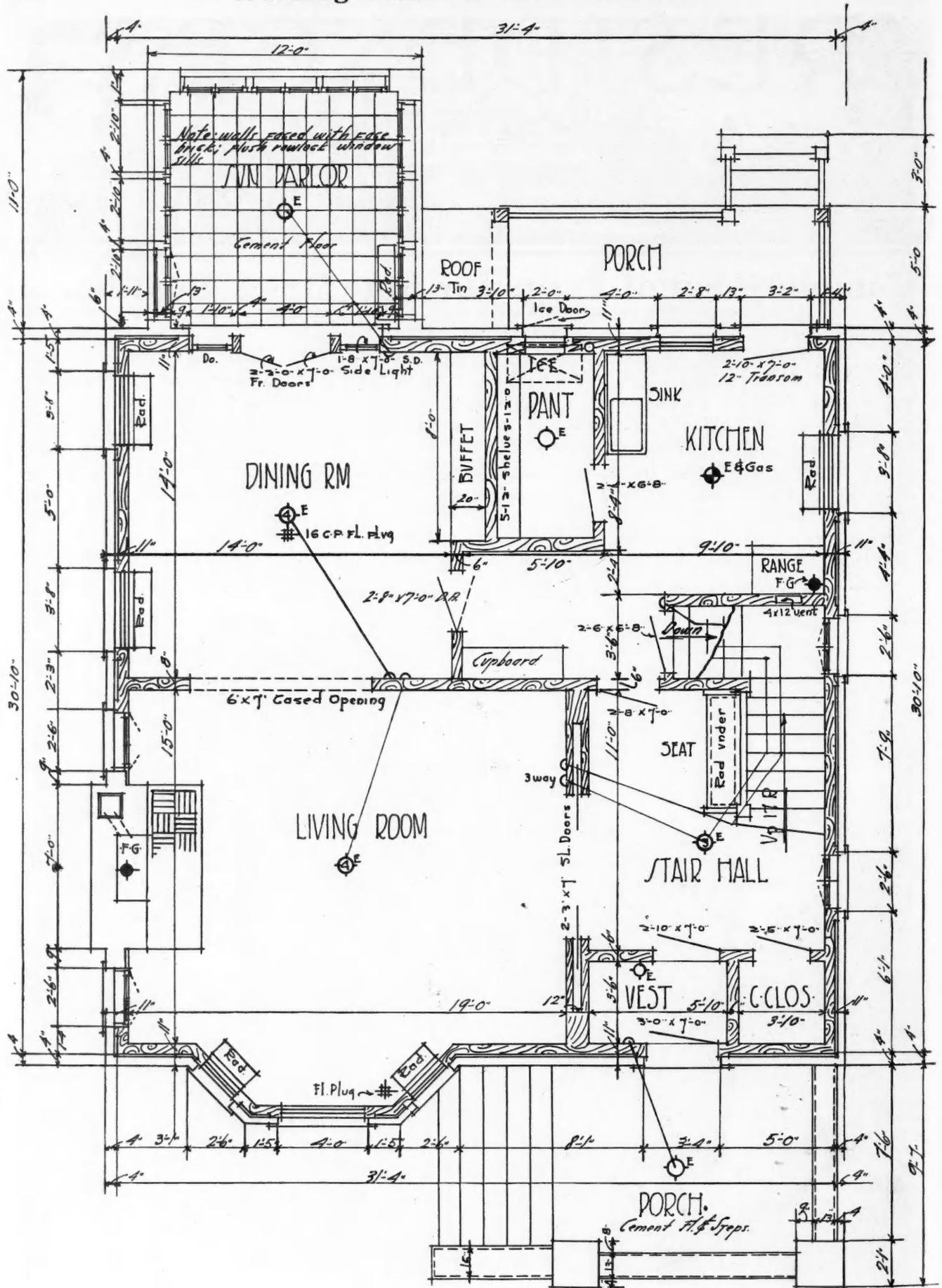
Notice, for instance, the sun parlor opening off the dining room. This room is made up almost entirely of windows. In the summertime, when all of these windows are open and screens are in, this room is just as comfortable as living out doors. In winter, with the windows closed and possibly with storm sash on,

(Continued to page 67.)



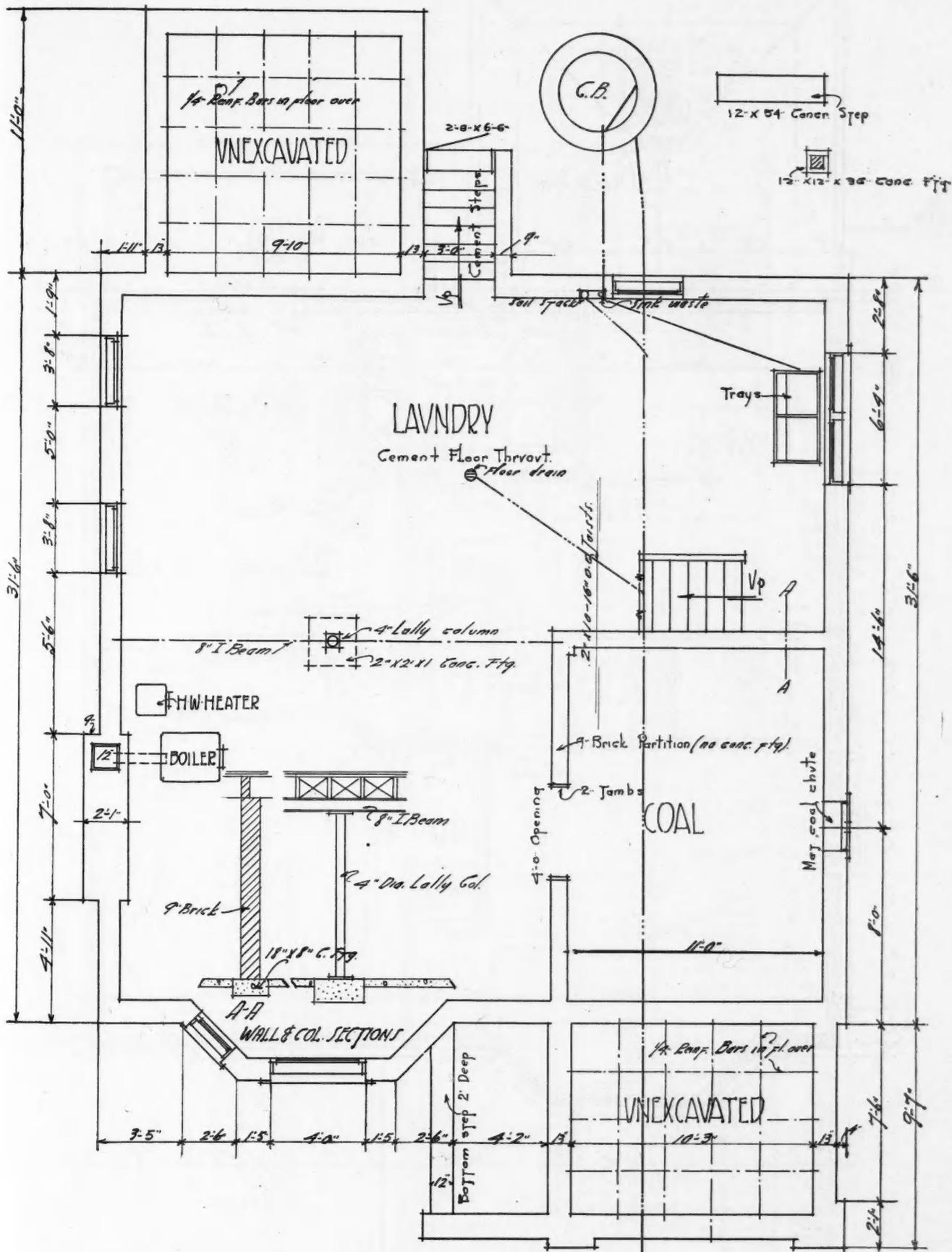
Substantial Brick Veneered House of Eight Rooms. Size 31 by 31 feet. We can furnish complete blue-printed working plans and typewritten specifications for only \$10.00 per set. Blue-prints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections, and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6643.

COMPLETE WORKING DRAWINGS FOR THIS HOUSE ARE PRESENTED ON THE EIGHT PAGES FOLLOWING



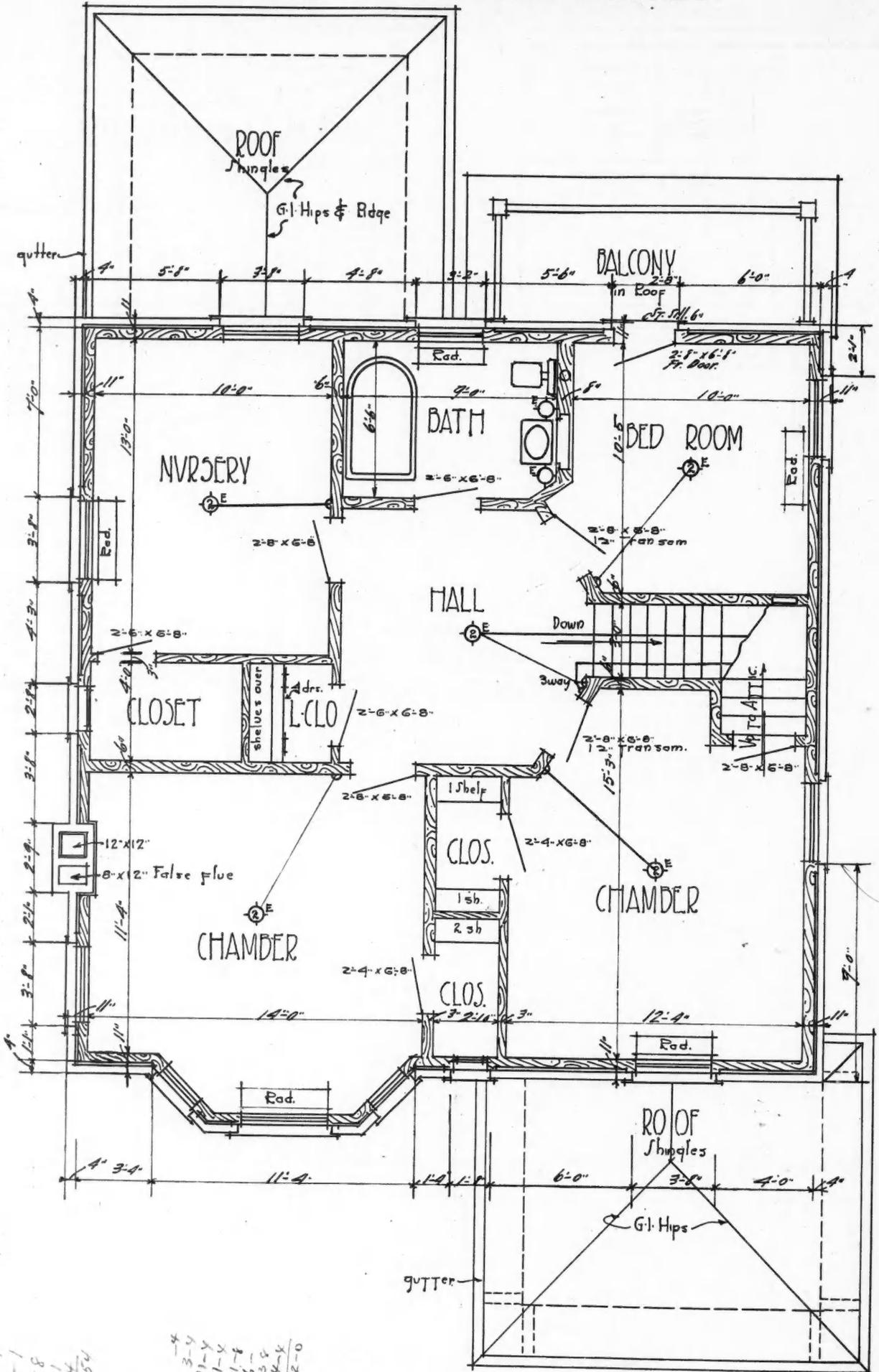
FIRST FLOOR PLAN

(FOR PERSPECTIVE VIEW SEE PAGE 61)



BASEMENT PLAN

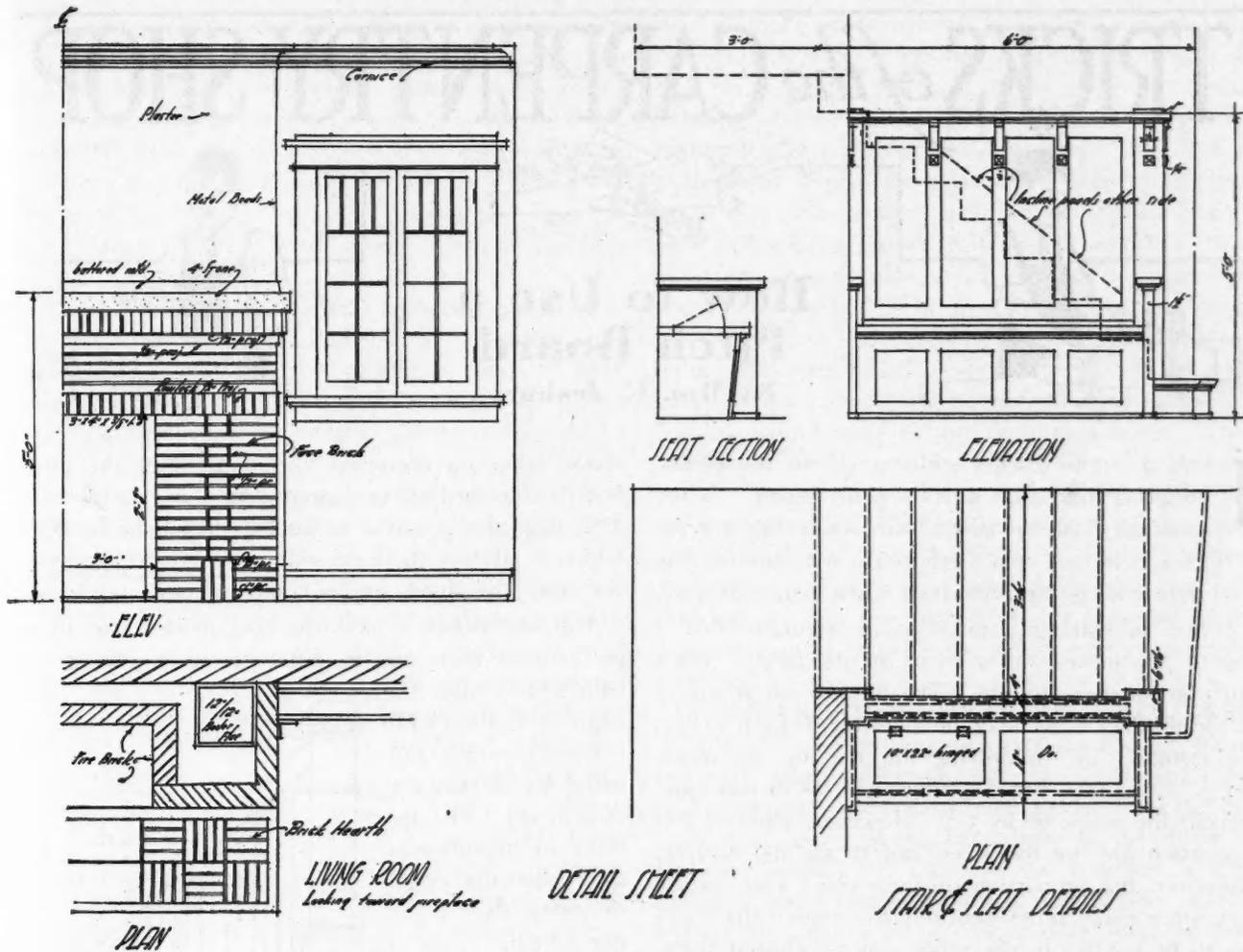
(FOR PERSPECTIVE VIEW SEE PAGE 61)



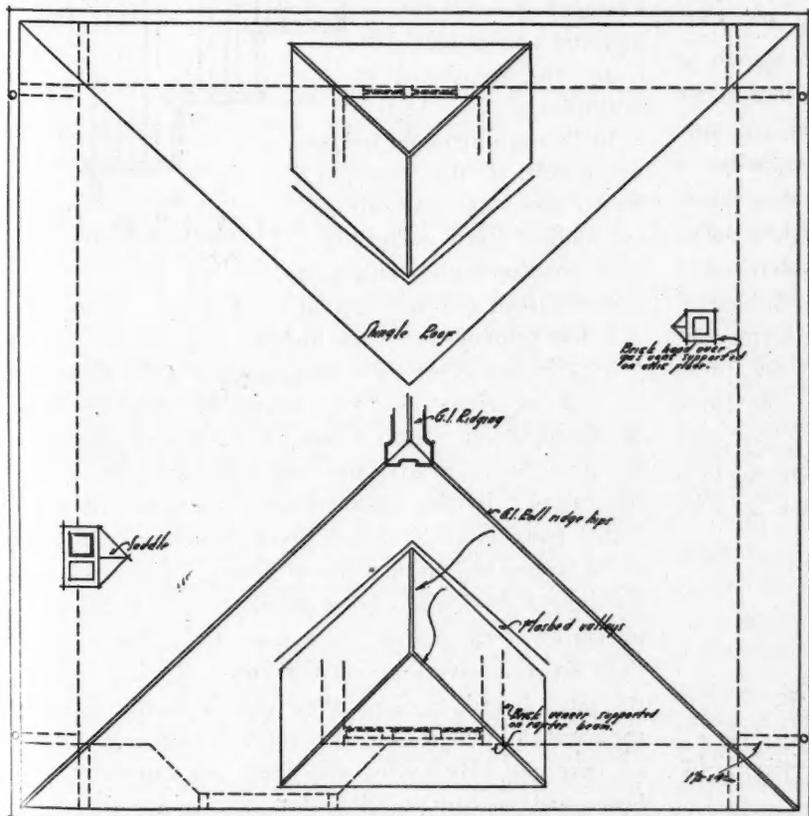
7'-0
-4
3'-6
4'-3
2'-8
3'-8
2'-7
2'-1
3'-8
1'-1
1'-4
27'-54
14'-6
31'-6

4
3-4
11-4
1-4
1-4
6-4
3-4
4-4
32-0

SECOND FLOOR PLAN
(FOR PERSPECTIVE VIEW, SEE PAGE 61)



Additional Details of Interior Trim of House Shown on Page 61.



Roof Plan of House Shown on Page 61.

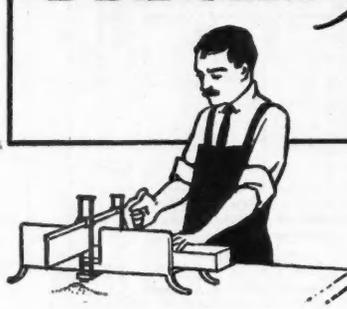
To Mend Blazing Gas Main

Here is a scheme for stopping a blazing leak in a big high-pressure gas main in San Francisco. Some unknown men who wanted to make trouble set off a chemical preparation on the gas main, with the result that in a few seconds a hole had been melted in the main, the gas poured out, and a great flame shot 25 feet in the air. It was then after midnight, and it was very inadvisable to shut the big main off, so it was decided to make an attempt to stop the leak without shutting off the gas.

An oil-well trick was used. An iron pipe 6 inches in diameter and 20 feet long was stood on end beside the gas main and then by careful manipulation placed directly over the leak. This sent the leaking gas shooting through the pipe and flaming out at the top, 20 feet in the air. Some gas leaked out at the bottom of the pipe; but this was easily stopped; so the only flame was that at the top of the pipe.

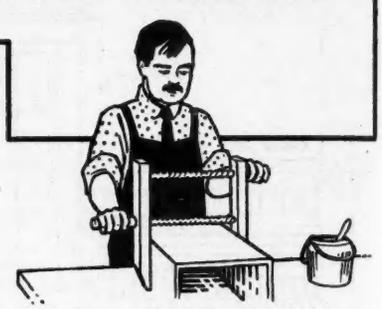
Ropes had been attached to the pipe; and finally at a given signal the ropes were yanked and the pipe was thrown many feet away from the gas main. The pipe carried the flame with it. The leaking gas then shot directly into the air from the main; but, as there was no flame near, it did not burn. It was then a comparatively simple task to plug the hole until permanent repairs could be made.—*The Saturday Evening Post.*

TRICKS *of the* CARPENTRY SHOP



How to Use a Pitch Board

By Wm. C. Jasbury

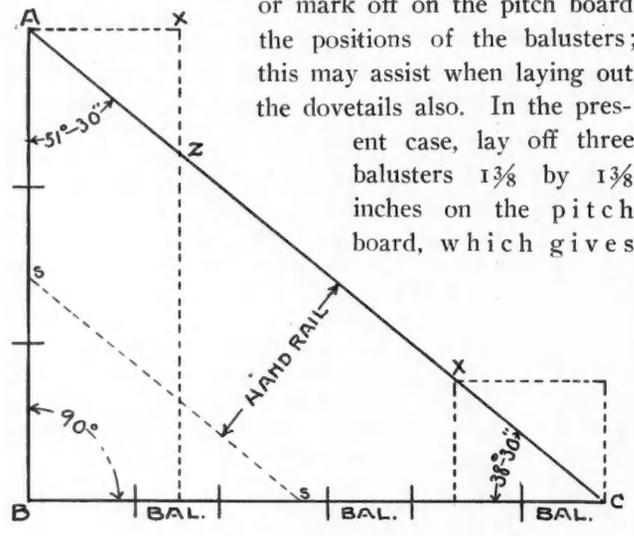


I AM about to discuss with myself the usefulness, or possibilities, of a stair pitch board. Many mechanics use the pitch board in laying out the strings and horses, while others do not, but use the steel square altogether, which is only a matter of taste.

I find in making a pitch board accurate, that a rise of $7\frac{1}{2}$ inches and a tread of $9\frac{1}{2}$ inches give a fairly good stairs to use. The number 66 seems to be the product many stair builders try to keep to; as, for instance, by multiplying the rise by the tread, $5\frac{1}{2} \times 12 = 66$. But $7\frac{1}{2}$ times $9\frac{1}{2}$, as in this case, exceeds the magic 66 by $5\frac{1}{4}$. However, stairs of this proportion are not too steep, nor treads too narrow. Moreover, the proportion oftentimes plays a secondary part, since many times—entirely too many—the stairs are to be put up in the room that is allowed them. It seems as though the designers now-a-days use up all the room they can for closets, nooks, etc., and if they overlook a spot, they use it for the stairway.

But getting back to the pitch board, as shown in sketch with corners marked A, B and C. On a stairs $7\frac{1}{2}$ by $9\frac{1}{2}$ the encline by degrees is 38 deg. 30 min. or $38\frac{1}{2}$ deg. This seems reasonable enough for a stairs. If three balusters are to be put on a tread,

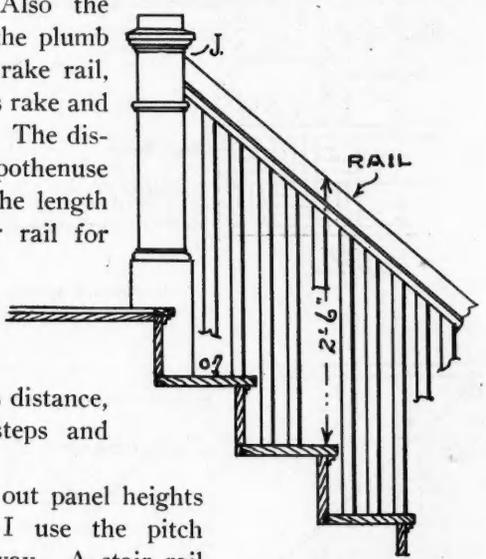
divide the tread into three parts, or mark off on the pitch board the positions of the balusters; this may assist when laying out the dovetails also. In the present case, lay off three balusters $1\frac{3}{8}$ by $1\frac{3}{8}$ inches on the pitch board, which gives



PITCH BOARD.

spaces $3\frac{2}{12}$ on centers. You will notice the pitch board is marked off in degrees— $38\frac{1}{2}$ deg. at bottom, $51\frac{1}{2}$ deg. at top; these added together make 90 deg., which is always the case with right angle triangles, the other two inside angles combined make 90 deg.

You will notice I have the rise divided into three parts; these represent the difference in lengths of the balusters. Also the angle A is the plumb cut for the rake rail, using A C as rake and A B as cut. The distance or hypotenuse A C gives the length of string or rail for one step, and to find the rail lengths, measure this distance, count the steps and multiply.



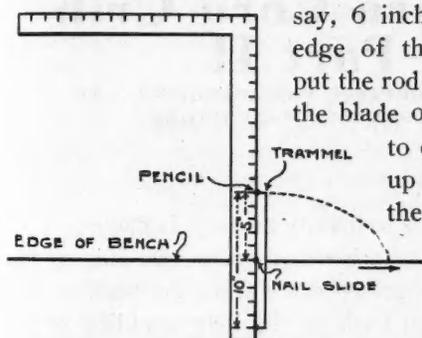
Figuring Height of Hand Rail and Length of Newel.

In laying out panel heights in newels, I use the pitch board this way. A stair rail is usually 2 feet 6 inches high; measure plumb up from top of finished tread and over face of finished rise. If the rail is 2 feet 6 inches from the finished rise and the newel 5 by 5 inches is set as is customary—center of newel to face of rise—then you have the measure back or ahead $2\frac{1}{2}$ inches, or half the width of newel on the pitch board to give the height of rail as it strikes the newel. In this case, measure on detail of pitch board from X to Z, which gives the distance that is to be subtracted from 2 feet 6 inches. The answer is the height from the top of tread to top of rail J, as measured on the newel. Now, then, to get the distance the rake rail covers up on the newel, draw a line on the pitch board, S S, parallel with A C, the distance the hand rail is high; measure on A B to give the depth on rake cut. By having this done you can determine how much margin to allow flat from where the panel starts up to the bottom of the rail.

In case of a newel at the starting of a flight of stairs, or starting up from a landing is the same, as regards the finding of rail or panel height, except the distance on the pitch board, X Z, is added to the 2 feet 6 inches instead of taken from, as before.

I hope the foregoing is clear to you, as I have made use of it many times in laying out newels. It saves laying them out full size on the floor or building paper.

TO LAY OUT ELLIPSE. Speaking about "laying out" mill work, I had an old cabinet maker give me a method of laying out an ellipse today. I have more than one way of doing this, but there are others—so it seems. Say we want an ellipse 10-inch minor axis, 20-inch major axis. He took a strip $\frac{3}{8}$ by $\frac{1}{2}$ inch, cut it 10 inches long, and driving a nail at 5 inches he put my steel square on the bench, so that,



A Method of Laying Out an Ellipse with a Steel Square.

say, 6 inches hung over the edge of the bench; he then put the rod or stick up against the blade of the square, edge to edge, with the nail up against the edge of the bench. He then moved the trammel, or rod, to the right, keeping the nail sliding along against

the edge of the bench, the heel of the trammel sliding along against the edge of the square and a lead pencil at the outer end of the rod, made a very correct quarter of an ellipse. Reversed the process and a semi-ellipse was had in all its glory. Do not stop yet, I am going to draw this idea.

TOUGH LUCK!—ALWAYS TOO LATE OR TOO EARLY FOR CHRISTENING. Speaking about temperance and carpentry, I knew a contractor once who was some superstitious. He would always raise the northwest corner post first, or the one to the right rear as he faced the building. He would oft-times buy a pint of whiskey and pour it around the foundation. This was for luck, he would say, but the carpenters who were on good terms with Mr. Barley-corn called it poor luck for them.

Speaking of christening buildings, also the good old custom of today of putting up a bush when the roof was raised, I have always heard that that was the time the contractor or owner put up a keg of the juice that put Milwaukee on the map. Somehow or other, I always got there too soon or too late. However, I saw a building put up once with beer kegs as piers. Anyone knows that a healthy beer keg will stand an end pressure of many tons.

RAN INTO THE ROUGH OUTFIT. Along these lines (not on the beer question, but buildings and carpentry) I was employed by an Eastern concern that did a large business in house millwork of the higher class, special detail work, to be correct. I was

sent to make measurements on a job out on Long Island, miles from a railroad station. While there I had meals at the shack, a name given the rough building where the mechanics boarded. They had made their own furniture, bunks, etc. They had an old colored woman for a cook and housekeeper, and in all there were sixteen men. The foreman told me he left the place Saturday noon and returned Monday morning to find the boys had found a place where booze was made. They got their supply to camp, played cards and sang songs (some music!), and then indulged in sports, such as wrestling, boxing, etc. He said they had a hole in the ground where they had been wrestling large enough to bury a horse. They scared the cook so badly she quit her job. Monday he was obliged to weed out some of the ringleaders on account of the disgraceful conduct of the week end. He had the new outfit there when I arrived. This being so far away from civilization, and the huskies' day and two nights off, with the aid of the juice, certainly must have pulled off a successful sociable.

READ AND OBSERVE MORE—TALK LESS!

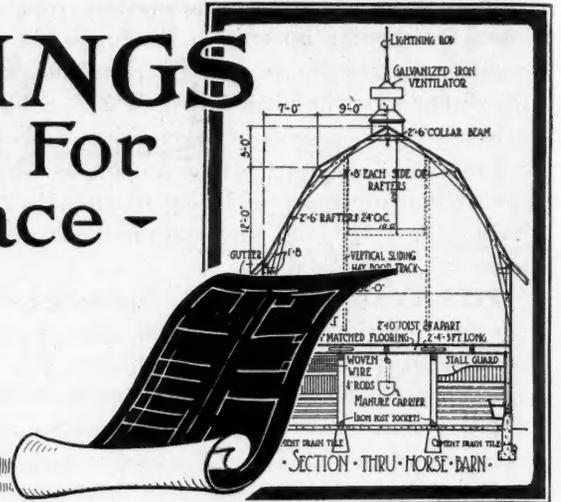
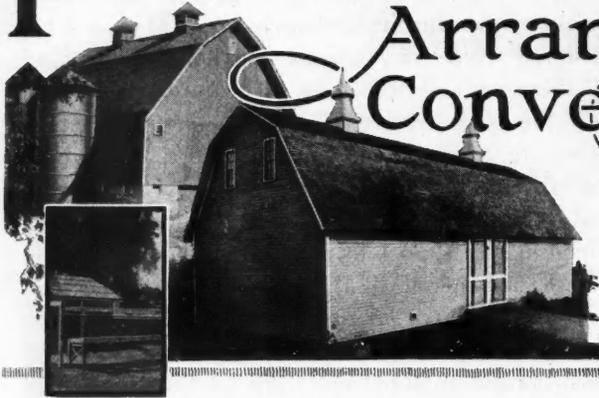
—So you see, in putting up a large house it requires not only many tradesmen, but many different kinds of tradesmen. I have traveled through the alleged wild and wooley West, have been in the midst of bad-men haunts, but this was the roughest looking layout I had encountered up to that time. A contractor who has a clean, law-abiding force of men working for him should certainly be proud of them, because all men are not worthy of their hire. Oft-times I wonder if it would not be a good plan to take a certain period of an apprentice boy's time to teach him to read more and watch the conduct of some estimable carpenter. The difference between the clean-cut, genteel party preparing the plans and the class of men the same plans are destined to meet up with is sometimes as great as the distance between Cape Town and Kankakee.

I am now in a position where I come in contact with a few foreign contractors, especially Italians. To see the way some of their work is put up, to see how scale, proportion and construction are disregarded, is nothing short of a misdemeanor. Such men never read a paper or magazine. As the old adage goes, "Man's greatest ignorance is not knowing his own ignorance." I may be a bit severe on the question of mind improvement, but I claim that any man who talks more than he reads in twenty-four hours is an eclipse on progress. He misses the finer chords and bars in the music scale of culture. That is, in my estimation, mind you, the reason why so many men call the boss a swelled headed so and so. It is because he (the boss) has higher ideals, such as deep thoughts, good trade journal reading, newspaper stuff, and clean observation.

Now that I have the foregoing out of my system, I will bid you good-night.

FARM BUILDINGS

Arranged For Convenience



Planning and Building a Modern Corn Crib Equipped with Elevator—Part II

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**

(Continued from June Issue.)

Foundation of a Two-Story Granary

A concrete foundation wall is the most satisfactory. Four longitudinal walls are needed, besides the two walls across the ends. All outside walls may be comparatively thin, because the corn cribs are much lighter than the grain part of the building. The outside walls should be sunk deep enough into the ground to insure against heaving by frost in winter.

The two center foundation walls should be 16 inches in thickness. But it is not necessary to put them down so deep in the ground, because the ground under the center of the building will not freeze so deep. No definite rule can be given of the necessary depth for such walls. Frost penetrates deeper in some soils and localities than others when the winter temperature may be about the same.

There should be light concrete floors in the corn cribs and a heavy concrete floor in the driveway through the center of the building. The center of the building is made very strong and solid, but material is saved in every way possible in the construction of the corn crib wings.

Corn in the ear is less "liquid" than grain, so there is less side pressure. Also light material may be so easily braced in a building of this kind that heavy crib construction is unnecessary.

Roof for a Two-Story Grain House

An ordinary gable end roof seems to fit a two-story grain house and corn crib better than any other shape. The rafters are given a steeper pitch than ordinary to brace the building against wind pressure. Rafters put up in this way brace each other and brace every part of the building.

The high peak is needed when shifting the grain spouts to carry ear corn and small grains to the different bins.

A steep roof on a two-story granary is made to form triangular braces. Each rafter makes one side of two triangles, which together reach from the peak to both plates and are tied back to the long studding of the grain wall partitions. These partitions are tied together by the heavy grain-bin floor joists and the cross ties in the grain bins, so that the upper part of the building is a continuation of trusses, reaching from one plate to the other by way of the peak, and across through the middle.

Building grain houses of this character higher than the plan shown might run into greater technical construction details, but with outside studding 18 or 20 feet in length, the construction given in this plan is thoroughly satisfactory.

Advantages of a Two-Story Grain House from a Farmer's Standpoint

Here are some "talking points" that will interest farmers: Combination farm granaries and corn cribs are labor savers. When properly constructed they are easily made ratproof. Because such buildings usually are isolated from other buildings, and as there is no accumulation of straw or other inflammable material about, they are considered practically safe from fire.

Two-story corn cribs and grain houses utilize space to advantage, because one foundation supports and one roof covers a great amount of cubic capacity.

A two-story crib is built solid and permanent. When properly designed and nicely finished it is an ornament and a permanent asset to the farm.

Such buildings facilitate the separation of good seed from weed seed while throwing out illegitimate and shrunken kernels. The great advantage of planting pure seeds interests progressive farmers everywhere. The splendid work of Burbank and other scientists has shown that great profits are possible by the careful selection and planting of good seed.

Two-story corn cribs include elevating machinery to do the shoveling, thus eliminating expensive human muscle.

The small grains are stored on the second floor and are

spouted down to the fanning mill, which is propelled by the same power that runs the elevating machinery. A steady motion is maintained. There is no temptation to run the grain through too fast, because no one is being overworked. Men who turn the crank of a fanning mill hour after hour to clean grains are anxious to see the hopper emptied as quickly as possible. The result is that the work is often hurried and inferior seed is planted.

Two-story grain houses save one cent per bushel of corn at husking time. The price for husking and cribbing in the old fashioned way is four cents per bushel. With a two-story corn crib fitted with elevating machinery the price is three cents per bushel.

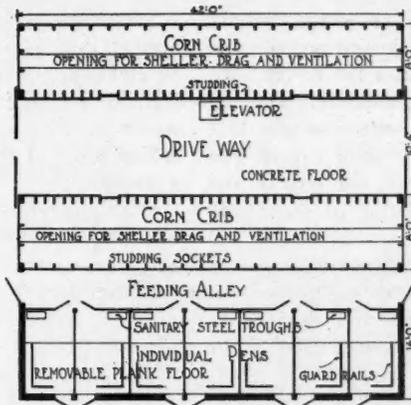
The upper part of the building provides perfect storage for seed corn, where it may be hung from the rafters in racks suspended in a dry atmosphere out of the way of rats and mice.

Handling Shelled Corn

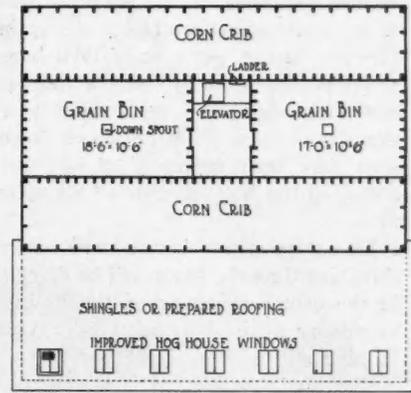
Many farmers would like to shell corn at home, but are afraid to do so, because of the danger from heating.

With elevating machinery it may be handled so easily and transferred from one bin to another that the heating loses its significance.

At corn shelling time the machinery is placed in the driveway and the corn is let out from the bottom of the corn cribs



Ground Floor Plan of Double Corn Crib 42 Feet Long with 14-Foot Hog House Lean-To Containing 7 Pens.



Second Floor of Corn Crib No. A348, Showing Position of Grain Elevator. Two Grain Bins are Over Driveway.

into a long carrier which elevates the ears into the corn sheller.

The shelled corn is carried by the elevator to the bins overhead and the cobs are carried by the sheller carriers into wagon boxes or hog racks to be hauled over to the wood shed for kitchen fire wood. Well seasoned corn cobs make the most satisfactory summer fuel for the kitchen range.

Cleaning Grain for Market

Market grades of grain are published by the grain exchange and the prices are made according to grade. Farmers have never given much attention to the subject. The average



Modern Two-Story Corn Crib with Hog House Lean-To Addition Along the South Side. Hog House Lighted with Improved Roof Windows. 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. A348.

farmer has been in the habit of selling his wheat directly from the thrashing machine. His grain is docked accordingly.

Some farmers put part of their wheat in a bin in the barn and feed out of it by using a four quart measure. Dipping rattles the fine weed seeds down to the bottom so the best grain is fed out from the top of the bin. When it comes to seed time such farmers pull out the front bin boards and scoop up the bottom with all its accumulation of weed seed to sow.

Two-story grain houses will correct such abuses. At thrashing time the grain will be dumped into the elevator boot in the center driveway of the grain house and elevated by machinery to the bins overhead. After the rush is over, the fanning mill will be rigged and the grain spouted to the mill.

The grade turned out is without variation and is put into sacks by machinery ready to haul to market.

Sometimes the fanning mill is set to pick out 20% of the best grain to be used for seed. This seed grain is carried by an elevator to a seed bin on the second floor to remain until wanted for planting. Seed wheat prepared in this way is worth from \$5 to \$10 a bushel to sow. At the same time the selling price of the market sample may not be lowered a cent a bushel.

With a fanning mill properly adjusted to work by machinery, all kinds of grain grown on the farm may be separated and grades as wanted. The cheaper grains and weed seeds are put together in one bin for chopping for feed and the carefully selected plump seed grains may be sold at a high price to farmers who appreciate good seed.

The same elevating machinery may be employed to handle grain when it is being treated with formaldehyde to control smuts and other diseases that affect grains.

Shed Roof Poultry House

A shed roof poultry house, 16 by 12 feet in size, is shown in Design A314.

It is constructed on the curtain front plan which supplies the most satisfactory ventilating system ever adopted in a poultry house. As the illustration

sometimes make the mistake of calling it "canvas." Canvas means airtight or watertight. The windows might as well be boarded across as to fill in the openings with canvas.

The most approved ventilating windows have the muslin stretched over an

inner frame, which fits into a heavier frame in such a way as to stretch the muslin tight and to permit easy removal for washing. When muslin is clean, the light gets through it as well as air. It looks cleaner and better to have the muslin nice and white.

As the season advances the upper windows are left open, as shown in the illustration.

The foundation is made of concrete for warmth and to prevent rats and mice and other vermin from getting into the poultry house.

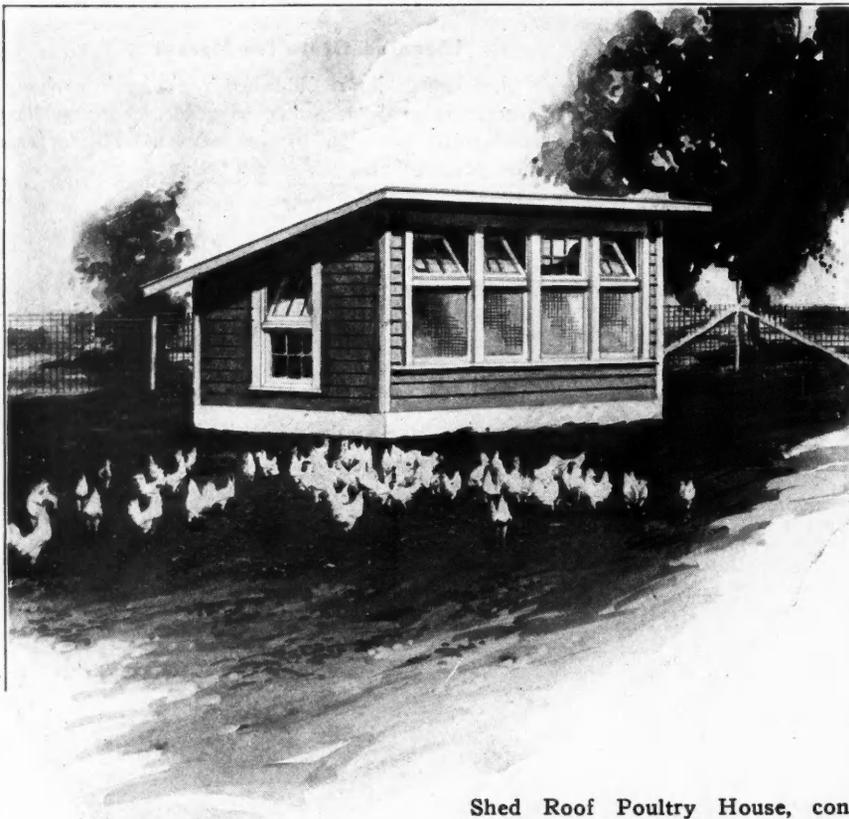
All the hen furniture is made easily removable for cleaning. The droppings board supports the nest boxes. The boxes may be detached from the under side of the droppings board; the droppings board may be unhinged, and the roosts lifted off, so that the whole outfit is easily carried outdoors for cleaning and sterilizing by the action of the sun.

This plan makes a convenient little poultry house for either farm or village where good poultry is kept for eggs in the winter time.

This poultry house is large enough to hold 25 or 30 laying hens. It needs about that many together in the winter time to keep warm.

In making this house warm for a cold climate, it is necessary to make the walls double. A light 2 by 4 sill is placed on top of the concrete wall and it should be bolted down; 2 by 4 studing is covered both outside and inside with building paper. The outside is finished with drop siding or clapboards. The inside is boarded with narrow matched siding without beading.

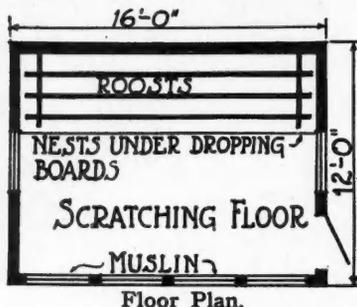
The roof is made warm the same as the sides, and in very much the same manner. Kiln-dried lining is very much to be preferred and should be thoroughly well nailed to prevent the joints from opening. The inside of a poultry house must have no cracks to harbor mites or lice.

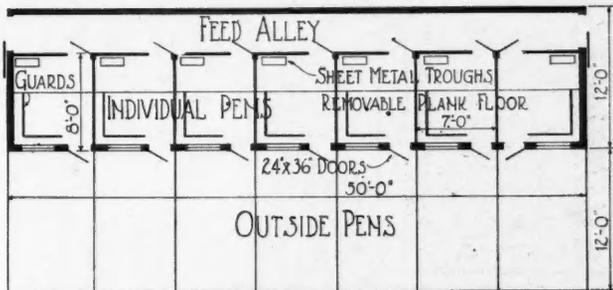
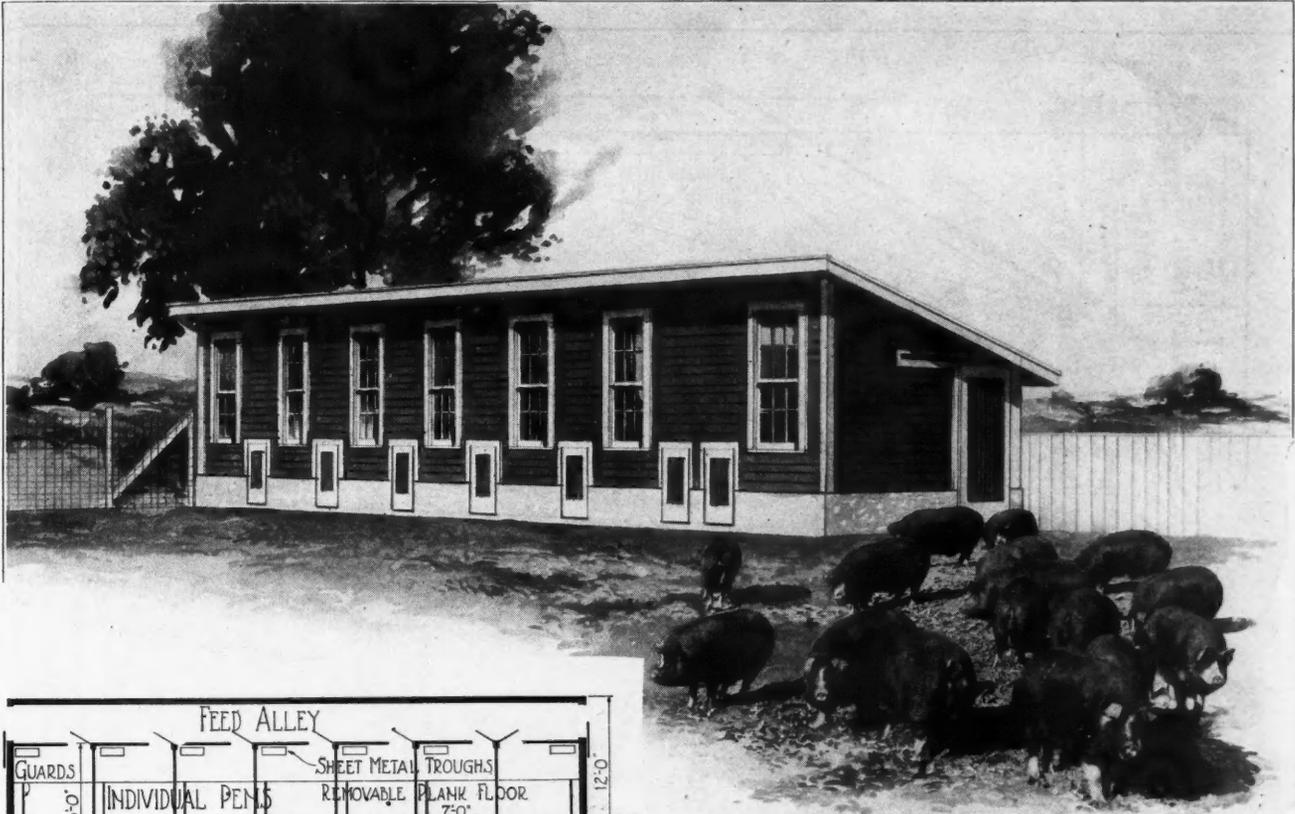


Shed Roof Poultry House, constructed on the curtain front plan. Dimensions 16 by 12 ft. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$2.00 per set. When ordering, ask for Design No. A314.

shows, the glass sash are up near the roof in the high front to admit sunshine directly onto the scratching floor late in winter when the sun is high up overhead.

In very cold sections of the country sash may be fitted into the lower parts of the window frames, but always one must be left open for ventilation through the curtain. Thin five-cent cheesecloth is used for this purpose. Poultry writers





Winter Hog House. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$4.00 per set. When ordering, ask for Design No. A307.

Winter Hog House

This splendid little winter hog house provides seven comfortable pens for brood sows, where they may be kept on suitable feed during the winter and where the pigs may be farrowed and kept warm until they are several weeks old.

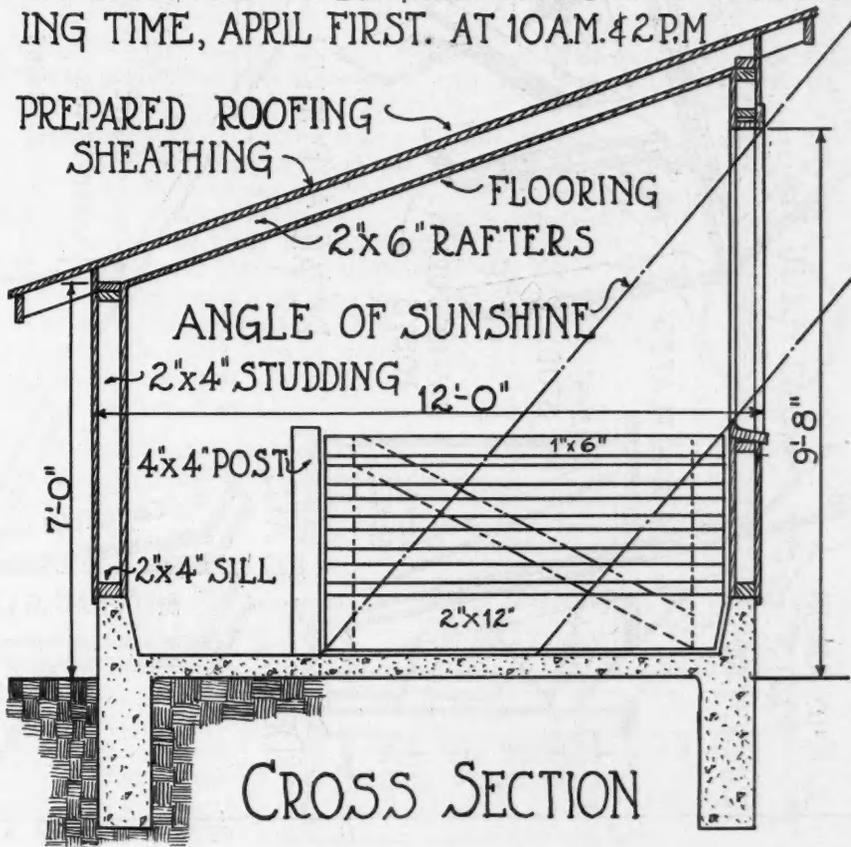
There are side doors to the south which open into the outside pens to give them considerable run for exercise.

The foundation of the building is of concrete with supporting walls which are connected by building them solid with the concrete floor. The walls project a foot above the floor, to protect the pigs against cold draughts, as shown in the cross section drawing.

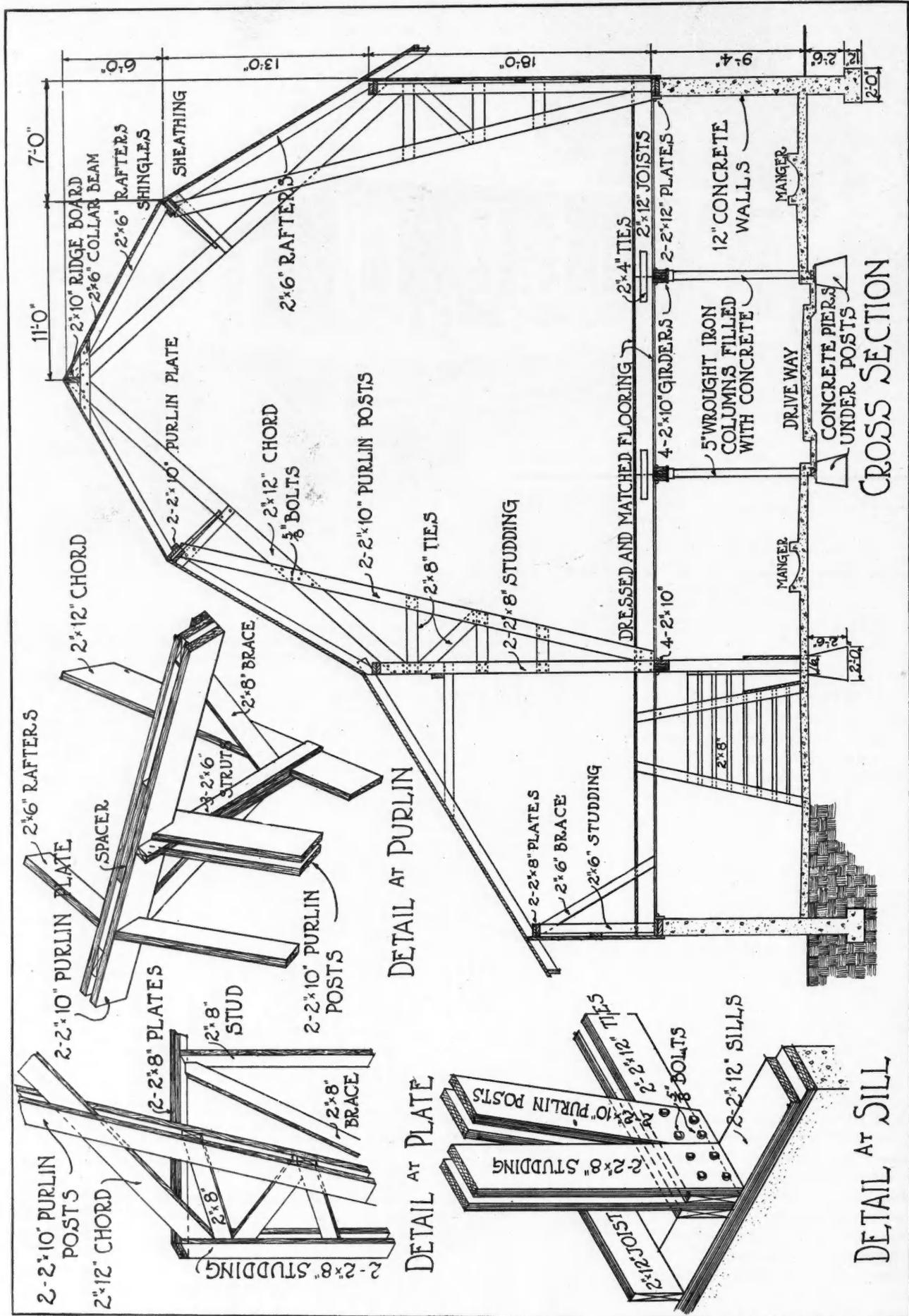
An alley extends through the building from one end to the other. This alley is on the north side under the low slope of the roof. On the south side the windows are built high to admit plenty of sunshine directly onto the nests in winter. Each pen has two doors, one of which opens into the alley and the other into the small yard, so that the pigs may be easily transferred.

The concrete floor is made level, but each pen is provided with a wooden platform, which holds the straw and keeps the pigs well up from the cold concrete. Also each pen has a guard rail to protect young pigs.

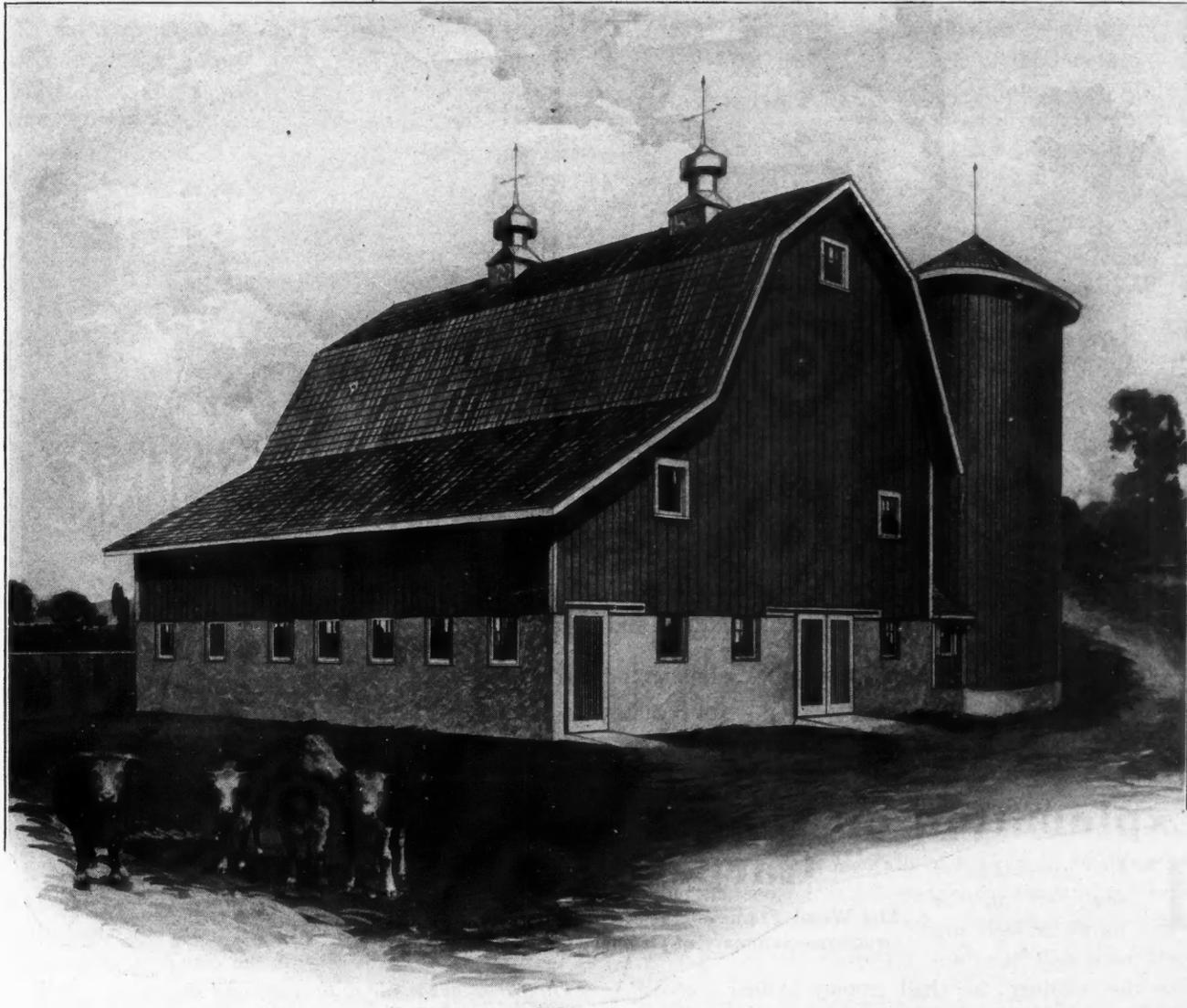
THIS HOG HOUSE IS DESIGNED FOR LOCATION IN LATITUDE 44 DEGREES NORTH AT FARROWING TIME, APRIL FIRST. AT 10 A.M. & 2 P.M.



CROSS SECTION



DETAILS OF CONSTRUCTION OF CONCRETE BASEMENT FARM BARN, DESIGN NO. A298, ILLUSTRATED ON OPPOSITE PAGE. NOTE SELF-SUPPORTING PLANK FRAME ROOF CONSTRUCTION TRUSSES SET 12 FEET APART.



General Farm Barn with concrete basement and self-supporting roof. Horse stable in lean-to. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$8.00 per set. When ordering, ask for Design No. A298.

A General Farm Barn

A farm barn designed to accommodate dairy cows and farm horses and to keep the two stables entirely separate is given in Design No. A298.

As shown by the perspective and floor plan, it will be noticed that the horse stable is built as an annex to the cow barn by extending the roof.

The barn is 52 feet in width and 60 feet in length. The cow stable proper is laid out with stalls facing outward. This is done to bring the horse feeding alley and one of the cow mangers to face each other, so the feeding may be done to better advantage.

The silo is placed on the cow stable side of the barn because more silage is fed to cows than to horses. However, if the silage carrier is placed right it may be run through the side alley to the feed alley between the horses and cows so the silage may be delivered on the other side of the alley.

The stable is of concrete up to the joists which support the barn floor.

The concrete wall is 10 feet 6 inches high, which gives ample footings to reach below frost and also eight feet of headroom in the cow stable.

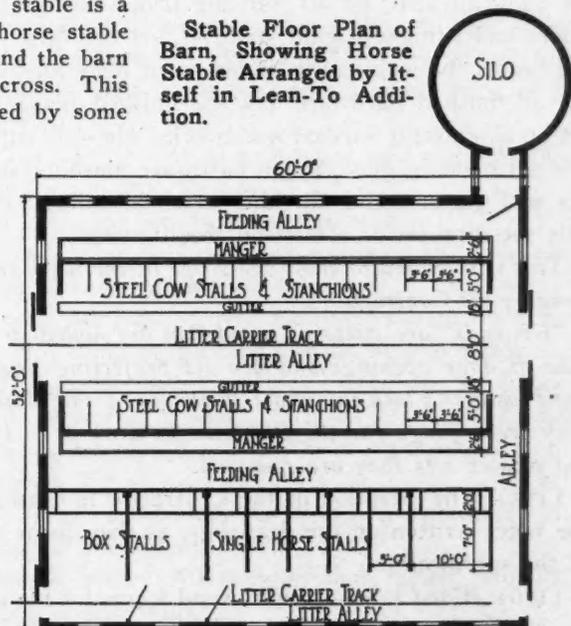
The floor in the horse stable is a foot lower, so that the horse stable has 9 feet of headroom, and the barn floor is made level clear across. This arrangement is better liked by some farmers than to have the jog in the floor above.

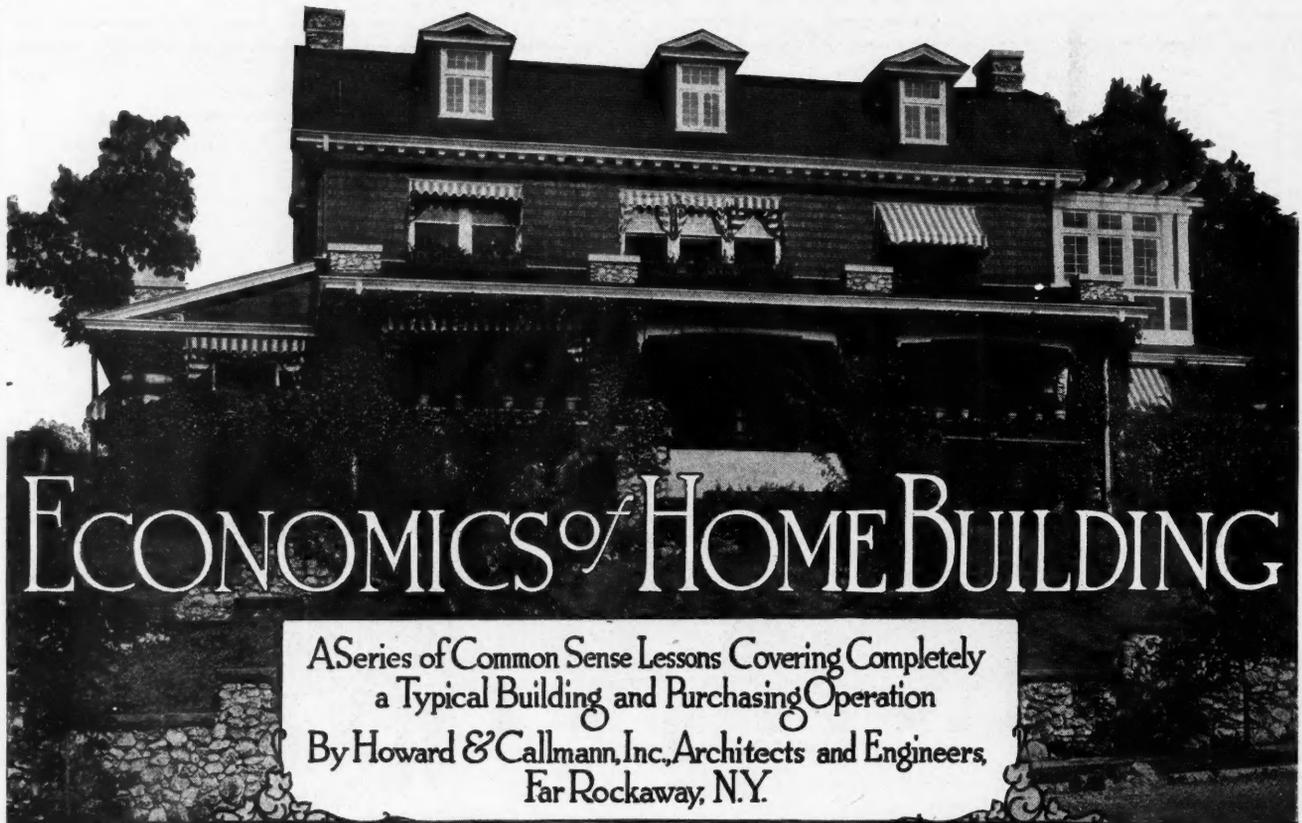
There are twenty windows in the stable and six windows to light the barn above the stable. Farmers are becoming quite liberal in the supplying of windows. Modern dairy stables demand a great deal of light, because light and sanitation necessarily go together. The advantages of more light in the stable have influenced a more liberal

supply of windows in all parts of the barn, as well as other farm buildings.

This little barn furnishes stabling for 28 cows and 8 or 10 horses.

Stable Floor Plan of Barn, Showing Horse Stable Arranged by Itself in Lean-To Addition.





IN TWELVE PARTS—PART VIII

Explanation of Specification Provisions—Rough Carpentry Work

THE Contractor shall set all the rough timber and work necessary to complete the building; he shall employ skilled mechanics to erect and set the entire frame work, sheath the outside walls, shingle all roofs, set the window frames, cover the entire outside of the building with tar paper, lay the wire mesh over the exterior walls, set all interior partitions, lay the rough flooring, set grounds at all door openings for Plasterers to work to, hang all sash, set all standing trim (casings) for doors and windows, build staircase, set the false ceiling beams and wainscot in dining room, hang all doors, set all finished hardware, lay the finished floors and set up all exterior finished woodwork. He shall supply and set mantels, glass, rough hardware, flashing, leaders and gutters, and all other material called for in this specification or shown on the drawings.

This is intended to show the scope of the work to be done by the Contractor.

"Grounds" are strips of wood that are nailed to the side of door openings and are set projecting beyond the Plasterer's lath the exact thickness of the plaster; they are a gauge for the Plasterer to work to. After the plaster sets they are removed.

(175) The attention of the Contractor is drawn to the notes written on the drawings, as they form part of the specification.

(176) *Wood Forms.* Build wood forms for the con-

The Wood Frame of the Building—Rough Lumber Construction—Summary of Ordinary Timber Sizes

crete foundation walls, and brace them securely to withstand the pressure of the concrete.

The forms are made with studs and sheathing boards, braced to keep them vertical while the concrete is being poured and set; the studs and sheathing boards are afterwards used in the construction of the building. The studs are not cut in lengths to the height of the cellar wall, but are allowed to project above, so there is no waste.

The Wood Frame of the Building

(177) All framing timber and floor beams shall be of spruce. The frame shall be firmly constructed in the following manner:

Spruce is specified for the framing, but other good framing timber can be used according to what is available in the particular locality.

(178) *Spruce Girder.* Set a 6"x8" girder to support the inside ends of the first floor beams, top of girder shall be 7' 2" above the cellar floor, running in a continuous line from the front to rear wall. The girder shall be supported by the foundation walls at the front and rear, also by intermediate brick piers not more than 8' 0" apart.

(179) *Wood Sill.* Set a 4" thick and 6" wide wood sill embedded in cement on top of and around all the foundation walls. The sill shall be set 1 3/8" back from the outside face of the wall, so that the outside face of the stucco will be continuous to grade. Sills shall be

halved together at the angles of the building.

The sill is the wood base on which the entire frame rests. The outside faces of the studs are set flush with the outside face of the sill. The sheathing (7/8" thick) covers both—the stucco on the frame is one inch thick, and the skim and dash coat on the exposed foundation wall is 1/2" thick—this will produce a continuous surface.

"Halving"—when two pieces of timber are to be fastened together, with the upper side of both on the same level, each piece is cut half way through and one laid over the other.

(180) *First Tier of Beams.* Upon the wood sill on one side and the supporting girder on the other set the first tier of beams—notching them down about one inch to bring them top flush, and space them 16" from center to center.

Set a 2" x 8" floor beam against the outside end walls instead of a 2" x 10" beam, to clear the wood sill.

Place double beams under all cross partitions, and set the studs for the cross partitions on these beams.

This is to carry the weight of the plastered partitions.

At each side of the chimney stacks and staircase opening, set double floor beams.

These are called "headers."

At right angles, set double beams between the headers.

These are called "trimmers."

Headers and trimmers at a chimney form the space for a hearth, and at a staircase opening provide the headroom.

If the trimmers are over 4 feet long, hang them on wrought iron stirrups.

"Stirrups" are used to prevent weakening of the header by cutting into it to receive the ends of the trimmer beams.

Fill in the space between the headers with floor beams, and mortise and tenon them to the trimmer beams.

A "tenon" is a 2" x 2" piece which is left in the center of the end of a floor beam after a piece has been notched out from the top and bottom of the beam. This projecting piece is set into a 2" x 2" hole (called a "mortise") cut through a beam sitting at right angles to the beam with the tenon on it; this fastens them together. They are spiked in addition. By this method of framing the top of the beams are all level.

(181) *Bridging.* All beams shall be bridged, one row to each span.

Bridging shall be set before the rough floors are laid, nails shall be half driven, later, when settlement has taken place and before the ceilings are lathed, drive in the nails.

"Bridging" is set between floor beams; it consists of 2" x 2" pieces set in the form of a cross (X). Each is nailed to the top edge of one beam and the bottom edge of the other beam.

(182) *Corner Posts.* Set vertically on the sill a 4" x 6" corner post at each angle of the building, well spiked to the sill, and temporarily brace it to keep it in position. Corner posts shall be in one length from sill to eaves plate where possible.

(183) *Studs Against Corner Post.* Set vertically 2" x 4" studs 10' 0" long against the corner posts, and spike them securely to the post.

This will make the height of the rooms 9' 3 1/8" from finished floor to plaster face of ceiling.

(184) *Second Story Plate.* Using the upper end of the studs (set against the corner posts) as a bearing, set the 4" x 4" second story plates horizontally around the entire building; fit the plate ends close to the corner posts, and spike securely.

(185) *Studding.* Between the wood sill and the second story plate, set vertically, 2" x 4" studs 16" from center to center driven in tight. Set double studs at door and window openings. Nail the ends of studs to the sill and plate, and wherever possible nail the studs to the floor beams to form a tie across the building.

(186) *Second Tier of Beams, Studs, Etc.* Set the second tier of beams in a similar manner to the first tier; notching them down and framing with headers and trimmers around staircase opening and chimney stacks. Set vertically, 2" x 4" studs 10' 0" long against each corner post, and on the upper end of these studs set the eaves plate 4" wide and 3" high. Fill in between the second story plate and eaves plate with studding and double the studs at all window openings.

This will make the height of the room 9' 3 1/8" in the clear.

(187) *Second Story Ceiling Beams.* Set the 2" x 6" second story ceiling beams on the eaves plate at one end and on the inside partition at the other end.

(188) *Roof Rafters.* Set one end of the roof rafters on the eaves plate and the other end against the ridge piece, spike them securely at both ends. Rafters shall be set 20" from center to center.

(189) *Roof Framing.* Frame the roof as shown on the elevations. Set 2" x 10" rafters at all hips and valleys, and frame for saddles at the back of all chimneys.

A "saddle" is formed to prevent rain water lodging at the back of the chimney.

Set 7/8" x 10" boards along the valleys.

A "valley" is the inside angle formed by the joining of two planes of a roof.

(190) *Shingles.* Cover all roofs shown on drawings with shingles, forming Boston hips and ridges.

"Hip" is the outside angle formed by the joining of two planes of a roof. "Boston hips" are formed by setting an edging of shingles at right angles to the line of the hip or ridge.

A "ridge" is the top line of a roof formed by the meeting of the sloping sides.

Shingle Nails. All shingles shall be set with galvanized shingle nails.

Carpentry Specifications

(191) *Deck Roofs.* Deck roofs shall be covered with heavy canvas painted on both sides.

A "deck roof" is a roof with just enough pitch to shed rain water to the gutter.

(192) *Rough Floors.* Lay rough floors diagonally over the entire first and second floors.

Rough floors are laid diagonally, as the rough and finished floors should not be laid in the same direction; if the rough floor is laid diagonally, the finished flooring can be laid in either direction.

(193) *Rough Heads and Sills.* Between the double studs at door and window openings, set rough heads and sills—size 4" x 4" (2" x 4" doubled). The heads shall be set on the top of one of the vertical studs on each side of the opening, and between the top of the head and the plate set in a 2" x 4" piece driven tight.

(194) *Braces.* Cut in 2" x 3" horizontal braces at half heights in all interior partitions. Set 2" x 3" braces in the outside partitions in a continuous diagonal line between the studs.

Braces stiffen the walls, and prevent the plaster cracking.

Trussing Over Doors and Windows. Truss over door and window openings that support floor beams.

"Trusses" are diagonal pieces set to transfer the weight over the center of the doors and windows to the double studs at the side of the opening.

(195) *Furring.* Fur down part of the ceiling under bathroom 12" where directed or necessary to give room for plumbing pipes.

"Furring" is framing down to give extra space.

(196) *Construction of Exterior Walls.* The outside walls shall be constructed with vertical studding covered with horizontal sheathing, over which lay two ply tar paper, secured with plasterer's lath nailed on vertically at the joints of the paper. Over the entire exterior surface set 22 gauge wire cloth with V bars. Set metal beads at all corners of the building. The stucco shall be spread over the wire cloth. (For stucco see Mason's Specification.)

Tar paper is a stiff paper saturated with pitch. Two ply means two sheets pressed together.

Gauge is the diameter of the wire forming the cloth. The gauges used for outside stucco are 20, 22, 24 and 26. 20 gauge has the largest diameter and the 26 the smallest.

"V" bar is a continuous horizontal stiffening bar formed like a V, which allows a key for the stucco between the wire cloth and the sheathing.

Summary of Timber Sizes

(197) Floor beams 2" x 10" set 16" on centers.

Girders under first floor beams 6" x 8".

Beam bridging 2" x 2" two rows to each span.

Sills 4" x 6".

Corner posts 4" x 6".

Studs 2" x 4" set 16" on centers.

Door and window studs 2" x 4" doubled.

Plates 4" x 4".

Roof rafters 2" x 6" laid 20" on centers.

Ridge piece 2" x 8".

Shingle lath 7/8" x 2" set 5" on centers.

Shingles 18" red cedar shingles.

Sheathing 7/8" x T. & G. N. C. Pine.

Rough under floors 7/8" x 8" T. & G. N. C. Pine.

Piazza rafters 2" x 6" set 20" from center to center.

Piazza girders two 2" x 10".

Piazza beams 2" x 8".

Horizontal furring for piazza ceilings 2" x 4" set 16" from center to center.

The piazza rafters slope and the piazza ceiling is horizontal, so the furring is necessary for nailing. T. & G. is Tongued and Grooved. N. C. pine is North Carolina Pine.



Excelling King Solomon's Temple

What is considered one of America's most beautiful and artistic buildings is the new Scottish Rite Temple, Washington, D. C. It has already been in course of construction more than four years and will cost about \$1,750,000 when completed.

This new structure is claimed to be not only the most beautiful ever erected by the Masonic order, but it is also the only exact duplicate of King Solomon's Temple that has ever been built. Norcross Bros. Company, of Worcester, Mass., are the contractors and John Russell Pope, a New York architect, prepared the plans.

The building is composed of a lower rectangular part which lies behind a wide sweep of steps leading from the street up to the main entrance which is, in reality, the third floor. Rising above the rectangular base, the central part of the building is square, surrounded by a colonnade of thirty-three monolithic columns, each thirty-three feet high, supporting a classic frieze, surmounted by a rectangular pyramidal roof. The steps leading to the main entrance are 200 feet in length, larger than those of the Capitol building and said to be the largest in the city.

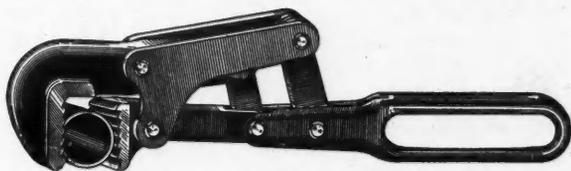


New Scottish Rite Temple, Washington, D. C. Duplicate of King Solomon's Temple. The Immense Size of this Building is Dwarfed by the Perfect Proportion of Its Parts and from the Fact that There is Nothing Near By in the Photograph with Which to Compare It.



Self-Adjusting Nut and Pipe Wrench

Did you ever try to reach a nut or a pipe that was in a rather awkward position and spend a lot of time trying to get your wrench adjusted to fit? The wrench shown here, which has been recently placed on the market, is designed for just such an emergency. It will automatically adjust



The Harder You Pull the Tighter it Grips.

itself to the pipe or nut on which it is being used and can be operated like a ratchet wrench in unhandy positions.

The jaws open as the handle is bent back, as can be seen from the illustration, and the grip increases with the pull on the handle. For this reason it can be used as a ratchet wrench. The makers say that it is practically unbreakable, as it is made entirely of high carbon steel. The play in the jaws allows of a wide range of sizes of pipes and nuts.

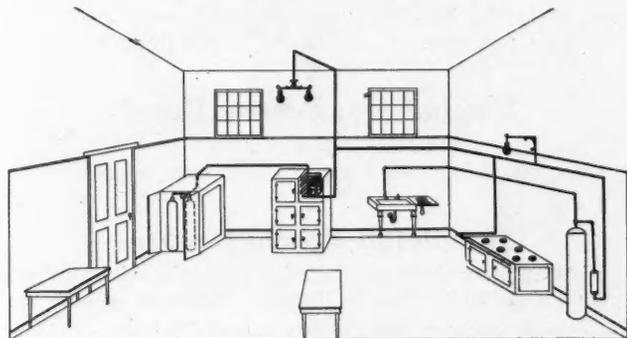


Liquid Gas Cools Ice Box Besides Furnishing Heat and Light

What next? A New York concern is compressing and shipping 3,000 bottles a day of natural gas in liquid form. It has five times the heat value of ordinary city gas, and besides in expanding from the liquid form it has a by-product refrigerating action that is valuable.

The illustration shows a practical application of "Liquid gas" in the kitchen. It should be mighty interesting to the builder who wants to keep up with the times and all the latest developments that add to the comforts of a house.

"Liquid gas" is a natural or "wet" gas that has been compressed to about two or three hundred pounds pressure to the square inch. At this pressure it forms into a liquid that can be stored in iron containers. If the pressure is reduced the liquid changes back into its gaseous state.



Inside of Kitchen, Showing Gas Cabinet and Piping to Ice Box, Range and Lights.

The illustration shows how advantage is taken of this expansion to use the gas for refrigerating purposes before it is used for fuel. The gas is led from the container, which may be placed in a cabinet in the kitchen or in a pit just outside the wall, to the refrigerator, which should be placed as close to the container as possible so that no refrigerating effect will be lost. The gas is led through a copper coil in the ice space of the refrigerator or through a pan of water which will freeze. The gas goes from here to the lights and the gas stove and also the water heater, as shown in the illustration. The more gas used the more ice will be formed in the refrigerator. This added feature of making ice is done at absolutely no extra cost, because it is not necessary to use any more gas than ordinarily.

The plan is especially suited to an isolated residence. The owner receives the container by freight and connects it up; when it is empty he returns it to be refilled.

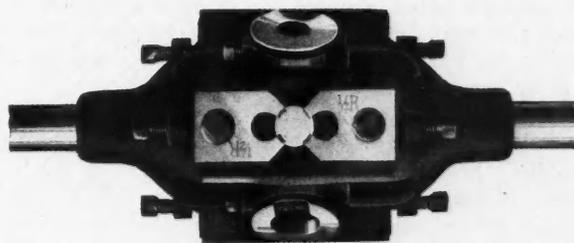
C. F. HERINGTON.



Three Complete Die Stocks with the Bulk and Weight of One

One of the most useful and efficient tools that has come out recently is a pipe stock equipped with three sets of dies so that three sizes of pipe can be threaded without change. The stock is made in a hexagonal shape with each of the three dies and its accompanying guide occupying two opposite faces. The dies that are furnished with the stock are 3/8, 1/2, and 3/4 inch. Any size standard dies from 1/8 to 1 inch can be used.

The die is placed at quite a distance from the guide and consequently the pipe will be threaded perfectly straight. The different size dies for each of the sizes of pipe will elim-



3/8-in., 1/2-in. and 3/4-in. Threading Dies in One Tool.

inate wavy threads, which are often caused by the lost motion in stocks that are equipped with cams and levers so that one die can be used for all sizes.

All the dies, set screws, and bushings are standard so that they can be easily replaced, which should be a big advantage.



A Practical Cooler for the Home

There has recently been placed on the market a cooler that should be very practical for homes having a good supply of cold running water.

It is cooled by water which is run through a series of coils that are in the shelves. These coils are connected to the service pipe for the house and all the water that is used must first pass through the cooler before reaching the faucet.

In the smallest size of these coolers there are 65 feet of pipe, which the manufacturers say will keep the temperature within two or three degrees of that of the water. The water in the pipes can be changed completely in five minutes by running a very small stream through the faucet.



An Effective Saw Guard

The accompanying illustration shows a most effective saw guard, to protect the operator. This guard is attached to the saw table by means of a clamp at the right-hand side of

the table. It is made of square steel, giving it great strength and rigidity, and it is equipped with case-hardened steel rollers in the sleeve carrying the hood, making it self-adjust-



Safety Guard for Buzz Saws—Will Fit Any Machine.

able, and therefore, very economical.

The rollers allow the hood to raise and lower automatically with the lumber being run.



FRANK C. PERKINS.

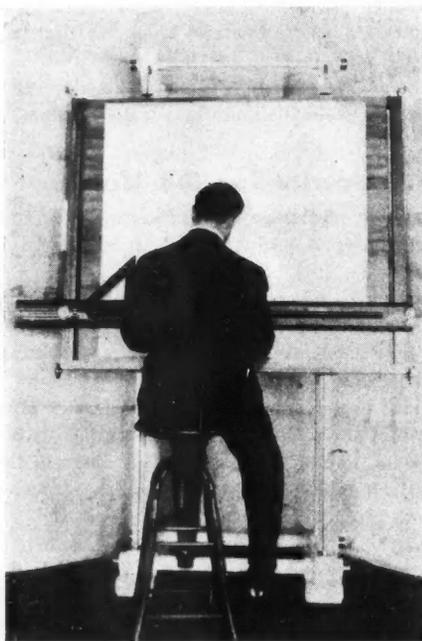
Unique Vertical Drafting Board

The accompanying illustration shows a novel vertical improved drafting board developed at Nashua, N. H. In many a progressive drafting room one can now see nothing but vertical boards, and even in the manager's and chief engineer's office they are in service.

With this board one can draw either sitting or standing. No matter in what position, the draftsman can bring any piece of his work before his eyes, or wherever the convenience requires it. The board is tilted at an angle which has been fixed by experience.

It is pointed out that the tools are not in the way, and the entire drawing is visible and not covered with tools, papers and dirt. Still the tools are handier than with any other method of drawing. They are placed on the shelf that moves with the parallel rule and this saves many unnecessary movements.

It will be seen that the rule can be set at angle and



Vertical Drafting Board Well Liked by Architects.

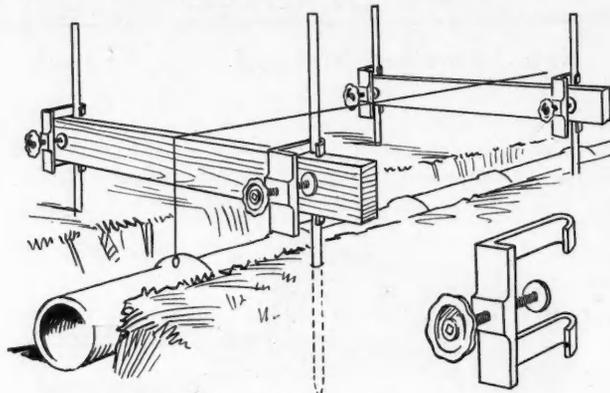
moved up and down parallel to whatever position it was set originally. The balancing means are concealed and move entirely noiselessly. The frame is of metal and can be taken apart. It is enameled, and therefore can easily be kept clean. The draftsmen with the vertical board enjoy health and consequently their efficiency is greater. Besides, the new device saves them valuable time and permits greater accuracy.

FRANK C. PERKINS.

Clamp Will Hold Grade Boards

A clamp has recently been designed by a New York man which will hold grade boards in place and at the same time will allow of their being adjusted. The total arrangement will consist of a grade board, of any length and any size up to 2 inches thick, two 1-inch iron rods, and two clamps. The form of the clamps and the method of using are shown in the illustration.

The inventor claims that there are many advantages to be gained by the use of this clamp. The grade boards can be easily set and accurate grades determined; the boards can be adjusted to any span or any height; the iron rods that are used can be driven into hard or frozen ground; and



These Clamps Make Accuracy Easy.

old pipe or reinforcing rods can be used for this purpose. The clamps are galvanized so that they will not rust. They appear to be a convenience and help to contractors that will bring them into wide use as they become better known.



Sanitary Filter and Aerator for Cistern Water

A device has recently been perfected for filtering and ventilating the water that is put into the cistern.



Cross Section of Filter.

The filter is attached to the house and is all above ground, so that it will be easy to get at and keep clean.

The water, in going through the filter, first passes through a screen drawer pan (A), which will remove the coarsest material. The second strainer is of cloth (C) and removes all the rest of the material in suspension except the very fine. The best part of the filter is composed of a charcoal layer (E). Below the filter is a ventilator in the conductor pipe that keeps the water and also the filtering materials well ventilated. The conductor pipe goes directly to the cistern from here.



Staying Away More Heroic

"You say you're a moving-picture hero?"

"Yes, my wife makes me go to them every night."



Suspicion Points His Way

York County Farmer (bursting into the village inn)—
"What d'ye think, Slias? The bones of a prehistoric man have been found on Jim White's farm!"

Innkeeper—"Great Gosh! I hope poor Jim'll be able to clear hisself at the coroner's inquest!"

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.

A New Wrinkle for Hens' Nests

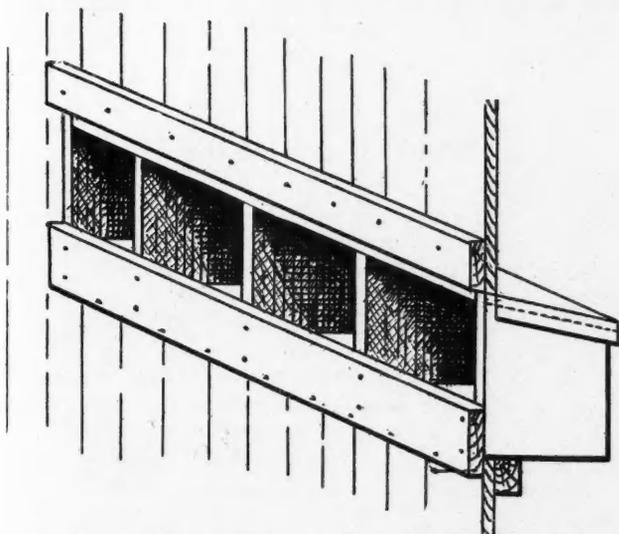
To the Editor:

Plainfield, N. J.

One of the simplest devices for a chicken house, to make, for cleanliness and ease in collecting eggs, is shown in the accompanying illustration. It consists of an opening 14 inches high by 60 inches long in the side of the chicken house, to which is affixed, on the outside of the house, a box containing four nests. The box, as seen, has a slanting roof which is provided with hinges and a deep lipped edge on its three sides. A screw eye and hook or a lock can be used for keeping inquisitive children or grown-ups from tampering with the "hen-fruit."

Using this form of nest, one not only eliminates the necessity of going through the chicken yard or house to collect the eggs, but one also saves quite a little space in the chicken house itself.

Poultry fanciers claim that one nest should be allowed for every four or five hens. The nest should be not less than 15 by



Hens Nests Project Outside the Poultry House. Cover Lifts Up.

12 inches and it is well to have them about 14 inches high. A 6-inch board should be run along the lower part of the nests. Let this project up from the bottom about 3 inches, so as to form a lip to retain the straw from falling out.

RALPH C. DAVISON.

Unsqueaking a Floor

To the Editor:

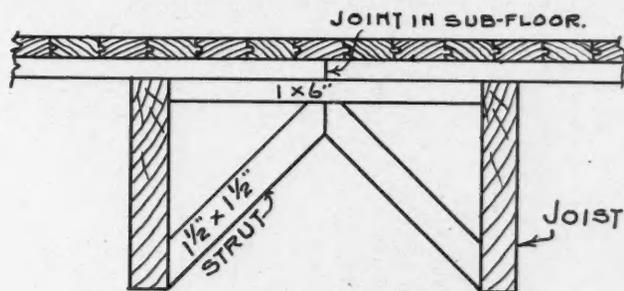
Mimico, Ont., Canada.

In answer to inquiry No. 2 by Doniphan Lumber Co., in regard to the best method of putting in place the top and last tread in a housed string, there are two ways that I do this job.

First,—before finally fixing top newel, raise the stair bodily and slip tread into newel and string housing.

Second,—Cut top tread $\frac{1}{2}$ inch short and slip it $\frac{1}{4}$ inch each way ($\frac{1}{4}$ into newel and $\frac{1}{4}$ into string). In either case top riser can be slipped up the back and fixed by a pair of folding wedges.

Answering inquiry regarding squeaky floors, by C. P. Edwards, how to take out the squeak. The squeak may be



Extra Bracing Cures Floor Squeak.

caused by shrinkage or by joints of sub-floor coming between or not on the joist. In case of shrinkage, I find face nailing best and stop nail holes with wax, which never shows.

In case of joints between joist being the cause, place a piece of 1 by 6-in. across the joint, then place struts $1\frac{1}{2}$ by $1\frac{1}{2}$ inch between joist, as per sketch. This method can only be used on the ground floor when you can get at the under side from the cellar.

THOS. W. EVERETT.

Ventilating a Kitchen

To the Editor:

Chicago, Ill.

I would be very much obliged if you would publish an article on how to ventilate a kitchen of one story. Each time the party cooks it causes the ceiling to sweat and this causes the paint to peel off. What would be the best way to ventilate this kitchen so as to stop the sweating?

J. GARWOOD.

West Has Nothing on East

To the Editor:

Chico, Cal.

I want a word with Grant Bros., of Attleboro, Mass. It's a long way across this big U. S. to you, but I'm going to reach you. That shingle story gets you, but you turn to page 102, May issue, and see where Mr. Wm. (Golden) Rule used nine tons of nails in a 28 by 32-foot house—18,000 pounds, 180 kegs, \$540 worth! Grant Bros., let's stay near our respective sea coasts! The wind must blow something awful in Illinois. That shingle man should have another chance.

L. VAN VLACK,
Contractor and Builder.

Tackle for Barn Raising

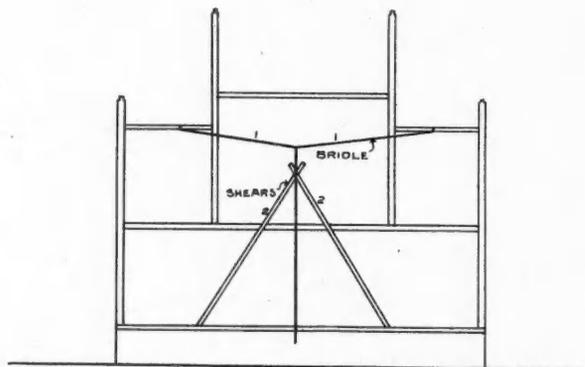
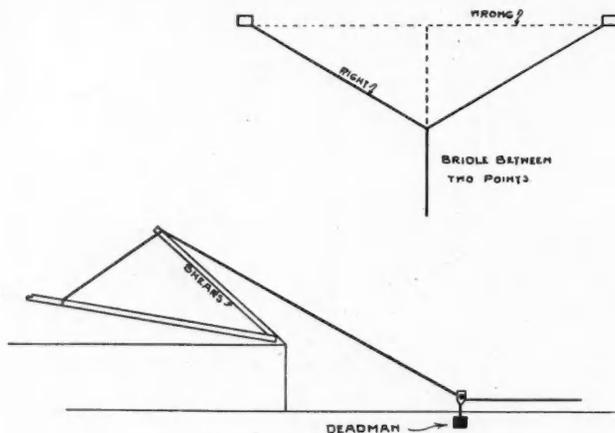
To the Editor:

LaFargeville, N. Y.

You remember the old time barn raising, when all the neighbors for miles around came together to help raise the barn frame. The women came, too, for it was a great time and there must be a good supply of refreshments for those who did the hard work and more for those who did not; for the fact was that a few of the men did most of the work and some worked a little and ate a great deal.

But times and customs change. Some for the better, and some for the worse; anyway, we do it differently now. Instead of a large gathering of neighbors, mostly farmers who do not enjoy climbing, a few men accustomed to the work will set up a large barn frame with the aid of one or two teams, ropes, chains and tackle blocks. For one tackle get double blocks that will take inch rope, then you can use that size if you need to. For general use, $\frac{3}{4}$ -inch rope is large enough, but inch rope will wear longer and handle more easily through the larger blocks.

It is through to have one set of blocks $\frac{3}{4}$ inch as they are somewhat lighter and handier for light work; in fact, $\frac{1}{2}$ -inch rope and blocks will be found very handy to have on some jobs. You will want one or more pieces of $\frac{1}{2}$ -inch rope 50 to 70 feet long, anyway. You will need some one-inch rope and some good chains, both cable and long links, at least two loose pulleys and a man who can tie knots.



Apparatus and Method of Raising Barn Frames.

In some instances, you will have a building already up to which you can hitch the tackle, but if not, then you may use shears, or some similar device. You may use two of the rafters for this by putting a chain around near one end, placing them in a V shape with the point toward the bent to be raised, or you may set up a frame and fasten a pulley onto it. This frame may be two posts set into the ground with a timber across near their top. In either case, you will

need a deadman, or anchor, for the pulley through which the rope runs. Have guy lines, so that you can hold the bent when it gets to place; or it may go on over.

When the first bent is up and braced, you can hitch to that to raise the others. This method works with either timber frames or the modern plank truss. With heavy frames, it is well to have one tackle on each side with a team on each tackle, or you may wish to use the heavy tackle to lift with and hitch the lighter one onto that to draw with. By this means a large bent can be raised with one horse. If you wish to put a chain or rope across between two points and hitch to the middle of it, you should give it plenty of slack, so that it will form an acute angle or V shape, as there will then be much less strain on it than if it were straight across.

The proper place to fasten the ends of this bridle, as it is called, will depend on construction of the frame. Generally the short tie just below the plate will be right. If there is much timber above this point, it may be well to hitch higher.

Some of you may think that while it is all right to use tackle to raise the bents to place, one must have several men to help put the plates on; but did you ever notice that a few men do the actual work in putting on the plates? There is a better way to do this, safer and easier for all, besides giving a chance for those who do not wish to go aloft to help. The way to do it is to use gin poles, not great long, heavy ones, to reach from the ground up, but 4 by 4's, 12 to 14 feet long. Let the lower end sit on a plank across the corner formed by a beam and a girt, or you may depend entirely on two chains around the 4 by 4 and the main posts. Pull the purlin plates up and let them lie on the beams; then put the main plates on. The gin poles may then be fastened to the purlin posts to raise the purlins to place.

Sometimes the purlin posts are not raised with the main bent, but are set up afterwards. Sometimes we put the purlin onto the posts and raise them as a bent, putting the beams in afterward.

In almost any case you can use rope and tackle to good advantage, save hard work and avoid danger; but you should have reliable, careful men.

JOHN UPTON.



"Soldiering" on the Job

To the Editor:

New York City.

Yes, I suppose I may as well admit that I used to "soldier" when I was a near-carpenter. I was one of the reasons why the contractor failed. I was one of the fellows who got more than he earned. I can't say for sure that there were other "soldiers" on the job, for we all hate to admit it, but as for me, I know I was one.

The most distinct soldiering job that I did was one hot summer's afternoon when the temperature was well up around a hundred in the shade. We were putting up a reinforced concrete structure and I was just an ordinary "rough" carpenter. I never got to be a real fancy carpenter. I didn't have it in me.

Charlie, the bow-legged boss, saw that I was trying hard to pretend that I was busy "inspecting" the work that my superiors had done. I would hit a brace here and there with my hammer, strike a nail that was already driven, sight along the wooden columns carefully, and then get a drink. I visited the water pail frequently. I consulted my watch often. I was the last to begin work in the morning and the first to drop my hammer at night. If there was anything I despised then, it was work. If there was anything I thought I would ever love, it was leisure.

So, Charlie found a different job for me. He showed me where I could busy myself nailing braces under a girder box "just like some others" which he pointed out.

The job was a "cinch." It was ideal for loafing and forth-

with I decided to spread the job over the remainder of the day. All I had to do was to saw a batch of braces about a foot long with beveled ends, fill my sack with nails, lie on my back on the prearranged scaffolding beneath the boxes and lazily drive my nails. I hit each nail about a hundred times—light, gentle, soft, pleasant, lazy taps. My mind was at rest. I was as good as in heaven. The sun wasn't shining on me and I wasn't exerting myself enough to feel uncomfortable in spite of the high temperature. Even my conscience (the little I possessed) didn't bother me, for, wasn't I working?

Charlie, on the roof, looked down at me every once in a while and seemed satisfied. He said nothing. I wonder, now, whether or not I really fooled him.

I made the job last most of the morning and all afternoon. I didn't want to finish it at all, but it finally ended of its own accord, so it seemed, and I had to give myself up to Charlie again for something less comfortable to do. Well did I know that if I didn't at least pretend to be busy, Charlie would tie the can on me.

Seriously, soldiering is a bad thing. The contractor loses money, and the soldier himself loses his own self-respect.

On analyzing my own feelings, though, and thinking the whole affair over carefully, I would still blame Charlie. He didn't stimulate any interest in me for my work. His nature was harsh and unsympathetic. I was actually "afraid" of him and hated to admit to him that I didn't know enough about carpentry to go ahead with my work without minute instructions.

I believe that if foremen would be more instructive in their methods, and take young carpenters into their confidence more freely, there would be less soldiering, for, isn't education the solution for most of our problems?

N. G. NEAR.

School Room Window Regulation

To the Editor:

Morse, Sask., Can.

What is the amount of floor space required for each pupil in a school; also the amount of square feet of window light needed? I enjoy reading your valuable paper and would not be without it. Would like to see more space given to architects' experiences.

H. R. BIGELOW.

Answer—We do not know that there is any special amount of area allowed for each pupil in a public school, though some city building codes may cover this point. It is more common to specify the number of pupils which shall be placed in a room of a given size, allowing plenty of width for aisles and free floor space where needed in the room. It is commonly figured that a single desk for a pupil will occupy about 6 square feet of floor space.

The Chicago Building Ordinance states that the total glass area of outside windows and skylights of each class room, recitation room or study room, shall not be less than one-fifth of the floor area of such room.

Also that class rooms, recitation rooms and study rooms that have exterior windows on one side only, must have the top of glass in such windows at a height above the floor of such room of not less than one-half of the distance to the opposite parallel wall or partition.

Such rooms having exterior windows on two opposite sides of the room shall have the top of the glass in such windows not less than one-fourth of the distance between walls in which the windows are placed. The height of windows in corner rooms having windows in adjacent walls, shall be computed from nearest wall or partition to opposite window.

EDITOR.

Cuts for Gambrel Roof Rafters

To the Editor:

Tyndall, So. Dak.

I wish you would advise me how to cut the rafters for

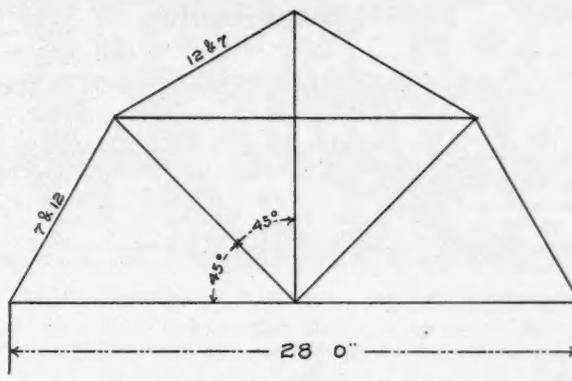


Diagram of Gambrel Roof.

a gambrel roof. The building is 60 feet long by 28 feet wide and to have 16 foot posts.

M. P.

Answer—The accompanying illustration is a good proportion to use. Both set of rafters are cut on the same figures though reversed; but instead of making the cut at the knuckle, simply lay off the lines for the cut and to this line apply the square that gives the 45 degree angle, which will give the proper angle for the cut,—or the angles can be taken direct from the diagram.

A. W. WOODS.

Van Ornum's Power Shop

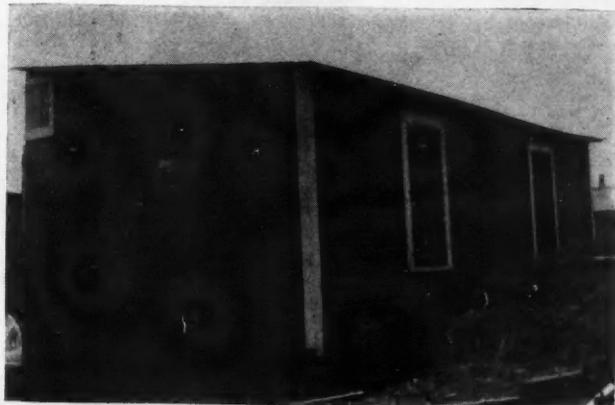
To the Editor:

Canby, Minn.

I am sending you photographs of my shop, inside and outside. I have a Parks ball bearing saw machine, and it is A1. The shop is 14 by 24 feet. I have made a lot of money in this little shop.

I have taken the AMERICAN CARPENTER AND BUILDER for 7 years, and like it very much.

W. S. VAN ORNUM.



Interior and Exterior View of Business Like Shop of W. G. Van Ornum.

A Mystery Table

To the Editor:

Buffalo, N. Y.

A "mystery" table has been constructed by a Medford, Mass., carpenter, Ernst Hagberg. One of the photos shows the table as it appears when partly opened, the other shows it when it is closed. It is of mahogany, inlaid with ebony, boxwood, and walnut. It is both useful and ornamental, and can be used as a card or checker table.

It will be seen that beneath the checker board, which can be raised and removed, are small compartments which can be used for cards, chips, checkers and the like. To reach these compartments, one has but to touch a button, hidden from sight underneath the top of the table, and they open to view. On all sides of the table, including the top and the pedestal, are other compartments, which can be opened at will, by pressing the buttons beneath the top. Each drawer has a spring at the back to press it out.

It is stated that altogether in the table, there are 29 drawers, one door, two shelves, five covers, and 1,288 cubic inches of empty space for the depositing of different things. It may well be termed "A Table of Mystery" for the pockets and drawers that lock and conceal each other are invisible. No one would think for a moment, unless he knew of the buttons, that the table held so many compartments. As these pockets are made on uniform measurements they permit an interchange in positions and a puzzling readjustment.



The Mystery Table with Drawers and Compartments Removed.



Wonderful Table Built by Mr. Ernst Hagberg of Medford, Mass.

The maker spent ten years of his spare time studying its design and dimensions, and completing it, and the effort was no small one.

FRANK C. PERKINS.



Vouches for Fast Western Shingling

To the Editor:

Los Angeles, Cal.

I see by the May number of the AMERICAN CARPENTER AND BUILDER that some of your subscribers doubt what Mr. O. P. Pierce says about fast shingling. I know that a professional shingler can lay ten thousand shingles in ten hours. I have seen it done time and again. I have been working at the carpenter's trade in Los Angeles for the last six years, and I have often seen contract shinglers put on one thousand for every hour they were working. They certainly work fast; just like we used to say in the East, "Fighting bumble bees."

They have calked shoes, and can walk all over the roof. They have a stool to sit on, a gauge and a lather's hatchet, and they don't use a chalk line at all. They carry two and three bundles of shingles at one load. They work at it all the time, year in and year out. However, they take eight to ten courses at a through.

IRVING E. LITTLE.



Cutting Extra Windows in Concrete Wall

To the Editor:

Monroe City, Mo.

I am getting ready to put a basement under a church which has a 15-inch poured concrete foundation wall. I want to cut seven window openings through this wall. Can you tell me the best and cheapest method of doing this work?

W. L. BOND.

Answer—The only way that we see that this could be done is to drill holes for the openings and break out the concrete inside of the line of holes around the opening. This will be a hard job in a wall of this thickness, and care will have to be taken to see that a sufficient height of wall is left over the openings where any considerable load from the structure above is carried at these points. You must understand that in breaking the concrete out of so thick a wall you stand a pretty good chance of cracking other parts of the wall where no reinforcement has been used in the construction.

THE BOSS CARPENTER.

(Correspondence Dept. continued to page 90.)

A Complete House Or Any Part Of A House At WHOLESALE Prices

YOU are paying higher prices for your materials than you have to, Mr. Builder! Get our "mill-direct-to-consumer" prices on your needs. Save money! You can buy a whole house—or any part of a house—at wholesale—from us Everything for building! We ship to you anywhere—no matter where you live! Over 100,000 customers—some in every State. Over 10,000 contractors, carpenters and builders deal regularly with us. All bought by mail. Three strong banks also vouch for us. Everything sold under legal-binding guarantee of safe, prompt delivery, highest quality and satisfaction or money back. Study these sample prices. Order what you want from this advertisement. Be sure you send for our 5000 Bargain Catalog.

"Quality" House Paints

"Quality" Brand House Paint contains just the right proportion of each ingredient necessary to make the right kind of house paint. No paint offered you can excel the paint you buy of Gordon-Van Tine Company. "Quality" is our watchword every minute in the day.

The low price quoted on our Paints is due to the difference in selling plans. Other Paints come to you through the local dealer and, besides his profits, is added the profits of the middleman, jobber and manufacturer.

FRONT DOORS

Hundreds of special designs. See Catalog. Illustration shows our "Craftsman D"—Oak—a beauty—3 feet by 7 feet \$10.25
2 feet 8 inches by 6 feet 8 inches.....\$9.95

MASTERPIECE COLONNADE

Ideal for the living room—dining room or living room hallway arch. Creates one spacious room. The inside of each pedestal is fitted with adjustable shelves. Can be faced into living room and used for books, or into dining room and used for cut glass or chinaware. Craftsman hardware in either dull brass or antique copper. Glazed with leaded crystal glass.

In Yellow Pine - \$25
In Plain Red Oak - 27

FRONT DOOR LOCK SET

Consists of 1 mortise lock 5 1/4 x 3 1/4 inches. Japanned cast iron case, steel front and strike. Outside escutcheons, 10 x 2 1/4 inches; 1 small steel inside escutcheon, 7 x 2 1/4 in. Two wrought steel knobs, 2 1/2 inch, 2 German silver keys. No EH188. Dull brass finish, steel

Price per set, with screws - \$2.50

BUILT-IN CHINA BUFFET



Note beautiful effect of wooden bars in China Buffet doors. Also the fine, bevel plate selected mirror and Colonial butts on the lower doors. Lots of drawer room. Built in two sections for easy installation. Drawers and doors all fitted. Hardware included in price, but not outside casing or trim around openings as this is to match regular trim in room in which China Buffet is installed. Price in Red Oak, including glazing, hardware and selected bevel mirror \$41.00

FINE INTERIOR VARNISH

A very high-grade Fine Interior Varnish, recommended for all kinds of Interior Finishing (except floors) and finest grades of work. Is pale in color, easy working and free flowing and good body.

Gallons \$1.75
5 Gallons \$8.00

FLOOR VARNISH

"Quality" Brand A perfect, durable Floor Varnish in every way, and made to walk on. Is tough and elastic, will not mar, white, dries hard over night; can be rubbed.

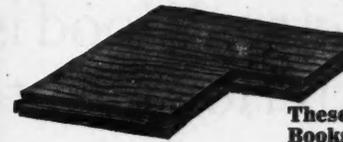
Gallons \$1.75
5 Gallons \$8.00

BUILT-UP PORCH COLUMNS

Manufactured from good select Cypress, the everlasting wood. Put together with our patent lock joint. An example of the thoroughness of G. V. T. construction. No. E-320. Square Column 8x8 in. sq., 8 ft. high - \$2.07

THIN OAK FLOORING

An innovation! A special thin Oak Flooring, 3/4 x 1 1/2 in., to be laid over old floors or cheap pine boards. Warm, noise-proof. Trifling cost. Fine for old or new houses. Price per 100 lineal feet, random lengths - 80c



These Books Free!



2 1/2 Gallon Barrels, per Gallon \$1.10
5 Gallon Kits, per Gallon \$1.17
1 Gallon Cans, per Can \$1.22
1-2 Gallon Cans, per Can 65c
1 Quart Cans, per Can 35c

Fancy Windows

We carry a large stock of fancy windows in newest designs. For complete list with illustrations, see pages 37 to 46, inclusive, in our Big Catalog.

5000 BARGAINS

in our big 156 page, illustrated Catalog. Everything for building! A price maker—money-saver! Send Coupon FREE! Also send for "Quality" House Plan Book of over 150 plans. Photos, color-schemes, floor-plans. Guaranteed Right! Cost! Free for 10c to cover packing and postage. Use the Coupon.

GORDON-VAN TINE COMPANY.

769 Federal St., Davenport, Iowa.
Gentlemen:—Please send the books checked below:
In sending for Plan Book, enclose 10 cents for postage and mailing. You will receive the books by return mail.
 Building (Lumber, Millwork, Plan Material) Hardware, Paints, etc. Book
Write in margin if necessary..

Name.....
Address.....
Occupation.....

GORDON-VAN TINE CO.

769 Federal Street

Davenport, Iowa



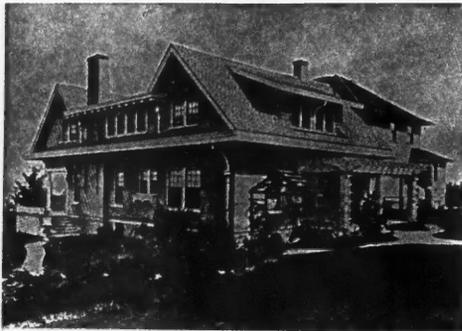
J-M Responsibility may be made a contributing partner in your business

Whatever aids you to create confidence and assists you to retain it when secured puts capital into your business.

Every J-M Product specified by you—every J-M Product handled by you—has back of it the determination of H. W. Johns-Manville Company to win confidence and retain it by making that product give permanent satisfaction.

This is J-M Responsibility; and to make this responsibility actual between you and your customer "J-M Service covers the continent."

J-M Transite Asbestos Shingles are more artistic than slate. Last longer and cost less.



Residence of J. A. Curry, Portland, Ore.

A combination of Asbestos Fibre and Portland Cement. They are therefore absolutely fire-proof and practically indestructible.

Their colors are permanent, they toughen with age, and they need practically no attention in a lifetime. They make a building warmer in Winter and cooler in Summer.

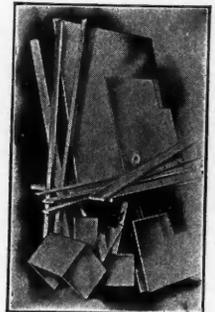
Their soft colors—Gray, Indian Red and Brown—afford beautiful architectural effects, especially in the thick rough edge type.

J-M Transite Asbestos Wood is an ideal fire barrier for exterior or interior use

When exposed to the weather in general outdoor use, it is impervious to the effects of the elements, and even becomes tougher with exposure.

J-M Transite Asbestos Wood can be sawed, nailed and otherwise handled like wood, and can be grained and finished to match surrounding trim if desired

Write for booklet, covering these subjects. They will be splendid things to have on file.



JOHNS-MANVILLE PRODUCTS

J-M Drinking Water System
 J-M Transite Asbestos Wood
 J-M Asbestos Cloth and Vitribestos
 Theatre Curtains
 J-M Architectural Acoustics
 J-M Waterproofing Materials
 J-M Mastic Flooring
 J-M Asbesto-Sponge Felted Pipe Covering and Sheets

J-M Asbestocel Pipe Covering and Sheets
 J-M Sectional Underground Conduit
 "Noark" Enclosed Fuse Devices
 J-M Corrugated Asbestos Roofing
 J-M Regal Roofing
 J-M Asbestoside
 J-M Asbestos Slater's Felt
 J-M Asbestos Roofing and Insulating Felts
 J-M Sound Deadening Felts

Cold Storage Insulation
 J-M Weathertite Paper
 J-M Asbestos Fire- and Damp-proof Flooring Felt
 J-M Cork Floor Tiling
 J-M Washerless Faucet
 J-M Sanitor Drinking Fountain
 Audiffren-Singrun Refrigerating Machine

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

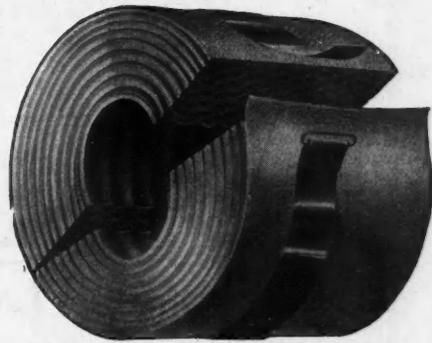


There's a difference between covering steam pipes with "pipe covering" and insulating a steam line with the proper materials.

The business of Johns-Manville Heat Insulation service is to recommend, sell and install a specific INSULATION for a specific requirement.

Steam insulation is a study in heat economy and not the dispensing of so many feet of pipe covering so many inches thick.

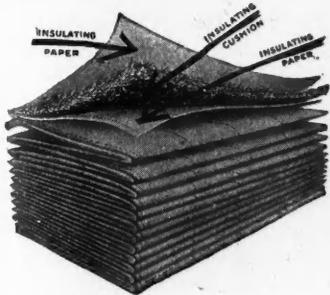
The purpose of J-M Heat Insulation service is to furnish efficient insulation on your job so that when the work is done the system is as efficient thermally as it is possible to make it.



One style of J-M Heat Insulation

Every variety and combination of insulation is manufactured by the Johns-Manville Co. and Johns-Manville specialists are ready to recommend the proper insulation for your work. Why not let them confer with you?

The noise nuisance in buildings is effectively eliminated by the use of J-M Keystone Hair Insulator.



Note its construction.

This material has proven indispensable in buildings where the localizing of noise is paramount. Such as in apartments, hotels, residences, office buildings and factories.

It is easy to apply and its cost is such as to make it a practical improvement to any structure.

J-M Keystone Hair Insulator is made of chemically treated cattle hair quilted between layers of insulating felts.

It is just as effective when used as a weather sheathing in walls. Absolutely inodorous and vermin proof.

Write for booklets on these subjects today.

H. W. JOHNS-MANVILLE COMPANY

Akron
Albany
Atlanta
Baltimore
Birmingham
Boston
Buffalo

Chicago
Cincinnati
Cleveland
Columbus
Dallas
Dayton

Denver
Detroit
Duluth
Galveston
Houghton
Houston

Indianapolis
Kansas City
Los Angeles
Louisville
Memphis
Milwaukee

Minneapolis
Newark
New Orleans
New York
Omaha
Philadelphia

Pittsburgh
Portland
Rochester
St. Louis
St. Paul
Salt Lake City
San Francisco

Seattle
Syracuse
Toledo
Washington
Wilkesbarre
Youngstown
3100B—3072D

THE CANADIAN H. W. JOHNS-MANVILLE CO., LTD., Toronto, Winnipeg, Montreal, Vancouver

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Herringbone Armco Iron Lath, made of the most Rust-Resisting Iron known, was used by Edward Grey, Architect, in the beautiful Beverly Hills Hotel, Los Angeles, California.



Herringbone Saves Materials

On the scratch coat alone there is sometimes as much as 30% reduction in the plaster required as compared with other methods.

The material goes further because the flat ribs of Herringbone spread the plaster rather than cut it.

As a further result Herringbone has a broad grip and holds stucco and plaster. A Herringbone job remains good.

Herringbone all comes painted—goes into the wall rustless—cannot discolor the coat.

Herringbone Rigid Metal Lath

affords a firm surface for the trowel. It speeds up work and ensures an even coat—no thick and thin spots to dry unevenly and perhaps crack.

Wiring between studs is unnecessary because of the stiff interlocking selvage edges.

The "HERRINGBONE BOOK" FREE

will tell you the whole truth about Herringbone. Send for it today and tomorrow you will use it. Its worth to you has no limit except you fail to use it and—it is Free. Ready for you, today.

The General Fireproofing Co.

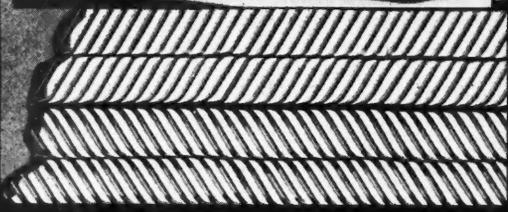
6700 Logan Ave., Youngstown, Ohio

Makers also of Self-Sentering—the concrete reinforcing that eliminates the need of forms

Herringbone Armco Iron Lath was used also in this fire-resisting and time-defying residence in Los Angeles. Lester Moore, Architect.



Trade Mark
Reg. U. S. Pat. Office



Wood Carving

To the Editor:

Brooten, Minn.

We are enclosing a photograph of a wood carving that should be interesting, as it is at least appropriate and timely, considering the conditions across the ocean. This piece of



Carved Out of Wood by O. O. Finwall, Brooten, Minn.

work has been named "The Dying Soldier" and is the work of Mr. O. O. Finwall of this city.

It represents considerable time and patience and should be interesting. It is made entirely of wood.

H. W. ROSS LUMBER CO.



Fault of the Plaster, Not the Wallpaper

To the Editor:

Rochester, N. Y.

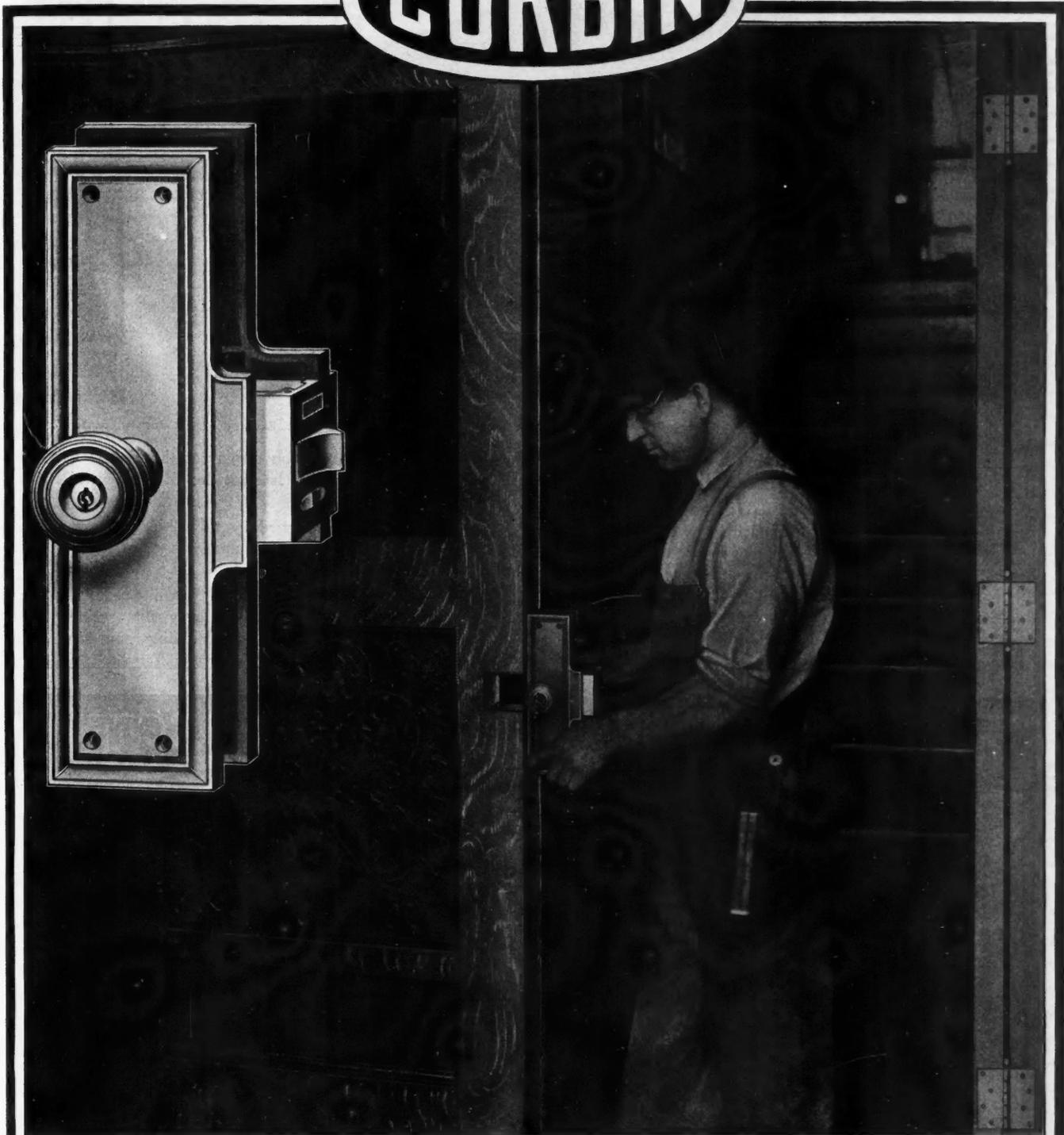
I just completed a house and did not have any trouble with same until decorating was started. After some of the paper had been placed on the walls it became loosened and took with it the finishing or putty coat. We had trouble of this kind in several places in two or three different rooms. I am seeking to find out whether the fault is with the mason or the paperhanger. The plaster seems all right throughout the house in other rooms. Could this trouble be caused by the paperhanger not sizing the walls properly before putting on the paper? If you can give me any information as to the probably cause of such trouble as this I would consider it a great favor.

M. A. SCHAIRER.

Answer—The trouble you have had is probably due to the manner in which the finishing or putty coat was placed over the second coat or brown coat. It is possible that the finishing coat was put on after the brown coat had become so dry that it caused the water to be drawn from the finishing coat into the brown coat, and leaving the finishing coat in a weakened condition. Or, poor material may have been used.

EDITOR.

CORBIN



THE CORBIN UNIT LOCK

is shipped with knobs and escutcheons attached and is applied by the carpenter just as received. It is only necessary to cut the stile as shown, slip the lock into the slot and drive the screws through the escutcheons. The knobs never bind and the locks always work perfectly. Contractors say their good men can attach a Corbin Unit Lock in ten minutes. Ask any dealer in Corbin hardware to tell you about the Corbin Unit Lock, with the keyhole in the knob, or write to

P. & F. CORBIN

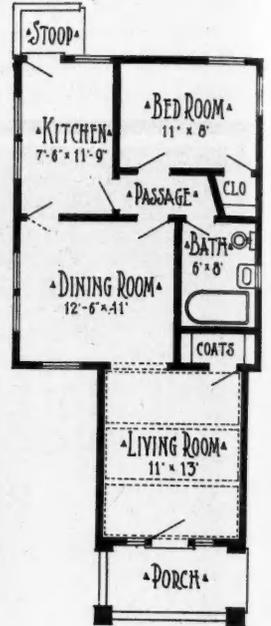
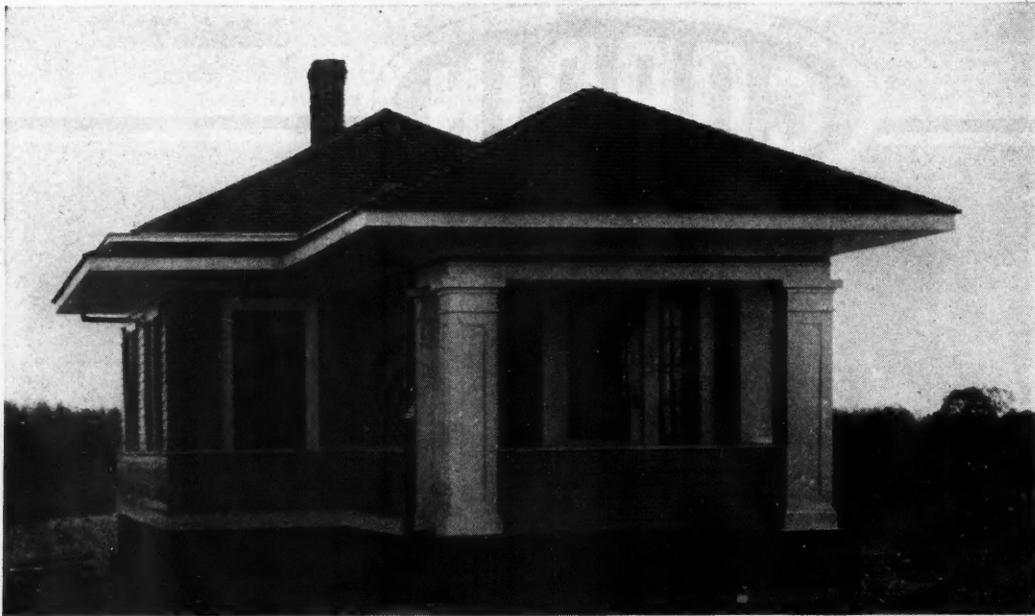
The American Hardware Corporation Successor

NEW BRITAIN, CONN.

CHICAGO

NEW YORK

PHILADELPHIA



Michigan-Wisconsin Lumber Exposition Bungalow Won by New York Architect and Now Erected at St. James, L. I.

Exhibition Bungalow Graduates into Regular Home Class

Any one who saw the Michigan-Wisconsin Bungalow when it was on exhibition in Chicago and then in New York, would be surprised to see it located on Long Island now as a regular home. Most exhibits are made for temporary purposes; but this bungalow was built substantially, so as to do justice to the fine woods that were employed in different parts of the house; so it was remarkably well constructed and artistically fin-

ished. It was first placed on display at the Forest Products Exposition in Chicago, and later at the Grand Central Palace in New York.

The bungalow was designed by the Chicago office of the Radford Architectural Company and was constructed of the following materials:

Outside bass wood siding, and northern white cedar shingles; the living room finished in Cadillac gray elm, stained early English; flooring red clear beech; the dining room birch with

Waterproof Stucco with CERESIT

Make the stucco walls of your buildings *as water-tight as welded steel!* Simply throw a *small quantity* of Ceresit Waterproofing Compound into the water used to temper the cement plaster and you have walls as impervious to water as if laid with one slab of *seamless marble*.

You can make basements *as dry as attics*, and secure *permanent and economical* results with Ceresit in all concrete, cement and stucco work.

You have daily use for these other C. W. CO. Products:—Weatherwear Roof Coat, Floor Hardener, Damp-proof Plaster Bond, Damp-proof Coating, Stone Backing and Cerisitol.

Learn more about them. Ask for literature.

Expert waterproofing engineers study your requirements and advise you freely to secure best results for your customers.

Write today for interesting literature.

Ceresit Waterproofing Co., 910 Westminster Building, Chicago, Ill.

Stucco Walls
Waterproofed
with
CERESIT



W. S.
WARREN,
Architect.
La Grange,
Ill.



Stucco Walls
Waterproofed
with
CERESIT

I. M.
GILBERT,
Architect.
Hinsdale,
Ill.

Recommend and Use

CLINTON WIRE LATH



OLD FIFTH AVENUE HOTEL - NEW YORK



A MODERN STUCCO HOUSE



PARKER HOUSE - BOSTON, MASS.

Not on our say so—not because you know of a few instances where it was used—not on a chance, but because master planners and builders throughout the United States have used it and recommended it for over fifty years—because thousands of the finest buildings of all classes are erected each year with CLINTON WIRE LATH specified and used—because in actual practice it has been shown in buildings recently demolished that CLINTON WIRE LATH, placed in them over a half a century ago, was, when brought to light, as good as when laid—because CLINTON WIRE LATH is made of the best materials, by expert workmen, by a concern that WILL NOT cheapen its products.

The subject of the superiority of CLINTON WIRE LATH is treated exhaustively in our two books,

“Successful Stucco Houses”

and

“Clinton Handbook on Lath and Plaster”

Both are profusely illustrated and contain many valuable tables and data. Send for them—they are free for the asking.

CLINTON WIRE CLOTH CO.
CLINTON, MASS.

NEW YORK

BOSTON

CHICAGO

First Power Loom Weavers of Wire Cloth in the World

Makers of “Pompelian Bronze,” “Golden Bronze,” Clinton Painted and “Silver Finish” Screen Cloths, Clinton “Silver Finish” Brand Poultry Netting, Hardware Cloth, Clinton Electrically-Welded Fabric for Reinforcing Concrete, and Clinton Perforated Metal Products.

Another Kellastone Home Finished



More Friends Made

That's the universal feeling of satisfaction experienced by every contractor the minute he turns over the keys of a **Kellastoned** Building to the owner. For he knows that that beautiful, unmottled attractive looking exterior that so highly pleases his client today will remain just as beautiful and attractive in years to come. He knows that

KELLASTONE
IMPERISHABLE STUCCO

does not embody any Portland cement, lime or gypsum and that it will successfully withstand the ravages of time and weather long after ordinary stuccos have gone to ruin.

Kellastone is moistureproof and fireproof and a non-conductor of heat, cold and dampness. It possesses far greater tensile and tension strength than cement stuccos and will withstand far greater settling strains without cracking.

It can be successfully applied over wood lath, metal lath, byrket sheathing, hollow tile, brick and stone walls at any time of the year, winter or summer.

It is especially valuable in remodeling old buildings, and as an interior plaster. The many beautiful finishes and effects to be secured are fully described in our Free **Kellastone Imperishable Stucco Book**.

Kellastone Composition Flooring

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 joints and easy to keep clean.

It can be laid on bases of concrete, wood or steel. Beautiful border designs and terrazzo effects can be secured and its lightness, warmth, resilience and quietness make it especially adapted for hospitals, schools, theatres, office buildings, public buildings, private homes, apartments and manufacturing establishments.

Our **Kellastone Composition Flooring Book** goes into details in a brief, interesting way. If interested, ask for a copy. It's yours for the written word.

Kellastone is carried in stock by leading building material dealers. If your dealer cannot supply you, write us direct.

The National Kellastone Co.

504 Association Bldg.

CHICAGO, ILL.

red birch floor; the bedroom white maple, natural finish, with bird's-eye maple flooring; bathroom white birch, with white maple flooring; Cadillac grey elm, natural color, in kitchen, with unselected maple floor; and the porch floor and ceiling of tamarack.

The bungalow was given to the winner of a prize contest after the exposition at the Grand Central Palace in New York. A coupon was attached to each ticket of admission and on the last day the drawing was to take place, but was interrupted by the police who had a grudge against what they insisted was a lottery. The drawing was held later outside of New York and the bungalow was won by a Long Island architect.

Mr. J. C. Ellis says that it is now located at Saint James, Long Island, and has been much admired. It is about 1,500 feet from the railroad and near the famous estate of the late Mayor Gaynor of New York City.



Figuring Sash-Weights

To the Editor:

Ashland, Ohio.

I would like to have a list of sash weights necessary for different sizes of window sash for use in my work. If you do not have this information, kindly tell me where I can obtain it.

MACK SMITH.

Answer—The weights ordinarily used for balancing windows are made of a cheap grade of cast iron, generally cylindrical in shape, with an eye cast in the upper end to receive the window cord. Such weights are never of greater diameter than the thickness of the sash to be held.

The length of the sash weight in inches required to balance a given weight may be found by dividing the given weight by the values in the following table. This table is taken from "Kidder's Architects' and Builders' Pocket Book."

Weight of Iron Sash-Weights per Lineal Inch

| Diameter or Side of Square. Inches. | Round Cast Iron. Pounds. | Square Cast Iron. Pounds. |
|-------------------------------------|--------------------------|---------------------------|
| 1 ¼ | 0.32 | 0.40 |
| 1 ½ | 0.46 | 0.58 |
| 1 ¾ | 0.62 | 0.79 |
| 2 | 0.81 | 1.04 |
| 2 ¼ | 1.03 | 1.31 |
| 2 ½ | 1.27 | 1.62 |
| 2 ¾ | 1.54 | 1.96 |
| 3 | 1.83 | 2.34 |
| 3 ½ | 2.50 | 3.18 |
| 4 | 3.26 | 4.16 |

To the result thus obtained one inch should be added to allow for the eye of the weight.

The approximate diameters of common stock weights are as follows: For weights of 8 pounds and under, 1 ½ inches; 8 to 16 pounds, 1 ¾ inches; 16 to 20 pounds, 2 inches; and 20 to 30 pounds, 2 ¼ inches.

The principle involved in determining the weights to be used in a given sash is that the weights in passing over the pulleys at the top tend to counterbalance the weight of the sash itself. Thus, it is seen that the amount of the two weights should be about the same as that of the sash. Generally, the weights for the upper sash are used about one-half pound heavier than the sash, while those for the lower end are about one-half pound lighter. This difference in value tends to hold the window closed, but does not impose any considerable weight to be lifted to open the window.

In determining the weight of the sash itself, the weight of the glass may be used as one pound per square foot for single-strength glass, 1 1-3 pounds for double-strength glass, and 3 ½ pounds for plate glass. To find the weight of the wooden sash, Kidder gives the following rule: Add together the height and width of each sash in feet and multiply by 2.1 for 2 ¼ inch sash, 1 2-3 for 1 ¾ inch sash and 1 1-3 for 1 ¾ inch sash. If the exact weight is desired it can only be obtained by weighing each sash carefully.

EDITOR.

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.

Patent Vulcanite Roofing Co.

Birmingham, Ala. Cincinnati, Ohio San Francisco, Cal.
Kansas City, Mo. New York City, N. Y.

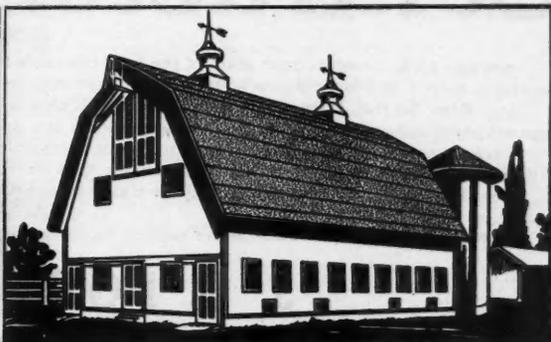
CHICAGO, ILLINOIS



For Garages, Shops, etc.



For Residences



For Farm Buildings, Sheds, etc.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

If Door is Warped, Warp It Back Again

To the Editor:

Toronto, Ont.

On page 83, June issue, I notice the question of Forrest Reichard regarding a door straightener. I agree with him that it is the meeting of unusual conditions and rising above them that counts.

I thought, when I saw your reply, that it was well put; however, about that time the weather was getting warm, and thoughts of the merry buzz-z-z of flies at meal time, together with the fact that our rear door would be the better for a storm door, set me to thinking of making a combination screen and storm door.

So I hied me away to a nearby yard and ordered stuff accordingly.

Now, I like jokes as well as anybody, but when a man sends an "old bachelor" door of such a shape as to better answer the purpose of "cradle rockers," I don't think his trade should be benefited, especially as it was our first acquaintance.

About this time I was doing some digging in our back yard for a bit of garden. Somehow, when I came to hang that door I thought of some planks I used often to walk over in crossing a muddy spot—the sun from above and the moisture from beneath curved them up. I turned them over, and next day or so they'd be warped back the other way. So that's just what I did with my door—tramped it into the

fresh-dug soil in the garden, rounding side up, till it turned the other way; hung it so this side would still get the sun, and with a good painting to keep it from taking in rain, I don't expect any more trouble.

GEO. H. JACKSON.



To Approximate Area of Steel Angle

To the Editor:

St. Louis, Mo.

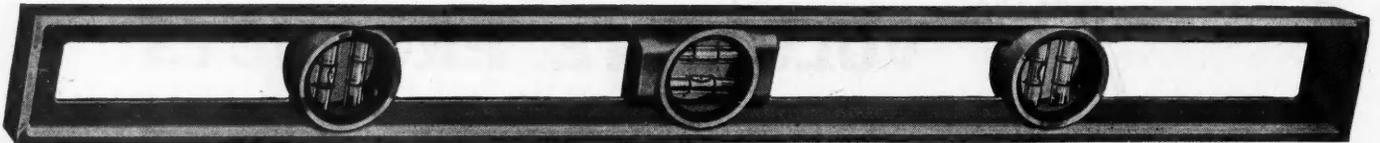
Please explain to me the correct method of obtaining the areas of steel angle bars, as a 6 by 6 by ½-inch, 6 by 6 by ⅜-inch or 6 by 4 by ⅝-inch?

HERMAN BARTELS.

Answer—The values of areas of steel angles are given in the hand books of the steel companies. You will find tables in these books which will give you areas, weights per foot of length, and other important properties of these sections.

If you wish an approximate method of obtaining the area, the following may be an aid to you: A 6 by 6 by ½-inch angle may be divided into two rectangles, one of them 6 inches long and ½ inch wide, while the other 5½ inches long by ½ inch wide. The area of the 6 by ½-inch rectangle would be 3 square inches, and the area of the 5½ by ½-inch rectangle would be 2¾ square inches. The sum of these two areas, 5¾ square inches, would be the approximate area of this section. This checks out with the area given in the Cambria Steel Company hand book for this same size of angle.

THE BOSS CARPENTER.



30 INCH IDEAL 4 PLUMBS, 2 LEVELS, USE ANY POSITION, LIGHT, STRONG, RIGID

Right now we are making a special low factory price on 1000 Aluminum levels. Sold by mail only. Send for big circular showing full line.

IDEAL LEVEL WORKS

::

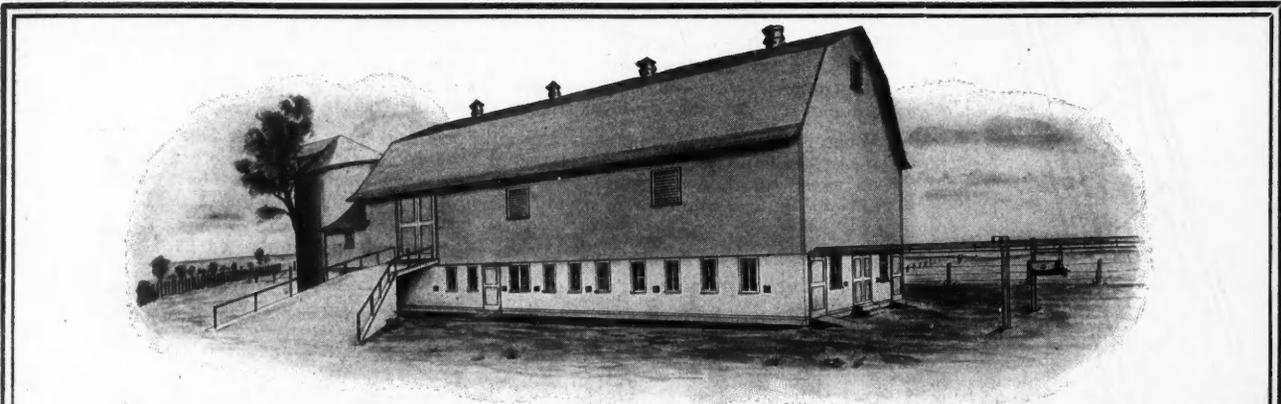
::

ALUMINUM LEVELS

::

::

DETROIT, MICH.



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.



**Saved
\$200.00
on this fine barn**
"The lumber is some of the best that money can buy," writes August Pasbrig, of Dwight, N. D., "and I am certainly satisfied I saved about \$200 by sending to you for it."

Lumber, millwork, hardware, paint for this fine barn, 37 by 61 feet, F. O. B. Seattle, \$689.47.

For Practical Barns That Sell Get H-L-F Barn Builder's Guide

Send lumber list *now* for freight-paid price

Save big on H-L-F lumber, because every dollar you save is a dollar added to your profit. Send lists NOW for fall jobs, and be ready to place the business as soon as you land the job. You'll get H-L-F price quick, without obligation, and you'll be READY with prices when the fall business boom starts.

Saved \$250.00

"You saved me \$250.00," writes J. P. Brosz, Washburn, N.D., April 2, 1915, "and, besides, I got a better quality of lumber. Special doors, door jambs, window frames—all extra good lumber."

H-L-F Barn Builder's Guide is a text book on practical barn building. You'll like John H. Fleming's article, "How to Build a Barn," with description of H-L-F self-supporting roof truss. Pictures, floor plans, facts about practical barns, every one designed for a real farmer by H-L-F expert architects. Get the book NOW—be ready for fall jobs. Yours for four cents.

Money making ideas for fall house jobs in H-L-F Plan Book—ten cents

Fourth big edition—many new plans. Shows pictures, floor plans, specifications, costs of practical houses that YOU can sell to YOUR customers. Specializes on practical houses for farm folks and small town folks who want full value for their money. Worth a thousand dimes, but one dime brings it, postpaid.



PROSPERITY COUPON

Hewitt-Lea-Funck Co.,

1108 Crary Building, Seattle, Wash.

Gentlemen:—Please send me the following:

- Barn Builder's Guide (four cents)
- H-L-F Plan Book (ten cents)
- Delivered, freight-paid price on enclosed list of materials (no charge for quotation)
- Millwork Catalog (free)
- H-L-F House Pricer (free)

Name

Posto fice

State..... St. No. or R. F D.....

Write for
FREE
Estimates
on Lumber



We Figure
Millwork
From
Plans

WHOLESALE TO THE CONTRACTOR
RIVERDALE, CHICAGO

STOP! LOOK! SOMETHING NEW



DOOR TRIM No. 132
5X Panel Door

Inside Doors with Jambs and Trim 2 Sides
Complete for One Price. Avoids Errors.



LINCOLN
Fir



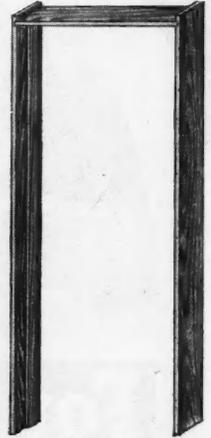
MISSION
Fir



DAISY
Fir



MEXICO
Fir



JAMB AND STOPS
No. 36— $\frac{1}{2}$ x $5\frac{1}{2}$

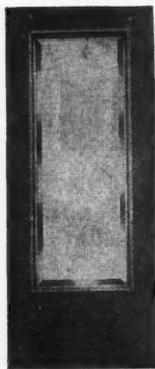
IN STOCK —
CAN SHIP SAME
DAY ORDER IS
RECEIVED
QUALITY
GUARANTEED
MONEY BACK
IF NOT
SATISFACTORY

PRICE INCLUDES DOOR, Y. P. JAMB No. 36, STOPS and TWO SIDES
Y. P. TRIM No. 132

| SIZE | 5X Pan Fir | Lincoln or Mission Fir | Daisy Fir | Mexico Fir | 5X Pan White Pine | Lincoln White Pine | 5X Pan Oak | Lincoln Oak |
|--------------------------|---------------|------------------------------|--------------|---------------|-------------------------|--------------------------|---------------|----------------|
| 2-0x6-0--1 $\frac{1}{2}$ | \$2.95 | \$3.20 | \$3.30 | \$3.40 | \$3.35 | \$3.35 | \$5.75 | \$6.25 |
| 2-0x6-6--1 $\frac{1}{2}$ | 3.10 | 3.40 | 3.50 | 3.60 | 3.55 | 3.55 | 6.25 | 6.75 |
| 2-4x6-6--1 $\frac{1}{2}$ | 3.10 | 3.40 | 3.50 | 3.60 | 3.55 | 3.55 | 6.25 | 6.75 |
| 2-6x6-6--1 $\frac{1}{2}$ | 3.15 | 3.45 | 3.55 | 3.65 | 3.60 | 3.60 | 6.30 | 6.80 |
| 2-0x6-8--1 $\frac{1}{2}$ | 3.15 | 3.45 | 3.55 | 3.65 | 3.60 | 3.60 | 6.30 | 6.80 |
| 2-2x6-8--1 $\frac{1}{2}$ | 3.15 | 3.45 | 3.55 | 3.65 | 3.60 | 3.60 | 6.30 | 6.80 |
| 2-4x6-8--1 $\frac{1}{2}$ | 3.15 | 3.45 | 3.55 | 3.65 | 3.60 | 3.60 | 6.30 | 6.80 |
| 2-6x6-8--1 $\frac{1}{2}$ | 3.20 | 3.50 | 3.60 | 3.70 | 3.60 | 3.60 | 6.35 | 6.85 |
| 2-8x6-8--1 $\frac{1}{2}$ | 3.20 | 3.50 | 3.60 | 3.70 | 3.60 | 3.60 | 6.40 | 6.90 |
| 2-0x7-0--1 $\frac{1}{2}$ | 3.40 | 3.75 | 3.90 | 4.00 | 3.90 | 3.90 | 6.80 | 7.30 |
| 2-2x7-0--1 $\frac{1}{2}$ | 3.40 | 3.75 | 3.90 | 4.00 | 3.90 | 3.90 | 6.80 | 7.30 |
| 2-4x7-0--1 $\frac{1}{2}$ | 3.40 | 3.75 | 3.90 | 4.00 | 3.90 | 3.90 | 6.80 | 7.30 |
| 2-6x7-0--1 $\frac{1}{2}$ | 3.40 | 3.75 | 3.90 | 4.00 | 3.90 | 3.90 | 6.80 | 7.30 |
| 2-8x7-0--1 $\frac{1}{2}$ | 3.45 | 3.80 | 3.95 | 4.05 | 4.00 | 4.00 | 6.90 | 7.40 |

PRICE OF OAK
DOORS
INCLUDES OAK
JAMBS AND
TWO SIDES
OAK TRIM.
OAK DOORS
FLAT PANEL

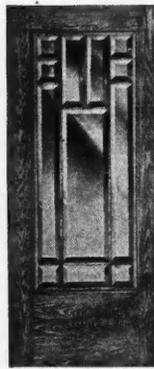
One Side Door Trim consists of—Base Blocks, 874, Casing, No. 8309; Cap, Nos. 8394, 95, 96
Front Doors Complete with Frame and Trim for One Price



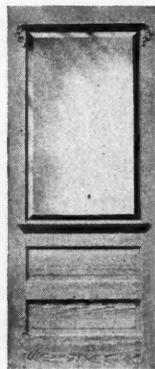
ROSELAND
Plain Red Oak



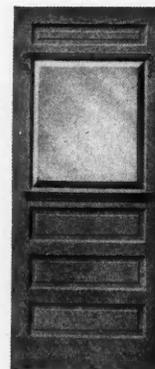
BEAUTY
Plain Red Oak



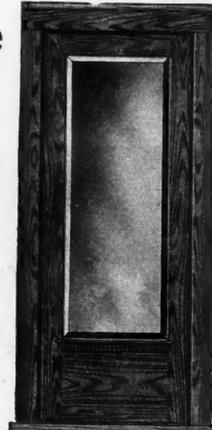
REGINA
Plain Red Oak



EDITH
White Pine



ELSIE
White Pine



HAZEL
Pine Door



DOOR FRAME
No. 620 D. C.

| SIZE | Roseland Glazed 1 $\frac{1}{2}$ Bevel Plate | Beauty Glazed 1 $\frac{1}{2}$ Bevel Plate | Regina Glazed 1 $\frac{1}{2}$ Bevel Plate | Edith | | Elsie | | Hazel | |
|----------------------------|--|--|--|-----------------|--|-----------------|--|-----------------|--|
| | | | | Glazed D. S. | Glazed 1 $\frac{1}{2}$ Bevel Plate | Glazed D. S. | Glazed 1 $\frac{1}{2}$ Bevel Plate | Glazed D. S. | Glazed 1 $\frac{1}{2}$ Bevel Plate |
| 2- 6x6- 6--1 $\frac{1}{2}$ | | | | \$5.50 | \$7.75 | \$5.30 | \$6.30 | \$5.50 | \$8.50 |
| 2- 8x6- 8--1 $\frac{1}{2}$ | | | | 5.60 | 8.25 | 5.35 | 6.90 | 5.70 | 9.30 |
| 3- 0x7- 0--1 $\frac{1}{2}$ | | | | 6.50 | 9.90 | 6.05 | 8.35 | 6.35 | 10.90 |
| 2- 8x6- 8--1 $\frac{1}{2}$ | \$13.40 | \$10.35 | \$12.30 | 6.55 | 9.20 | 6.40 | 7.95 | 6.50 | 10.20 |
| 2-10x7- 0--1 $\frac{1}{2}$ | 14.70 | 11.65 | 12.75 | 7.50 | 10.60 | 7.25 | 9.35 | 7.00 | 11.30 |
| 3- 0x7- 0--1 $\frac{1}{2}$ | 15.30 | 12.20 | 13.00 | 7.65 | 11.00 | 7.40 | 9.70 | 7.20 | 11.70 |

If Inside Trim for above is to be Pl. Red Oak, add 50 cents each.
ALL PRICES ARE F. O. B. CARS, CHICAGO, ILL.

PRICE INCLUDES DOOR,
GLAZED—WHITE PINE FRAME
HOUSE DOOR FRAME, No. 620
D. C. AND YELLOW PINE
INSIDE DOOR TRIM No. 132

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

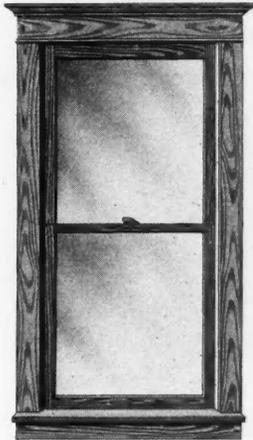
**We Will Save
You Money
Satisfaction
Guaranteed**

Chicago Riverdale Lumber Co.

WHOLESALE TO THE CONTRACTOR
RIVERDALE, CHICAGO

Catalog No. 35
Showing 5000
Millwork
Bargains FREE
—Send for
Your Copy

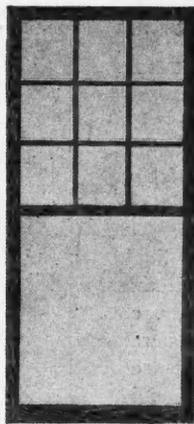
GREATEST BARGAINS EVER OFFERED Glazed Windows with Frame and Trim Complete



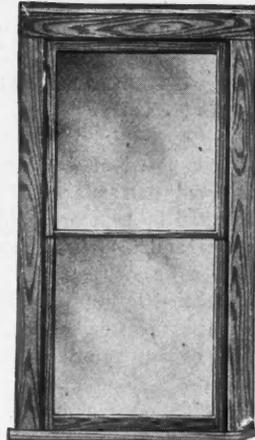
WINDOW TRIM
No. 133



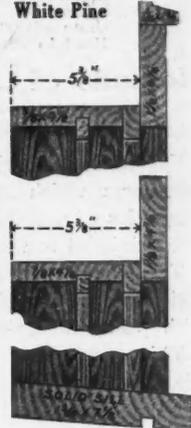
No. 705



No. 711



PLAIN 2 LT.
WINDOW



WINDOW FRAME
No. 600 D. C.

Price including 1 1/2" ck, rail Window Glazed, White Pine Frame No. 600 D. C. and Y. P. Trim No. 133 consisting of Stops 8463, Casing 8309, Cap 8394, 95, 96, Stool 8267 and Apron 8464.

| Glass Size, Lower Sash | Outside Measure Ft. In. | Plain 2 Lt. Wd. Gl. S. S. Glass | Plain 2 Lt. Wd. Gl. D. S. Glass | No. 705 Single Strength Glass | No. 705 Double Strength Glass | No. 711 Single Strength Glass | No. 711 Double Strength Glass |
|------------------------|-------------------------|---------------------------------|---------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| 20x20 | 2- 0x3-10 | \$3.10 | \$3.30 | \$3.40 | \$3.65 | \$3.65 | \$3.90 |
| 20x22 | 4- 2 | 3.20 | 3.40 | 3.45 | 3.70 | 3.70 | 3.95 |
| 20x24 | 4- 6 | 3.20 | 3.40 | 3.45 | 3.70 | 3.70 | 3.95 |
| 20x26 | 4-10 | 3.25 | 3.45 | 3.45 | 3.70 | 3.75 | 4.00 |
| 20x28 | 5- 2 | 3.30 | 3.50 | 3.55 | 3.80 | 3.80 | 4.05 |
| 22x24 | 2- 2x4- 6 | 3.25 | 3.45 | 3.50 | 3.75 | 3.75 | 4.00 |
| 22x26 | 4- 10 | 3.30 | 3.50 | 3.60 | 3.85 | 3.80 | 4.05 |
| 22x28 | 5- 2 | 3.35 | 3.60 | 3.65 | 3.90 | 3.85 | 4.10 |
| 22x30 | 5- 6 | 3.45 | 3.75 | 3.65 | 3.95 | 3.95 | 4.25 |
| 24x20 | 2- 4x3-10 | 3.20 | 3.45 | 3.50 | 3.80 | 3.75 | 4.05 |
| 24x22 | 4- 2 | 3.35 | 3.60 | 3.50 | 3.80 | 3.80 | 4.10 |
| 24x24 | 4- 6 | 3.35 | 3.60 | 3.55 | 3.85 | 3.80 | 4.10 |
| 24x26 | 4-10 | 3.35 | 3.60 | 3.60 | 3.90 | 3.85 | 4.10 |
| 24x28 | 5- 2 | 3.45 | 3.75 | 3.65 | 3.95 | 3.90 | 4.25 |
| 24x30 | 5- 6 | 3.50 | 3.85 | 3.75 | 4.10 | 4.00 | 4.30 |

If Inside Trim for above is to be Pl. Red Oak, add 70 cents each

"RIVERDALE" Oak Flooring

Builders and owners will find it a clinching argument to say, "It's floored with OAK FLOORING." It is the biggest single feature to look for in any house or apartment building. It imparts an air of refinement and elegance. It is the modern flooring.

(OUR PRICES ARE THE LOWEST.)

| Size | Price per 1000 feet | Price for sufficient to cover 1 sq. ft. surface measure |
|---|---------------------|---|
| 3/4 x 1 1/4-inch face, Select Oak Flooring | \$32.00 | 4 1/2c |
| 3/4 x 1 1/4-inch face, Clear Plain Sawed Oak Flooring | 41.00 | 5 1/2c |
| 3/4 x 2 -inch face, Clear Plain Sawed Oak Flooring | 43.00 | 5 3/4c |
| 3/4 x 1 1/4-inch face, Clear Quarter Sawed Oak Flooring | 59.00 | 8 c |
| 13-16 x 2 1/4-inch face, Select Oak Flooring | 48.00 | 6 1/2c |
| 13-16 x 2 1/4-inch face, Clear Plain Sawed Oak Flooring | 55.00 | 7 1/2c |
| 13-16 x 2 1/4-inch face, Clear Quarter Sawed Oak Flooring | 94.00 | 12 1/2c |

Hardwood Flooring is used in practically every house built. It will pay you to order of us, as no better quality of flooring than ours can possibly be obtained. Our Flooring is the cheapest because it is the best, therefore costs less to lay.

FACTS ABOUT FREIGHT CHARGES

THE FREIGHT ON FLOORING IS NOTHING COMPARED TO THE SAVING WE OFFER YOU.

1000 feet 3/4-inch Hardwood Flooring can be shipped 400 miles for.....\$2.00
1000 feet 13-16-inch Hardwood Flooring can be shipped 400 miles for.....\$4.40

All Kinds of Lumber at Wholesale Prices

ALL PRICES ARE F. O. B. CARS, CHICAGO, ILLINOIS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

"RIVERDALE" Wall Board

FREIGHT Per Crate
of 192 sq. ft. in average points
in the following states:

| State | Per Crate | State | Per Crate |
|----------|-----------|---------------|-----------|
| Illinois | \$0.50 | Ohio | \$0.75 |
| Indiana | .60 | Pennsylvania | \$0.90 |
| Iowa | 1.20 | Virginia | 1.50 |
| Michigan | .70 | West Virginia | 1.20 |
| Missouri | 1.00 | Wisconsin | .75 |
| New York | 1.35 | | |

The only successful improvement over lath and plaster—"RIVERDALE" is not a pulp or paper make-shift. No lath are required—"RIVERDALE" comes to you in large, carefully crated sheets and is nailed directly on the studding. It takes the place of lath and plaster. "RIVERDALE" is warmer, stronger and drier than lath and plaster. It is used everywhere lath and plaster used to be used. "RIVERDALE" will neither warp, shrink or buckle AND IT CAN'T BURN. It will not shrink and cause wall paper to break at joints.

DON'T TAKE OUR WORD FOR IT, BUT SEND FOR A SAMPLE AND PROVE OUR STATEMENTS FOR YOURSELF—THE SAMPLE IS DELIVERED FREE.

Joint Filler Furnished Free With Each Shipment.
PRICE, F. O. B. CARS, CHICAGO, ILL

| SIZES | No. Square Feet per Board | Boards per Crate | No. Square Feet per Crate | Price per Crate | Price per Single Sheet |
|--------|---------------------------|------------------|---------------------------|-----------------|------------------------|
| 48x108 | 36 | 5 | 180 | \$4.70 | \$0.95 |
| 48x96 | 32 | 6 | 192 | 5.00 | .90 |
| 48x84 | 28 | 7 | 196 | 5.10 | .80 |
| 48x72 | 24 | 8 | 192 | 5.00 | .70 |

Cheap Imitations of "RIVERDALE" are sold only in small sheets—Why? They are made of poor material and won't hold together in large sheets.

SLATE SURFACED SHINGLES

Size 8x12 3/4—RED or GREEN—Write for Free Samples

SLATE SURFACED SHINGLES retain their rich color always. They are surfaced with real red or greenish gray crushed slate in natural colors. GUARANTEED TO OUTWEAR WOOD SHINGLES. Waterproofed CLEAR THROUGH the roofing felt with asphalt saturation. The crushed slate embedded in extra asphalt coating furnishes a never fading color, and makes the roof practically fireproof.

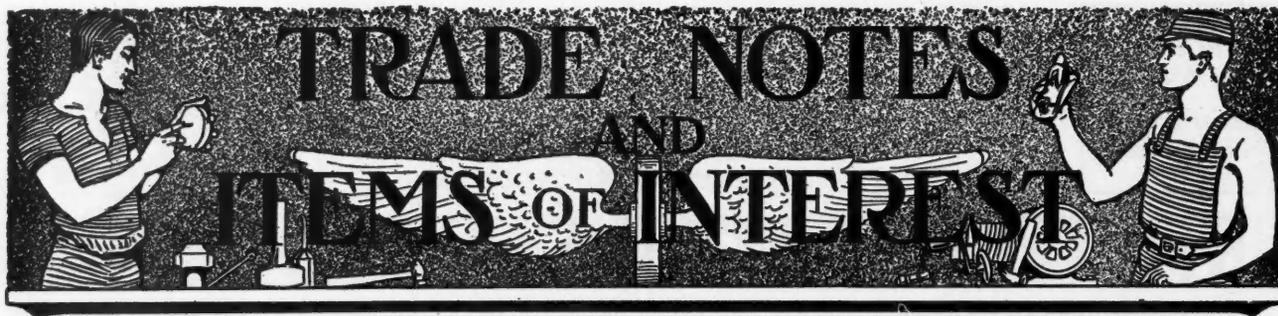
THEY ARE STIFF AS A BOARD AND ARE GUARANTEED TO ALWAYS LAY FLAT.

Price, F. O. B. Cars, Chicago, Ill.

Slate Surfaced Shingles can be shipped 400 miles for 44 cents per square.

Red Slate Surfaced Shingles, per square, 424 shingles..... \$4.00
Grayish, Green Slate Surfaced Shingles, per square, 424 shingles.....

We guarantee these Shingles to be better than those sold by mail order houses for \$4.75 per square and which they guarantee to last 15 years.



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.

Methods of Laying Composition Flooring By C. F. Teller

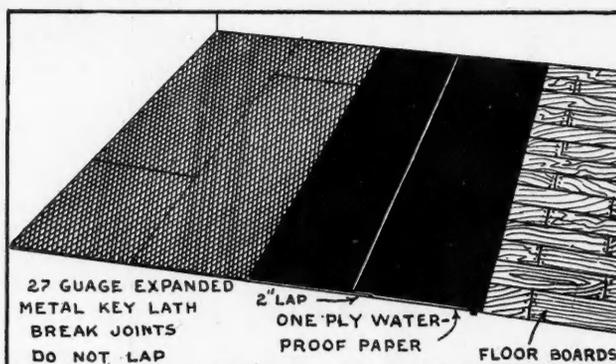
President Sanitary Composition Floor Corporation, Syracuse, New York

Composition flooring is composed of finely ground mineral substances which are selected particularly because of their properties of not being affected by heat or cold. The flooring when finished is water-proof and also fire-proof.

The flooring is shipped as a dry powder and a liquid, which can be mixed and applied by any one that is familiar with plastic materials such as plaster, cement, mortar, etc.

This material can be laid on any sub-floor—wood, concrete, tile, brick or stone. It forms a smooth, elastic, water-proof surface that will not crack, chip, or wear dusty. The rounded corners and the non-absorbent properties of the material make composition flooring extremely sanitary and easy to keep clean.

It can be applied to any wooden floor, no matter what condition it is in or how it is finished, and will give a smooth,



Tar Paper and Lath Ready for Plastic Flooring

water-tight floor. The following method is the best to follow in doing this kind of work:

The base or floor moulding should be first removed and

Going to Build, Remodel or Repair? Get these TWO valuable books FREE

SAVE \$5 to \$500 on Every Order for building material. Our big Catalog tells you how. It shows 8,000 PRICE BARGAINS and contains illustrations, prices and descriptions of every conceivable article that enters into the construction of a building. It tells you how

to buy lumber, flooring, roofing, doors, windows, mouldings, cabinet work, colonnades, porchwork, hardware, tile, paints, wall board, metal work, plumbing and heating equipment, water supply outfits and thousands of building specialties and interior fittings at WHOLE-SALE prices. Everything is sold direct to YOU and YOU save all middlemen's profits.

This book is more than a mere Catalog. It is an encyclopedia of building information and will prove of the utmost value to you every day in the year. Write for a copy today. It is sent absolutely free, postage prepaid, and places you under no obligation whatever.

Also ask for our Plan Book of Modern Homes. Every carpenter and contractor will find this superbly illustrated Plan Book an

invaluable aid in securing more work and a key that opens the way to greater profits. You can show your customers newer and better designs of modern homes, bungalows, handsome suburban residences, town houses, practical country homes and barns. You can also learn from this book how to secure

architect's blue print plans and specifications without one cent of cost. We shall gladly send you a copy of this book free, postage prepaid. Ask for it.

Free Estimate. Send us your lumber and millwork bill for our FREE ESTIMATE. Let us quote prices including all freight charges direct to your railroad station, so that you can tell in actual dollars and cents what we can save for you on your present requirements. This service is FREE.

Screen Doors and Windows are among the hundreds of reasonable articles that you can buy here at wholesale prices. No matter what you want in screen goods—from complete screened-in porches to a small piece of screen wire cloth, you will find it in our book at money-saving prices. Write for your copy of the Catalog today and tell us if you wish a Plan Book also. Both are free.

**WRITE FOR OUR
FREE ESTIMATE
Don't Buy Until You
Get Our Prices**

CHICAGO MILLWORK SUPPLY CO.
AMERICA'S GREATEST SASH AND DOOR HOUSE

1422 West 37th Street

CHICAGO, ILLINOIS



Photo by Mary H. Northend, Salem, Mass.

JOHN WARD HOUSE
at Salem, Mass. Built in 1684.

Words could not portray the lasting qualities of White Pine as graphically as this remarkable photograph. The exact date of the unpainted, weather-beaten siding is not known, but it is certain that the siding on the main portion of the house is from 150 to 200 years old, and stands now as originally built, with practically no repairs. The siding on the lean-to is of a considerably later date, but it will be noted that there is no appreciable difference between it and the siding on the main portion of the house. Both are in splendid condition today and good for service for many years to come.

FOR the outside covering of a building exposed to the attack of time and weather, no other wood gives such long and satisfactory service as

WHITE PINE

Every carpenter knows that from his own experience. But every carpenter does not know that he can get White Pine today, for in some way the impression has gained footing that the supply of White Pine is practically exhausted.

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 Free Magazine for Contractors

The first issue of the bi-monthly architectural White Pine Magazine has been mailed to contractors. Every issue will be full of valuable and helpful information for contractors and builders.

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

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

Address, *WHITE PINE BUREAU,*
1735 Merchants Bank Building, St. Paul, Minn.



Effects like this are possible through the use of North Carolina Pine.

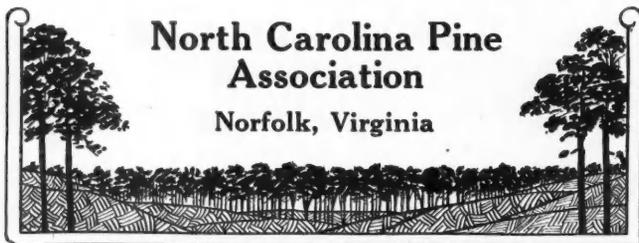
For
Interior Ornamentation

The beautiful, figured grain of North Carolina Pine lends itself to charming interior ornamentation,—paneled walls, built-in bookcases, beamed ceilings, floors and doors.

North Carolina Pine is not "Yellow Pine," but softer and firmer in texture, and lends itself readily to the tools of the carpenter. Its comparative freedom from resinous matter makes it an ideal subject for the painter and decorator.

Architects' and Builders' Reference Book FREE

Prepared in convenient size for filing. Describes the many uses of North Carolina Pine and shows the beautiful effects obtainable. Specimen panels on request.

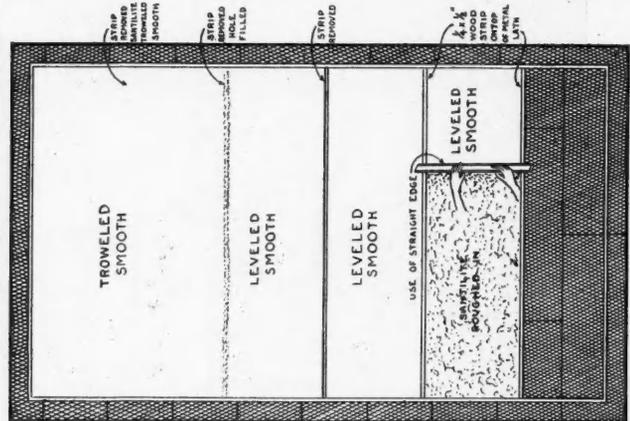


North Carolina Pine Association
Norfolk, Virginia

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

one ply water-proof paper laid on the floor with a 2-inch lap. On top of this is placed 24 or 27 gauge expanded metal lath. The joints of the lath are not lapped, but are merely butted together. The metal lath is held in position by large head cleat nails or staples that are driven into the wood. The method of construction is shown clearly in the illustration.

The composition flooring is laid on top of the metal lath and is made 3/8 of an inch thick. It is laid in sections by using grounds or laying strips 1/4 by 1/2 inches, laid with the 1/2-inch face up. These strips are spaced about 2 1/2 feet apart and are removed as the floor is laid, by running a



Method of Leveling Plastic Flooring to an Even Surface.

trowel along each side of the ground to cut the material free. The space occupied by the ground is then carefully filled. The material is allowed to pile up and then is smoothed down by planing off with a flat trowel held in an almost vertical position.

If a cove base is laid, it is a good plan to have a cove base tool with the desired radius, in addition to the ordinary tools that are needed for this work. A finishing trowel, a pointing trowel, some pine strips 1/2 by 1/4 inch, a mixing box, mortar hoe, shovel, several pails, and some planks for scaffolding are all the tools ordinarily needed.

The contractor or builder can obtain an agency for this material in his own territory and get the composition floor business, which is a big item in modern residences, store buildings, hospitals, schools, etc.

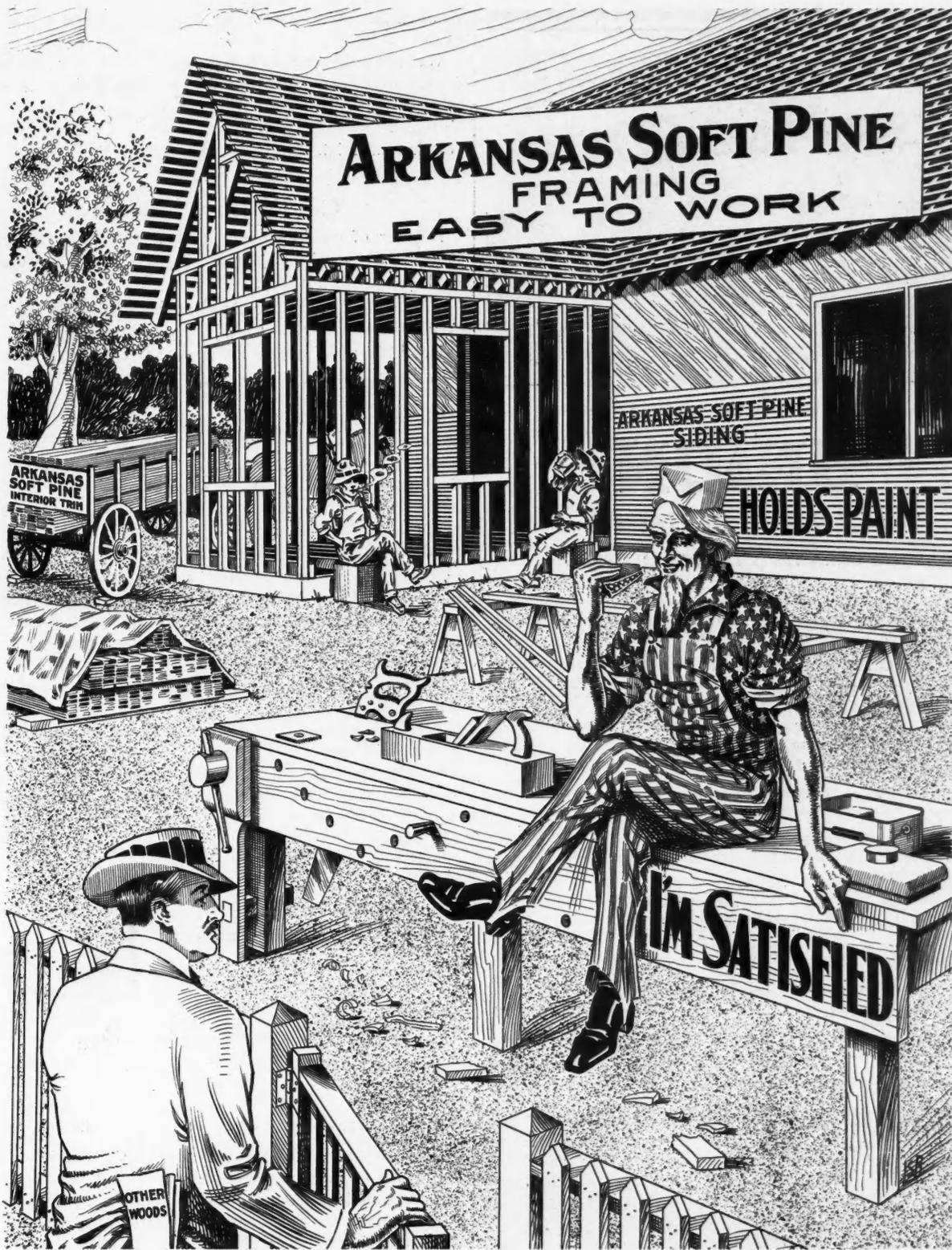


To Shingle Billy Sunday's House

The Beckman-Dawson Co., 1413 Y. M. C. A. Bldg., Chicago, Ill., recently received an order for green asphalt shingles to be used on the Rev. Billy Sunday's house, at Winona Lake, Ind.

The dealer, in sending in the order, said: "Be sure to send extra good stock, so when 'Billy' comes to Chicago, you need not feel guilty for any sins." It is almost needless to say that the usual first class material was forwarded and no guilty feeling exists.

Mr. B. C. Beckman, President of The Beckman-Dawson Co., tells us that they are having a great run this spring on the Winthrop Tapered Asphalt Shingle, which was put on the market a few years ago. This is one of the new developments in the roofing line that has attracted a great deal of attention in the past two or three years. Every builder knows the advantages of an asphalt roof. It is generally held that the shape of the wooden shingle is correct in principle, and that a shingle of any other material should conform in shape to it. The "Winthrop" is an asphalt shingle made in the same shape as a wooden shingle—thick at the butt and tapering toward a thin top. It is easy to lay, and has all the advantages of the



Satisfaction is just another name for Arkansas Soft Pine

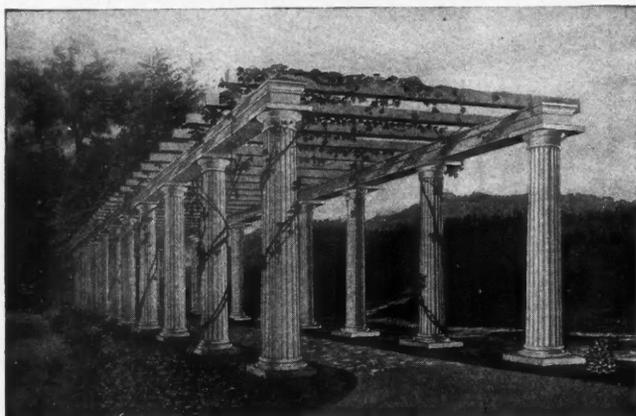
This lumber possesses the traits that appeal to the carpenter, the contractor and the owner. It is **easy to work, holds paint, does not split.** When employed for interior woodwork it **places any wood effect within reach of the user.** Carpenters who want the best are sticking to Arkansas Soft Pine.

SEND FOR USE BOOK

Arkansas Soft Pine Bureau

608 S. Dearborn St., Chicago

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



A Pergola Constructed of Union Metal Columns

UNION METAL COLUMNS

"THE ONES THAT LAST A LIFETIME"

For Porches, Pergolas, Interiors

They offer the builder an opportunity to use the column more freely than ever before.

First—Because they are proof against splitting, checking, rotting, warping and opening of joints which in many cases mar such work in a few months after its completion.

Second—Because they are so reasonable in cost—but little more expensive than a so-called good wood column.

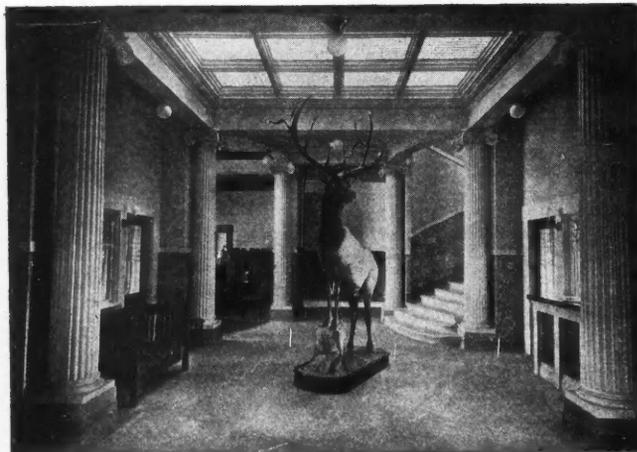
Union Metal Columns are not substitutes or makeshifts, but are architecturally correct in every detail as to design, strength and appearance.

Thousands of successful installations have been made, including every class of building and every kind of work where columns are used.

Ask for details showing design and construction.

Complete catalog in *SWEET'S*

THE UNION METAL MFG. CO.
CANTON, OHIO



Elks Temple, Bellingham, Wash. Wm. Cox, Architect

wooden shingles, besides the durability of the asphalt and slate.

We urge it upon every contractor to investigate this proposition so as to be ready to furnish his clients with Winthrop Asphalt Shingles and to feature the fact that he is prepared to give this high value and service in roofing roofing material.



Cut Nails for Shingles

A letter of considerable general interest to carpenters and builders was received by us a few days ago, and we pass it on here to our readers:

Northumberland, Pa., June 15, 1915.

AMERICAN CARPENTER AND BUILDER, Chicago.

Dear Sirs: We have looked over your proof sheet for July issue and beg to draw your attention to your remark, "Cut nails do not rust."

We, as manufacturers, say, "Yes, they do rust"; but there is this difference—wire nails corrode, the material actually disappears, but you don't see any rust—it simply peels off. Such we gather from science reports.

Shingles become very much soaked at the butts with rain, and sweat from the action of the sun. Being mostly soft wood, when the heat of the sun bears on the roof, the shingles are easily drawn and warped by its rays. Then it draws the shingle holes off the nail in question whose body has begun to disappear; and the head part is no longer there to stay its warping, having already disappeared by the corrosive action.

Now, take the cut nail made expressly for this special work—called shingle nails—flat grip and edge grip. The stem is slightly thicker than the ordinary nail used for mouldings and general inside work. Then the head is much larger; and when the sun exerts its influence in drying the shingles, the large expanded head resists the soft wood from drawing over it, and successfully holds the shingle flat, preserving the original sightly view of the roof.

And this kind of nail we guarantee to maintain its proper uses for thirty, forty, or fifty years, if the shingles themselves are preserved that length of time. We advocate the edge grip as less likely to split the shingles. When the small or thin head is used for the nail, the trouble is not perceived at the time, because the damp shingles are held together by their own adhesive suction; but when a high wind comes and dries them out, then off they go, leaving a leaky roof which on repair becomes an unsightly spotted roof, causing the owner to use much profane language.

Yours truly,

VAN ALEN & Co.,

(E. G. VAN ALEN.)

Per F. ROUND, Gen'l Mgr.

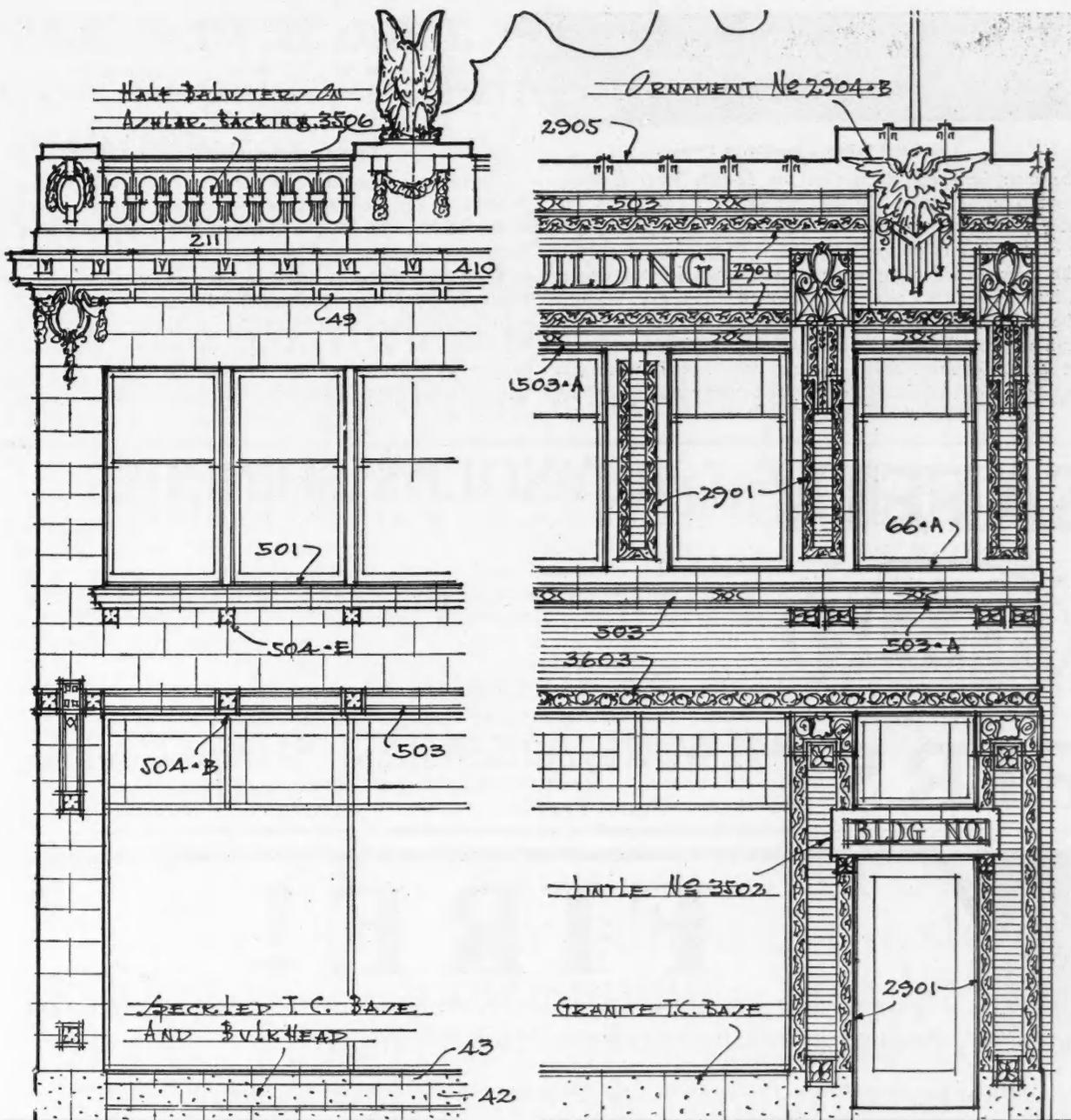
We assume that Mr. Round is speaking in this letter for all the group of cut nail manufacturers, whose announcements in our pages have been arousing so much favorable comment of late. A letter to any of the addresses given will bring some very interesting material.



Another Size Added to Crimp Edge Eaves Trough

The Milwaukee Corrugating Company, Milwaukee, Wis., manufacturers of 3½, 4, and 5-inch crimp edge eaves trough have perfected machinery whereby they can also furnish same in 6-inch size.

Crimp edge eaves trough is made from galvanized sheets, either slip or lap joint and has the advantage of being rigid, perfectly formed and exceptionally strong. The crimp edge also prevents hangers from slipping.



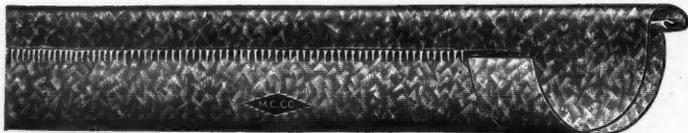
Clipping of Plate 35 (1915 Portfolio) showing application of stock terra cotta to two story buildings

AN UNUSUAL SITUATION

☐ It is not unusual for people to expect delivery of terra cotta within three weeks or even three days after placing an order—it's extremely unusual to get it as quickly as this—yet, users of Midland stock white enamel find such deliveries the USUAL thing—let us prove it to you on your next building.

MIDLAND TERRA COTTA CO.
 1515 LUMBER EXCHANGE BLDG., CHICAGO, ILLINOIS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



Six-Inch Crimp Edge Eaves Trough.

The manufacturers claim that the 12-foot lengths, made without a cross seam, are just as easy to handle as the shorter pieces and more profitable, as they save twenty per cent of the cost in putting on.

The demand for crimp edge eaves trough is steadily increasing and dealers claim that once used it is always wanted.

The Milwaukee Corrugating Company also advises that their new general catalog, which will be the handsomest and most complete sheet metal catalog ever issued, will soon be ready for distribution. Besides illustrating and describing their line of "Milcor" products, it will contain valuable in-

formation on figuring roofing and siding and the method of application of same and other general information which can only be gained by years of practical experience in the sheet metal line.



Laying Asphalt Shingles

A very useful booklet has recently been published by the Asphalt Ready Roofing Company, which contains much information that should be interesting to every builder and carpenter. Several suggestions are given that show the best methods to follow in laying asphalt shingles to secure the best results and to obtain artistic effects.

In laying these shingles, the bottom course at the eaves should be double. The bottom row at this course should be started with a full shingle and the upper row with a one-third width of shingle. The next course should be started with a two-thirds width of shingle and the next with

SAFETY



REYNOLDS SHINGLES

It is not economy to buy cheap goods, neither is it good policy to pay more for an article than the service rendered will justify. Reynolds Shingles have accomplished a great roofing economy by combining high quality with conservative costs of manufacture and sale. If your roof leaks, have your roofer put on Reynolds Shingles. If you are building a new house or barn, insist on having Reynolds Shingles. They give you durability, beauty and fire-retardant value for less cost to you than with any other roofing material.

Write for free booklet and samples of colors.

FIRST

H. M. Reynolds Asphalt Shingle Company
 "ORIGINATOR OF THE ASPHALT SHINGLE"
 Grand Rapids, Michigan



FIRE!

Lightning and Storm proof, plus architectural beauty, are the two leading and winning features about Montross Metal Shingles.

But the prices we quote you, Mr. Reader, is the compensating fact that makes

MONTROSS METAL SHINGLES

the most popular metal roofing on the market. They answer every requirement of safety, beauty and service. In addition they are economical in price and easily laid.

Every Montross Metal Shingle is an advertisement for you. It means more business.

We are giving one man in every section exclusive rights for his territory, with business enough to make him independent within a short time. We help to create business for every dealer.

Write now for trade terms and our booklet, "The Best Roof Under the Sun", giving information on roofing material never disclosed by a manufacturer to his trade before. We have a department devoted exclusively to estimating and will furnish you with Engineering advise FREE.

Montross Metal Roofing Co.
 102 Erie Street, Camden, N. J.



—write us at once. Our national advertising campaign is bringing us hundreds of inquiries.

Whether or not we have a distributor for NEPONSET Shingles in town, we like to refer the inquiries to a builder who will follow up the inquiry and put on the

NEPONSET SHINGLES

This means business and profits for you.

We want to arrange with builders to lay NEPONSET Shingles in every town in this country.

As you probably know the NEPONSET Shingle has caused a sensation in the shingle world. It is a double shingle. You lay two at once. It is fire resisting, and forms seven layers of durable, waterproof materials on the roof, which it covers. In short carpenters say it is “some” shingle.

BIRD & SON Established 1795

EAST WALPOLE, MASS.

NEW YORK

WASHINGTON
Canadian Plant and Offices—Hamilton, Ont.

CHICAGO

SAN FRANCISCO

Write Our Nearest Office

-----COUPON-----

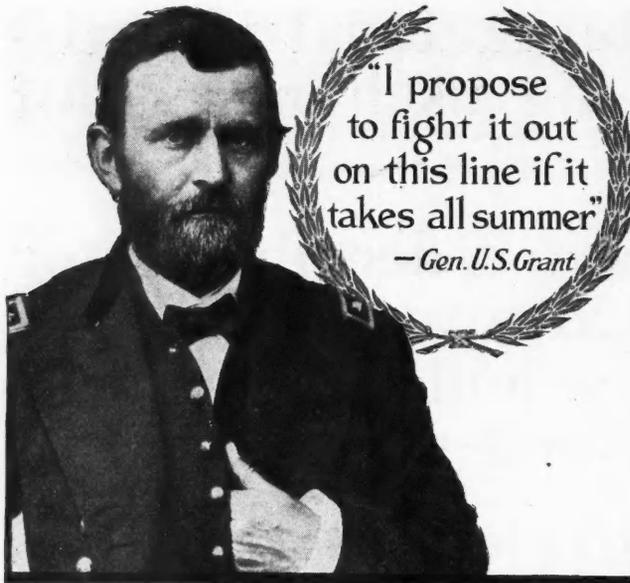
BIRD & SON,
Dept. C, East Walpole, Mass.

I have never laid the NEPONSET Shingle and would be pleased to hear from you.

NAME.....

ADDRESS.....

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



Resolve to Win!

Determination made Grant one of the greatest generals in history. The world knows his story. It knows, too, the stories of thousands of other determined men, who succeeded because they had a purpose and stuck to it.

Do you want to succeed? Do you want that better job? Do you want that increase in pay?

If you **do** want to get out of the rut—if you **are** determined to make something of yourself, send the International Correspondence Schools the attached coupon. Tell them what kind of position you want and they will show you how you can fit yourself to get it.

More than 500 determined men and women got better positions last month solely as a result of I. C. S. training. They secured this training in their own homes, at small cost and without losing time from their every-day work.

Determine to mark and mail the coupon today

INTERNATIONAL CORRESPONDENCE SCHOOLS
Box 910G 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"/> Electrical Engineer | <input type="checkbox"/> Window Trimming |
| <input type="checkbox"/> Foreman Steam Fit. | <input type="checkbox"/> Electric Lighting | <input type="checkbox"/> Commere'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 _____

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

a full width. This order is followed in going up the roof with each course. All nails are covered in each row by the row following.

The suggestion for ridges and hips contained in this book is good. The shingles are laid lengthwise along the hip or ridge and are bent down so as to extend on each side 4 inches. This is called the Boston hip method.

An unusual and artistic effect can be obtained by using "Hudson" shingles as siding. The shingles are laid 2 inches to the weather, and their crushed slate surface gives an appearance similar to a brick wall.

Builders and carpenters can obtain their copies of this booklet, entitled "Shingling and Roofing" by writing to the Asphalt Ready Roofing Company, Dept. 452, 9 Church St., New York. This company manufactures the "Hudson" line of shingles and asphalt roofing of all kinds.



"Hagar" Cement Co. Chartered

On June 9, a charter was issued under the laws of Maine incorporating the Cement Company projected by Edward M. Hagar, who lately resigned the Presidency of the Universal Portland Cement Company for the purpose of organizing a company to acquire and operate a chain of cement plants to cover the territory between the Atlantic seaboard and the Rocky Mountains.

It is called "Hagar Portland Cement Co." Its capital stock is Twenty Million Dollars, all common.

Mr. Hagar announces the election and appointment of the following list of officers and assistants:

Edward M. Hagar, President.

Morris Metcalf, Vice President.

B. H. Rader, Vice President and Sales Manager.

Gordon Wilson, Secretary and in charge of Cost Accounting.

Leonard Wesson, Assistant to President in Operation and Construction.

J. P. Beck, Assistant to President in Extension Work.

C. W. Lyon, Engineer of Economies.

J. H. Barbazette, Superintendent of Construction.

Pending the election of a permanent Treasurer, the office will be filled by Gordon Wilson.

The General Offices of the Company are located at 208 South LaSalle Street, Chicago.



Ventilating the Granary

Contractors should be familiar with the ventilators that are suitable for granaries. It is as necessary to have a good ventilator on a granary as it is to have elevating machinery.

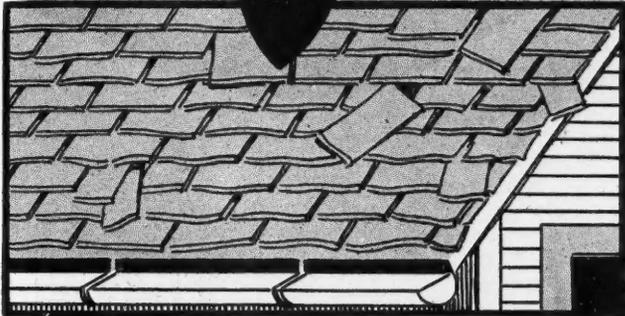
"The Gale" barn and granary ventilator is admirably suited to conditions that are found in this type of building. The ventilator is made of heavy galvanized iron and is screened on the inside to make it bird proof. The illustration shows the shape of the cupola.



Galesburg Cupola for Granaries.

The ventilator is made large enough so that it can be used as a cupola and will accommodate the headpiece of the elevating machinery. One side of the ventilator is made removable so that an outside elevator can be installed when desired; this is a good feature. The ability of this ventilator to act as a cupola besides ventilating the building makes it very practical for granaries. Full information can be had by writing to the Galesburg Sheet Metal Works, Galesburg, Ill.

Going to the Bad!



All Because of Poor Nails

The Shingles are not worn out, Oh, no! But the nails are—or nearly are; consequently the shingles loosen, the roof leaks, and the innocent shingle suffers the blame, when it's the fault of the Nail.

CUT NAILS

and Good Shingles result in a Good, Durable Low-Cost Roof

A Roof that will give years of service. Shingles are the roofing you are familiar with and have always used. Use Cut Nails and make your good shingle roofs last longer—much longer—than the majority of roofings on the market today. We have seen shingle roofs over fifty years old, and still good; but good, durable Cut Nails were used.



Build for the Future

It costs no more to use reliable Cut Nails in a building than wire nails, which soon rust and the difference will be noticeable in as short a time as ten years. In the places where nails are exposed to moisture near the ground, on porches, on the roofs, etc., the wire nails will be all, or nearly all, rusted away—the wood will rot around the nail hole, and the board will probably spring and have to be renewed or repaired. Cut Nails will last many, many years longer, and in addition have far more holding power, in some instances over 100% more. So by using Cut Nails you not only lengthen the life of a building, but you save the owner money on repairs and cost of upkeep as well.

Ask Your Dealer for Shingle Cut Nails

If he doesn't handle them write to nearest manufacturer, who will see that you are supplied. The manufacturer will also supply you with Free Samples.

Cut Nail Manufacturers

Tremont Nail Co., West Wareham, Mass.
E. & G. Brooke Iron Co., Birdsboro, Pa.
Van Alen & Co., E. G. Van Alen, Northumberland, Pa.
Williamsport Iron & Nail Co., Williamsport, Pa.
La Belle Iron Works, Steubenville, O.
Geo. B. Lessig Co., Pottstown, Pa.



Wall Board is a great succes for Light Store Partitions. The Stock Rooms and Cases in this Exclusive Ready-to-Wear Shop are Made of "Neponset" Wall Board, made by Bird & Son, Dept. C, East Walpole, Mass.

Here are Two "Southington" Hardware Co. Products
That are recognized each as the best of its kind.

The New "Hold-Fast" Bevel

Imported Wood Handle—No. 105, Brass Trim.

Cut Shows Lever Raised



NEW Locking Device

The Locking Device is a New Idea, controlled by us.

No. 105—Imported Wood Handle.

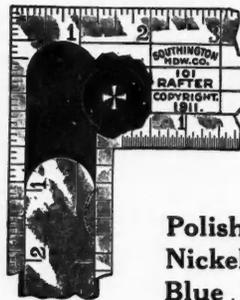
No. 95—Iron Handle, N. Plated.

Both are made in—6"—8"—10"

SEND US 50c for 8" SAMPLE of EITHER

TO DEALERS—We have an Attractive Proposition to make You—Write.

The "Standard" Take-Down Square



The Locking Device is your Surety that the Tongue CAN NOT SLIP.

FINISHES

- Polished.....each \$2.25
- Nickel Plate..... " 2.50
- Blue..... " 2.50
- Copperplate..... " 2.50
- Galvanized..... " 2.50

The Prices Include Delivery to You

These Take-Down Squares have already given many thousands of Mechanics excellent service.

Both these "Southington" Products are GUARANTEED AGAINST mechanical defects and imperfect workmanship

Made and Controlled Only by

THE SOUTHINGTON HARDWARE CO.

SOUTHINGTON, CONN.

Also Makers of—WOOD SCREWS—TRY and MITRE SQUARES—LEVELS—BEVELS and other TOOLS

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

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 1/4" 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.

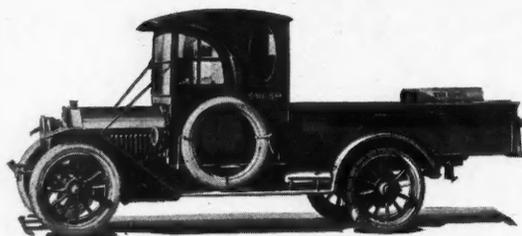
2104-A Detroit Ave. Toledo, Ohio

No. 8 Baby Level

No. 3

No. 7 Acme Square

No. 6 Casing and Graduated Ring



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.

An Electrical Triumph

The housewife has learned to wash, iron, heat, light, cook and clean with electricity. Now, owing to recent electrical developments, she may keep the flies out of her home with wire cloth protected by electricity.

The Reynolds Wire Co., of Dixon, Ill., have perfected and adopted a new patent process for producing their rust-proof "Alumina" cloth. Owing, as they do, the never-failing electric water power of Rock River at Dixon, they are especially well equipped to do this work. It requires over one hundred horse power to drive the electric generators which take the shining zinc from the big bars and deposit it, layer after layer, on the steel wire, after the cloth is woven, thus giving to rust-proof "Alumina" its many coats of pure zinc which afford perfect protection.

With the old method, where the zinc is melted and applied hot, only one protective coat is possible; just like a house painted with one coat, the weather resisting qualities are not there. Rust-proof "Alumina" cloth, with its multiplicity of pure zinc coats, soft in color like aluminum, is a cloth that defies the attacks of the elements and does not require painting or attention. It is highly sanitary, very transparent, and of an exclusive finish.

Circulars containing samples will be sent to architects, contractors and dealers upon request.

Saw Mill Expert A. S. Hill Joins "American" Co.

The American Saw Mill Machinery Co., of Hackettstown, N. J., large manufacturers of saw mill and woodworking machinery, have been so fortunate as to secure the services of Mr. Anthony S. Hill, well-known as a saw mill machinery expert, and for many years at the head of Wm. E. Hill & Co., of Kalamazoo, Mich.

Mr. Hill brings to his new connection a rich experience backed by an enviable record of success in the heavy saw mill machinery field. His position will be that of manager of the heavy saw mill department.

It is the intention of the American Saw Mill Machinery Company to greatly amplify their line of heavy duty machinery, under the supervision, designs and patents of Mr. Hill. It is also planned to bring out an improved line of the steam specialties in connection with which the "Hill" name has been so intimately associated.

The American Saw Mill Machinery Company will be thus in the unique position of offering absolutely anything that may be required from the lightest portable or stationary mill to the very heaviest that can be produced.

In order to handle their increased lines with maximum efficiency, the company are now building extensive additions to their already large works.

Sound Deadening in School Houses

The acid test of a sound-deadening material is found in its application to school houses. A material that will effectually prevent the transmission of sound from room to room and from floor to floor in a school house will succeed in any of the ordinary sound-deadening problems.

Samuel Cabot, Inc., has recently issued an interesting booklet, entitled "School Houses," that shows some of the many installations of their sound-proofing "Quilt." This material is made of cured eel-grass which is held between layers of tough manila paper by quilting. Where absolutely fireproof construction is wanted their "Asbestos Quilt" is used. This is the regular Quilt covered on both sides with heavy asbestos paper.

Eel-grass will not burn unless a direct flame is applied and will cease burning as soon as the flame is taken away so it is an effective fire retardant. To show its lasting qualities,

*The result of
23 years' successful
experience in
building motor cars*



America's Greatest "Light Six" \$1385
TRADE-MARK REGISTERED

**The 1916 Haynes is Here
with Many New Refinements**

Come see the 1916 Haynes—the same wonderful car that was the sensation of last season—the car that still dominates the "light six" field. Many new refinements have been added for your comfort and convenience.

The bodies are big and roomy, with deep rolls of soft upholstery. Real hand-buffed leather is used. Individual, adjustable front seats are used on both the five and seven passenger models. The front doors are retained so that entrance may be had directly to the front compartment.

THE
HAYNES
America's Greatest "Light Six"

The two auxiliary seats used in the seven passenger model disappear entirely into the floor when not in use; only two rings are visible.

The three passenger roadster is of the clover-leaf design, containing three individual seats with form-fitting upholstery. The center seat is dropped back and an aisleway is left between the forward seats. An unusual amount of carrying space is provided.

Self-lubricating springs are used in the chassis. Helical bevel drive gears are used in the rear axle. The equipment includes a Waltham clock, Boyce Moto-Meter, trouble lamp, automatic circuit breaker to take the place of fuses, Sparton horn and non-skid tires on the rear. Over-size tires on the seven-passenger model.

TWO MODELS—THREE BODY STYLES.

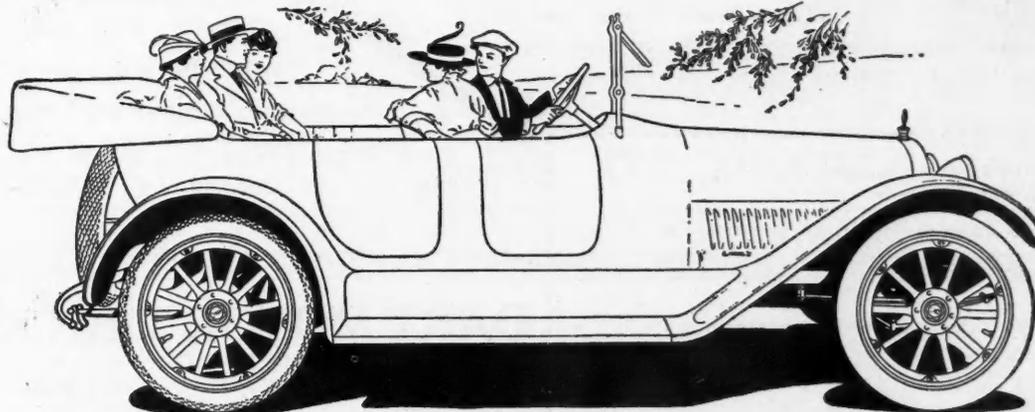
- Model 34—America's greatest "Light Six"—5-passenger Touring Car, 121-in. wheelbase, weight 2,950 lbs. \$1,385
 - Model 34—The prettiest Roadster in America—3-passenger 1,485
 - Model 35—The Kokomo "Six"—7-passenger Touring Car, 127-inch wheelbase, Weight 3,050 lbs. 1,495
- All prices f. o. b. Kokomo.

Catalog with complete specifications on request.

The Haynes Automobile Co.

14 South Main Street

Kokomo, Indiana



Model 34—Five Passenger Touring Car—Price \$1,385, f. o. b. Kokomo, Ind.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

the manufacturers cite a case of a house that was built in 1653 and had the walls stuffed with this grass. The grass is still in perfect state of preservation.

Cabot's "Quilt" comes in three grades, by weight: Single-ply, one-third inch thick; double-ply, one-half inch thick; and triple-ply, three-quarters inch thick.

Builders will find this book very interesting and can get a copy by writing to Samuel Cabot, Inc., 1133 Broadway, New York, or 24 West Kinzie Street, Chicago.



The Saw in History

Henry Disston & Sons, Inc., Philadelphia, have recently put out a 64-page book, entitled "The Saw in History." It handles in a comprehensive way the development of the saw from its prehistoric origin to its presently highly perfected form. Practically every type of saw is covered, descriptions of the more modern developments being especially complete. The text is supplemented with profuse illustrations.

The preparation of the book involved a vast amount of research work among libraries, private records, original manuscript, etc., and "The Saw in History" is claimed to be the first complete chronological record of the development of this tool.

The facts are presented in an interesting readable manner and its perusal will prove valuable to anyone, especially to those in intimate touch with the present-day application of this universal tool.

A copy may be had free of cost by application to Henry Disston & Sons, Inc., Philadelphia, Pa.

The small handy size and the complete index are features



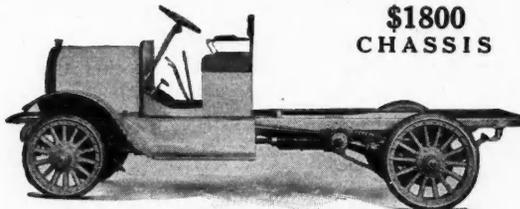
Four-pint Sterling Silver Pitcher Donated by Henry Disston & Sons as One of the Trophies for the Gold Tournament of the Manufacturers' and Distributors' Golf Association at Philadelphia, June 3 and 4.

of the new general catalog issued by Henry Disston & Sons. All the different types of saws that anyone could imagine are shown, also the many other tools made by this company. There are descriptions of files of all kinds, levels, squares, knives, trowels, etc. Builders will find this catalog mighty useful and can get a copy by writing to the company.

The quality of their productions is well known and needs no recommendation from us.

MINIMIZE THE COST OF DELIVERY

Install **Dart** Motor Service And You Have Solved the Problem



\$1800 CHASSIS

The above cut is of our standard Model "C" chassis which we furnish in either 130 inch or 144 inch wheel base—carrying capacity 3000-4000 lbs. A truck of sufficient capacity to meet your every requirement.

"Dart" trucks are built upon merit—built to stand the most careful and discriminating inspection.

The service you will receive from motor delivery will depend somewhat upon your ability to select the "Right Truck."

The attached coupon mailed today will bring you valuable information on the "Dart." Convince yourself of the superiority of the "Dart" truck and we are confident of receiving your order.

"SOLD ON SIX CONTINENTS"

DART MOTOR TRUCK CO.
DEPT. "C-7"
WATERLOO, - IOWA

DART MOTOR TRUCK CO., Dept. "C-7"
Waterloo, Iowa

Gentlemen:—Please send further particulars on DART TRUCKS to—

Firm.....

Town.....

State..... Business.....

Lumber

\$298⁰⁰

**Buy the Material for
this House**

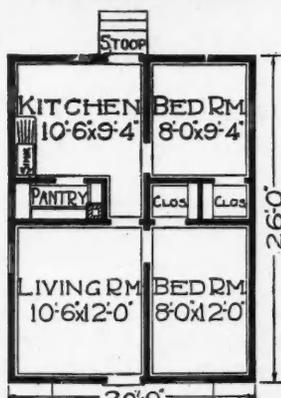
**Modern Home
No. 264B107**



CARPENTERS

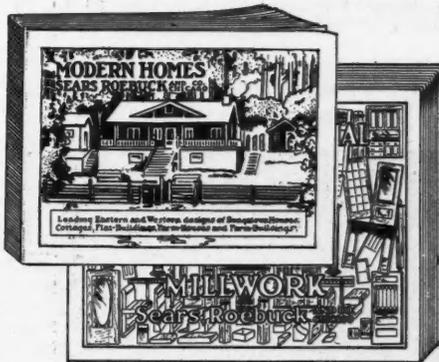
Let us double your profits. For only \$298.00 we will furnish all the millwork, flooring, siding, finishing lumber, building paper, eaves trough, roofing, hardware, painting material, lumber and lath to build this four-room house—everything except cement, brick and plaster. **Quality and Quantity Guaranteed.**

Nowhere else can you secure such a big bargain. Send \$1.00 today for the plans, (blueprints), specifications and bill of material for this Modern Home No. 264B107, and mention the American Carpenter and Builder.



Floor Plan

Fill in and cut out the coupon below, which will bring you **Free** our book of Modern Homes, showing over 100 other designs of houses, our latest Building Materials and Millwork Catalog and our Wholesale Lumber Price List. You cannot afford to be without these three great free books. Thousands of carpenters use them in their business every day.



SEARS, ROEBUCK & CO., CHICAGO, ILL.

Millwork

Roofing

Lath and Shingles

**Cut
This
Out**

SEARS, ROEBUCK & CO., Chicago, Ill.

Gentlemen: Please send me your Book of Modern Homes, your Millwork Catalog and your Wholesale Lumber Price List No. 56A231, and oblige

Name

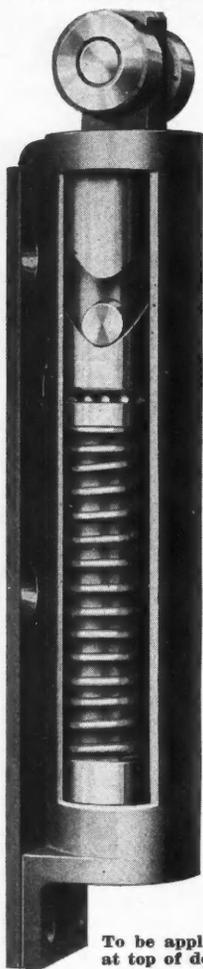
St. Ad. or R. F. D. Town State

Four New Hardware Specialties

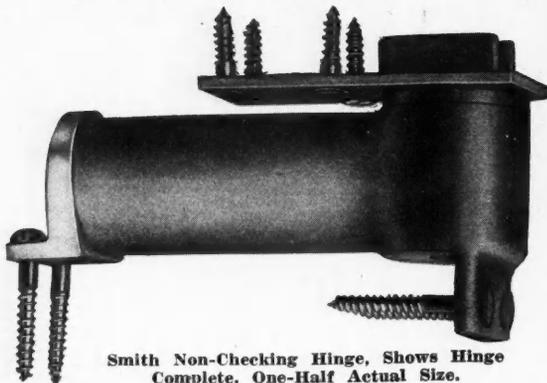
There is always a keen interest in anything new, especially is this true where the new article fills a long-felt want. For this reason THE AMERICAN CARPENTER AND BUILDER always takes pleasure in bringing before its readers any new improvement that we consider worthy of mention.

Of the many new articles in builders' hardware we have brought before the eyes of our readers, we know of none that deserve more commendation than the new line just brought out by The Thoben Manufacturing Company, 115 E. So. Water Street, Chicago, Illinois.

The Smith Patent Checking Hinge for Double Acting Doors, is made on entirely new lines, to fill the demand for an oil checking hinge for inside doors at a moderate price within the reach of all. This hinge is especially adapted to door from kitchen to



To be applied Pivot for bottom of door at top of door.
Smith Patent Checking Hinge for Double Acting Doors.



Smith Non-Checking Hinge, Shows Hinge Complete, One-Half Actual Size.



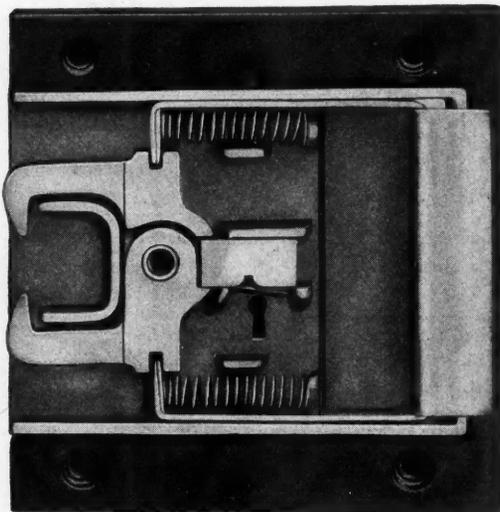
dining-room or pantry in homes, apartment buildings or flats. The hinge works in the radius of the thickness of the door, therefore leaving no opening behind the door to crush a baby's finger; and closes so lightly as to eliminate any accident.

There is no slamming whatever, as the door always stops on center. The accompanying illustration gives a good idea of its construction. The hinge is placed at the top of the

it partially filled with lubricating oil—enough to last the life of the hinge. The weight of the door is carried by a simple hardened ball and socket joint. The cost of applying is very light, as it takes little labor, therefore is quickly done.

The Smith Sliding Door Lock is a simple, strong, and very effective lock, easy to apply, easy to operate, and very neat in appearance. A compression spring acts on each latch, works from either side and locks both latches. It locks only when key is used. Made in forty-two changes and can be made master-keyed in sets of seven.

The Smith Sliding Door Hinge and Track is something so new and simple that it is sure to impress you. The illus-



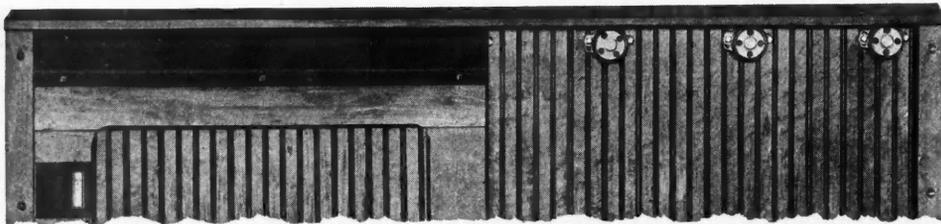
Smith Sliding Door Lock with Inside Cover Plate Removed.

trations show the door closed, also sectional view. Notice the order of things has been changed, the track being placed on the door and the hangers on the building.

No more warped doors; the track is so constructed that the door cannot warp, but will always roll freely and can not be lifted off.

The hangers are adjustable and therefore can be easily kept in perfect alignment, should the building sag at any time. These hangers are simple in construction, moderate in price, easy to install, and perfect in operation.

They require very little headroom, making it easy to protect from rain, as shown in illustration. The track and hangers are so designed that there is no place on them where birds can build their nests. This hanger allows the



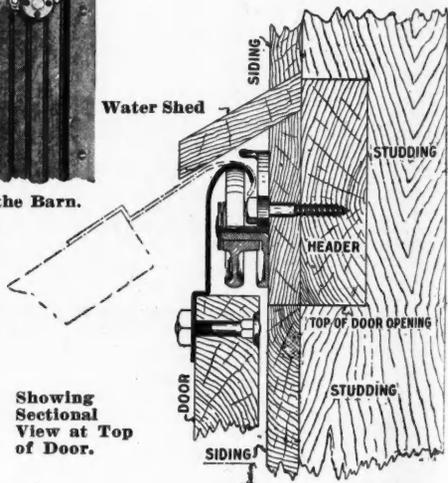
Smith Sliding Door Hanger, Showing Door Closed. Track is on the Door, Rollers on the Barn.

door and is very simply applied requiring very little labor to apply. The bottom pivot, which carries the weight of the door, is a simple hardened ball and socket joint.

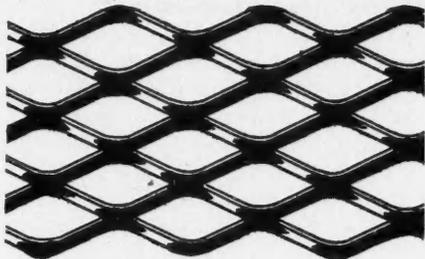
The apartment house equipped with a checking hinge will rent quicker, as this is a strong additional feature.

The Smith Non-Checking Hinge for Double Acting Doors is made especially for those who want a first class hinge that swings in the radius of the thickness of the door and will not pay the price of a checking hinge, but still want something good. This hinge is applied at the top of the door and

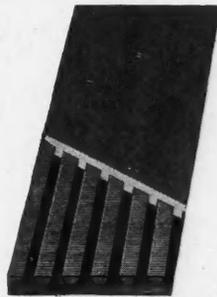
door to swing out at the bottom without injuring either the track or hanger in the least, and will roll as well when swung out as in its normal position.



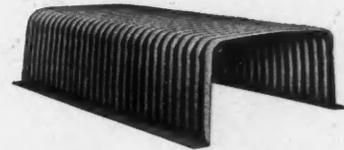
Showing Sectional View at Top of Door.



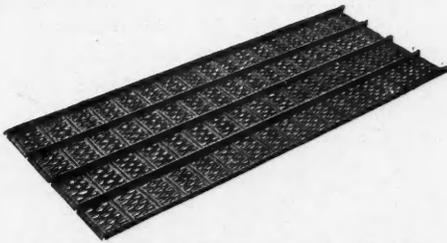
Berger's Expanded Metal Lath
Made from Steel or Toncon Metal (Anti-Corrosive).
Furnished in all gauges, painted or galvanized.



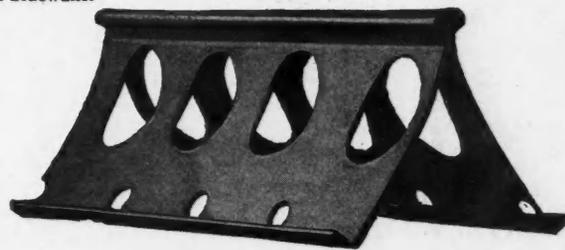
Berger's Ferro-Lithic Reinforcing Plate
For Highest Efficiency in Concrete
Floors, Roofs and Sidewalls.



Berger's Pressed Steel Core
For coring out Concrete Floors and Roofs.
Adapted to all classes of construction.



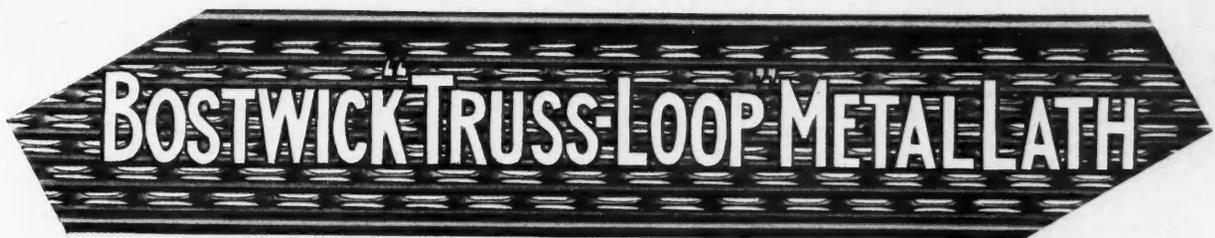
Berger's Rib-Trus Reinforcing and Furring Plates
For Concrete Floors, Roofs, Sidewalls, Plastered
Ceilings, Partitions, Stucco Houses, etc. No cen-
tering or false work required on ordinary spans.



Berger's Corner Beads.
In all Styles to meet all Specifications. For Perfect Protection to
Exposed Plaster Corners.

WRITE FOR SPECIAL BOOKLET F. A. B.

THE BERGER MFG. CO., CANTON, OHIO



Weight, 5 lbs. per square yard

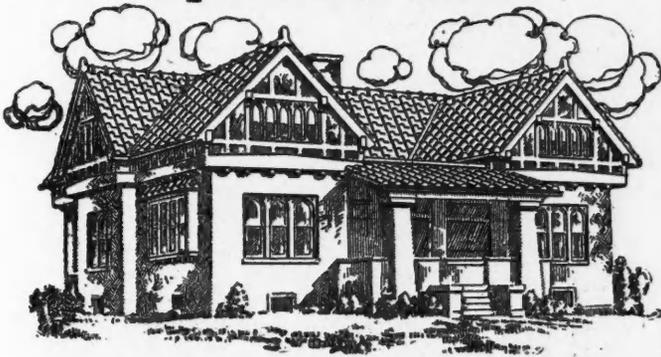
Gives double the weight and strength of re-enforcement. Has the largest, heaviest and strongest plaster key. Shows the lowest cost of finished plaster surface.

TRY IT ON ONE JOB. YOU WILL CONVINC YOURSELF

THE BOSTWICK STEEL LATH CO.

NILES, OHIO

Spanish Tile



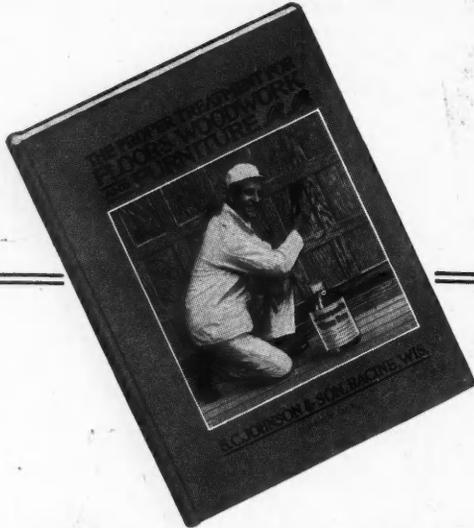
Catalogue "S" showing a complete line of Ornamental Roofings mailed free to Architects, Contractors and Carpenters.

Write for Prices on

| | |
|----------|-------------|
| Ceiling | Marquise |
| Columns | Roofing |
| Cornice | Shingles |
| Cresting | Siding |
| Culverts | Skylights |
| Finials | Spouting |
| Garages | Tanks |
| Gutter | Ventilators |

Address **The Moeschl-Edwards Corrugating Co.** Covington, Kentucky

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



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&B7

Is the Public Demand for Quality Building Materials Increasing?

"I remember well—I guess most of us do—when the roof used to be considered only an incidental part of the building job," said a prominent building contractor recently. "Those were the days before the roofing manufacturers started to educate the public up to what the requisites of a good job of roofing are. It's been a splendid boost to the entire building game, too. The contractor's reputation has been strengthened because the public has come to demand a better quality of roofing—even if they have to pay a little more for that better quality. And naturally the better the quality of the roofing used, the more satisfactory the job to everyone concerned."

Has this contractor struck the keynote of the real reason behind the recent big demand for better roofings: that the public has learned to appreciate roofing quality and to realize that to secure that quality they must pay for it, just as they appreciate quality in wearing apparel and realize that it costs a little more? From even a superficial investigation it would seem so.

A recent report from the Heppes Company of Chicago adds weight to this theory. "We find," said an official of the Heppes Company, "that the sales of our very best grades of asphalt shingles and asphalt roll roofings are booming constantly. These are by no means cheap roofings; they cost a little more than even a good ordinary roofing. There must be some reason for this unusual demand other than the inherent quality of the roofing itself. We feel that this reason is the tendency of the modern public mind to be exacting as to quality in all building materials. We find this same fact true in regard to our other products—particularly wall board. We have discovered that the public wants only one grade of wall board and that the best grade."

Coming from a firm with such wide experience in the production and sale of quality building products, this statement from the Heppes Company is worth considering carefully. If the public wants quality, why not boost quality, Mr. Contractor? It means more than better profit to you; it means satisfied customers, the only kind of customers that are worth having.

The Heppes Company are offering some very attractive sample displays of their high-grade Flex-A-Tile "Giant" Asphalt Shingles as well as of their new Utility Board in grained wood finishes. Any contractor, carpenter or builder who has these quality products on display is certain to stimulate even a greater interest in quality products among the present and prospective building owners in his locality. The Heppes Company, located at Fillmore Street and Kilbourne Avenue, Chicago, will gladly send these samples on request.



New Hy-Rib Handbook

The 13th edition of the "Hy-Rib" handbook has just been issued. This book contains all the material of past editions and also all new developments.

The various types of "Hy-Rib" are shown with their application to many forms of construction. Specifications and reading matter have been revised so as to include all recent developments. One of the most interesting as well as instructive features of this book is the series of pictures taken in the field, showing different stages of construction of various types of buildings. This book also shows pressed steel construction using pressed steel studs.

Builders and contractors will find this handbook mighty useful for reference purposes. You can obtain a copy by writing to the Trussed Concrete Steel Company, Dept. H.44, Youngstown, Ohio.



**"You'll Want
BAYONNE
on Your
Porches"**

It is laid directly on the dry boards without "setting" in wet paint.

Our waterproof preparation is applied under pressure and permeates the whole fabric. It retains its pliability and at the same time is impervious to water.

For outside work it is superior to metal or other prepared materials—and for inside flooring it takes the place of linoleum or oilcloth.

No material known at present equals it for wearing qualities, combined with noiselessness to tread of feet or drip of rain and freedom from expansion or contraction due to climatic changes.

Write today for Sample Book "N" and get full particulars.

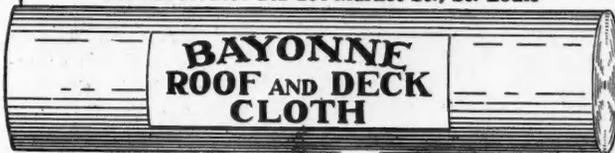
See Sweet's, Page 539

JOHN BOYLE & COMPANY, Inc.

112-114 Duane St.
70-72 Reade St.

New York City

Branch House: 202-204 Market St., St. Louis



It is Nice to Get a Letter Like This
FROM SATISFIED CUSTOMERS

Asphalt Ready Roofing Co., 9 Church St., New York, N. Y.
Sirs:—Please find enclosed Postal Money Order to pay for shingles shipped to us by you. Shingles came in good condition and are on the roofs and give splendid satisfaction. Many thanks, yours for business.
(Name and original letter shown on request.)

Would you like to know more about
HUDSON SHINGLES
and other
HUDSON ASPHALT ROOFING PRODUCTS



Won't you be one of our satisfied customers, too. Just mail us the coupon, with your name and address filled in and we will send free copy of our new book "Shingling and Roofing," and samples of Hudson Shingles.

HUDSON ASPHALT READY ROOFING CO.
9 Church St., New York, N. Y.

Dept. 452 ASPHALT READY ROOFING CO.,
9 Church St., New York

Please send free copy of "Shingling and Roofing" and large samples of "Hudson Shingles"—with no expense to me.

Name

Address

INTERNATIONAL ASPHALT SHINGLES

HAVE MADE GOOD!—WHY?

- Because** they successfully meet all conditions to which they are subjected.
- Because** they add a distinctive charm and elegance to the building on which they are used.
- Because** they provide a guaranteed roof at a surprisingly low price.

Our method of doing business will be interesting to you. Write us today for our proposition and full-sized sample.

MANUFACTURED BY
INTERNATIONAL ROOFING MANUFACTURING COMPANY
MAIN OFFICE AND FACTORY :: :: :: :: 5305-21 SOUTH WESTERN AVENUE, CHICAGO

Thousands of Home Owners are Receiving this Catalog!

It contains over one hundred views of homes and residences throughout the country for which leading architects and contractors have used

"CREO-DIPT" Stained Shingles

17 Grades 16, 18, 24-inch 30 Different Colors

Our advertising to home owners appears in twenty-one magazines. There are many, many readers of these magazines in your locality. Are you prepared to give them information about particular colors and grades that they want to buy?

Send today for this catalog and our prices

"CREO-DIPT" Stained Shingles are selected cedar, preserved in creosote and stained any color desired. They come in bundles ready to lay without waste. Saves the muss, bother and waste of staining on the job. Insures roof and side-wall covering of exceptional life and appearance. Write today.

Standard Stained Shingle Co., 1028 Oliver St., North Tonawanda, N. Y.
Branch Factory in Chicago for Western Trade





"After all, I suppose the roofing business is just like any merchant's business—there is quick selling and slow moving merchandise in every line. When I tell you that Flex-a-Tile Shingles are quick 'sellers,' I know what I'm talking about.

"I have sold more roofing jobs by displaying Flex-a-Tile samples in actual colors in the last thirty days than I ever did before in six months. Since I have had the Heppes Reference Book I have been SELLING roofing jobs rather than waiting for customers to come to ME and I have found it pays to push this line."

Send Today for Liberal Free Sample of Flex-A-Tile "Giant"

You can make just as profitable use of our handsomely illustrated reference book—a book of genuine interest to every contractor, builder and carpenter. It explains all about our various brands of roofing and shows HEPPE'S FLEX-A-TILE AND "GIANT" shingles in actual colors—just as they look on the roofs. And remember, Flex-a-Tiles make handsome roofs and handsome profits.

Drop a postal or write today and we will send the Flex-A-Tile book and samples for your files.

THE HEPPE'S COMPANY
1010 SOUTH KILBOURN EAVENUE :: :: CHICAGO

Utility Wall Paper
Standard Flex-A-Tile Shingles

No-Tar Asphalt Paint
Rubbertex Roll Roofing

Other Guaranteed Heppes Products



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Very Complete Line of Builders' Hardware

A very complete line of builders' hardware of all kinds is shown in the 264-page catalog (No. 11) of the Gregg Hardware Co., 44-46 Cadillac Square, Detroit, Mich. Much standard equipment of high grade is shown. The volume is well illustrated. A feature of special value is a full and well arranged index, so that all materials listed can be readily found.

Builders will find it useful for reference purposes. A copy can be had for the asking. ❖

Easy Adjustments Feature of this Floor Scraper

A floor scraper that is particularly easy of adjustment is the "Stern," produced at Lancaster, Pa., by the Stern Manufacturing Co. The blades can be adjusted to a thousandth of an inch, in the following way: A screw-driver is simply inserted in a slot in the center of the quadrant and a turn of the wrist adjusts the blades. A small wheel at the



The "Stern" Floor Scraper.

top of the handle can be turned which loosens a brake on the quadrant and allows the handle to be raised or lowered to any height desired. The blades can be removed by turning the small hand wheel at the blade holder.

All these adjustments are simple and mighty convenient.

Another advantage of this scraper is in the fact that it does not require special blades but can use

any, say up to a size 3½ inches by 7 inches.

The Stern Manufacturing Company, makers of this scraper, has recently changed hands and is now in a position to fill the demand for same, which was impossible heretofore under the old organization. They have also improved the machine considerably in the quality of the metals used, but of course, could not improve the mechanical end of the machine. Every purchaser of a Stern scraper can feel assured that he has bought the most practical floor machine that is manufactured today, as every user of the Stern scraper up to date will substantiate this statement. ❖

Bicycle Racing Again the Rage

The promoters of the six-day bicycle race in Chicago last winter sensed the fact that the time was ripe for a revival of bicycle racing. The large crowds that turned out to see the race proved that their "hunch" was indeed a happy one.

All over the country the racing fever is spreading. In a score of cities new race tracks have been established. One of the best known of these tracks or velodromes, as they are called, is at Riverview Park, Chicago.

Every week, cycling events are held at Riverview, and every week large numbers of new performers are entering the races in competition for the valuable prizes that are offered.

An interesting effect that the revival of racing is having on the bicycle industry as a whole is reported by the Mead Cycle Co. of Chicago. They say they are doing the largest business in their history and that the demand for machines of the racing type is taxing their capacity.

A very practical development in the trade generally, resulting from the revival of the racing fever, is a tendency to swing away from the heavy machine, loaded with superfluous equipment, back to the old style, light-weight, stripped machine.

The new catalog of the Mead Cycle Co. is a feast for the

THERE is no question but that the wall-board principle of construction is correct. Then, why not select Fiberlic, which is an *improvement* over wall boards, and thus have principle and material of *the best*.

Fiberlic is a remarkably strong, tough, rigid root-fiber product. Being a very dense, compact material of similar parts, Fiberlic has more body to it, is stronger, more fire-resisting, and a better insulator than wall boards, which invariably have several different materials in their make-up.

Fiberlic will give your customers better walls and ceilings—better service. It will increase your profits, for your satisfied customers will bring you new and more business.

Write for Samples and Prices Today

THE FIBERLIC COMPANY, Camden, N. J.

New England Branch: 140 Washington Street North, Boston, Mass.
 New York Branch: Fuller Bros. Co., 139 Greenwich Street
 London (England) Branch: MacAndrews & Forbes, Ltd., Finsbury Court, E. C.



FIBERLIC
Paints and Stains

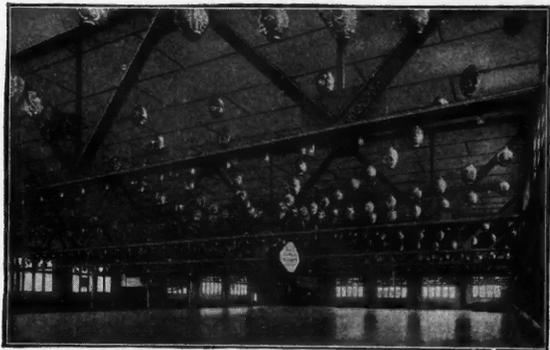
Realizing the importance of the effect produced by well finished work, we made thorough and complete tests for the benefit of all users of Fiberlic, with the result that we have developed a line of paints and stains which will insure the best results on our product. We manufacture Fiberlic Paints and Stains in many colors and tints.

Write for Color Card

**An Improvement Over
 Wall Board**

Will Bring You Bigger Profits

Fiberlic



The Palladium Skating Rink, St. Louis, Mo.

CAREY

Ceil-Board
 SUPERSEDES PLASTER FOR WALLS AND CEILINGS

28,000 square feet of Ceil Board were used on the ceiling of the skating rink shown above. This is illustrative of thousands of Ceil Board jobs that can be had by the wide-awake contracting carpenter if he is familiar with this modern wall covering.

That Ceil Board is being specified by more architects than any other wall-board means something. It means that architects and contractors who are directly responsible to building owners realize that the scientific construction of Ceil Board and the reputation of its makers warrant their recommendation.

Get samples and full information for the Spring work.

THE PHILIP CAREY COMPANY

General Offices 1021 Wayne Ave, Lockland Cin, Ohio
 OFFICES & WAREHOUSES IN PRINCIPAL CITIES.



It Takes the Best to Stand This Test



H. P. Kehr, Architect, Buffalo, N. Y.

Plastergon was applied all through this brick block a year and a half ago and today is in better shape than when applied.

The Owner and the Architect are Both Pleased with Plastergon

PLASTERGON
 TREATED WOOD FIBRE
WALL-BOARD

Ordinary wall boards in brick buildings usually cause trouble and most manufacturers discourage their use, but if the board is TREATED WOOD FIBRE it will stand up under any conditions

"Every Panel Guaranteed"

of building. That's why Plastergon is used so much in Atlantic City and other damp places.

You might better use the best—the cost of applying is the same, and the up-keep is less. Costs no more than Ordinary Boards.

Plastergon is the home owner's choice nine times out of ten. By using it, you increase your chances of business just that much.

Our samples and literature are free—your kit isn't complete without them. A postal brings them.

PLASTERGON WALL BOARD COMPANY, Tonawanda, N. Y.
 101 Fillmore Ave.

person who is interested in the purchase of a new machine, or in the providing of equipment for the old machine. Any reader can secure a copy by addressing Dept. H122, Mead Cycle Co., Chicago.



Striking Twelve

The owner of a St. Paul newspaper was greatly pleased with an editorial written by the editor of this paper and was complimenting him on his work. The owner told him if he would only write editorials of a similar nature every day, the paper would become the greatest paper in the Northwest. The editor took his praise very modestly and answered that if he kept on writing long enough, he couldn't help but strike twelve once in a while.

Just now when the hue and cry of hard times is raised with great frequency and the clamor for business is keenest, it is an unusual pleasure to strike twelve.

One day last week Chain Belt Company's salesman and agents sent in twelve orders for Rex, Low Charging Mixers—these orders coming from all parts of the country proving that there is business to be obtained, although the efforts to secure orders must be increased and "hard times" is very apt to be the cry of the lazy man who is not up and hustling.

Below is a list of twelve orders received in one day for Rex Low Charging Mixers:

Yackel & Fischer,
Lewiston, Minn.

S. F. Perry,
Decatur, Ill.

A. J. Bradner,
Patton, Ohio.

Burrell Eng. & Constr. Co.,
Chicago, Ill.

C. H. Schenk,
Springfield, Ill.

Lodi Concrete Co.,
Lodi, Wis.

C. W. Judy,
Elgin, Ill.

A. N. Smestead,
Orfordville, Wis.

The Miracle Concrete Co.,
Kalispell, Mont.

City of Barre,
Barre, Vt.

E. C. Humphrey,
Ridgewood, N. J.

Henry Shenk Co.,
Erie, Pa.



One Day's Sale of "Rex" Mixers Lined Up for Final Inspection Before Shipping.

For walls and ceilings of wooden buildings here's the *right* material

Trouble is sure to come sooner or later when you plaster the walls and ceilings of a wooden building. Wood is affected by changes in weather. Plaster cannot adapt itself to the changes. It cracks and eventually falls. Here's the material that DOES adapt itself to the variations of wood construction—

CORNELL-WOOD-BOARD

has revolutionized the wall board business. Made entirely of tough, wiry wood fibres and sealed through and through against the inroads of moisture by the original Cornell fibre-sizing process.

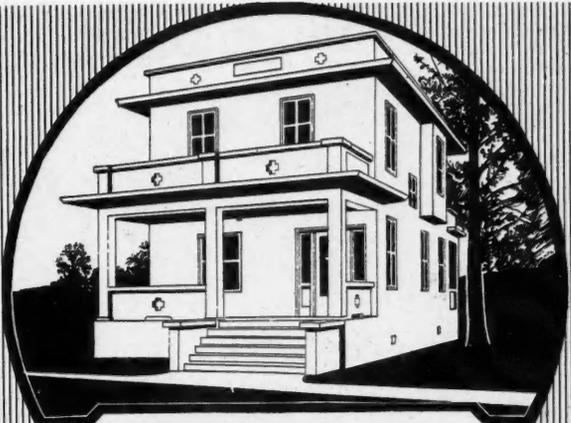
Get posted on Cornell-Wood-Board. It is the **quality** wall board that the building trade has been waiting for. It saves the muss and delay of plastering. It is better for you and better for the owner.

Cornell-Wood-Board is manufactured, not assembled—the only wall board made complete in one plant from raw material to finished board.

Write for samples and complete information

Cornell-Wood-Board, Dept. A-1, Cornell, Wis.

Permanent Exhibits at Insurance Exchange, Chicago
Nat. Soo Line Bldg., Minneapolis



The Cottage Everlasting

is the one that has walls constructed with good cement. Stucco and solid concrete are economical to maintain and make a substantial, comfortable, handsome house. The concrete house shown above was erected by the Chatham Real Estate and Improvement Co., of Savannah, Ga., and built with

ALPHA PORTLAND CEMENT

The High-Water Mark of Quality

ALPHA satisfies the discriminating builder because it is tested hourly for quality by chemists in all the six great ALPHA plants. In composition, exact burning, and fine grinding ALPHA is an exceptional cement. It represents 24 years of high quality policy and is warranted to more than meet all standard requirements.

Let us send you, free of charge, literature dealing with the use of ALPHA Portland Cement, with stucco work, concrete houses and concrete improvements generally. Ask for ALPHA Book No. 10.

ALPHA PORTLAND CEMENT CO. General Offices: **EASTON, PA**
New York, Chicago, Philadelphia, Pittsburgh, Boston, Buffalo, Baltimore, Savannah



St. John's
Richmond, Va.

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.

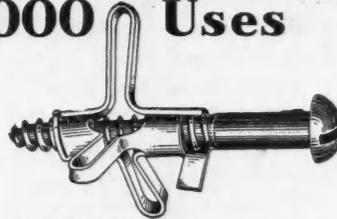


Trade Mark



Ankyra Bolt ready for inserting.

The Screw-Hold With 1000 Uses



Ankyra Bolt after expanding.

For holding screws with a bull dog grip in hollow tile, lath-and-plaster, expanded metal laths, metal window-frames, sashes, concrete, etc.

Indispensable in modern building construction to architects, builders, plumbers, steam-fitters, and electricians.

Ankyra Bolts are not loosened by jarring. The nut is an integral part of the Bolt. The screws can't work loose, but they can be taken out and replaced at will, without losing the Bolt.

Ankyra is a permanent screw-hold. Ankyra Bolts are the only practical means, in many cases, of fastening fixtures quickly and securely to walls—and the most economical.

Ankyra Expansion Bolts are of special steel, and made for No. 6, 8, 10, 12, 14, 16 and 18 Wood Screws. It will pay you to look into them at once.

Fill out the Coupon for Samples and Booklet **FREE**

Ankyra Mfg. Co.

Philadelphia

ANKYRA MFG. CO.
149 Berkley St.
PHILADELPHIA

Please send without cost or obligation to me, samples and booklet describing Ankyra.

Name.....

Address.....

State.....

Death of Jacob M. Wiest

It is with sincerest regret that we note the sad death of Mr. Jacob M. Wiest, of the Detroit office of the J. Walter Thompson Advertising Agency. Mr. Wiest died on June 1, as the result of injuries received in an automobile accident near Saginaw, Mich. His loss will be deeply felt by the advertising world.



Bommer Spring Hinge Exhibit

Bommer Brothers, of Brooklyn, N. Y., have a most attractive display at the San Francisco Fair. It is very complete and embraces the well known Bommer single and double action spring butt hinges, Bommer floor spring hinges of all types, such as horizontal, vertical and mortise floor spring hinges, having holdback, release and double release features as well as the plain floor mortise spring hinge, Bommer lavatory spring hinges, strikes

and bolts, Bommer screen door hinges, door springs, door holders, and garage and engine house spring hinges, bolts and latches.

A striking innovation in their line of single and double action spring butt hinges is the new "dome tip" pattern which Bommer Brothers have recently put on the market. These hinges, while embodying all the mechanical principles of the new Bommer spring butt hinges of the ball tip style, have



View of Bommer Bros.' Exhibit at San Francisco Fair, Palace of Manufactures.

a somewhat plain but singularly pleasing design and give a massive appearance.

In the floor surface spring hinges, new improvements are shown, viz: a very simple yet positive release which permits the door to swing free; oil holes in the side plates connected with channels allowing easy lubrication of the side plates for lubricating and beveled oblong side plates to match the door hardware now so extensively used.



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.

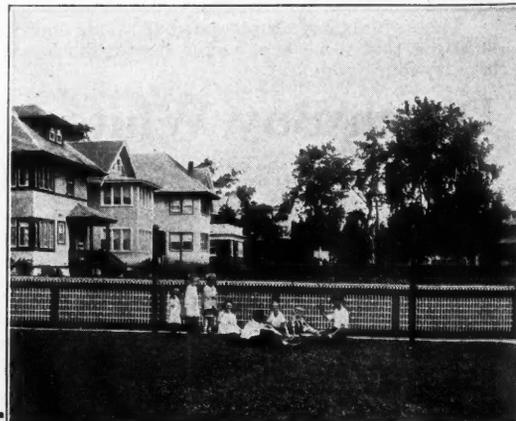
Promotes sanitary conditions. Encourages the growth of flowers and vegetation.

Every **Globe Fence** you erect will lead to other orders from neighboring owners. It recommends itself on sight.

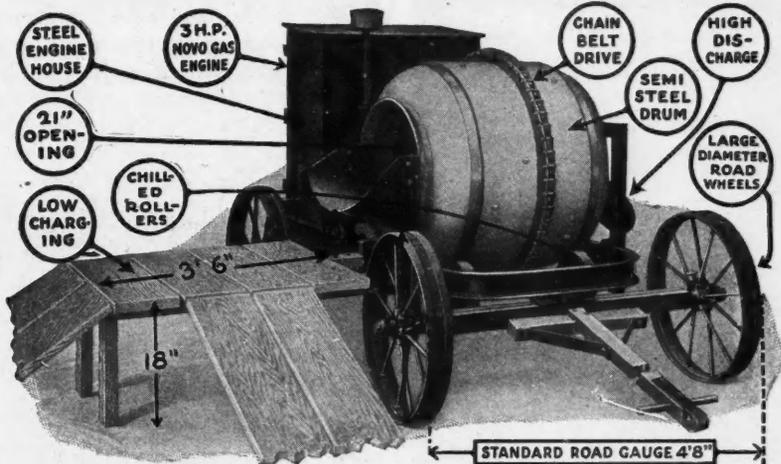
Let us send you catalog and special discounts to carpenters and contractors.

Globe Fence Company, (Un-Inc.)

20-22nd St., North Chicago, Ill.



\$275
F. O. B.
Milwaukee



\$275
F. O. B.
Milwaukee

FOLLOW THE ARROWS—Here You Have the Facts About the

REX MIXER

LOW CHARGING

A mixer that is guaranteed to turn out 5 cubic feet of thoroughly mixed concrete in 45 seconds. Just the mixer you have been looking for to put to work on your sidewalk, silo, masonry construction and small concrete work. A mixer with plenty of power, made of the very best quality—Chain Belt Mixer quality—known the world over for service and reliability.

There is a Rex Mixer ready for shipment on receipt of your order. You can afford this mixer and you cannot afford to be without it. Write to nearest agent for complete information and Bulletin No. 61-D.

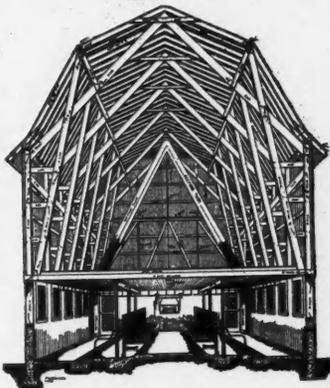
A FEW OF OUR 40 AGENTS

W. B. Louer Co., M. Mitshkun Co., J. P. Sprague Co., Williams Cont'rs Supply Co. W. H. Ziegler, Wm. T. Johnston Co.
909 Old Colony Bldg., Detroit, Mich. Rialto Building, 8th Floor, Brunson Bldg., 320 Temple Court, Cincinnati, Ohio.
Chicago, Ill. Kansas City, Mo. Columbus, Ohio. Minneapolis, Minn.

CHAIN BELT COMPANY 730 Park Street MILWAUKEE, WISCONSIN

The Way to Greater Barn Building Profits

It will pay you to know JAMES methods of Dairy Barn construction. There's more money for you in building modern, properly equipped barns on scientific principles than in putting up the old type. If you build one JAMES barn in a neighborhood it will result in more barn jobs for you, because the dairyman who sees a JAMES barn wants one like it.



Our free service tells about proved principles that enable the builder to establish a reputation as the foremost barn builder in his community.

JAMES Blue-Print and Service

includes personal co-operation from Mr. James, the leading authority on barns—also a special offer of complete working blue-prints of several practical dairy barns of different sizes and types—also Mr. James' new book, "Building the Dairy Barn."

THIS VALUABLE BOOK FREE

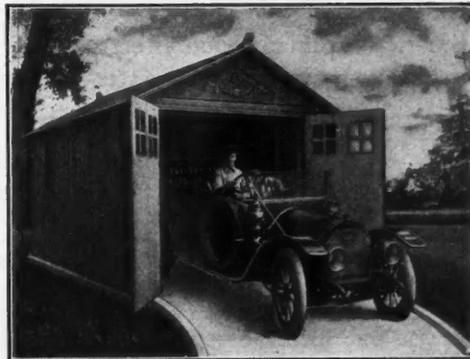
Write for it today, giving names and addresses of people in your vicinity who expect to build barns, when, and for how many cows.



James Manufacturing Co.
C. T. 75 Cane St. Ft. Atkinson, Wis.

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



This new grained
UTILITY
Board Cuts My Decora-
-ting Costs"

"Your new grained Utility Wall Board effects are not only beautiful, but now I can figure the entire job—applying, painting or wall papering and everything—at one shot."

That is what a builder wrote us recently, and he is only one of many who have expressed enthusiasm about our new grained wood effects. Utility Wall Board was always a business-getter—a big help—because it did away with the loss of time and waiting for plaster to dry.

But these wonderful new effects in mahogany, cirsassian walnut and oak—grained with all the beauty of the natural woods themselves—make it possible to panel and decorate at one and the same time.

When you put on these new Utility grained effects you not only save time and make a handsome profit, but you also insure satisfaction to your customers. Write us now for samples—sent to you without cost.

The Heppes Company

Standard Flex-A-Tile Shingles *Rubbertex Roll Roofing*
"Giant" Flex-A-Tile Shingles *No-Tar Asphalt Paint*
Other Guaranteed Heppes Products

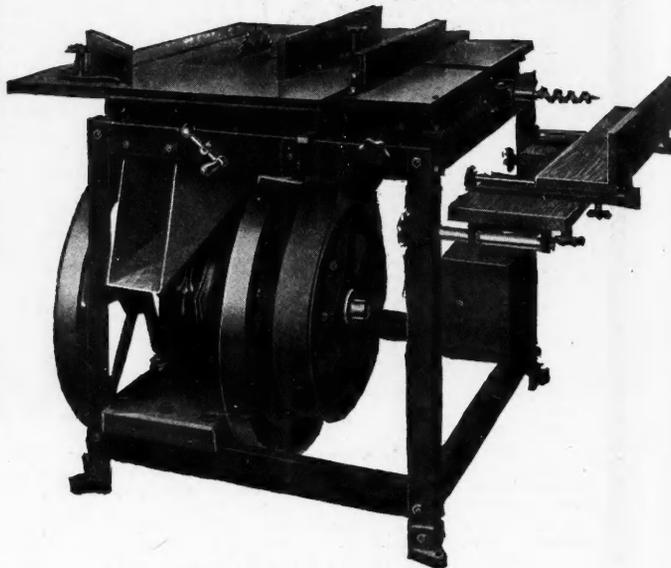
4503 Fillmore Street

Chicago

The "Superior" Woodworker

This woodworker is the latest model of a successful builder of woodworking machinery and has many good features.

The frame is made entirely of iron which gives it plenty of strength to stand the wear and tear that a woodworking machine has to go through. Plenty of power is furnished, so that all the attachments can be easily handled. Some of the



The "Superior" Combination Woodworker.

attachments can be seen in the accompanying illustration.

Rip saws, cross cut saws, jointer, moulding knives, dado head, disc sander, auger bits, and emery wheel are some of the attachments for this machine.

Beautiful Interiors



ROBERDS' IDEAL WALL BOARD

"The Guaranteed Moisture Proof Wall Board"

is the perfected combination of the results of 21 years of study and experimentation. It is made of the best, the hardest, the stiffest fibre board that can be produced with a surface that is perfectly adapted to all kinds of decoration without sizing or other preliminary treatment. It consists of four sheets of macerated wood fibre cemented together with three layers of specially prepared asphalt cement, making seven distinct layers. It is absolutely waterproof, is fire retarding, will not check nor crack, will not mar nor crumble, and can be kalsomined, stenciled, painted or papered. Finished in gray, tan, mission and quarter-sawed oak. Write today for free package of samples.

THE ROBERDS MFG. CO.

100 RAILROAD AVE.
MARION, IND.

CORTRIGHT METAL SHINGLES

28 Years of Continuous Service
has demonstrated the lasting qualities of

CORTRIGHT Painted Red or Green **Metal Shingles**

These painted metal shingle roofs put on 28 years ago are as good as new today; Showing that there is no need to pay the record high price for galvanized shingles due to the high price of spelter.

The present great demand for metal shingles throughout the country was created by this record made by

CORTRIGHT Painted **Metal Shingles**

They're better than ever today, and in greater demand than ever, so this is the shingle for you Builders to push now.

There is good profit for you in doing so. Write for full particulars.

Cortright Metal Roofing Company
Philadelphia and Chicago

NEVER NEED REPAIRS

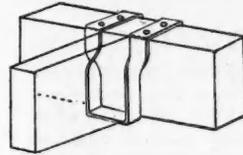
The Walter's and Cooper's Zinc Coated Metal Shingle

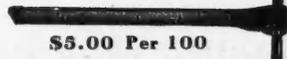
is coated or plated after stamping, so that every last possible spot where deterioration could start has a rich, heavy, zinc coating. The result is: Walter's and Cooper's Interlocking Metal Shingles are practically indestructible under all climatic and weather conditions. Roofs covered thirty years ago are as good now as when first put on and have never caused a cent's worth of expense in renewals or repairs in all that time. Roofing contractors make a very handsome profit handling these shingles. Ask for particulars.

National Sheet Metal Roofing Co.
339-345 Grand St., Jersey City, N. J.

STANDARD BUILDING ANCHORS

JOIST HANGERS

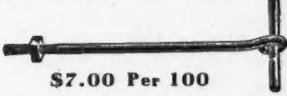




\$5.00 Per 100



\$4.00 Per 100



\$7.00 Per 100

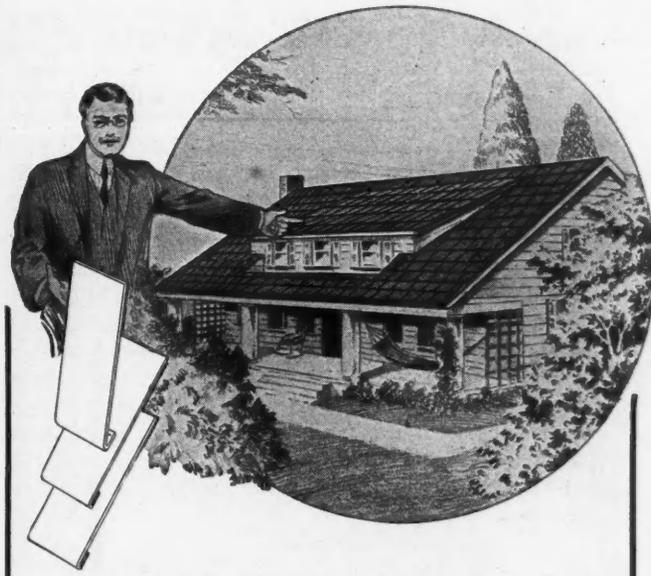
POPULAR SIZE PRICES

| | |
|----------------|-----------------|
| 2x8.....\$0.28 | 4x10.....\$0.37 |
| 2x10......31 | 4x12......41 |
| 2x12......35 | 4x14......45 |
| 2x14......39 | 4x16......50 |
| 3x8......31 | 6x8......44 |
| 3x10......34 | 6x10......49 |
| 3x12......39 | 6x12......57 |
| 3x14......42 | 6x14......77 |
| 4x8......34 | 6x16......88 |

ANY SIZE ON REQUEST

Chas. Mulvey Mfg. Co.
1547 W. 35th Street
CHICAGO ILLINOIS

Ready for immediate shipment.
Let us quote you on your needs.



A Roof to Be Proud Of

A Rex-tile roof means satisfaction—for the carpenter and builder because it is easy to lay and will never cause complaints—for the house-owner because of its distinctive appearance and durability.

Rex-tile Shingles are handsomer than wooden shingles, slate or tile, economical and will wear indefinitely.

Absolutely water and wind-proof—fastened at the butt-end, and folded back over the nails—can't curl, warp, nor leak.

Rex-tile

TRADE MARK
"The Scientific Shingle"

are fire-resisting and color-fast—no painting or staining necessary—the color is a part of the material. Easy and convenient to handle; a smooth, clean surface and light in weight.

No price-cutting competition if you use Rex-tile on your roofing jobs. An exclusive material, because the turn-under fold for nailing—at bottom—no flapping or warping—nails perfectly covered—is patented, therefore sold for only one price.

These shingles are being extensively advertised. Will you write for sample shingle, prices and full information?

Flintkote Manufacturing Co.
90 Pearl Street, Boston, Mass.
67 Beaver St., New York
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.

The sawdust trough for removing the sawdust away from the machine is one of the features of this woodworker.

The price of this machine is very moderate and contractors and builders can secure full particulars from the Superior Woodworker & Machine Co., 58 Carlton St., Buffalo, N. Y.



Modern Methods in House Moving

An attractive catalog has recently been issued by the LaPlant-Choate Company, describing modern house moving and the application of their equipment to this work. They show many instances where the speed of moving is largely increased and the building protected from twisting and racking by the use of "Giant Steel Trucks." The catalog is fully illustrated with field pictures and cuts of their various types of house-moving apparatus. Builders can get full information concerning this money-making equipment by addressing the LaPlant-Choate Manufacturing Co., 620 Eastlock Court, Cedar Rapids, Iowa.



Value of the Tile Business to Concrete Contractors

Millions of dollars are paid annually by the American farmer for drain tile, and of this amount the clay interests receive by far the greater share. The failure of the concrete products manufacturers to make a stronger bid for the business can be attributed only to the fact that, as a business, the manufacture of cement tile is comparatively new and consequently little known to the trade at present.

Properly made cement tile have ends of a true circle, free from all possibility of becoming warped or forced out of shape, and retain their perfect condition indefinitely. On the question of durability, too, there can be no two opinions; the

great strength of cement tile having been demonstrated time and time again.

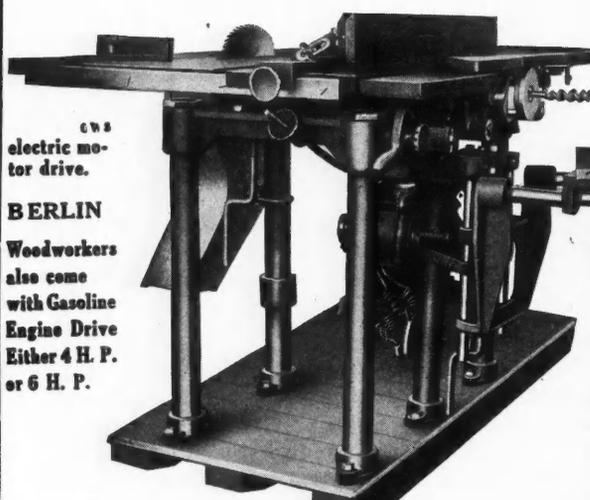
It is usual to be skeptical of any statement claiming a combination of higher quality with lower price, but in regard to cement tile the statement is true beyond question. Natural conditions make this possible. The manufacture of cement tile is a small business and a local business. By "small" we mean it can be started on a small investment. By applying the facts outlined in the preceding paragraph it can be realized how the cement tile manufacturer can *make* cement tile cheaper than local dealers can *buy* clay tile, and while it is not necessary to cut prices in order to sell cement tile, it is an excellent weapon for times of emergency.

While the tile business is open to anybody, those already established in the manufacture of concrete products can enter the tile business on a comparatively low investment for equipment. It will, of course, be necessary to buy a tile machine and necessary casings for making the different sized tile, but such accessories as a concrete mixer, gasoline engine, etc., are part of almost every contractor's present equipment.

It is interesting to quote instances of actual successes with cement tile, and while space does not permit mention of many, we are glad to point out two typical cases from among our readers. In the first illustration (page 130) we show the tile plant of Mr. P. A. Quanstrong of Genoa, Ill., whose experience is representative of what hundreds of other men are doing.

During the recent Chicago Cement Show Mr. Quanstrong was asked what reasons induced him to get into the tile business, and what results he had achieved; his reply follows:

"It was at the Cement Show of 1913 that the idea of entering into the manufacture of cement tile took definite form. Previous to that time I had, in connection with my other contracting interests, been putting up cement silos. Of course, the season for this work was not long. With the idea in



CNS
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.

**Federal Parquetry costs
Very little more
than Strip Flooring**

CASS GILBERT
Architect of the Woolworth Building
ERNEST FLAGG
Architect of the Singer Building
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 —
Tiles and Mosaics**

Write

**Artistic Designs and
Superior Quality**

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

Nail This Fact Down Tight
There is, and there can be only one genuine



Trademark Reg. No. 94745.

because it is made with a center core of kiln-dried wood slats, and that is our patented feature.

It makes Compo-Board the most desirable material of its kind from these standpoints:—stiffness, durability, non-warping and non-shrinking strength, resistance to air moisture, cold, heat and fire, ease of handling, sawing clean and smooth,—wide range of uses and adaptability to different methods of decoration. (It's the only wall board that can be successfully papered.)

Be sure you get genuine Compo-Board and nothing else; look for the wood core. The border illustration of this ad gives you a fair idea of what it looks like.

We are forced to issue this warning because "Compo-Board" has become so well known that some folks have the impression it is a generic name for "Wall Board." It isn't. It's the trade-marked name of our own individual patented product.

Sold by dealers everywhere in strips four feet wide and in lengths of one to 18 feet, as desired.

Write for interesting book and sample piece.

Northwestern Compo-Board Company
5777 Lyndale Ave., No.
MINNEAPOLIS, MINN.

**"SANTILITE" Means Profitable
Floor Business!**

**Special Offer
to Contractors
That Will
Mean Money
TO YOU!**



Santilite Sanitary Composition Flooring

Easily laid just like plaster without cracks or seams on any wood or cement floor. Sets in 10 hours into a perfectly smooth sanitary surface, fire-proof, germ-proof, water-proof and wear-proof.

No scrubbing required—dustless—will not crack under ordinary circumstances—handsome in appearance and best of all **economical.**

"SANTILITE" is used in the kitchen, laundry and bath room for the home—for factory, school, hospital and public building.

ANY MECHANIC CAN LAY IT BY FOLLOWING OUR VERY FULL AND COMPLETE ILLUSTRATED INSTRUCTIONS.

Get in on this—write for our proposition and special prices to contractors—it will mean money in your pocket—or, better still, send us 50 cents for our trial contractors' outfit—it will give you a practical demonstration of the profit to you in handling "SANTILITE."

**Sanitary Composition
Floor Company**

125 Plum Street

Syracuse, N. Y.

The
INCOMPARABLE
FIVE

Contractors, to whom
quality appeals, will
be pleased to study the
specifications of the

Number Five

EUREKA
BATCH MIXER

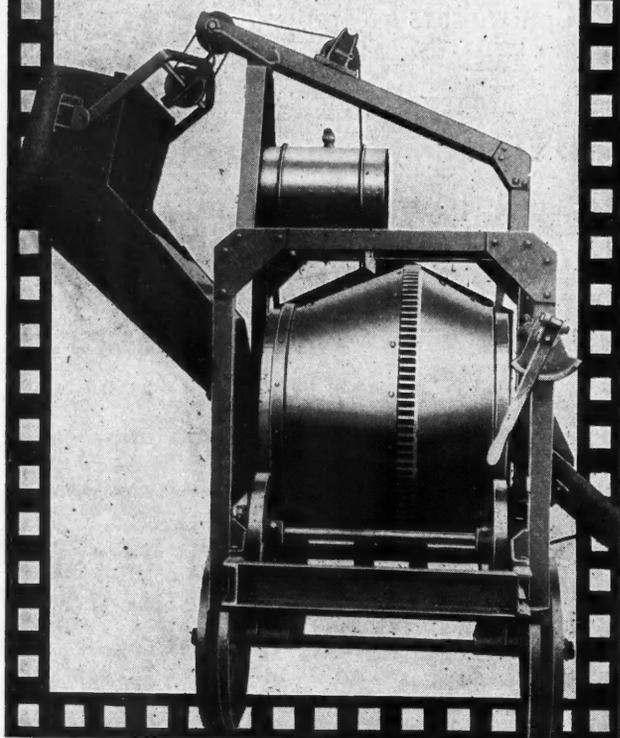
"Quality Wins"

Quality and approved en-
gineering standards have
been incorporated into this
mixer to a remarkable de-
gree. Your inquiry for bul-
letin will receive immediate
attention.

EUREKA MACHINE CO.

"Builders of Quality Mixers"

103 HANDY STREET
LANSING, MICH.



part of keeping my men busy the year around and because my investigation showed a good demand for drain tile in my locality, I installed a Dunn No. 1 tile machine that spring. Directing my efforts to the production of only first-class tile I soon worked up a very good business and sold to the fall trade in 1913 over 100,000 tile. Anticipating a good demand for the following spring I aimed to have at least that number in stock for the early spring trade (1914). However, my plant operated continuously through last year with the Dunn No. 1 machine, and late in the fall I had practically no stock.

"In preparation for this year's business I have installed a Dunn automatic tile machine, and while I am operating the tile plant with only two men, the production is at the rate of 2,400 tile per day. I will shortly increase the number of operators and, of course, will get the corresponding increase in output. When I started into the tile business I had some clay tile competition; it was here that the quality of my tile



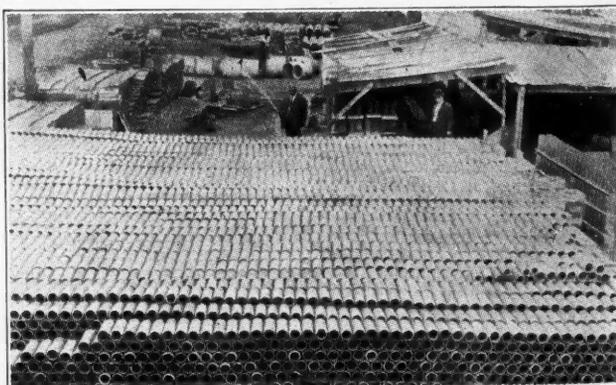
Cement Tile Plant of P. A. Quanstrong, Genoa, Ill.

was shown, and I have sold them at even higher prices than local dealers get for clay tile."

The other illustration shows the plant of Joy & Son, Napanee, Ont., who remarked:

"We started the first Dunn tile machine in our plant in November, 1910, and the second one in June, 1913, and have been manufacturing tile continuously, and if the demand continues—as it has every appearance of doing—we will want another machine this coming spring. The farmers are using cement tile in this vicinity almost exclusively, the clay tile plant having gone out of business. We charge \$40.00 per M for our 6-inch tile, making them at the rate of 1,500 each machine per day, with two men to each machine. We have received many compliments on the quality of tile we turn out, and the farmers much prefer our tile to clay. We have received one order for 70,000 4-inch tile and orders for 30,000 the sizes."

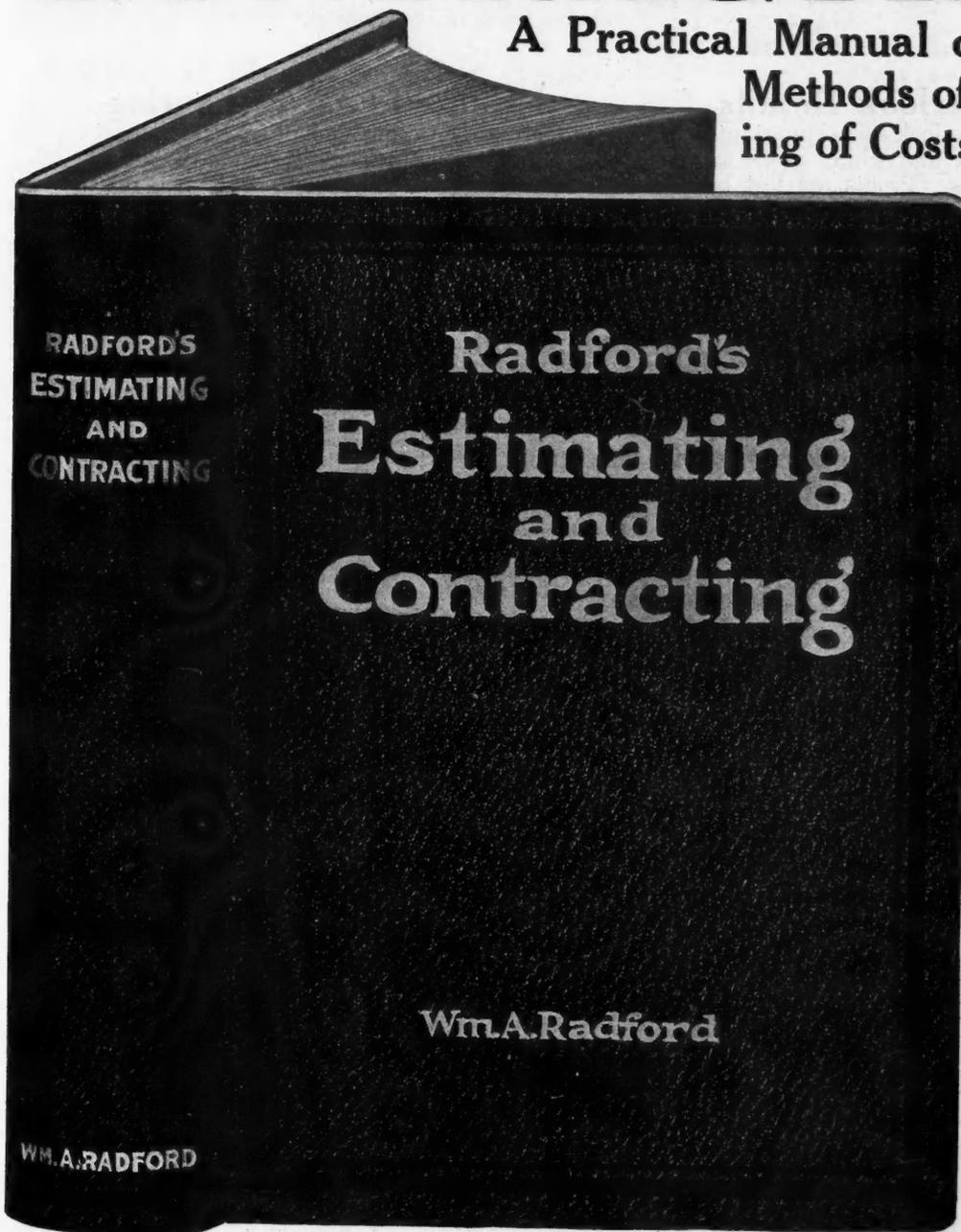
Detailed information on the tile business will be gladly sent free upon request by the W. E. Dunn Mfg. Co., 4136 Fillmore St., Chicago. (Trade Notes Dept. continued to page 136.)



Cement Tile Plant of Joy & Son, Napanee, Ont.

“ESTIMATING AND CONTRACTING”

A Practical Manual of Up-to-date
Methods of Rapid Figur-
ing of Costs for All Kinds
of Modern
Construction



Newest, Largest,
Most Complete
Estimating Book

900 PAGES
of Accurate, Reliable, Sim-
ple Ways of Figuring and
Checking Quantities and
Prices of Materials and Sup-
plies, Labor Costs, Working
Tables for All Details of
Construction, and a Vast
Amount of Other Useful and
Practical Information.

**HANDY
POCKET SIZE**
Pages 5x7½ inches, Round-
cornered Edges, Printed on
Fine Quality Super-Calen-
dared Paper, Bound in Limp
Leather, Cover Stamped in
Gold.

With One Year's Subscription

— TO —

American Carpenter and Builder

\$3.00

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Avoid Mistakes

A mistake in estimating means the difference between a profit or a loss on a contract. In these days of modern construction, it is not safe to guess or go by "rule of thumb." Even experienced contractors who rely upon eyesight or rough calculations make costly errors.

Radford's "Estimating and Contracting" is a safe and sure guide for any builder or contractor. Its more than 500 pages are filled with up-to-date methods for rapid, systematic, and accurate calculation of costs of all types and details of building construction, and all related work of contractors.

Easy to Overlook Details

It is mighty easy to overlook some important detail if it is not down in black and white. Jobs are lost because of too high prices. Profits are lost because prices are too low. Be on safe ground; have a reliable, accurate guide to help you in your figuring.

Helps to Easy Figuring

It gives quotations and other data indicating the cost of materials and labor; standard schedules and forms used for measurements and estimates; labor-saving tables; and all other points a contractor, builder or cement user should know.

CONDENSED SUMMARY OF SUBJECTS

Estimating and Contracting

Partial Table of Contents

ESTIMATING AS A SCIENCE

General Principles of Estimating.
Estimating Essential to All Successful Business Operations.
Requirements of the Good Estimator.
Accuracy Versus Guesswork.
What to Avoid in Estimating.
Remedies for Inaccuracies.

ESSENTIAL BASIS OF ALL ESTIMATING

Analysis of Proposed Operations.
Cost Finding and Cost Distribution.

CONDITIONS AFFECTING COST

Local Market Conditions.
Freight and Haulage.
Rates of Wages Paid in Various Trades.

METHODS OF ESTIMATING

Comparative and Analytic Methods.
Approximate, Detailed Estimates from Carefully Figured Data.
Estimating by Cubical Contents of Similar Structures.
Estimating by the Square of 100 Sq. Feet.
Estimating by Quantities.
Unit-Costs for Material.
Labor Costs.
Percentage for Profit.
Margin for Variations and Contingencies.

PRELIMINARIES TO ESTIMATING

Fees of Architects, Consulting Engineers and Designers.
Examination of Site.

COST FACTORS CLASSIFIED

Factors Common to Construction in General.
Factors Involved in Special Types of Construction.
Factors Incidental or Accessory to Various Constructions.

COSTS COMMON TO CONSTRUCTION IN GENERAL

Leveling and Preparing Site.
Employer's Liability Insurance.
Water Supply During Construction.
Number of Men and Teams Required.
Rates of Wages.
Cost of Superintendence.
Earth and Rock Excavation.
Foundations and Footings.
Back Filling.

COSTS INVOLVED IN SPECIAL CONSTRUCTIONS

CARPENTRY WORK

Measurements.
Timber and Lumber (Grades and Sizes).
Framing.
Sills, Joists, Studding, Columns.
Bracing.
Furring and Lathing.
Scaffolding.
Floors.
Stairs.
Porches and Piazzas.
Interior Finish and Trim.
Building Paper.
Clapboarding.
Shingled Siding.

ROOF CONSTRUCTION

Framing, see Carpentry.
Wood Shingles.
Metal Shingles.
Asbestos Shingles.
Cement Shingles.
Asphalt Roofing.
Roofing Felt.
Prepared Roofing.
Tile Roofs.
Tin Roofs.
Corrugated Metal Roofs.
Slate Roofs.
Pitch and Gravel Roofs.
Galvanized Iron Roofs.
Cost of Laying Different Kinds of Roofs.
Painting Roofs, see Painting.
Skylights, see Glazing.
Ventilators.
Cornices.
Ridge Rolls.
Gutters and Downspouts.
Flashings.

MILL WORK

Doors and Door-Frames.
Sash and Window Frames.
Blinds.
Transoms.
Mouldings.
Columns and Capitals.
Cupboard Doors.
Store Fronts.
Thresholds.
Stairs and Handrails.
Newels and Balusters.
Grills and Spindles.
Mantels and Consoles.
Chair and Plate Rails.
Wainscoting.
Screens and Weather Strips.
Clothes Lines Posts.

Table of Contents Continued on Next Page

Many Years of Preparation

Radford's "Estimating and Contracting" represents the work of many years of gathering, arranging, compiling, rewriting, and revising data of every description. This large, new book will be a standard work and an invaluable help to contractors, builders, architects, engineers, cement users, carpenters and the building trades in general.

Prices of All Kinds of Materials

One of the most important parts of Radford's "Estimating and Contracting" is that giving the average prices of all kinds of materials used in construction. This information has been gathered from every section, arranged, tabulated, and compared, so as to form a safe basis on which to figure on a prospective contract.

See Great HALF-PRICE Offer on Last Page

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

In Estimating

Wm. A. Radford, the editor of "Estimating and Contracting," realized the necessity of an accurate, reliable, complete book on Estimating when he was figuring costs in the estimating department of a millwork plant, many years ago. Since that time he has been planning and laying out the work on the broadest lines, covering all types of construction; and it is being published under his personal supervision.

Author of Many Building Books

His previous books, "Radford's Cyclopedia of Construction" (12 volumes), "Radford's Cyclopedia of Cement Construction" (5 volumes), "Practical Carpentry" (2 volumes), "Steel Square and Its Uses" (2 volumes), "Details of Building Construction," "Framing," "Cement and How to Use It," "Cement Houses and How to Build Them," "Bungalows," "Artistic Homes," "Ideal Homes," and many other building and plan books are known throughout the world as the highest authorities in their respective lines.

Radford's "Estimating and Contracting" is fully illustrated with drawings, diagrams, details, etc. It includes the wage scales of all classes of skilled or unskilled labor in construction and building in all cities of 25,000 and over. The building codes of a number of American Cities are also summarized.

Completely Covers Cost of Construction

Ready reference tables, short cuts in figuring, and many other helps in estimating are a prominent part of the book. In short, everything that enters in any way into the finding or checking of costs in any department of construction can be readily referred to. It shows the easiest and most common-sense way to get the desired results. Its methods, explanations and tables can be used with perfect confidence in their correctness.

CONDENSED SUMMARY OF SUBJECTS—Continued

CONCRETE CONSTRUCTION

Measurement of Work.
Cement in Bags, Barrels, and Bulk.
Sand, Gravel and Crushed Stone.
Cleaning Aggregates.
Working Rules and Measuring Tables.
Mixtures Appropriate for Various Classes of Work.
Hand and Machine Mixing.
Depositing Concrete.
Wood and Steel Forms.
Waterproofing.
Surface Finishing.
Concrete Molded Shapes (Blocks, Sills, Caps, etc.).
Cement Mortar.
Concrete Floors.

CONCRETE HOUSES

Monolithic Poured Construction.
Block Construction.
Cement Stucco Houses.

CONCRETE BLOCK CONSTRUCTION

Number of Blocks Required.
Sizes and Weights of Blocks.
Comparison with Brick and Frame Construction.
Mortar for Blocks.
Quantities of Materials Needed.

WATERPROOFING AND DAMPROOFING

REINFORCED CONCRETE CONSTRUCTION

Areas and Weights of Bars.
Sizes and Weights of Expanded Metal and Metal Lath.
Amount of Reinforcement Needed.
Cost of Reinforcing Materials.
Lumber for Forms.
Labor on Forms.
Time to Remove Forms.

MASONRY CONSTRUCTION—BRICKWORK

Classification of Brick.
Cement Brick.

Solid and Hollow Walls.
Brick Veneer.
Metal Bonding.
Lime Mortar.
Cement Mortar.
Coloring of Mortar.
Brick Chimneys and Fireplaces.
Flue Sizes for Different Sized Buildings.
Measurement of Brickwork.
Cleaning and Painting.
Waterproofing and Dampproofing.
Firebrick.
Brickwork for Boiler Fronts.

MASONRY CONSTRUCTION—STONEWORK

Measurement of Work.
Kinds and Qualities of Stone.
Quarrying, Dressing and Cutting Stone.
Cost of Laying Different Varieties of Stonework.

STEEL CONSTRUCTION

Analysis of Costs.
Cost of Raw Material and Mill Work.
Standard Steel Classification.
List of Steel Extras.
Drafting and Shop Costs.
Cost of Erection and Finishing.

HEATING PLANT

VENTILATING SYSTEM

PLUMBING AND GASFITTING

ELECTRIC WIRING FOR LIGHT, HEAT, etc.

REFRIGERATION

PLASTERING

Measuring Amount of Work.
Amount of Materials Needed.
Coloring for Mortars.
Two-Coat and Three-Coat Work.
Cement Stucco.
Hard Wall Plaster.

PAINTING AND DECORATING

Measuring the Work.
Grades of Paints.
Exterior and Interior Painting.
Multiple-Coat Work.
Painting Walls.
Painting Roofs.
Painting Floors.
Painting Stonework.
Painting Brickwork.
Painting Concrete.
Staining.
Varnishing.
Calcimining.

PAPERHANGING

Sizes and Grades of Paper.
Number of Rolls Required.
Labor Quantities.

GLASS AND GLAZING

Measuring Amounts Needed.
Grades and Quantity of Glass.

BUILDERS' HARDWARE

Taking Off List of Items Needed.
Grades and Qualities.

ELEVATORS

SIDEWALKS, CURBS AND GUTTERS.

ROADS AND PAVEMENTS

BRIDGES AND CULVERTS

SEWERS AND CONDUITS

LABOR-SAVING TABLES

ELEMENTS OF MENSURATION

AVERAGE DAY'S WORK IN VARIOUS TRADES.

SHORT CUTS IN COMPUTATION

FORMS FOR ESTIMATORS AND CONTRACTORS

Form of Contract.
Forms of Bonds, Requisitions, Receipts, etc.
Form of Proposal.
Forms of Estimates.
Typical Estimates Worked Out.

USEFUL MISCELLANEOUS DATA, RULES, etc.

An Up-to-the-Minute Book

Radford's "Estimating and Contracting" is a big, practical, up-to-the-minute book for the lumberman, contractor, builder, cement user, carpenter, sidewalk and paving man, architect, draftsman, plumber, painter and plasterer, as well as all other men whose work is in the building or construction field. Even the home owner can use it to excellent advantage in checking the costs of his home or its fixtures.

Most Complete Estimating Book

Nothing is omitted that will help and guide in the construction of residences, public and private buildings of all descriptions, paving, bridgework, engineering and all kinds of large or small jobs. It is the largest, newest, most complete work on the subjects it is designed to cover, and no other book like it has ever before been published. It can be accepted as thoroughly dependable in the accuracy of its information.

Next page tells HOW to get this book at HALF-PRICE

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

This Big Combination for only \$3.00

AMERICAN CARPENTER AND BUILDER AND ESTIMATING AND CONTRACTING

No Lumberman, Carpenter, Builder, Contractor or Architect can afford to be without the World's Greatest Building Paper and the Best, Biggest, Newest Estimating Book

Just fill out the Coupon and mail it today, together with \$3.00 (at our risk) and we will send you for your money:

1. THE AMERICAN CARPENTER AND BUILDER for one year, the largest, best edited, most handsomely illustrated magazine for the lumberman, contractor, builder and carpenter, or any one interested in building—160 to 200 pages each issue.

Pin
\$3.00
to this
Coupon

2. RADFORD'S ESTIMATING AND CONTRACTING, a 900-page, profusely illustrated, beautiful leather-bound book. Size of pages, 5x7½ inches. Over 1,000 separate subjects are covered in this book.

A. C. B.—7-15

3. FREE PRIVILEGES OF RADFORD'S CONSULTATION BUREAU, giving its members full information on any question relating to building, engineering, paving, plumbing, heating, painting, sanitation, etc., as well as advice on where to buy materials, supplies, machinery, equipment, tools, and other articles to the best advantage.

_____ 191

American Carpenter and Builder
1027 Prairie Ave., Chicago, Ill.

Enclosed find \$3.00, for which enter my subscription to the American Carpenter and Builder for one year and send me one copy of Radford's "Estimating and Contracting," 900 pages, bound in limp leather. Also enroll me as a member of Radford's Consultation Bureau, entitled to receive free information on all questions relating to construction and building.

This Offer is open to New or Old Subscribers, but in all cases remittance to cover cost (\$3.00) must accompany order.

Name.....

Post Office.....State.....

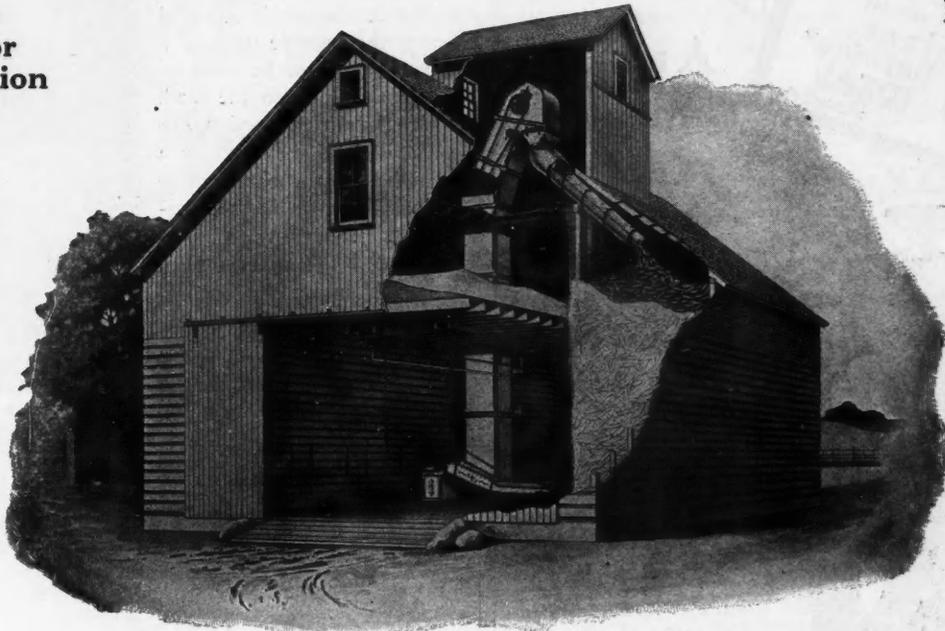
Your money will be returned if you are not entirely satisfied with paper or books.

Meadows

TRADE MARK REGISTERED

Grain Elevator Information Free

Free Crib and Granary Plans

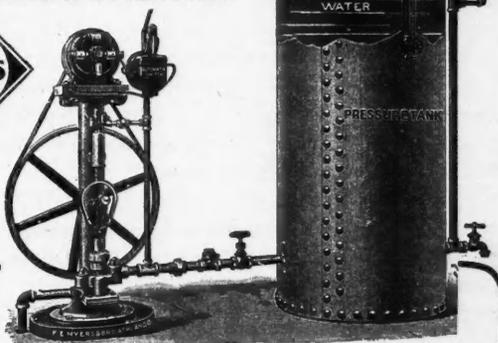


Buildings 36 feet or less in length with half pitch roofs need no cupola. Elevator is confined to one side of driveway. Shipped complete in sections ready to install. Write now for complete information. It does not obligate you.

The Meadows Manufacturing Co. - - Pontiac, Ill.

MYERS ELECTRIC HOUSE PUMP FOR USE WITH OPEN OR PNEUMATIC PRESSURE TANKS

A MODERN EQUIPMENT FOR CITY OR SUBURBAN HOMES. AN OUTFIT THAT WILL SUPPLY ANY HOUSEHOLD WITH WATER WITHOUT LABOR or ATTENTION.



A compact, complete, convenient outfit, for residence or other service, especially designed to be operated by a small motor. Can be used to pump water from cisterns or shallow wells into open or pneumatic pressure tanks.

Pump and motor are mounted on one base, occupying a space of 16 by 20 inches. Motor required to operate is 1/8 or 1/4 H.P. Can be driven direct from electric light wire. Furnished with or without automatic pressure switch. With the automatic switch no attention whatever is required, for this device will stop the motor at any given pressure and start it again when the pressure becomes too low. If not equipped with automatic switch, motor can be started or stopped, at will, by an ordinary switch, located at any convenient point.

For additional information and catalog address

F. E. MYERS & BRO., Ashland, Ohio
Ashland Pump and Hay Tool Works

Let it be the "Camp" Grain Elevator

Of course you want to install and recommend only such grain elevating equipment that you know is 100% efficient.

Let us send you our FREE illustrated Catalog, also FREE plans showing how this Machine should be installed. The "CAMP" is the only Hydraulic make on the market—be sure to make comparisons before deciding.

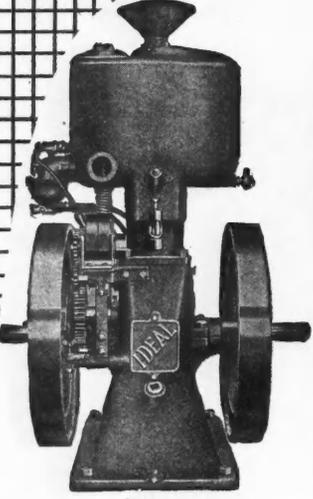
You will see at a glance that the "CAMP" is the "always service and result giving" GRAIN HANDLING EQUIPMENT.

Camp Brothers & Co.

Dept. 15 Washington, Illinois



**-Contractors
who want
"Constant
Service"
use IDEAL
Power**



A special money saver for you—

Yep!—that's just what it is—a special money saver especially for the builder and general contractor. Don't use hand labor—too slow—too much labor—too much expense. Put an Ideal "Single Line" on the job. Always ready, powerful, and will pay for itself in just a few weeks.

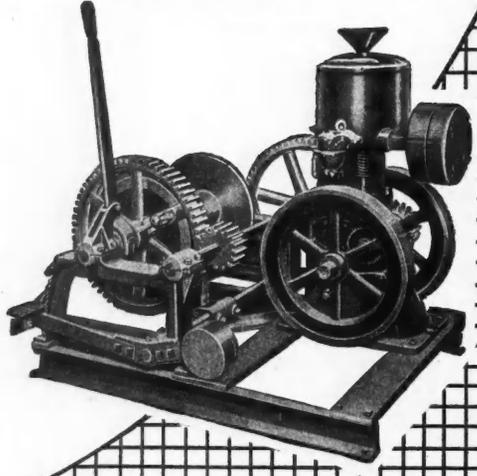
Start it off—requires no skilled attention. Steady worker—built in two sizes, 4 and 6 H. P. type; capacities, 900 and 1,500 pounds. Operating cost per day less than any other hoist on the market. Adapted to work anywhere. No builder or contractor should be without one.

Ideal "Single Line" Hoists

Built—steel skid mounted, small floor space, 10-inch winding drum, extra strong brake. Drum will handle 650-foot $\frac{1}{2}$ -inch cable. Running speed 100-125 per minute. Ideal "Single Line" Hoists cost less to buy—will outlast and give better service than any hoist on the market. All hoisting rigs equipped with *Ideal Type M Engines*. These engines specially designed for contracting work.

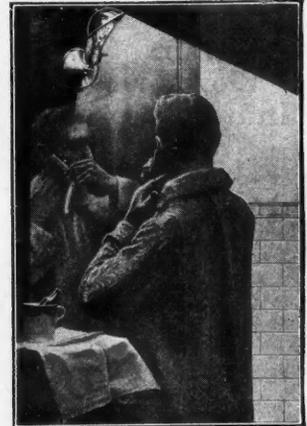
Complete catalog 415 will gladly be mailed upon request. May we hear from you?

Original Gas Engine Co.
R. E. Olds, Chairman
630 Kalamazoo Street East
LANSING, MICH.



This Lamp Will Hang Anywhere

The lamp shown in the accompanying illustrations possesses many features that are unusual. It has various arrangements in the base that can be used to fasten it to anything. There is a spiral spring that can be used as a clamp or it can be used to fasten the lamp to the wall. There is also a suction cap that will hold the lamp on a smooth surface such as a mirror, as is shown in the illustration.



Shaving Lamp Stuck to Mirror by Suction Cup.

The whole arrangement can be folded into a top-like ball when not in use.

The lamp can be used at a desk; it can be fastened to a chair; it may be used for the dressing table; or for shaving, as shown in the illustration.

It would be very handy to have around because of its adaptability. A circular describing some of the many uses of this light can be obtained from the Wallace Novelty Company, 22 East 41st St., New York City.



Used as Desk Lamp.

"Creo-Dipt" Shingle Booklet

This is a mighty interesting and instructive booklet that the Standard Stained Shingle Company has recently issued showing many of the artistic ways of using their shingles. It is very profusely illustrated with photos of buildings of various kinds in all sections of the country on which "Creo-Dipt"

stained shingles have been used in various ways.

The manufacturers make the point that a great saving and much better results can be obtained by the use of these shingles than can be obtained by attempting to stain them on the job without adequate apparatus.

The material for staining their shingles is a finely ground pigment that is carried in creosote oil, which insures its penetration into the fibres of the wood.

Builders and contractors should be familiar with this material and its possibilities, and can obtain particulars from the Standard Stained Shingle Company, 1028 Oliver St., North Tonawanda, New York. They will also send samples of the thirty different colors on wood, in which their shingles are finished.

Northwest Building Material Exhibit to Establish Reference Library of Trade Literature

We are informed that the management of the Northwest Building Material Exhibit, which occupies the entire fourth floor of the First National-Soo Line Building, Minneapolis, will establish a reference library for the use of contractors and architects. They will gladly receive and place on file catalogs and circular matter pertaining to building materials and building equipment.

**We Pay
Freight**



**All sizes for all purposes. 1½ to 18
H. P. Vertical and horizontal. Guar-
anteed 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.

"NEPTUNE" Pneumatic Water Supply Systems

and

"NEPTUNE" Gasoline Storage Tanks Big Money Makers for Builders

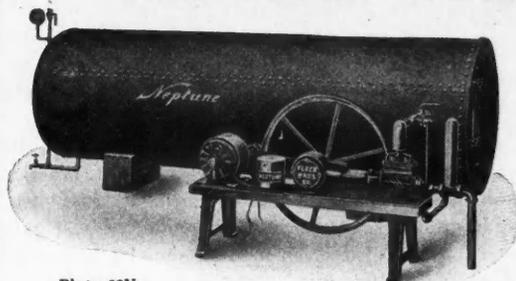


Plate 62V

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 68V

Up-to-Date Ideas for Up-to-Date Builders

GENERAL SUMMARY OF CONTENTS

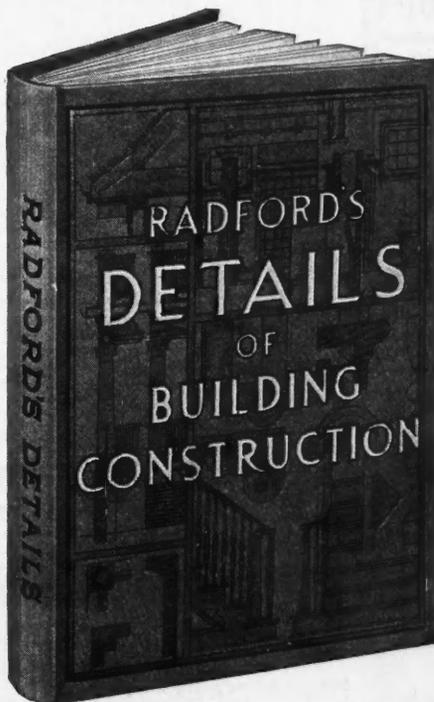
Radford's **DETAILS OF BUILDING CONSTRUCTION** is a complete manual of Building Practice, as applied to carpentry, construction and the use of millwork. It is a remarkable collection of full-page plates, accurately drawn and reproduced to exact scale, showing clearly every detail of modern building construction and finish. These plates make plain the framing and construction of residences of every type—frame houses, brick houses, brick-veneer houses, "stucco" or cement-plaster houses, cement block houses, etc.

200 Pages of Live Information

200 pages of illustrations, with thousands of details, including a section showing home furniture making.

Every part of a building is shown in Radford's **DETAILS OF BUILDING CONSTRUCTION**. All dimensions, angles, curves, measurements and joints are made so plain and are so well illustrated that the "man on the job" will have no trouble or difficulty in doing the work. It has all been figured out by men who have made a lifelong study and success of architecture and building.

This book and a year's subscription to the *American Carpenter and Builder* for only \$2.00, the regular price of the magazine alone.



PART I. Details of Construction and Finish

38 Full Page Plates, showing complete details of interior trim, with special "built in" features for every room and part of a modern residence.

PART II. Details of Frame and Masonry Construction

44 Full Page Plates, presenting a graded series of 197 figures detailing completely every point in frame, brick and stone construction.

PART III. Details of Miscellaneous Building

57 Full Page Plates—A veritable Treasure House of practical and reliable information for carpenters and builders—especially those working in the country—working drawings and details which solve completely every building problem.

PART IV. "The Handy Man's Friend"—How to Make a Thousand and One Useful Things

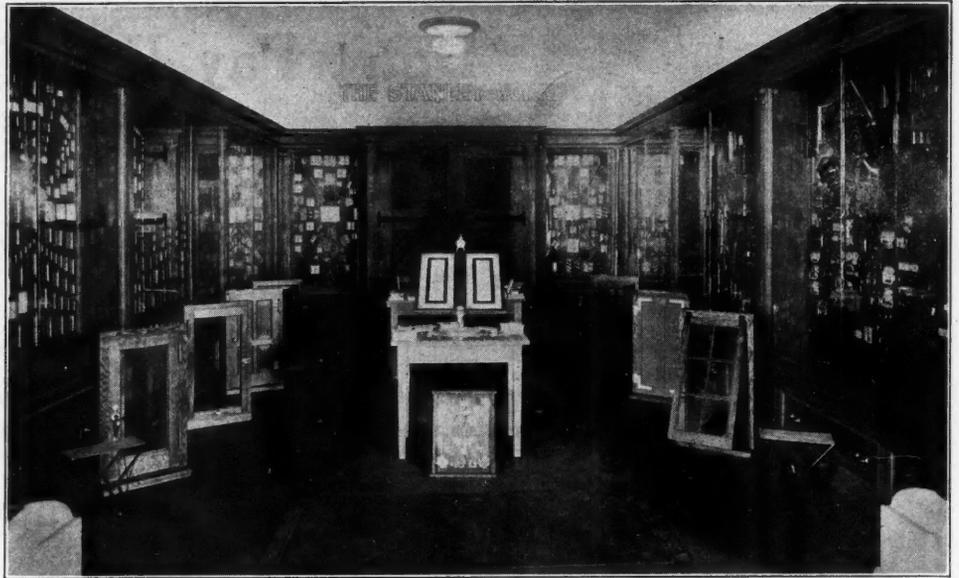
61 Pages, packed full of practical helps for doing all the various pieces of work that the carpenter and the "handy-man-about-the-house" is called upon to do. Details and working drawings with brief explanatory text.

AMERICAN CARPENTER AND BUILDER ... 1827 Prairie Ave., CHICAGO

Stanley Works Exhibit at Big Fair

The Stanley Works of New Britain, Conn., are exhibiting their manufactured products, consisting of shelf builders' hardware, box strapping and cold rolled steel at the Panama-Pacific International Exposition. The display occupies a floor space of 400 square feet with 260 square feet of wall space on which the products are shown. The architecture of the booth follows the Mission style and is in harmony with surrounding exhibits; the interior being finished in quartered oak.

The exhibit proper is displayed on fourteen panels in cases with sliding glass doors, lighted by concealed electric



General View of Instructive and Striking Display of Stanley Works Goods at the San Francisco Fair.

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;
8 H-P \$139.65; 12 H-P \$197.00; 16 H-P \$308.80
22 H-P \$389.65. Portable Engines Proportionally Low.

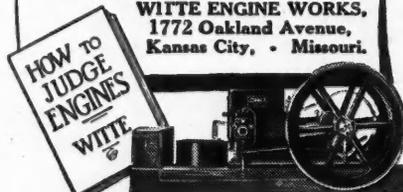
CASH OR EASY TERMS. Why pay any more?

Sent Direct From Factory Under 5-Year Guarantee

Before you buy any engine, for any kind of a price, let us tell you where, and how, to look for engine quality—the things that make lower cost power with easy starting, (no cranking) steady running and utmost durability.

New Book Free Write us for it today. Tells plainly how to judge engines easily, and how to save money in buying, whether you get a WITTE or not.

WITTE ENGINE WORKS,
1772 Oakland Avenue,
Kansas City, - Missouri.



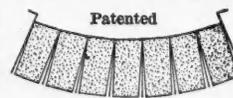
lights. Some of the most popular lines of hinges, plated butts, door bolts and shelf brackets are shown in practically all sizes and finishes. At the rear of the booth is a pair of full sized garage doors, equipped with Stanley's latest garage hardware. There are also seven models, showing ball bearing butts, half surface butts, blind trimmings, screen hardware storm sash equipment, garage hardware and casement hardware, in actual size.

A large butt or hinge of unique design is displayed. This hinge is 24 inches square and weighs 90 pounds. It is the largest door butt ever manufactured and is finished in "Stanley Sherardized" and plated finish, which is so popular just now where moisture is apt to affect the finish.

Box strapping in various designs and widths, box fasteners, case seals, corrugated fasteners, are shown in an attractive manner. There is also an actual photograph showing six cases, with Stanley box strapping, shipped from New Britain, Conn., to Colombo, India, and back to New Britain, weighing over 250 pounds each, traveling 78,000 miles. The cases were not broken or the contents damaged.

The Stanley Works extend a cordial invitation to all its friends among the dealers, architects, builders, carpenters and general public to see this exhibit at close range in their booth in the Palace of Manufactures, Block 26, 5th street and Avenue D.

MOLDS FOR POURED CONCRETE BRICK.



The mold is sprung to discharge the brick.

The greatest labor saving device ever used in the manufacture of concrete products. For common and faced brick. Molds are made of No. 18 gauge, spring steel. Price per section (7 molds) \$1.40. Investigate.

MERRILL MOORE,
411 W. Montgomery St., Creston, Iowa



TAKE / SQUARE
OR HEXAGONAL
- NUT / -

"E-I-T" HAMMER-WRENCH

THE "E-I-T" HAMMER-WRENCH IS MORE THAN THE BEST HAMMER

It is that, and a perfect wrench combined

For general carpenter and concrete form construction work, the "E-I-T" Hammer-Wrench is the ideal tool. It requires no adjustment—just a turn of the hand and either a hammer or a wrench is instantly at the mechanic's disposal. It saves his time, and reduces the bulk and weight of his tool kit.

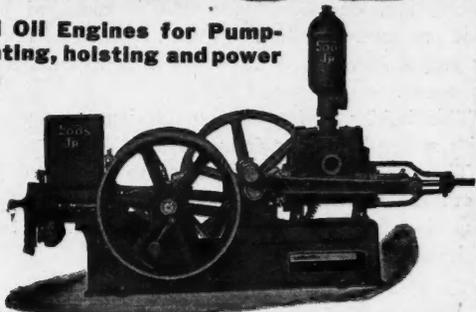
Have your dealer show you one, or send \$1.25 with his name, to the home office.

Eureka Improved Tool Co., Inc., 407 Lexington Ave., New York

THE FOOS

Gas and Oil Engines for Pumping, lighting, hoisting and power service.

1 1/2 to 400 H. P.



THE FOOS GAS ENGINE CO. SPRINGFIELD, OHIO



One fair sized job pays its entire cost

NOVO
REG. U.S. PAT. OFF.
ENGINES AND OUTFITS

Bores, planes and rips at the same time

NOVO ENGINE CO.

496 Willow St., Lansing, Mich.

CLARENCE E. BEMENT, Secretary and Manager

GOLD ★ MEDAL FILES \$1.00 PER DOZEN

You Save 20 Cents Buying Gold ★ Medal Files in Dozen Lots—20 Cents Saved is 40 Cents Earned

Gold ★ Medal Files Save Users Money. They last longest and cut fastest. With a Single Edge you can sharpen fifteen saws. You can do this because they are skillfully made of the best Crucible Steel.

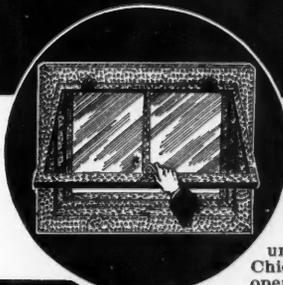
Ask Your Dealer for Gold ★ Medal Files

If he cannot supply you we will send you a dozen files as illustrated for \$1.00 or one or less than a dozen at ten cents each. We recommend a dozen as you can always use them yourself or sell them to your men or fellow carpenters.

LIVERIGHT BROTHERS

North Philadelphia, Penna.

Put Chief Everlasting Windows In That Cellar



They will please the man you're building for better than any other type of window you could install. They're the modern cellar window—the solution of the window problem for the man who wants window satisfaction in service.

Built of steel and in complete units—casing and hinged window—Chief Cellar Windows leave no chance open for window troubles. They always open and close easily, leave no open cracks and are absolutely unaffected by the weather.

Leak Proof—Rot Proof—Rust Proof

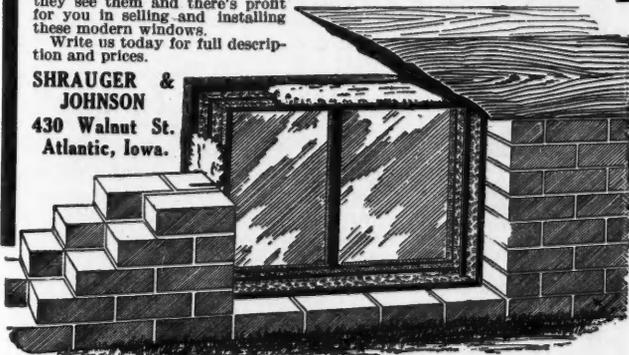
Chief Cellar Windows can't leak, rot or rust. They are enduring—good for a lifetime of service. They have every good quality of the old-fashioned, wooden window with the added advantage of steel construction.

These windows are easy to install, cost no more than wooden windows and are worth three times as much. They give real service—permanent, satisfaction-giving service. There's nothing to wear out about them and they can't shrink or swell and stick in the casing.

Satisfy your customers with Chief Windows. They'll all want them when they see them and there's profit for you in selling and installing these modern windows.

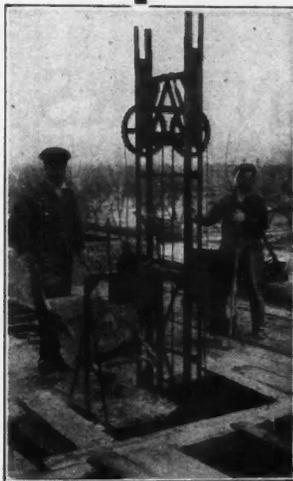
Write us today for full description and prices.

SHRAUGER & JOHNSON
430 Walnut St.
Atlantic, Iowa.



Still Nameless!

We certainly have received a big bunch of good suggestions as to what we shall call our new time-saving **Material Elevator**. There are so many good ones that we haven't decided which one to adopt yet, but our ad next month will surely contain the name of the winner.



A Few Facts about this Material Elevator

It is an actual fact that this **Building Material Elevator** will save you 25 per cent of time and labor—which means that it will decrease operating expenses 25 per cent or increase your profits 25 per cent. It can be operated by hand, or driven by an engine or a horse.

It is quickly and easily erected and will do away with hod and wheelbarrow.

Write for particulars about this new improved **Material Elevator** and find out what it can do.

LIVE AGENTS WANTED all over the country. We have a very liberal proposition to offer you.

H. B. Sackett Screen & Chute Co.

Main Office and Warehouse
1683 Elston Avenue, - - CHICAGO

Branch Warehouse
197 Medford Street, CHARLESTOWN, MASS.

Add to Income and Prestige

Do It the New-Feed UNDERFEED Way

You can offer to install a New-Feed UNDERFEED Furnace or Boiler with every confidence—confidence in doing a good job—and confidence in the coal and money saved for your clients.

For, remember, we guarantee a saving in coal bills of one-half to two-thirds wherever the NEW-FEED is properly installed and operated.

WILLIAMSON CUT
NEW-FEED COAL
UNDERFEED BILLS
Furnaces and Boilers $\frac{1}{2}$ to $\frac{2}{3}$



The New-Feed UNDERFEED will continue to advertise you long after it is installed. It will win for you by winning for itself. And that's a point well worth remembering.

HOW IT WORKS

Burns cheaper grades of coal. Coal fed from below. So simple, a boy of 12 can operate it. No smoke or gases. Ashes clean, white and few. Write for a copy of "Money-Making Sales Plans for Under-Feed Dealers" and full details of "Exclusive Sales Rights Proposition." Write today—right now.

THE WILLIAMSON HEATER CO.
(Formerly Peck-Williamson Co.)
267 Fifth Ave., Cincinnati, Ohio

Extra Money

for

CARPENTERS

AND

CONTRACTORS

No Work to Do!

Just as Easy as Signing Your Name

Write for Explanation of this unusual offer. Address

C. W. DOBBINS
Marshall, Mich.

Superior Door Holders

To hold your door open there is nothing better than a Superior door holder. This is a neat, strong and durable device that is operated by foot pressure. It cannot injure any kind of floor or carpet, nor has it any projection to catch on garments.

This holder is for use on all doors equipped with spring hinges or door checks.

They are made in three sizes to take care of from the smallest to the heaviest door, by the Superior Spring Hinge Co., 136 W. Lake St., Chicago.



The Superior Door Holder.

Sheet and Tin Plate Exhibit at San Francisco Exposition

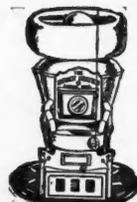
One of the most interesting parts of the exhibit of the United States Steel Corporation and Subsidiary Companies at the big Pan. Pac. Fair is the part showing the various uses and the latest developments of sheet and tin plate. This part of the exhibit shows the products of the American Sheet and Tin Plate Company.

The whole exhibit is so arranged that the entire process, from the iron ore in the ground to the finished material, can be followed. This whole series of operations can also be followed in a motion picture that is being shown in the exhibit. The latest applications of sheet metal and achievements in one piece construction are shown in many artistic designs. The exhibit is in the Palace of Mines and Metallurgy.

The American Sheet and Tin Plate Company have recently issued several interesting and well illustrated books showing the application of sheet metal to many varieties of work. These books take up their copper alloy steel which is shown in tests, of which photographs are taken, to have remarkable corrosion resisting properties. A card addressed to this company at the Frick Building, Pittsburgh, Pa., will bring these valuable reference books.

Instructive Exhibit Shows Uses of Carborundum

Prominent among the remarkable exhibits at the San Francisco Fair is the display of The Carborundum Company, Niagara Falls, N. Y. The illustrations on page 142 give some idea of the attractiveness of the display, but beauty of construction and arrangement were not the sole ideas in planning the exhibit. Industrial education was the big idea embodied, for any visitor to the Carborundum exhibit will



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

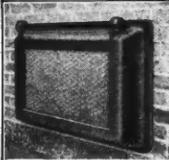


The Latest "MAJESTIC" Building Specialty

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.



The "Ottomatic" Coal Chute

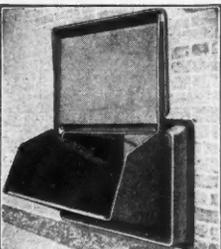
Patented Sept. 15, 1914
Fire Proof-Burglar Proof-Fool Proof

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.



"BEST" Stud Socket Fits

ALL SIZE TIMBERS

For Concrete Floors and Foundations, the "Best" Socket is the easiest installed and the easiest to set the studs in. The hole in back permits the placing of reinforcing rods or wire, if desired. Studding fastened with either a bolt in the large hole at side or nails at the side and end. We also make a special corner socket. Write us for circular and favor us with your dealer's name.

We make the "Best" Line of Building Hardware and Cast Iron Specialties and will be glad to furnish information in regard to it.



Sterling Foundry Co.
 8 Avenue A.
 STERLING, ILL.



Don't Forget

a Coal Chute—

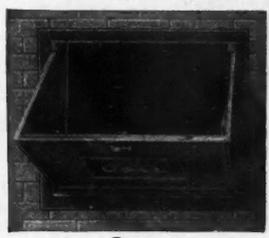
A modern residence or building is incomplete without one. But be sure it's a

CANTON COAL CHUTE

There are a host of reasons why a **Canton** should be your choice. First—the **Canton** is made by a foundry with years of experience, and you can depend on every casting to be high-grade and substantial. Its design is very neat and pleasing and it will add to the appearance of a wall. It can be opened from the outside or the inside, whichever the owner wishes. It is absolutely burglar-proof and cannot be pried or "jimmied." Last—by specifying a **Canton** you will guarantee everlasting satisfaction to your customer.

The **Canton** comes in two sizes and is very easily set in the foundation wall.

We'll be very glad to send our book of **Builders' Iron Work**, free on request. Ask for Book No. B-2.



Canton Foundry & Machine Co.
 Open Canton :: :: :: Ohio



OPEN
A Perfect Coal-Chute

If You Build Buy Own

Be up to date and have the world's best

The Window Chute

for your coal bin.

Thousands in Use

The Very Best



LOCKED Glass Window
 USEFUL 365 Days

Write for Booklet C.

Holland Furnace Company

Holland, Mich.

World's Largest Direct Installers of Furnaces.

WAGNER STUDDING SOCKETS

Hold Forever

—the easiest, quickest, surest, most substantial method of anchoring studding to cement floors.

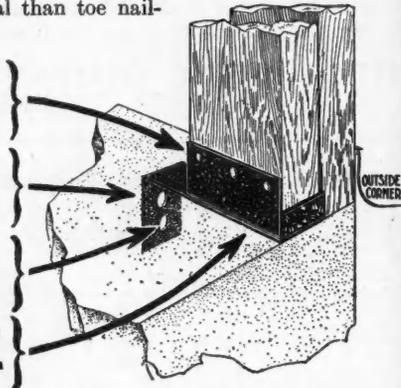
Takes but a minute or two to set them in the fresh cement, and once the cement is set, the Sockets hold forever. Easier, better and far more substantial than toe nailing to sill.

3 nails through studding

Set 3 inches into cement

Cement forms union through holes

Two long spikes into cement through bottom of socket



Protect bottoms of studding against decay and insure long life to the building. Used for garages, barns, and all frame buildings with cement floor. Cost little—add years to life of building.

Ask Your Dealer

for Wagner Studding Sockets—also Wagner Door Hangers and Tracks. Orders filled direct where we have no dealer. Circular mailed free.

WAGNER MFG. CO., Dept. F, Cedar Falls, Iowa



A General View of The Carborundum Exhibit at the Panama-Pacific International Exposition at San Francisco.

surely learn some valuable lessons regarding the many and wonderfully varied uses to which carborundum products are put.

In brief, the plan of the exhibit is to show a wide variety of materials and products in their crude or unfinished state and after they had been cut, ground or finished with Carborundum products. The result has been a wonderful collection gathered from manufacturing plants, not only in this country, but from South America, England, India, New Zealand, Australia, and other foreign countries. The collection embraces materials and products ranging from tooth picks to flooring, from flour mill rolls to needles, from steel shafts to watch dials, from beautiful semi-precious stones to shrapnel shells and malleable castings, and also includes samples of marble, onyx, and granite, pearl, cut and engraved glass, sueded skins and boots and shoes and in the grinding, shaping and finishing of every piece, show Carborundum products have played their important part, and in each case the particular Carborundum product which did the work is shown.

In the center of the exhibit is a wonderful fountain, built of irregular masses of the wonderfully iridescent Carborundum crystals over which real water plays, splashing into a marble basin, the coping for which was moulded with Carborundum wheels. The jewel-like fountain is 12 feet high and is strikingly beautiful.



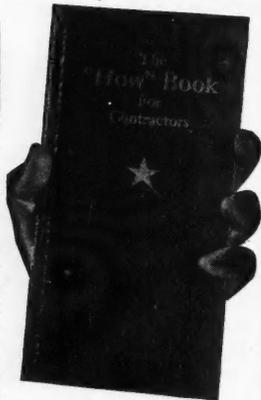
A detailed view of the wonderfully beautiful Carborundum fountain in the Carborundum exhibit at San Francisco. The fountain is 12 feet high and is made of masses of beautiful iridescent diamond-like Carborundum crystals. Real water plays over the crystal mass and the result is strikingly beautiful.

FREE!

To Contractors Who
Build Dairy Barns

This Valuable Reference Book

Here's a 126 page pocket size book bound in durable Keratol leather—packed from cover to cover with information that's bound to save you time and money. The "How Book" for Contractors is yours free of all cost if you'll write for it and give us the names of folks in your neighborhood who are going to build new barns—remodel old ones or put in concrete floors.



Pocket Size—Encyclopedia Contents

The "How Book" for Contractors tells how to figure life, strength and quantities on all kinds of building materials. Safe loads—bending stresses, crushing strength—timberweights—waste—shrinkage—roof pitches—labor costs in roofing, carpentry and masonry work, etc.—tells how to figure them all. It's a ready reckoner too—compiled from authoritative sources. A wealth of practical, usable, every-day information that you as a contractor can't afford to be without. And it's free to you. Write for it.

Our drafting department is at the service of our contractor friends. We furnish special blue prints for your customers at no cost to you.

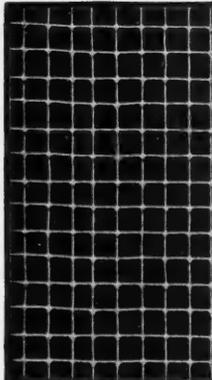
Read This—Write Us

Write today—sending us the names of folks in your neighborhood who are going to build new barns—remodel old ones or put in concrete floors and we'll send you a copy of the "How Book for Contractors" bound in keratol leather and details of our Free Blue Print Service.

HUNT, HELM, FERRIS & CO.

304 Hunt St.

HARVARD, ILL.



Let Your Specifications Read WRIGHT WIRE LATHING

Many of the country's foremost architects specify Wright Wire Lathing. It was used in the Grand Central Station and many other famous structures, as well as costly residences, because it resists the ravages of time and fire as no other lath can.

Wright Wire Lath is made in three finishes—Plain, Japanned and Galvanized. The illustration at the left shows Wright Galvanized Lath.

Our Catalogue W, describing Wright Wire Lathing in detail, is an intelligent guide for architects and builders. Send for a copy of this book today. Free on request.



WRIGHT WIRE COMPANY

WORCESTER, MASS.

FRESH AIR AND PROTECTION!

The Ives Window Ventilating Lock



A Safeguard for Ventilating Rooms, allowing windows to be left open at the top, the bottom, or both top and bottom, with entire security against intrusion.

Descriptive circular mailed on application.

THE H. B. IVES CO.

SOLE MANUFACTURERS

NEW HAVEN . . . CONNECTICUT

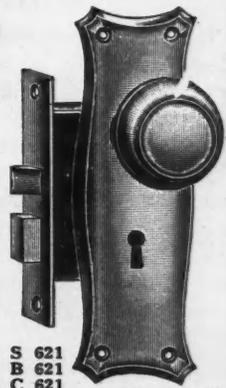
Lock Sets for \$4.50 per dozen

Fine finish, neatest design. Let us send you our complete catalog of Builders' Hardware **FREE.**

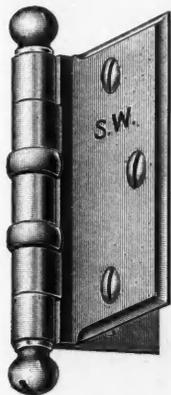
It describes the latest designs in Corbin Locks. This catalog lists everything from bolts and shovels to building paper, sash pulleys and door butts.

Write to day for this catalog, enclosing your order for Lock Sets.

GREGG HARDWARE CO.
44-45 Cadillac Square, DETROIT, MICH.



S 621
B 621
C 621



STANLEY BEVELED HALF SURFACE BUTTS

*Save Time and Labor
and Please the Owner*

WITH these Butts it is not necessary to mortise the door as the ornamental leaf screws on the surface.

The Butts can be changed to right or left hand by simply unscrewing the slotted tip and reversing pin. Made with and without **Stanley Ball Bearing Washers** which prevent wear in the joints, creaking and binding. The Washers are also reversible.

Oval Head Screws are packed for the surface leaf, flat head for the jamb leaf. The advantage of oval head screws over round head is apparent; the extra purchase obtained in the countersink holds the butts rigid. Round head screws do not fill the holes, are less attractive and will *not* hold butts firmly.

The Screws are wrapped separate from the butts and both are wrapped in strong anti-tarnish tissue.

Write for Booklet
"A" on properly
hung doors.



There
Can Be No
More Perfect
Hatchet
Made

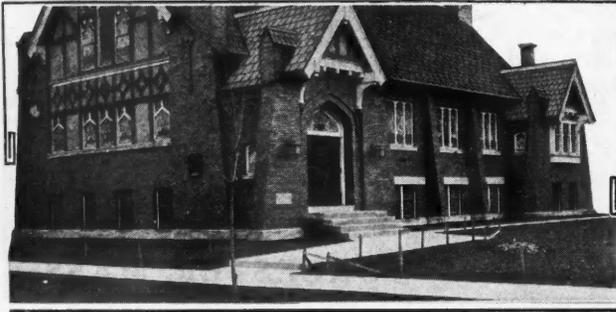
No. 319, Size 1, and \$1.50
No. 320, Size 2, each

GERMANTOWN MASTER BUILDER

Hatchets are made of the finest quality steel procurable. Every process of their manufacture, from the initial forging to the final fitting of the handles, is carefully inspected. Master workmen the country 'round use these Hatchets because they know that owning a "Master Builder" means the possession of a tool that will never fail, that will be long lived, efficient and satisfactory in every way. Thin bit, splendid balance, perfect cutting edge.

Germantown Tool Works - Philadelphia, Pa.
Branch:—62 East Lake St., Chicago

SLATE FOR ROOFING



Specification for Flat Slate Roof Over Concrete

The following specification has been prepared by the Bangor Slate Association to furnish reliable information to architects and builders on flat roof construction using slate. This specification is for use *over concrete*, and supplements that given last month for use over wood sheathing.

Surface: Concrete surfaces shall be properly graded to outlets and formed to drain all water from the roof by the concrete contractors, and the roof surface shall be finished smooth and hard and shall be thoroughly dry. All rubbish shall be removed by the contractors preceding the roofer.

Application: First—Coat the concrete uniformly with hot specification pitch.

Second—Over the entire surface lay two (2) plies of specification tarred felt, lapping each sheet seventeen (17) inches over preceding one, mopping with specification pitch the full seventeen (17) inches on each sheet, so that in no place shall felt touch felt.

Third—Coat the entire surface with specification pitch.

Fourth—Over the entire surface lay three (3) plies 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. Use an average of one hundred and forty (140) 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) 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.

Note:—We advise incorporating the full wording of the specification and inserting roofing details in plans in order

Cross Section



Showing Approved Construction for Flat Steel Roof Over Concrete.

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 concrete) laid as directed in printed specification, issued March 1, 1915, using the materials specified, and subject to the inspection requirement.

*Full information concerning suitable grades and sizes will be furnished on request.



“Bull Dog” Equipment

“Bull Dog” engines, hoists, building material elevators, and pumps for contractors are described and illustrated in a pleasing catalog issued by the Bates & Edmonds Motor Company. Contractors and builders should become acquainted with their line, as it has many good features. Their hoists and diaphragm pumps are often made up with the “Bull Dog” engine attached and all ready to run. Builders can secure this catalog by writing to the above mentioned company at Lansing, Mich.

SLATE WE HAVE WHAT YOU WANT

*In Roofing Slate. Slate Blackboards
Structural and Plumbers' Slate*

SATISFACTION GUARANTEED IN QUALITY AND PRICE
ASK FOR DELIVERED PRICES

J. K. HOWER, Station, C., Danielsville, Pa.

R. J. KICHLINE, Sales Agent

ROOFING SLATE SINCE 1869

Miners, Makers and Shippers of all Styles and Colors of Roofing Slate. Write for Prices.

RISING & NELSON SLATE CO.

Main Office: West Pawlet, Vt.

Branch Offices:

1140 Singer Bldg., New York City. 4 Post Office Sq., Boston, Mass.
Office and Yard, 2554 W. Harrison St., Chicago, Ill.

SNOW GUARDS

are applied to slanting roofs to prevent snow from sliding, tearing off and damaging gutters and injuring passers by. Made in several styles, for old or new roofs.

CLASON METAL WORKS,
Providence, R. I.

FREE SAMPLES will be gladly sent on request, together with full information.

“Clason” Guard for New Roofs

ROOF SLATES

STRUCTURAL SLATE BLACKBOARDS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

E. J. JOHNSON

38 Park Row New York

Quarry Operator

BLACK, GREEN, PURPLE, RED

Booklet, Samples and Prices on Application