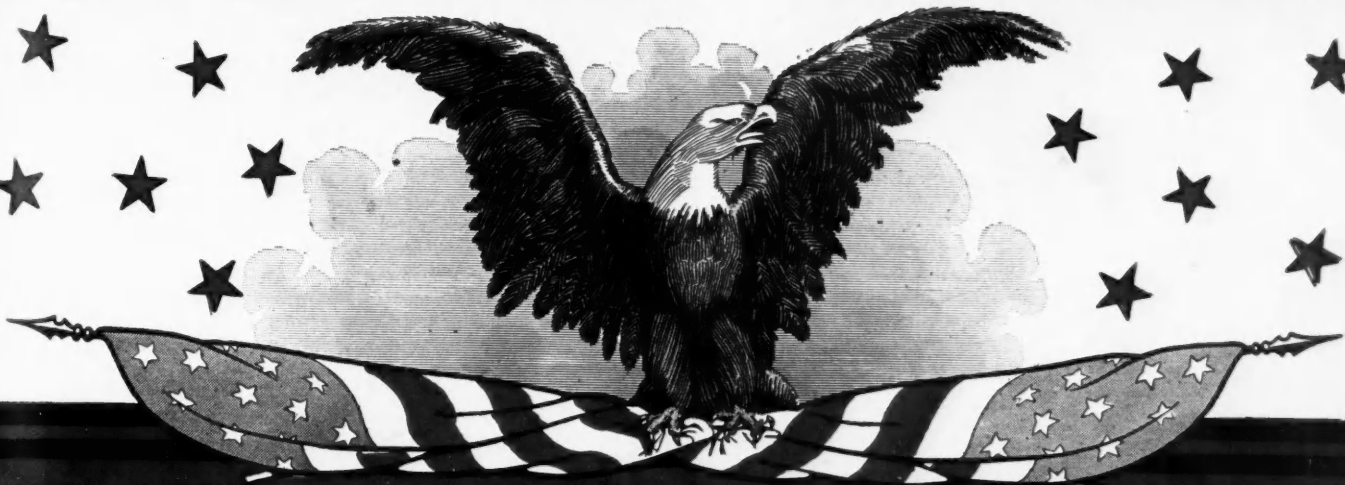


MARCH 1916

AMERICAN CARPENTER AND BUILDER

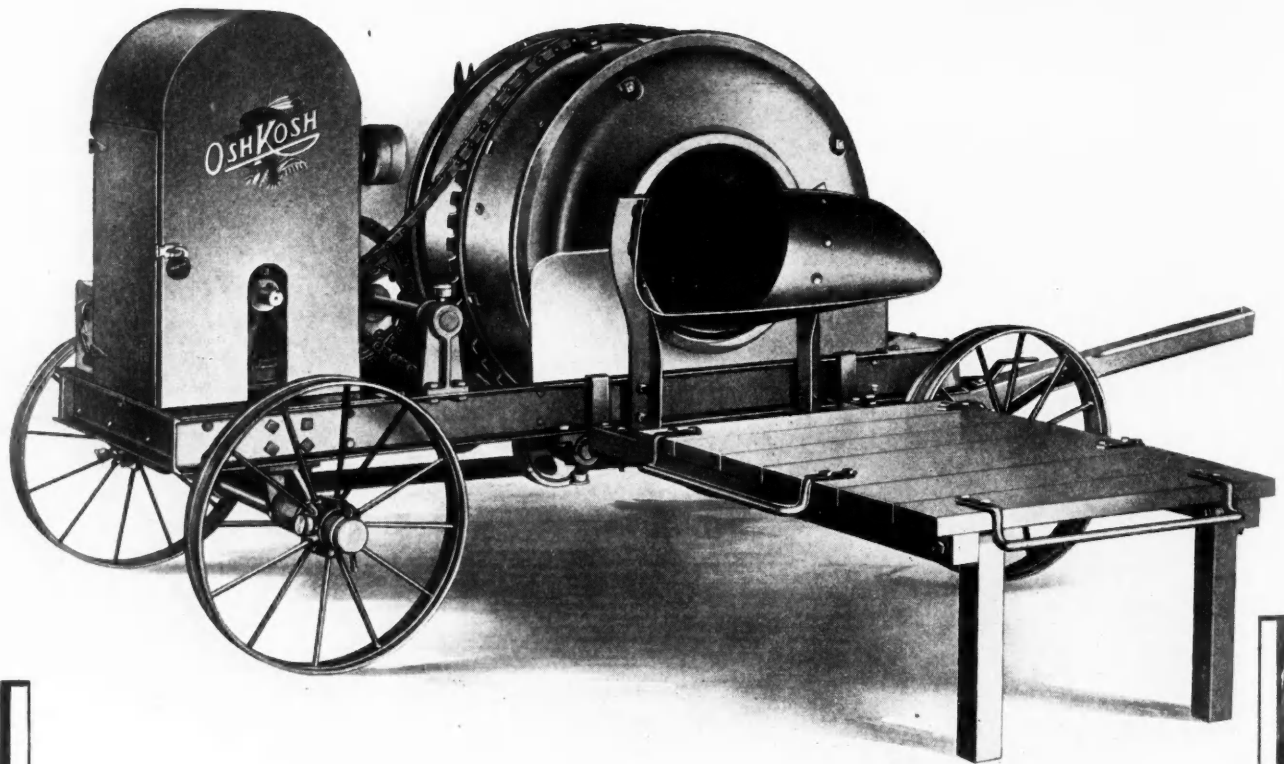


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Read the Announcement of our big Prize Competition for Architect-Builders.

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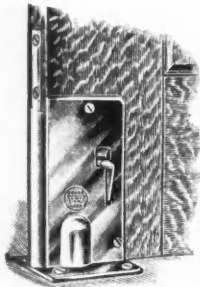
Contents for March, 1916

	Page		Page		Page
Announcement of Competition for Architect-Builders	38	Delivering Materials to the Job	82	"Pantryette" Saves Steps	54
Artistic Four Room Bungalow	41	Device for Insuring Uniform Length of Saw Teeth	78	Platform for Punching Bag	102
Artistic Story-and-a-Half Bungalow	47	Disappearing Beds Make Five Rooms of Three	52	Possibilities of the Steel Square	71
Attractive Bungalow Design in Two Sizes	42	Drill Struck Wood at 1,900 Feet	73	Private Garages for Every Need	48
Big Little Barn Design	66	Farm Buildings Arranged for Convenience	66	Prize Competition	38
Building a Brick Smokehouse	100	From a Converted Stone Mason	86	Questions on Stair Building	94
Building a Shed for 176 Lumber Piles	72	Guaranteed Building Plans	41	Real Estate Home Building	59
Building News from Alaska	90	Guide for Shingling	96	Shed Roof Poultry House	68
Built-in Garbage Receiver	55	Home Building by the Wholesale	58	Shoring and Raising Buildings	76
Bungalow with Distinctive Roof Construction	45	Makes Hand Craft Furniture	92	Six-Room Story-and-a-Half House	43
Canning Company Decides on Concrete Chimney	75	Making the Home Grounds More Attractive	50	Space Savers for Home Builders	52
Carpenter's Note Book	37	Man from the Lumber Yard	56	Steel Square	71
Cement Building Construction	74	Milk and Package Box	55	Story-and-a-Half House of Attractive Design	44
Church of Bungalow Design	64	Miscellaneous Building Plans	62	Structures Planned and Built by Our Readers	38
Clean Manure Pit	67	Model Building Designs Containing Newest Devices	52	To Stretch Screen Wire	98
Concrete Base Between Porch Piers and Under Porch Steps	65	Modern Daylight Factory	62	Trade Notes and Items of Interest	104
Concrete Block Barn	86	Modern House Moving Methods for the Carpenter and Builder	76	Values Information Exchange	96
Corner Entrance for Bank	82	Noon Hour Talks by the Boss Carpenter	69	Water-Storage Tanks for Farms	74
Correspondence Department	78			Well Lighted Cheap School House	98
Cuts at Knuckle Joint	94			What Causes the Leak	78
				Who Knows About Rustic Oak Finish	100
				Yours for Safer Building	63

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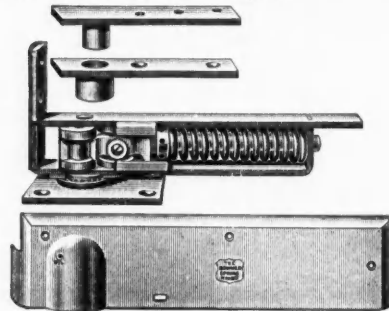


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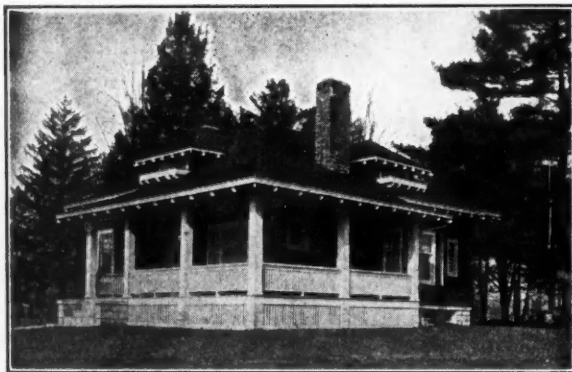
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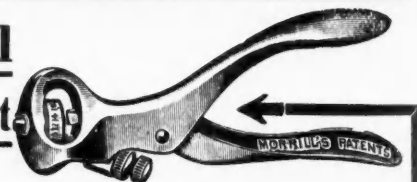
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You can run a cash account under C, and it never runs out. You always have plenty of room for the next item.

Charge all items to the customers, on their own pages, and enter them also in the Cash account, and you

have a system of bookkeeping that will be very serviceable and adequate for small contractors.

When Smith's job is finished and paid for—just remove the page! It is out of the way and leaves room for a new account. Your note book is not always cluttered up with a lot of useless, old, out-of-date or dead material or notes. When any note has outlived its usefulness, just remove it.

If you blot or spoil a page—remove it—and put another in its place. Then you can keep all the old pages or accounts or notes in very convenient form by just fastening them together with a paper fastener thru the holes already in the pages. Keeps them tidy, neat, just as handy to look at as though still in the book—and sometimes these old accounts or notes are a mighty handy or necessary thing.

You will never know how convenient it is to use up a page of your note book and then be able to REPLACE it—with a clean, new sheet—until you have used a looseleaf. Yes, it costs quite a bit to "install," but so do nearly all modern improvements. And like a whole lot of other modern improvements, IT PAYS.

—H. J. BLACKLIDGE, San Rafael, Calif.



ANNOUNCEMENT

COMPETITION FOR ARCHITECT-BUILDERS

TWELVE PRIZES—\$140.00 IN PRIZES

We are pleased to announce a big competition for Our Readers to find out what buildings put up during the past year were best designed and constructed. The only restriction placed on this competition is that each building submitted must have been both designed and built by the individual or firm entering it. This will be more than the ordinary architectural competition—which is usually based on imaginary designs that are never built. **THIS COMPETITION IS ON STRUCTURES ACTUALLY ERECTED.** It will show the importance and high quality of the work being done by the vast and growing army of architect-builders, practical men who draw their own plans and who read the "American Carpenter and Builder."

A FOUR DIVISION CONTEST.

Class A—Best Designed Residence.	
First Prize.....	\$20.00
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Class B—Best Designed Public Building.	
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Class C—Best Designed Commercial Building.	
First Prize.....	\$20.00
Second Prize.....	10.00
Third Prize.....	5.00
Class D—Best Designed Farm Building.	
First Prize.....	\$20.00
Second Prize.....	10.00
Third Prize.....	5.00

THERE WILL BE TWELVE PRIZE WINNERS.

We want every one of our readers who plans his own work to try for one or more of these prizes. Size and expensiveness do not count; small work will rank just as high as large, provided it has merit.

SEND THE FOLLOWING MATERIAL:

- Each design entered in this competition must consist of:
- (1)—Photograph of exterior.
 - (2)—Floor plans drawn to scale in black ink on white paper or cloth (or blueprints of same); walls and partition blacked in, and principal dimensions given.
 - (3)—Statement of actual cost, both material and labor, summarized under the principal subdivisions of the work.
 - (4)—About 300-word description of the most interesting points in connection with the building or concerning your methods of handling the job.
 - (5)—Proof of authorship (see letter form above).

These five things are required, and every design entered MUST include them.

In addition to these five requirements, any other material may be submitted that might add to the interest of the exhibit; as for instance, photographs of the building interior; photos taken during construction; views of drafting room, or of shop; or photos of any special piece of builders' equipment used in connection with the job.

DO NOT ROLL PHOTOS OR DRAWINGS—PACK THEM FLAT—BE SURE YOUR NAME AND ADDRESS ARE CLEARLY MARKED ON EACH.

PROOF OF AUTHORSHIP.

This competition is on structures that are both planned and also built by the same individual or organization. That there may be no doubt as to the honesty of this competition, a letter in substantially the following form must accompany every design entered:

"I (or we) affirm that the structure illustrated in the accompanying photographs and drawings was actually designed by me (or us), and then constructed by me (or by our firm) in accordance with my plans and specifications.

"I am a reader of the 'American Carpenter and Builder.'"

"Signed....."

NO LIMIT IS SET ON THE NUMBER OF buildings any one individual may enter in this Competition.

CLOSING DATE, APRIL 5, 1916. PRIZE WINNERS WILL BE PUBLISHED IN THE MAY "AMERICAN CARPENTER AND BUILDER."

Get busy at once. You have just two months to get photographs taken and plans drawn. Do your work justice by working up this material carefully.

Payment will be made immediately following publication, by means of our popular "Advertised Merchandise Vouchers," which are good for full face value in either whole or part payment for any goods advertised in the "American Carpenter and Builder."

HONORABLE MENTION DESIGNS will be published. More structures of real merit and interest will, no doubt, be submitted than the twelve prize winners. These will be given Honorable Mention, and will be published from time to time in the "American Carpenter and Builder" at the discretion of the Editor.

IN CASE OF A TIE for any prize, an extra prize of like amount will be awarded.

In case none of the designs submitted is up to the "American Carpenter and Builder" standard for publication, the Editor reserves the right to return all entries and declare the event off.

POINTS THAT WILL COUNT.

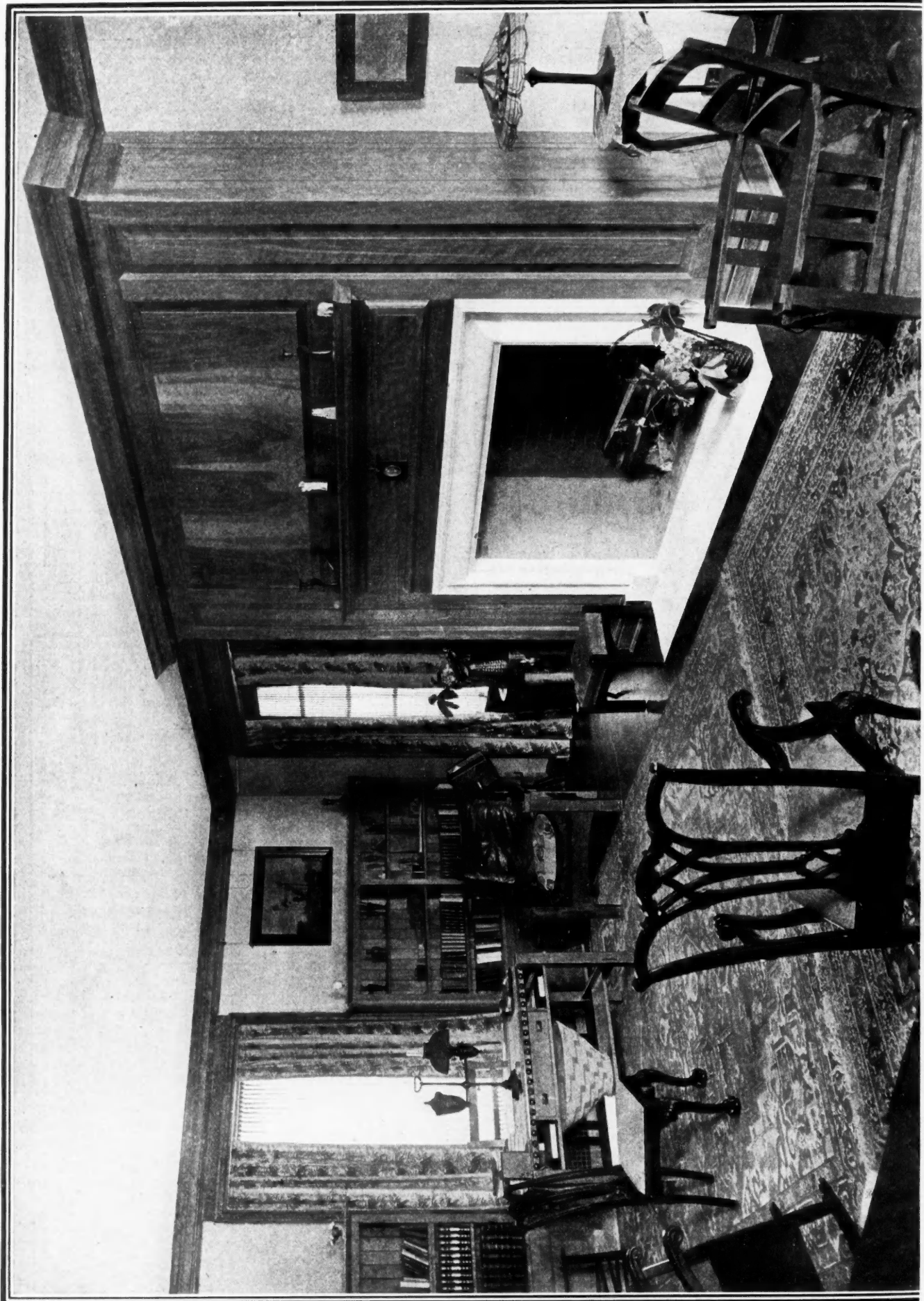
This competition will be judged not on the size or costliness of the building, but on its architectural suitability to serve the purpose it was intended for; its general appearance, convenience of arrangement, completeness of modern equipment, choice of building materials, and thoroughness of construction—all will be considered in making the awards. Also, apart from the building itself, the character of the material submitted—the photographs, drawings, description, etc.—will have great weight with the judges.

DON'T delay about getting started; begin right now. Don't wait till closing date to mail your package. Send it just as soon as you have it ready. Do not roll photographs, drawings or manuscripts. Pack them flat.

**Address Prize Competition Editor,
American Carpenter and Builder,
1827 Prairie Ave., Chicago, Ill.**

On the Trail of the Home Design





The Modern Home Architecture is Characterized by Simple Elegance, Quiet Efficiency, Interiors are Open, Roomy, Woodwork Runs to Flat Panels and Straight Line Mouldings, Nothing Fussy, Ornate or Dust Catching is Tolerated. This Library-Living Room in Glencoe, Ill., Deserves Close Study.



Artistic Four-Room Bungalow

Four rooms are called for in the floor plan of the attractive little bungalow shown here. Two bedrooms are, however, provided by combining the living room and the dining room into one room. In the summer the amount of space that will be available will be increased because of the usefulness of the large porch that extends around one corner of the house.

The porch is one of the most attractive features of the exterior. The groups of white square pillars, mounted on rough stone bases are not connected by any railing, which gives an unusual appearance. The distinctive character of the porch is carried out further by the pergola roof. The porch foundation is also of rough stone to harmonize with the columns.

The combination living room and dining room occupies the entire front part of

the house. It is quite a large room, being 17 feet 6 inches by 13 feet. The fireplace is located across one of the back corners of the room, which is a pleasant way of handling this most important feature of a living room.

The two bedrooms occupy one side of the house back of the combination living room and dining room. Both are attractive, well lighted rooms of fair size. Each has a closet.

The opposite side of the house is occupied by the kitchen, the pantry, and the back porch. The bathroom is located in the central back part of house.

The pantry is small and compact and is arranged as a time and labor saver. It is equipped with a table, a row of shelves, and a refrigerator that is iced from the back porch. The arrangement of the pantry is such that most of the walking around to get things is eliminated.



Well-arranged bungalow of four rooms. Size, 27 feet 6 inches by 36 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$6.00 per set. Blueprints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6769.

Attractive Bungalow Design in Two Sizes

The accompanying perspective shows a typical bungalow design for which two different floor plans have been developed. Both the size and arrangement of the rooms are different in the two plans.

Plan "A" shows a little four-room design with many attractive features. Perhaps the most striking of these is the living porch that is built in the back part of the house. This is a glassed-in porch that is built directly back of the dining room. It is connected to the dining room by double glass doors.

The dining room and the living room are almost the same size, and are connected by a cased opening. The fireplace is located in the front wall of the living room.

The bedroom and bath occupy one side of the plan.

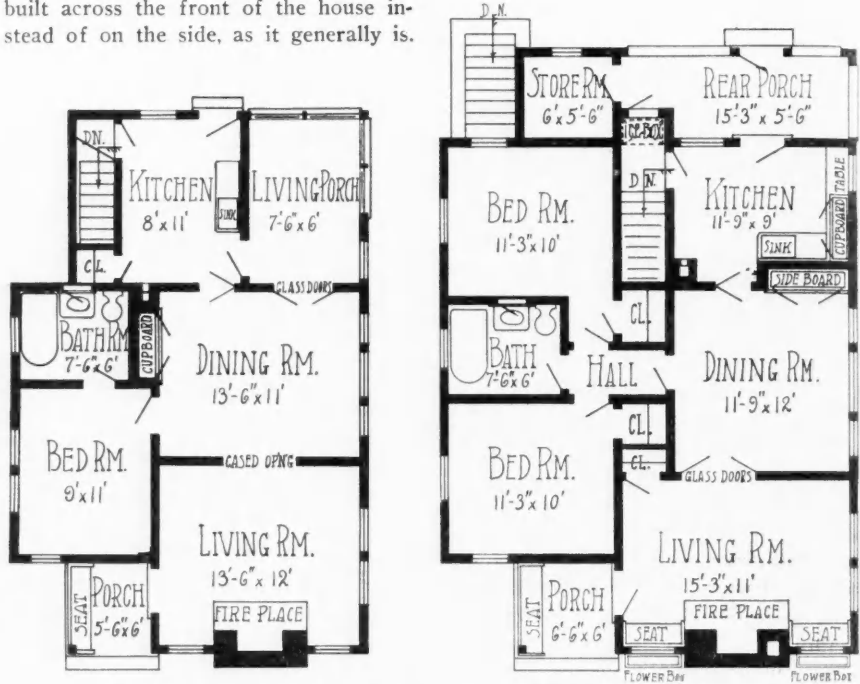
The other floor arrangement, plan "B," is larger and contains five rooms. The living room is one of the most attractive rooms included in this arrangement. The impression it creates is one of coziness and this idea is helped out very largely by the large brick fireplace with the seats placed on each side of it under the small windows.

Back of the living room is the dining room and also the kitchen and rear

porch. Two bedrooms occupy the opposite side of the house and have a bathroom placed between.

The exterior of either plan is of typical bungalow construction. The tapering brick chimney for the fireplace is built across the front of the house instead of on the side, as it generally is.

The roof projects out on one side to cover the front porch and all the structural members are left exposed. The sides of the bungalow are finished in shakes, which give a rustic appearance to the exterior.



Two Different Floor Plan Arrangements for Same Exterior.

Plan "A," Size 24 by 36 feet, Four Rooms. Plan "B," Size 28 by 40 feet, Five Rooms.



Rustic bungalow with a choice of two floor plans. Plan "A" is 24 by 36 feet, and Plan "B" is 28 by 40 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for either Plan "A" or Plan "B" for only \$6.00. Blueprints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6770 Plan "A," or for No. 6770 Plan "B."



Six-room shingle-sided house. Size 28 by 29 feet 6 inches. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$8.00 per set. Blueprints consist of basement plan; roof plan; first and second floor 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. 6766.

Six-Room Story-and-a-Half House

Both the exterior and the interior arrangement of this house present a distinctive and attractive design.

The exterior is finished in shingles that are laid in alternate wide and narrow strips up to the gable. The gables are shingled in uniform courses. The

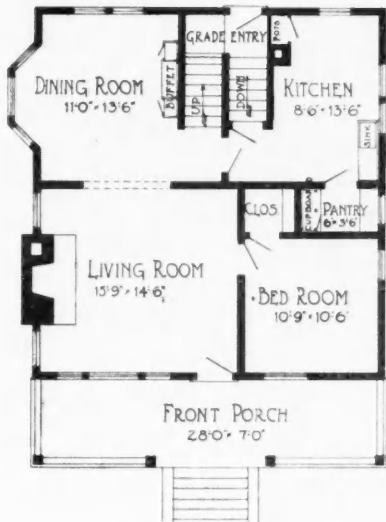
chimney and front corner foundation columns are of brick. All the exterior trim is white. All these features combine to give a very pleasing impression.

The floor plans call for two bedrooms on the second floor and also a bath, while on the first floor there are four rooms, including a living room, dining room, kitchen, and a bedroom.

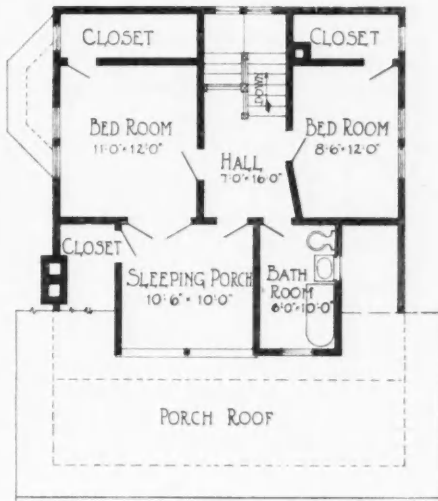
Sleeping porches are being demanded more all the time by people who are building their homes, and this plan has one included in the second floor arrangement. It is located in the broad dormer facing the front of the house. It is arranged so that it can be reached by two doors—one a double door leading to one of the bedrooms and the other leading to the central hall on the second floor.

The bedrooms occupy the two gables and the bathroom is built alongside the sleeping porch. A large amount of closet space is available under the eaves.

The living room and the dining room are connected by a wide cased opening so that there is quite a large unobstructed floor space along one side of the house. The lighting in both these rooms is taken care of in good style. The living room has a triple window facing out on the front porch and also has a smaller window on each side of the fireplace. The dining room has a curved bay of three windows and also two more along the back wall. Bright, cheerful rooms such as these are a great addition to any house. The stairs to the second floor are reached thru the dining room.



First Floor Plan.



Second Floor Plan.

Arrangement of House. Size, 28 by 29 Feet 6 Inches.

Story-and-a-Half House of Attractive Design

The accompanying floor plans and perspective show a pleasant and convenient house for the family. On the first floor there are four rooms, while on the second floor there are three bedrooms and a bathroom.

An unusual feature of the plan is the window arrangement along the front of the house facing out to the broad porch that extends across the entire front of the house. Considerable ingenuity has been used in arranging the front of the house in order to make it distinctive and artistic.

The house can be entered from three different doors opening to the porch. Directly in front of the steps is the main front door which leads into a hall. On each side of this are French doors to the living room and the dining room. On each side of all three doors are narrow panels that extend from the porch roof to the floor. Each of these contains small panes of glass for its entire length. The arrangement makes the entire front of the house into one large window and adds to the value of the porch in the summer time, as it really seems to be a part of the house.

The hall thru the central part of the first floor makes the room arrangement convenient and the rooms readily acces-

sible. The stairs to the second floor are also reached thru this hall.

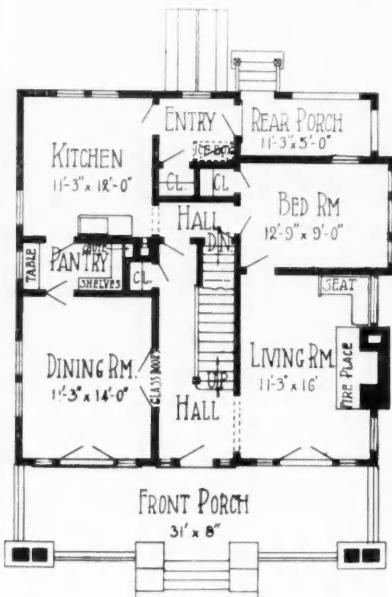
The living room is of good size and has a large fireplace built along one of the walls. On each side of the fireplace is a wide window. These two windows together with the ones along the front make the room very cheerful and bright.

The dining room is of the same width as the living room, but it slightly short-

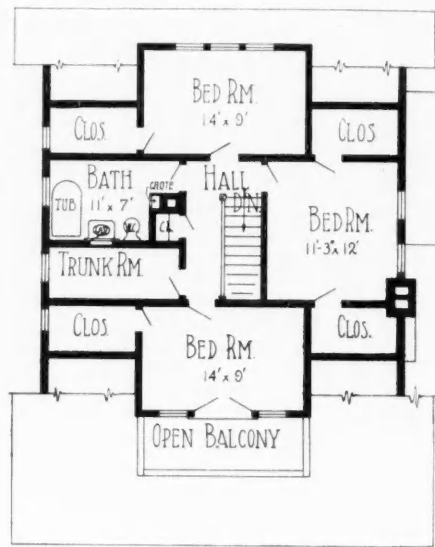
er. It is also made very bright by the use of plenty of windows.

One of the most desirable features of the kitchen is the back porch, which will be useful as a kitchen annex during the warm months.

On the second floor three bedrooms are included in the plan. Two of the bedrooms are built into dormers, and the other into the gable. The bathroom is built into the other gable.



First Floor Plan.



Second Floor Plan.

Arrangement of House, Size 31 by 32 feet.



Seven-room story-and-a-half house of comfortable design. Size, 31 by 32 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$10.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6768.



Five-room bungalow with distinctive roof construction. Size, 31 by 44 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$7.00 per set. Blueprints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6759.

Bungalow with Distinctive Roof Construction

The accompanying floor plan and perspective show a little bungalow with several very attractive features. It contains five rooms that are arranged in a pleasing and attractive way. There is also a reception hall equipped with a closet for wraps.

The exterior of the bungalow attracts attention because of the distinctive way in which the gable roofs are arranged. There are two of these gables projecting toward the front of the house. The edges of these gables are not finished off in any way, but the timber construction is allowed to show—one of the favorite features of many types of bungalow building. Attention to various details such as these will make a home that will be different from the average house and will be mighty attractive and pleasant. The porch is built under the main roof of the house which has a wide enough eave, supported by brackets, to cover it. The construction of the brick and concrete porch pillars is decidedly unusual.

The walls are constructed of siding that is laid in alternate wide and narrow courses. Plain rough siding is used, which gives a rustic appearance to the bungalow. This siding can be stained dark, which adds still further to the rustic idea. The window casings are made in the same color and the sash are white, which provides a

pleasant contrast that is worth money.

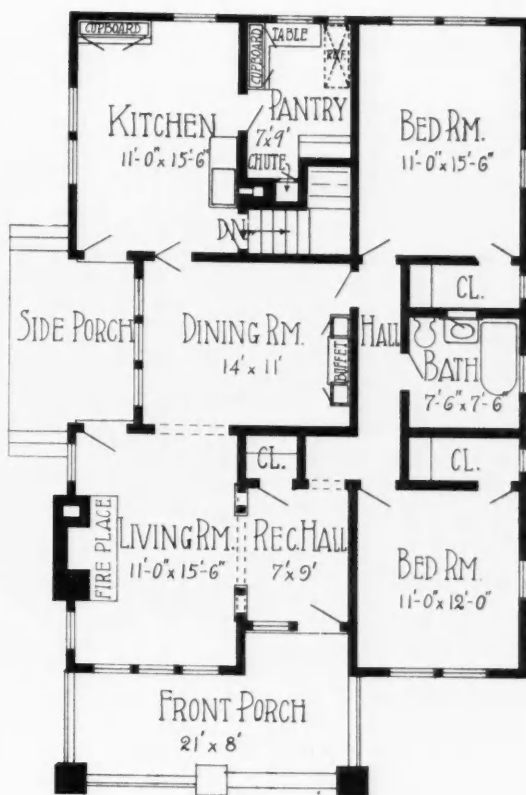
The entrance is into a reception hall that opens thru cased openings into the living room and also into the back hall that connects up the bedrooms and the bathroom with the rest of the house. This floor plan with the reception hall and the back hall provides an arrangement that makes all the rooms readily

accessible from all the others. Halls of this kind are a convenience that is not often provided in flats and apartment houses. It makes it possible to cut off parts of the house from others so that strict privacy is insured and still all the rooms can be easily reached.

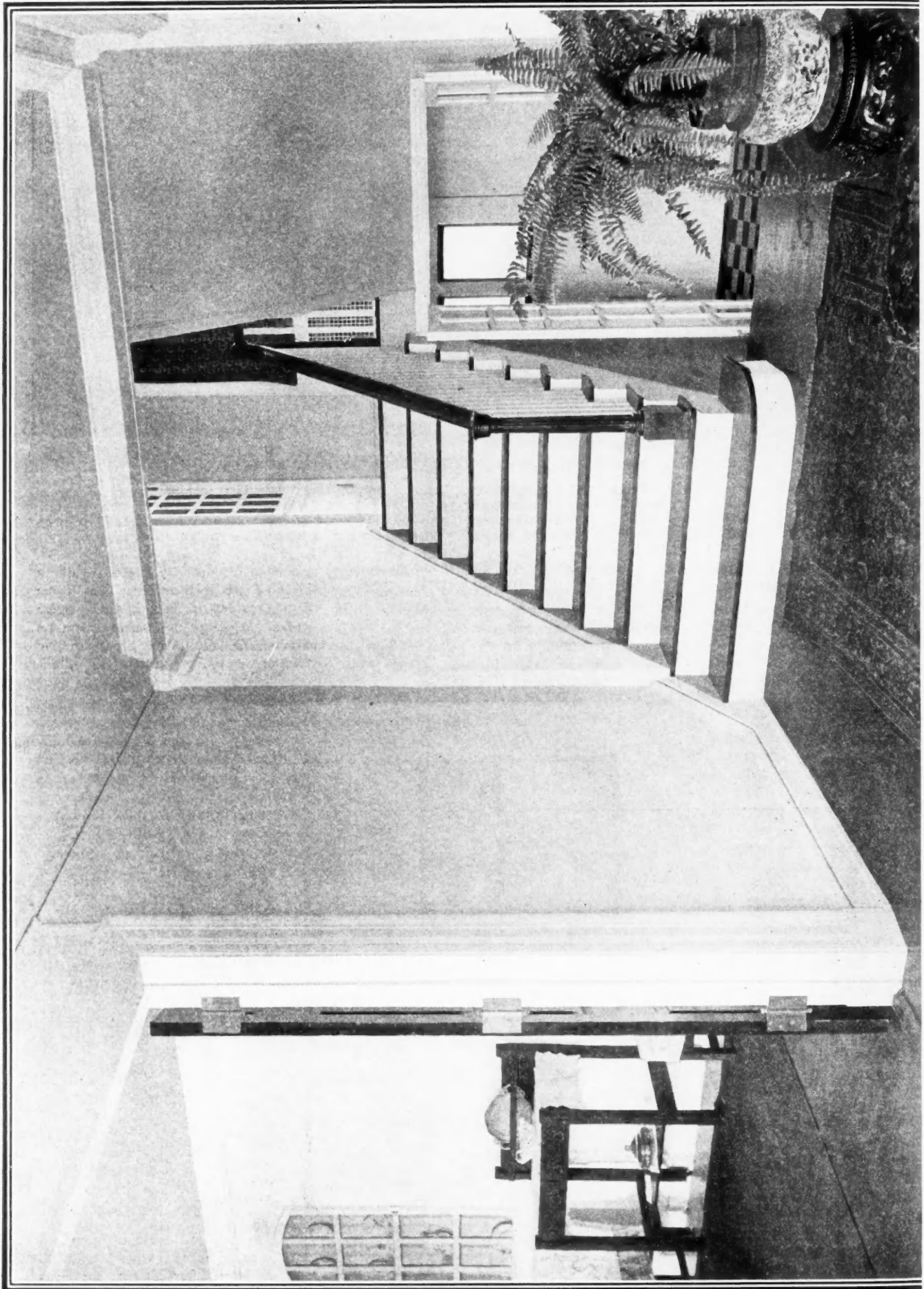
The bedrooms are placed at the front and back corners of the house. This enables these rooms to have windows facing in two directions and insures a plentiful supply of air in the sleeping rooms. Such an arrangement makes these rooms almost as healthful for sleeping purposes as a sleeping porch. It also makes it possible to have cheerful, well-lighted rooms. Each bedroom is furnished with ample closet space which is always a good feature to incorporate in a house. Most housewives will tell you that it is impossible to get too much closet space.

The living room is a bright, cheerful room, due to the lighting arrangement. There are three wide windows facing the porch and also two more on the side—one on each side of the fireplace. The living room can either be reached thru the reception hall or thru a small door that leads to the side entrance. It is connected to the dining room by a wide cased opening.

In back of the dining room is a large kitchen equipped with all the latest improvements for making a kitchen convenient and useful.



Floor Plan, Size 31 by 44 feet.



A Modern Colonial Hall Done in Pure White with a Few Strong Contrasting Notes of Mahogany. Note that Entrance Vestibule is Floored with Black and White Tiles. Double Well-Closed Doors are Used to Separate Entrance from Hall Proper.



Seven-room House with attractive porch. Size 28 by 42 feet. We can furnish complete set of blueprinted 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. 6751.

Artistic Story-and-a-Half Bungalow

The floor plans of this house call for five rooms on the first floor and two on the second, thus providing plenty of room for a fair-sized family. One of the features of the second floor is the provision for closets. These are built out under the eaves and there are two large ones in each of the two bedrooms. A pleasant little alcove is also built off one of these bedrooms into a dormer window and can be used for a sewing room if desired.

The most attractive and unusual room on the first floor is perhaps the living room. Both the back corners are angled off to the cased opening leading to the dining room. The fireplace fills one corner and the other is occupied by a closet which opens into the back hall. The tapering effect of the end of this room makes the dining room seem more than ever to be a part of it, and increases the idea that these two rooms are merely one large room. This idea is very much liked by many people. The triangular bay with the small seat built into it is another feature of this room that is out of the ordinary.

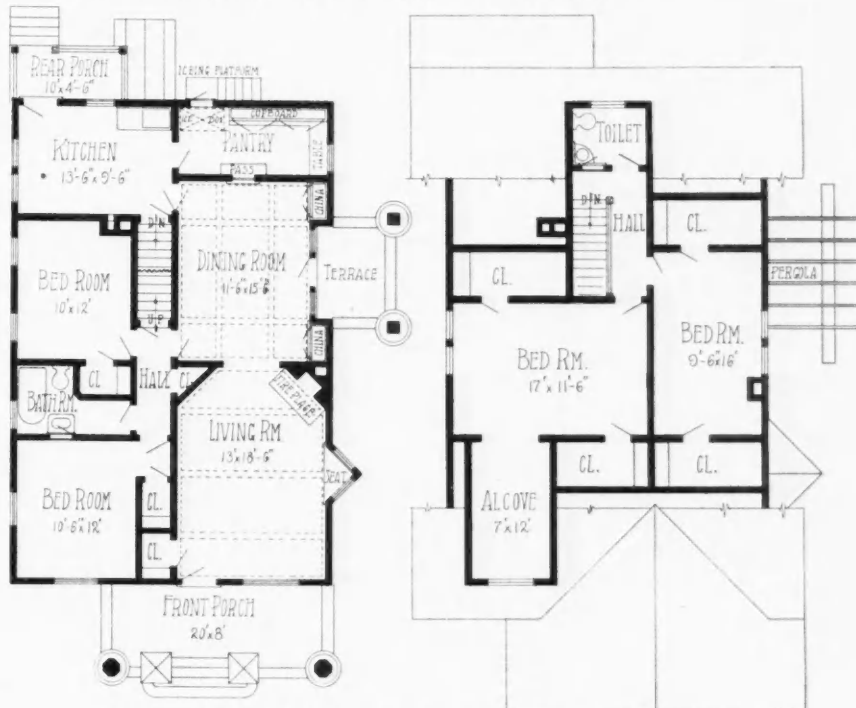
The terrace built off the dining room is an artistic touch and also provides a side entrance to the house which is often considered a good feature. On

each side of the door from the dining room to the terrace is a window, and next to these windows are built-in china cases.

A large serving pantry is provided directly back of the dining room and is equipped with a large cupboard, a table and a refrigerator that is iced

from a small icing platform built on the outside.

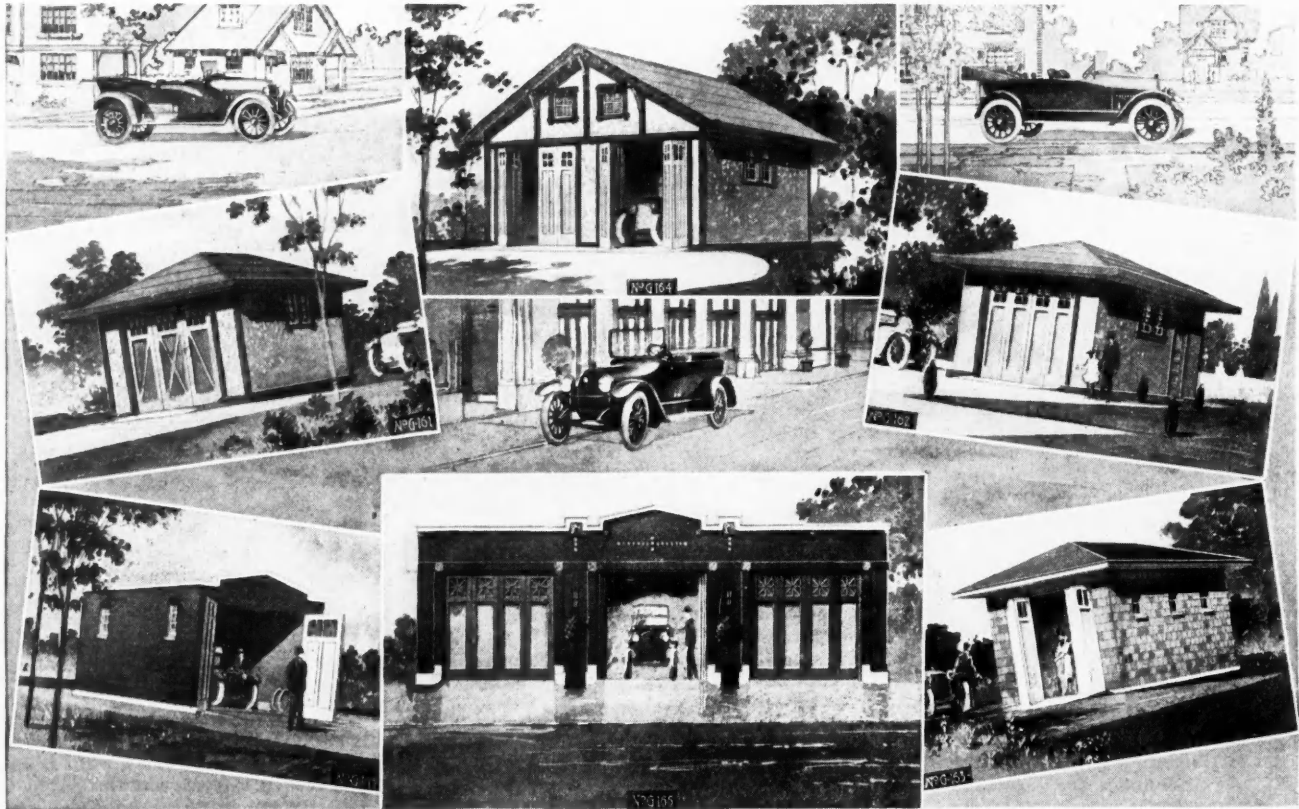
The opposite side of the house is occupied by the kitchen and two bedrooms with a bath between. The stairs to the second floor are reached thru the back hall, while the basement stairs open into the kitchen.



First and Second Floor Plans of House, Size 28 by 42 ft.

A Private Garage for Every Need

SIX MODERN DESIGNS, EACH WITH DIMENSIONED FLOOR PLAN AND DETAILS OF CONSTRUCTION—
MODERN TYPES OF GARAGE DOORS SHOWN.



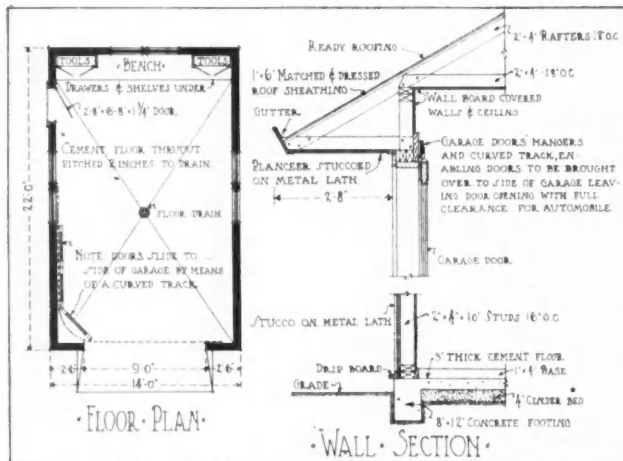
Six Clever Little Garages; To the Left No. G161 and No. G165 are One-Car Garages of Cement Plaster and Brick Respectively; In the Middle Above is No. G164, a Two-Car Garage, while Below is No. G166, Planned for Three Cars; At the Right No. G162 and No. G163, the One of Stucco the Other of Concrete Blocks or Structural Tile, are Each for One Car Only. Compare with Accompanying Plans and Detail Drawings for Further Particulars.

THE private garage is one of the coming types of building. A few years ago they were almost unknown but today there either is or should be one in every back yard. Both the city and the small town have their share.

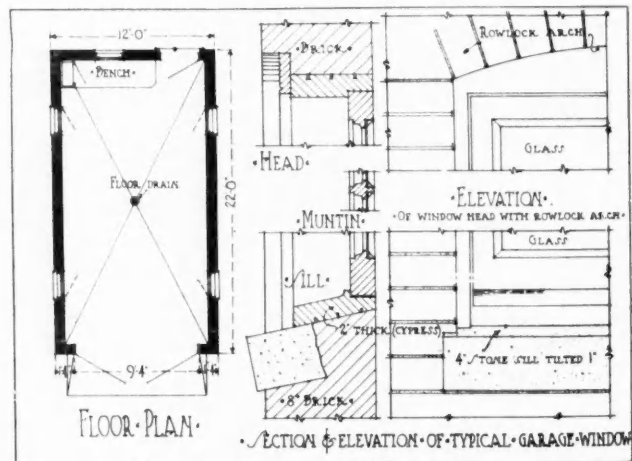
Garages are built now so that they are an attractive part of the general plan of a lot. Many different varieties of buildings to suit all types of cars and all ranges of prices are shown here. Architects and

builders may include a garage in the arrangement of a residence so that it is built to harmonize with the style of the house.

The advent of the flat and apartment building has brought out the multiple type of which two examples are shown in the accompanying perspective and floor plans. As the double house, apartment, and flat building move to the smaller towns, the double and triple garage will become more common.



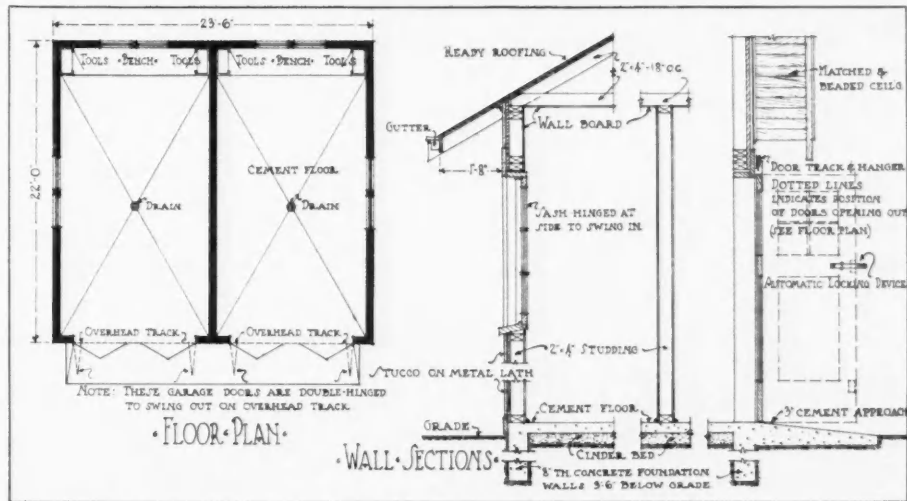
Floor Plan and Detail of Garage No. G161. Size, 14 by 22 Ft. Built of Stucco on Metal Lath. Door is Hung in Three Sections to Slide Back Around Corner on Curved Track.



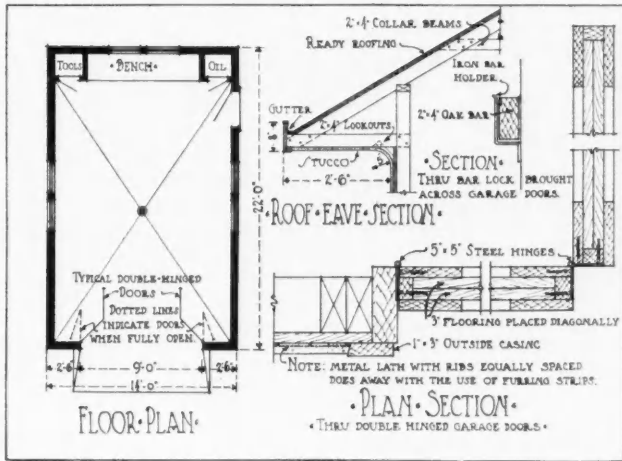
Details and Floor Arrangement of Brick Garage No. G165. Size, 12 by 22 Ft. Door is 9 Ft. 4 In. Wide and is of the Simple Double Type Hinged to Swing Outward.

To acquaint our readers with some of the various styles that are being built we are showing here six different garages of various styles and finishes. In the details we are showing the construction and various other features and also some of the types of doors that have been developed particularly for garages. Many different kinds of doors have been brought out with the necessary attachments for handling them easily. The garage owner can find a type that appeals particularly to him.

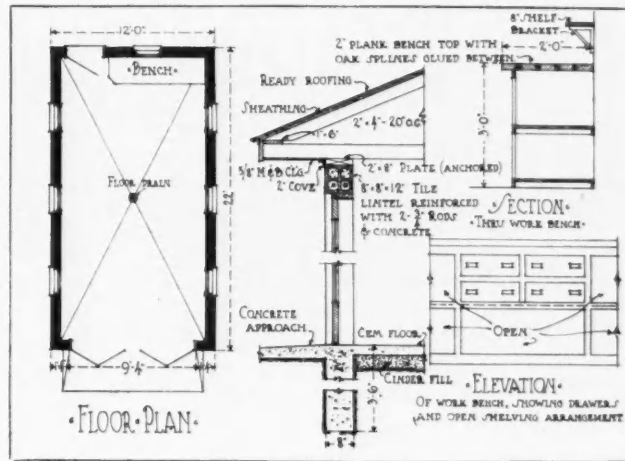
The floors of garages are nearly always made of cement.



Arrangement of Double Garage No. G164. Size, 23 Ft. 6 In. by 22 Ft. Built of Stucco on Metal Lath. Doors are Double-Hinged to Fold Outward and Running on Overhead Track.



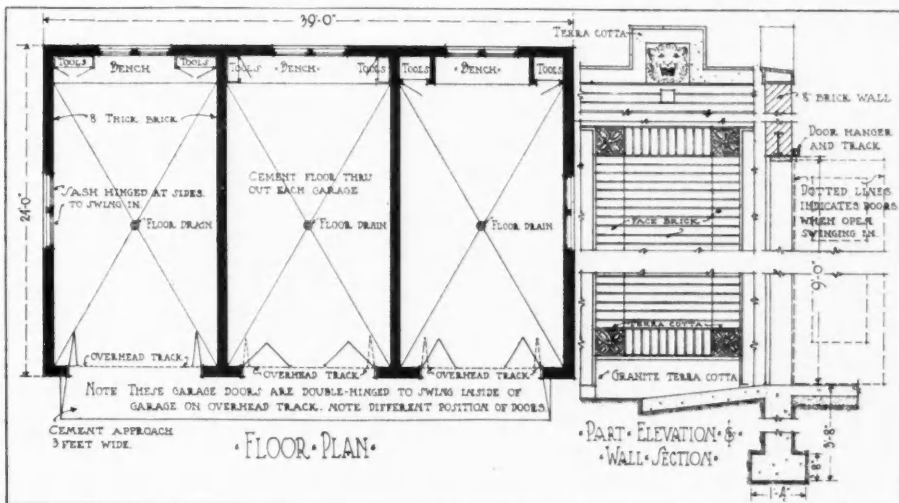
Floor Plan and Construction Features of Garage No. G162. Size, 14 by 22 Ft. Doors are Double-Hinged to Swing Inward, No Track.



Construction Details and Floor Plan of Garage No. G163. Size, 12 by 22 Ft. Made of Concrete Blocks or Structural Tile. Doors are Double-Hinged, Outward-Swinging.

It is very easily laid and presents a surface that can be kept clean and will not become oil soaked. The concrete can be placed with a slope toward the center from all directions so that a drain can be placed there.

A cement approach should be placed in front of the door with a slight slope so that the car can go in without any severe jar. This can be very easily made and is shown in several of the details.



Triple Garage No. G166. Made of Brick, Trimmed with Terra Cotta. Size, 39 by 24 Ft. All Doors are Double-Hinged to Swing Inward and Hung From Overhead Track. Different Positions of Doors are Shown.

Many different materials are used with success in the construction of the walls. Three different materials are shown in these plans. Stucco on metal lath, brick, and concrete block or structural tile are suggested for the garages illustrated here. These materials are particularly useful for garage building because they are fire resisting.

Get posted on modern garage building because there is going to be a big call in all parts of the country for the man who knows how to handle this type of work.



Planting for Profit and Pleasure

THE real attractiveness of a house depends on the grounds that surround it. The yard makes the home.

Those building homes on speculation, for sale, have learned that foundation planting, smoothly sodded lawn, and a shade tree or two are the best investment of anything put into the building. We are all creatures of sentiment, and home building or home buying is essentially a sentimental matter.

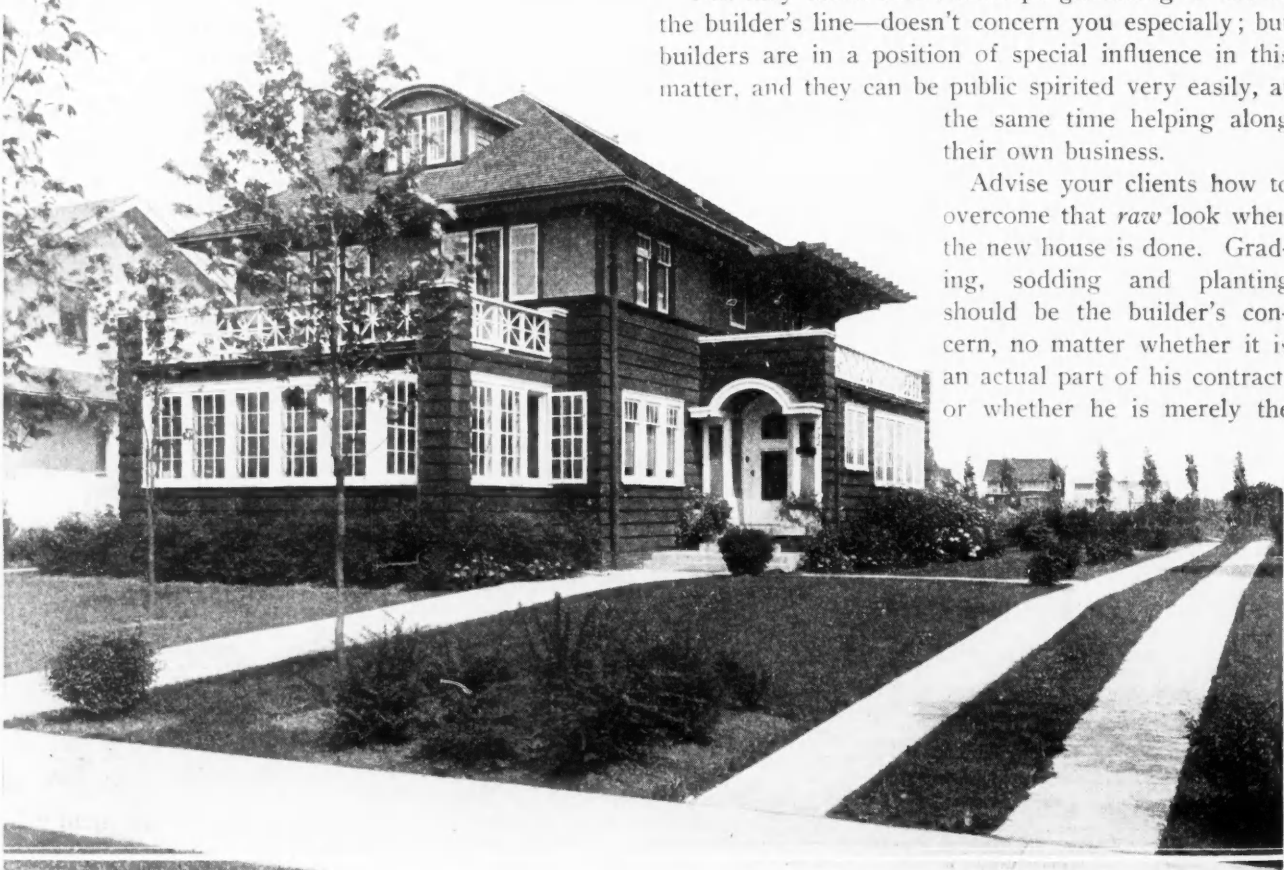
Every real estate dealer knows what it is that makes some houses sell quickly and at a good profit, while others stand vacant.

F. A. Vanneman, a real estate dealer of Urbana, Ill., was recently commenting on this

fact in connection with two groups of property. Referring to one photograph he said, "I defy any one to sell these houses at a profit. This block of 'stickers' is the despair of every real estate dealer—not a tree or shrub, telephone poles in the parking instead of in the back yards. You cannot expect to sell bare property without serious loss." Then turning to another photograph—a well shaded, homey-looking street, he said, "All of the houses on this street are readily salable. People are eager to live under these elms. I have sold these four properties a total of thirteen times. Each sale was at an increased price. It pays to plant permanent trees and shrubs according to a well-considered plan."

You may think that landscape gardening is out of the builder's line—doesn't concern you especially; but builders are in a position of special influence in this matter, and they can be public spirited very easily, at the same time helping along their own business.

Advise your clients how to overcome that *raw* look when the new house is done. Grading, sodding and planting should be the builder's concern, no matter whether it is an actual part of his contract, or whether he is merely the



This Much Can be Accomplished the First Year. Foundation Planting, Sod and the Beginning of Shade Trees Are the Safe Start.



Elaborate Front and Side Yard Gardening for Broad Suburban Lots.

friendly advisor on the job.

Good taste in landscape gardening is largely a matter of fitness. Starting with no knowledge of horticulture, and with whatever leisure the gardening members of the family may have, it is recommended by the Department of Horticulture of the University of Illinois, that the average lot owner can accomplish eventually about half a dozen things.

1. *Foundation planting.* He can restore something of the native vegetation, as for instance, in the North Central States, viburnum, fragrant sumac, or prairie rose.

2. *Screens.* He can hide some of the unsightly surroundings, such as high fence or outhouse, by wild grape, trumpet creeper, common sumac, elder, or other native plants that are sometimes considered rather coarse for the front of the house.

3. *Views.* He can frame the view of his home, for example, by a pair of elms, haws, or prairie crab apples. Or if he considers his house ugly, he can transform it by hiding much of it with vines.

4. *Boundaries.* He can enclose the back yard with an irregular border of native shrubs in variety, instead of with an artificial and monotonous privet hedge.

5. *Front yard.* He can help tie the whole street into a park by persuading the neighbors to plant "connecting shrubbery" from the front of one house to another.

6. *Parking.* He can restore old trees to good health thru tree surgeons; he can combine with his neighbors to get a uniform street tree at uniform distances, or to plant low shrubbery.



Much Gardening Compressed Into Narrow City Space.

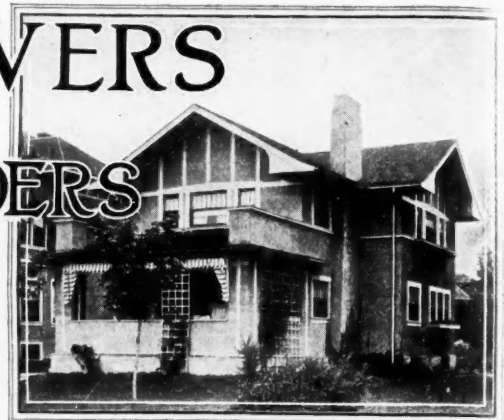


SPACE SAVERS

for

HOME BUILDERS

Model Building
Designs Containing
Newest Devices.



Disappearing Beds Make Five Rooms of Three

EFFICIENCY BED ROOM IDEA THAT HAS COME INTO POPULAR USE FOR HOMES, HOTELS AND APARTMENTS—OTHER MODERN HOME EFFICIENCY IDEAS NOTED

WITH the purchasing power of the dollar smaller, and no more dollars in sight with which to build the home, architects and builders now have to put every square inch of space to its utmost use.

All those who want real economy combined with downright home comfort take note of the little bungalow on these

two pages and see its accommodations. Here we have both living room and dining room "contrived a double debt to pay"; and no one is the loser by it.

To the unprejudiced observer our usual habit of building houses just about twice the size we really need them, so as to have one set of rooms to occupy in the day time and another set at night, seems illogical, unnecessary and extravagant.

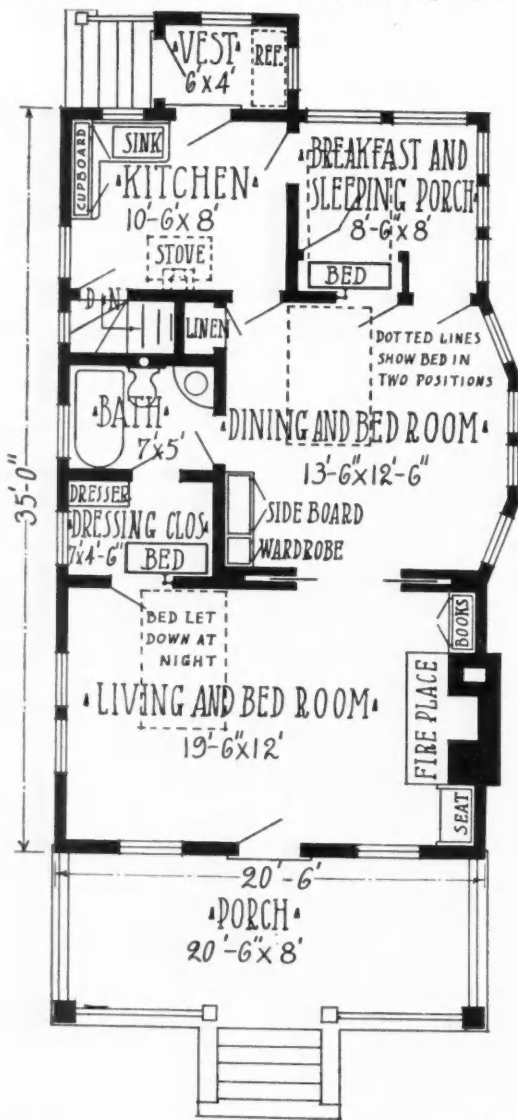
Old notions and prejudices don't have the force now of former years and so the modern home builder sees no reason for permanently cluttering up good floor space with beds that are only used a few hours out of every twenty-four. This feeling had been growing for some time, the public only waiting for a practical, satisfactory means of getting the bed out of the way when not wanted, when the "In-a-Dor" bed came forward to meet this demand. Builders, architects and owners are all enthusiastic about it wherever these beds have been introduced.

This efficiency bed is a real standard bed that is easily attached to any closet door jamb; and, when raised, swings around into the closet and the door is closed behind it. The head board of the bed is supported by two pivots, one at the floor and the other half way up the door jamb. One of the photographs shows the bed swung out into the room, and the other view shows it entirely put away. Coil springs counterbalance the weight of the bed so that it is very easily raised or lowered.

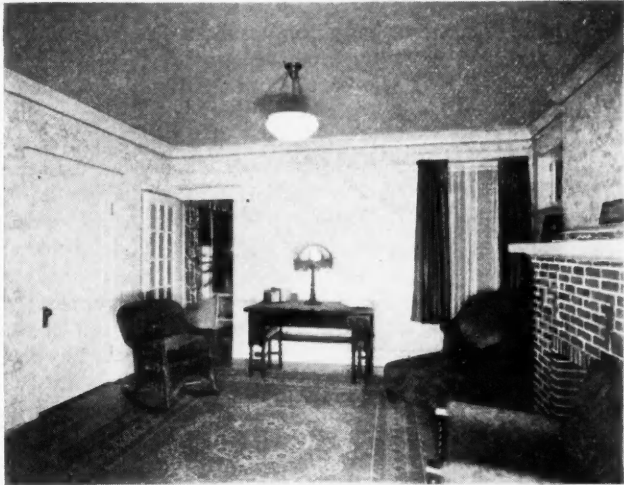
Out on the Pacific Coast, where these beds first sprang into popular use, it would be hard to find an architect or builder who would today seriously consider putting up a modern apartment, flat, residence or hotel without equipping it with concealed beds.

This bed must not be confused with the old-fashioned folding beds with their clumsy attempts to disguise themselves as sideboards, bookcases, and even pianos. These were never the articles of furniture they pretended to be nor were they standard beds. In fact, before a practical disappearing bed could be evolved the mechanical principles of these old-style "folding beds" had to be ignored altogether.

We have seen these "In-a-Dor" beds being installed and used in hundreds of the best modern apartments in Chicago and in the classy little bungalows up the North Shore and in other suburbs. The same is true of New York City. Architects and builders have tested the proposition and have stamped it with their O. K. We have designed this little economy bungalow to make use of two such beds. The size of the cottage is only 20' 6" wide by 35' long, yet it gives all the accommodations of a five-room bungalow, and that too of extra large rooms.



Three-Room Bungalow with Five-Room Efficiency. Floor Plan of Design Shown on Opposite Page. Size Only 20 Feet 6 Inches by 35 Feet.



Here is a Beautiful Modern Living Room by Day Converted Into a Comfortable Bed Room at Night by Simply Opening the Dressing Closet Door and Swinging the Bed Around and Down Into Position. Closet Accommodates Dressing Table and Wardrobe.

The front room bed swings back into a commodious, well-lighted dressing closet. This is large enough to contain a dresser and gives plenty of wall space for hanging clothes. A door opens directly into the bath.

The dining room bed is arranged to show one of the best features of this proposition. The bed can be let down either out onto the sleeping porch or swung round into the dining room. In the day time it is perfectly concealed, and is kept dry and warm inside its double-door cabinet. A sleeping porch bed that will put away when not in use and that will keep dry and warm, is a blessing that only those who have experienced the other kind can properly appreciate.

Sliding doors separate living room and dining room at night. The dining room has a compact little wardrobe built in con-

nection with the sideboard. A high closet of generous dimensions over the cellar stairway accommodates linen and extra bed clothes.

The kitchen is conveniently arranged with a door onto the porch where meals can be served in warm weather.

The artist has illustrated the exterior of this bungalow as it appears when finished with rough cast cement plaster. It is a house that can be built very cheaply and yet will give all the modern home comforts.



“Pantryette” Saves Steps

TO save 20 per cent in the size of a kitchen and still have it more convenient and usable than it otherwise would have been, was the delightful experience of the

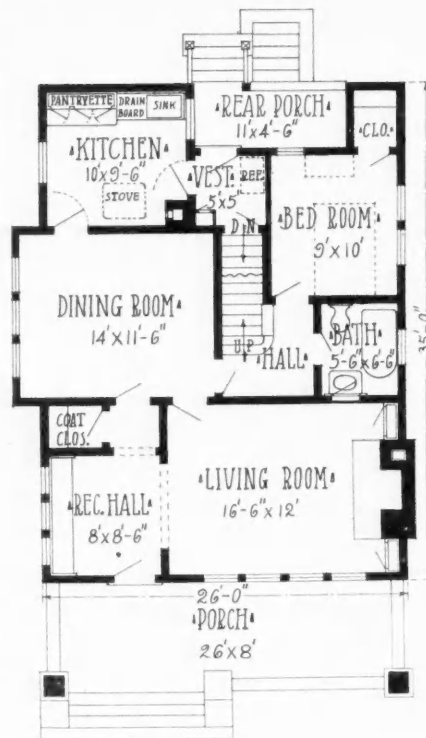


The Five-Rooms-in-Three Bungalow. Design No. 6815. Planned for Modern Efficiency in Sleeping Arrangements. This Bungalow Measures Only About 20 by 35 Feet and Makes a Snug, Satisfactory Home.

man who planned and built this pretty Western bungalow.

He obtained an extra large sized kitchen cabinet (which it appears has been created for exactly this purpose) and planned his house so as to build it into the kitchen. The single piece of furniture takes the place of a kitchen table, dish cupboard and ordinary kitchen cabinet—all consolidated into one. The space saved was more than enough to pay for the small cost of the "pantryette," as this special built-in cabinet is called.

The owner's wife has been delighted with the arrangement from the first. She finds that in this kitchen the only walking necessary is to the stove and sink, only a few steps away. Compare this with the ordinary kitchen, even the well arranged kitchen. There is constant walking between storage cupboard, work table, spice cupboard, stove, and sink. Housewives know that this means literally miles of travel in doing their day's work in the kitchen. About four years ago a noted architect conceived the idea of combining all the kitchen equipment (except sink and stove) in one place, and the idea was at once taken up by a leading concern manufacturing kitchen



Main Floor Plan of "Pantryette" Bungalow.

cabinets. Since then, hundreds of these "pantryettes" have been installed in new homes and apartments. It saves valuable space in planning a home—an extremely important consideration these days. Architects and builders agree that it meets perfectly the demand for better kitchen equipment. Owners say it systematizes their kitchen work, saving them labor and time and absolutely solving the help problem.

It is astonishing when we come to think of it, how much of both present and future expense can be saved by planning and building a house right. It is said that there are 250,000 people buying kitchen cabinets every year to correct the inconveniences of their kitchens. Now, just see what a little planning ahead to provide for a "pantryette" in the original building plans would save: First, the cost of an ordinary kitchen cabinet, plus the extra cost of building the kitchen larger than necessary, plus the cost of the usual kitchen dish cupboard already built in. This shows economy right at the time of building—to say nothing of the labor and time saved every day the kitchen is used.

The biggest expense of any household, both in daily labor and supplies, goes



Six-Room Bungalow Featuring Space and Labor-Saving "Pantryette." Design No. 6630. A Thorough Practical Design. Size, 26 by 35 Feet. Space is Saved and the Kitchen Work Facilitated by Doing Away with the Pantry and Providing a Large Built-in Kitchen Cabinet in Its Place.

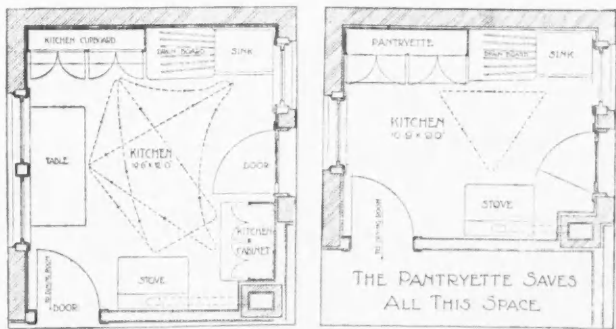


Photograph of "Pantryette" Fully Equipped and in Working Order.

out thru the kitchen. Wasteful kitchen space is a form of luxury no one wants to afford because it gives no pleasure in return.

A pantryette combines in one spot not only the conveniences of a fine kitchen cabinet, but a much bigger table and far greater cupboard space. A kitchen equipped with a pantryette needs no other table or cupboard space at all.

The builder of this little bungalow ascertained the general dimensions of the pantryette (4 feet 4 inches long, maximum depth 2 feet 4 inches, height 7 feet 3/4 inch) and allowed exactly the right space for it to be set in after the kitchen was otherwise practically finished. All plastering was done and the flooring laid; but the base board and shoe mould were not put down until the cabinet was in place. The regular finish of the pantryette is light oak, a serviceable and



Kitchen "A" without the Pantryette
 Kitchen "B" with Pantryette—Note Space Saved
 Detail of "Pantryette" Kitchen. Showing 20 Per Cent of Kitchen Floor Space Saved. Dotted Line Triangle Shows How Steps are Saved by this Arrangement.

popular finish matching up well with Georgia pine. It also comes in white enamel finish, and if desired can be furnished primed only, to be finished up with the rest of the kitchen woodwork.

In other respects also this Western bungalow is very interesting. For a story and a half cottage of low cost it is hard to beat. The size on the ground is only 26 by 35 feet. There are four well arranged rooms besides bath and reception hall on the main floor, and upstairs there are two splendid rooms and a quantity of storage closet space. The back room upstairs is in the nature of a large stair hall, which makes an excellent sewing room. The front half upstairs is a large, well lighted bedroom, nearly 18 feet wide, flanked

by generous closets in the low spaces under the roof.

A glance at the first floor plan will show how conveniently the principal rooms are arranged. The reception hall and living room are at the front, then comes the dining room to one side, and balancing it on the other side is the group comprising stair hall, bedroom and bath. The convenient kitchen has already been referred to. A little back vestibule off the kitchen is very serviceable space, containing ice-box and broom closet. The cellar stairs go down from here.

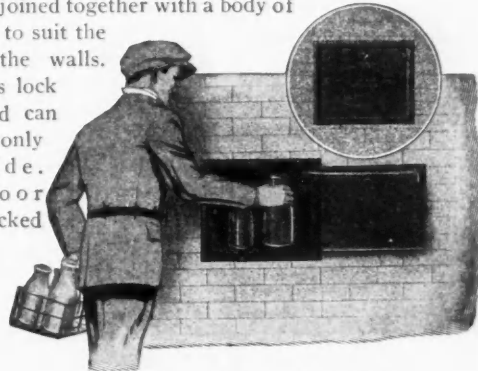
The exterior of the house is handled in true bungalow style—dark stained shingles and trim painted white.

Safety Milk and Package Box

A milk and package receiver has recently been placed on the market that is unique and remarkably convenient and practical. It is placed in the wall of the house as shown in the illustration.

It consists of two cast iron frames and doors that are joined together with a body of varying length to suit the thickness of the walls.

Both the doors lock when shut and can be opened only from the inside. The inside door can thus be locked



"Majestic" Safety Package Box.

and the outside door left open, so that packages can be placed in the body of the receiver. When the outside door is shut the packages can be only reached from the inside and are thus protected from possible loss.

Built-In Garbage Receiver

Another new thing for modern, efficient and sanitary kitchens is the built-in garbage receiver. It can be easily installed in any house in course of construction, or with very little trouble can be built into any completed house.

It consists of an iron cabinet or case that serves as a container for the regulation galvanized garbage can and is built into and thru the kitchen wall. Note the illustration which shows the inside kitchen view. Here you see the woman emptying the garbage without leaving the kitchen, yet the can is out of sight. Every time the receiving door is opened a quantity of disinfectant is sprinkled over the contents, keeping everything sanitary. The case from the outside has the regulation door from which the garbage man takes out the can for emptying. The receiver is fly, insect and dog proof and answers in every way the long felt want of a practical and convenient method of caring for garbage. It is best to include one in the plans and arrange for its installation while the building is being erected. But it can very easily be installed in any ready built home with very little trouble or work.



Modern Kitchen with Garbage Receiver.

“The Time to Prepare for an Emergency is Before it Happens.”

THE MAN FROM THE LUMBER YARD

We doubt if we have a single reader who did not regret at some time last year the handicap of not having the **TOOL** or **VEHICLE** that would have well paid for the investment. Avoid a repetition of that regret by providing it **NOW**. —EDITOR.

NEXT to having money yourself it is a mighty fine thing to have friends who have money. Such a friend entertained me last January at the Hardware Club of New York.

I appreciated the entertainment, I appreciated the menu, but I especially appreciated the opportunity of meeting some of the very largest manufacturers in the U. S.

Knowing that his confidence would not be betrayed, one of them spoke at considerable length relative to the manufacturing conditions.

I am not going to give his name, or the name of his plant, nor any detail that could in any way react to his hurt, but I do want to give out the lesson on “Preparedness” that I learned from him.

The Bonus is to the Prepared

He was paying an immense bonus to a contractor for having a certain new plant ready to be occupied by January 1st.

Doing his best, the contractor could not turn it over to the heating people until the latter part of November.

It seems that this manufacturer was discussing matters with the contractor about the first of November, and made inquiry relative to the letting of the heating contract. The contractor had been unable to get anyone that would undertake the heating work in the length of time that could be allowed to it.

The manufacturer requested that the contractor get in touch with a steam heating concern that he mentioned. These people had pushed thru a job for the manufacturer at his residence some time before and had done it in most excellent good time and in a most satisfactory manner.

The contractor got in touch with this concern and told them what was wanted. They requested a day to

look the matter over and then stated that if the contract was placed with them at once they would undertake to do what was ordinarily a 60-day job in 20 days in consideration of a heavy bonus. The contract was at once placed with them.

Handling a 60-Day Job in 20

This heating concern had previously operated a motor truck and also two five-passenger machines. I will tell the rest of the story in the words of the manufacturer:

“Naturally I was very much interested in what was going on, because it meant a great deal to me to have the plant completed on schedule time, and I spent a greater part of the day about the plant. Two days after the contract was let to Williams & Johnson, I discovered some men making a small room out of wall board in one corner of the plant that the carpenters had finished.

“The next day I found that two cots with bed clothing were placed in this room, also a desk and chairs, a special telephone and a small gasoline stove.

“I asked Williams why he didn’t use the telephone in the office of the contractor. He said: ‘Not only would I not risk the loss of one moment in having to wait for that telephone, but I am going to place telephones in each different part of the building.’ When I asked him what the cots and stove were for, he told me to wait and see if they didn’t come into good use.

“I learned that the day after they secured the blue prints, they set a force of men to work to get out every piece of pipe and every fitting that they could count on in advance; also I learned that they hired from another company an additional truck and employed a young man that owned a side van motorcycle.



The Flying Squadron that helped Williams & Johnson earn a big bonus.

"I will state in passing that the plant is eight miles from the center of supply and about a mile off of any usual means of transportation.

"Knowing that the heating people would be the ones to come in on the last lap of the race for completion of plant, I watched them with especial interest.

"On the morning of the day on which the building was turned over to them, two automobiles drove up and unloaded Williams with eleven workmen. The two trucks had delivered material the night before.

"I learned that Williams had gone over every special detail with all of these men as to exactly what was to be done; and every man fitted in, in an exact way for his work. The lighting system had been put into the building while the carpenters were still working.

"I was just ready to leave at 4 o'clock in the afternoon, when the two machines came up to the building with Johnson and eleven other men. Williams went into detail with Johnson as to what was being done, and each new man received data from one of the old men as to the job in hand. In thirty minutes Williams and the eleven men who had just finished their shift were on their way back to their homes in the machines.

"Day by day the trucks kept delivering material a little bit ahead of the men, so that when they were ready for any special piece it was always at hand. Occasionally an unexpected piece would be required and the motorcycle came into excellent good play at such a time.

"I learned from Williams on the twelfth day that they were keeping up to their schedule; but I could see that he was under considerable of a strain. On the fifteenth day I found that he had slept out in their improvised room and had been around with the men during the second shift. I also found that he had hired a cook who occupied the other cot and kept ready for the men at any time, hot coffee, meat, bread and potatoes.

"We read that 'the best-laid schemes o' mice and men gang aft a-gley'; and it was so with Williams and Johnson. On the seventeenth day, when they were testing out a certain section of completed work, a body crack developed in an 8-inch globe valve.

"Right here is where their special telephone came into play and paid them for all of the extra expense. They telephoned all of the supply men in the near-by city, without finding the piece wanted. They finally found it in stock of a supply house sixteen miles from the plant. The supply people were instructed to have it ready for their motorcycle man to get. Three minutes later I heard the chug-chug of the cycle as it left on the thirty-two mile run. I



In Time of Leisure Prepare for Work.

knew that with men of such system and such ginger, the job would be installed on schedule time. You can't beat people who have such thoro preparation."

Advertising You Can't Buy

I wish I could impress each reader with the satisfaction that this man had in the admirable way in which Williams & Johnson completed that job. They couldn't buy for any money the kind of advertising they were getting from him gratis.

I was impressed with the fact that the time to prepare for an emergency is before it happens.

The Preparedness of Carl Anderson

When I was keeping books in my father's lumberyard, I noticed that most of the contractors and carpenters had considerable idle time during March. But I never went into the shop of Carl Anderson that I didn't find him busy, either getting every tool into perfect working order or studying some book of methods. When work opened, as it usually did the latter part of March, Carl Anderson was ready. Anderson believed in preparedness. In his way he was a success, more of a success than many men worth double his resources. His opportunities in our town were small, but he kept growing. He would go against any job.

His idea was that the stiffer the proposition the more worth while to

Saw Dust on Preparedness

By having developed foresight you avoid a regretful hindsight.

The Almighty don't leave anything to chance. Can you afford to?

Don't wait to be forced to act. Be a self starter.

Be prepared for opportunities and emergencies, they come without announcement.

To start things coming your way, go after them.

A hundred years since every bone in your body was counted, your digestive organs planned and food supply arranged. Still some do not believe in preparedness.

tackle. He said it gave him confidence to attack bigger things.

Preparedness pays the man who controls only his own two hands or the corporation that controls a thousand men. Those who are prepared have the best places on this foot-stool, while the unprepared are shoved into the cold of outer darkness.

IT'S MIGHTY LUCKY FOR US THAT NOAH DIDN'T WAIT FOR THE EMERGENCY TO COME BEFORE HE PREPARED FOR IT!

Talking of luck, I want to say "there ain't no such animal," either good or bad.

I have just received a letter from one of our people in Ohio who makes a most interesting inquiry along this line. I will answer him in my April letter. If I am off my trolley in my answer I want some one to call me. I believe in preparedness and am working to that end as best I can.

Yours for the 100%,
THE MAN FROM THE LUMBER YARD.

Home Building by the Wholesale

ECONOMY BOTH FOR BUILDER AND OWNER IN CONSTRUCTION BY THE DOZEN—NARROW-LOT HOUSE DESIGNS FEATURED.

BUILDERS often have the opportunity to build up a certain section of a city or town. Such a proposition presents many possibilities to the up-to-date contractor. The best equipment will pay on such a job as it can be kept right on the job and will not have to be carried around. For instance, a power woodworker would pay for itself several times over because of the fact that its usefulness would be increased very largely by the fact that it would not have to be moved very much and could be kept working all the time.

Building up sections happens in different ways in different localities. In the smaller town, certain blocks may be finished up or one side of a block may be built

up with two or three houses such as are shown in groups in the accompanying illustrations.

Probably the most common way in which sections build up is along improved streets. The sidewalks are laid and the owner of the frontage on the improved street decides to build up the entire frontage at one time.

In the city a builder will often have all the work to do in building up part of a sub-division and may have several different groups of houses to build which face on different



Attractive Side Entrance for Cement Stucco House. Good Architectural Details Such as This Make Property More Readily Salable.



Unusual Two-Story Porch for Colonial House. A Distinctive Way of Building a Side Entrance.

streets. The amount of profit that the contractor or builder makes on this sort of work will depend entirely on the organization that he can develop and the use of all the labor saving devices that are available.

Such work as this makes it possible for a builder to buy



Perspective View of Designs No. 6773 and No. 6774. Both Houses are Finished in Cement Stucco Trimmed with Dark Stained Woodwork. Plans and Specifications for Either of These Designs Can be Furnished for \$8.00 per set. No. 6773 Has Four Rooms on the Second Floor and Three on the First, and No. 6774 Has Three on Each Floor. A Feature of Each Design is the Large Living Room with the Adjoining Porch.

apparatus that he has wanted but has felt that he couldn't afford; because it will pay for itself on the work. The busier you can keep a machine and the less it has to be moved over long distances, the sooner the saving it effects will more than balance the cost.

There are two things to guard against in the design of groups of houses such as are shown here. They must not look so much alike as to become monotonous; on the other hand they should not contrast so sharply that some of the houses look insignificant or that the combination seems to lack harmony. All the designs must fit into the general scheme and each one must present an attractive appearance both by itself and in combination with the neighboring houses.

It's an entirely different problem to build one house for someone following his own and your suggestions than to build a group with the object of selling each house in the group.

In the first case the owner may have certain radical features that he wishes to incorporate in his house, and as long as he is the one to be pleased these ideas are considered. In the group houses the designs must all be more or less conservative as the taste of the prospective owner is absolutely unknown. The problem therefore is to provide a house that is distinctive and yet contains no freakish special features that are likely to impress prospects in the wrong way.

This idea applies equally well to both the exterior treatment and the room arrangement. The designs shown here are handled in this way, and each group is harmonious and contains no radical features that are likely to cause disapproval. Yet each house is distinctive and attractive.

The floor plans of each of the houses are somewhat similar because this particular arrangement has been found to be the most practical. The arrangements differ of course in various

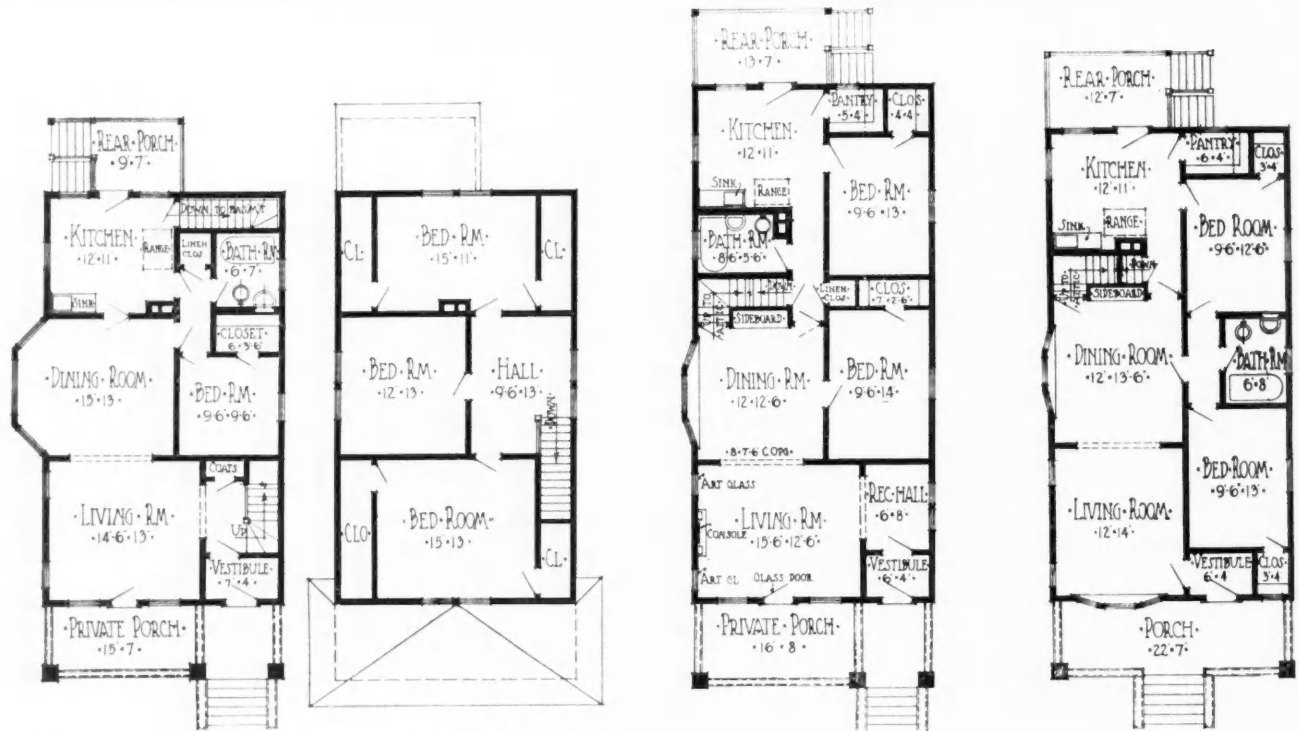


Arrangement of Rooms in Design No. 6773. Size, 25 Feet by 37 Feet 6 Inches.

Floor Arrangement of Rooms in Design No. 6774. Size, 24 Feet by 37 Feet.



Three Frame Cottages, Designs Nos. 6777, 6776, 6775. The First is Two Stories and Contains Seven Rooms. The Other Two are of the Bungalow Type, one story. The Room Arrangement in All These Houses is Very Attractive and Economical. We Can Furnish Complete Details, Plans, and Specifications for Any One of These Designs for Only \$5.00 per Set.



First Floor Plan. Second Floor Plan.
Room Arrangement in Design No. 6777, Size 23 Feet by 39 Feet.

Main Floor Plan.
Design No. 6776, Size 23 Feet by 49 Feet.

Main Floor Plan.
Design No. 6775, Size 23 Feet by 44 Feet 6 Inches.

little things, but in a general way they are much the same. The opportunity for harmonious contrast lies almost altogether in the exterior treatment, and this is where these houses differ from each other.

In arranging for the building of these group houses, the lots are generally made fairly narrow so all these designs are made narrow enough to go on a small lot. The widest is 25 feet and the narrowest is 21 feet, which is small enough to go on any lot; as they are seldom made narrower than 25 feet and are generally a little wider than this.

Several factors enter into the selection and arrangement of the rooms. The main object to be accomplished in the design of a small house is the utilization of all the room possible, consistent with convenience and accessibility and also cost. Very often the latter item can be affected by altering the sizes of the rooms a little so as to enable the use of

stock lumber. This reduces the amount of cutting that is necessary and thus reduces the cost—often to a marked degree. It also enables the builder to do faster work, which may be an important factor at times.

The three different groups shown in the illustrations are finished in three different ways. The first two, Designs No. 6773 and No. 6774, are both two-story houses and are finished in stucco on metal lath. The exteriors and also the interiors are modeled along the same plan, though the first contains seven rooms and the other six. Both have an attractive side entrance with a loggia in the front. The loggia can be either left open or glazed-in.

Frame construction is used for Designs No. 6777, 6776, and 6775. The first is of two stories, while the other two are of the bungalow type. The foundations of these three and also of the other designs are made of concrete up to the grade

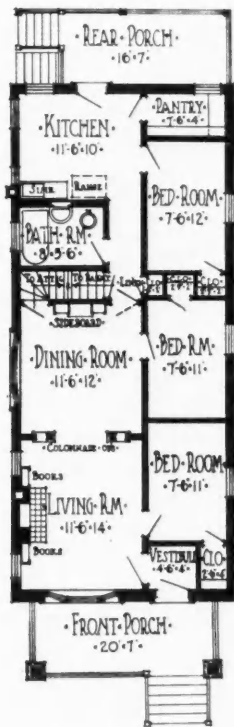


6780

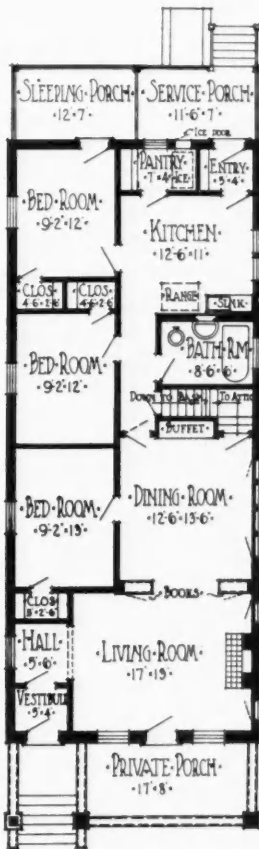
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6778

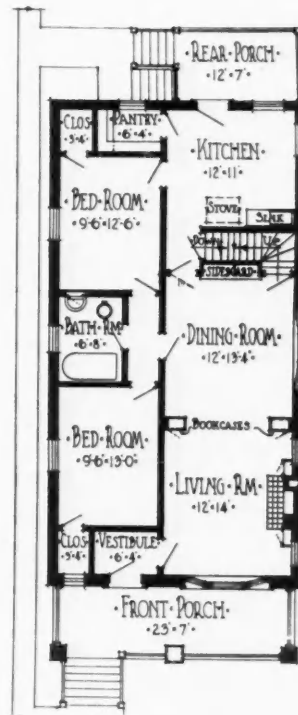
Brick Constructed Cottages, Designs Nos. 6780, 6779, 6778. Rear and Side Walls are Constructed of Ordinary Brick, While the Front is Built of Face Brick. The Gambrel Roof House to the Extreme Left Has Six Rooms on the Main Floor and Two More Can be finished Off Above. The Other Two Houses Have Six and Five Rooms Respectively. Complete Plans, Details and Specifications for Any of These Designs are Only \$5.00 per Set.



Main Floor Plan.
Design No. 6780, Size
21 Feet by 48 Feet.



Main Floor Plan.
Design No. 6779, Size 24
Feet by 56 Feet.



Main Floor Plan.
Design No. 6778, Size 24
Feet by 45 Feet.

line. The walls are of typical 2 by 4 stud construction which is covered with sheathing. The sheathing is then covered with rosin building paper and No. 1 four-inch beveled siding. Floor joists are usually made of 2 by 10's, which are spaced 16 inches on centers. The ceiling joists are also spaced 16 inches on centers and are made of 2 by 6 timbers.

Designs No. 6780, 6779, and 6778 are built of brick. The walls on the concrete foundations are nine inches thick on the side and rear, while the front is 13 inches thick, finished with face brick. Two of the houses in this group are of the

bungalow type with the flat hip roof, and the other has a gambrel roof. This latter type is preferred by many people because of the space that is made available in the attic. Each house has a brick fireplace in the living room.

A study of these groups and their floor plans will give the builder many valuable ideas on group arrangement and will also provide much useful information on single houses of several different kinds. Each of the houses is of course separate and will look well if set off by itself away from the rest of the group.

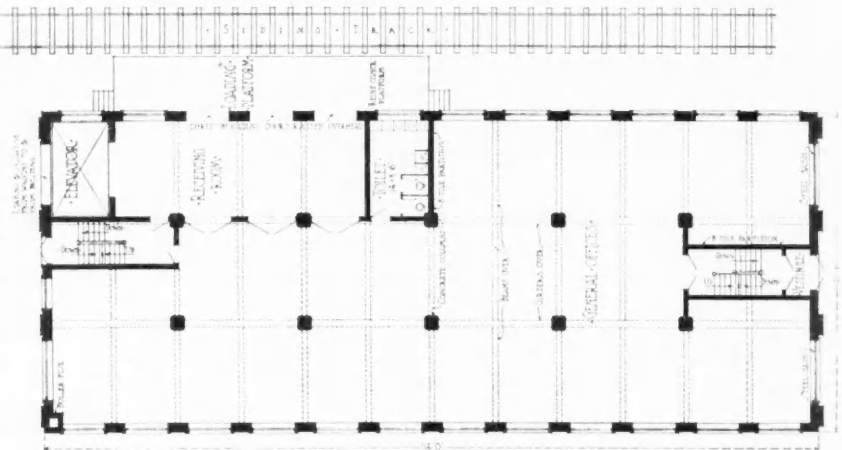


MISCELLANEOUS BUILDING PLANS

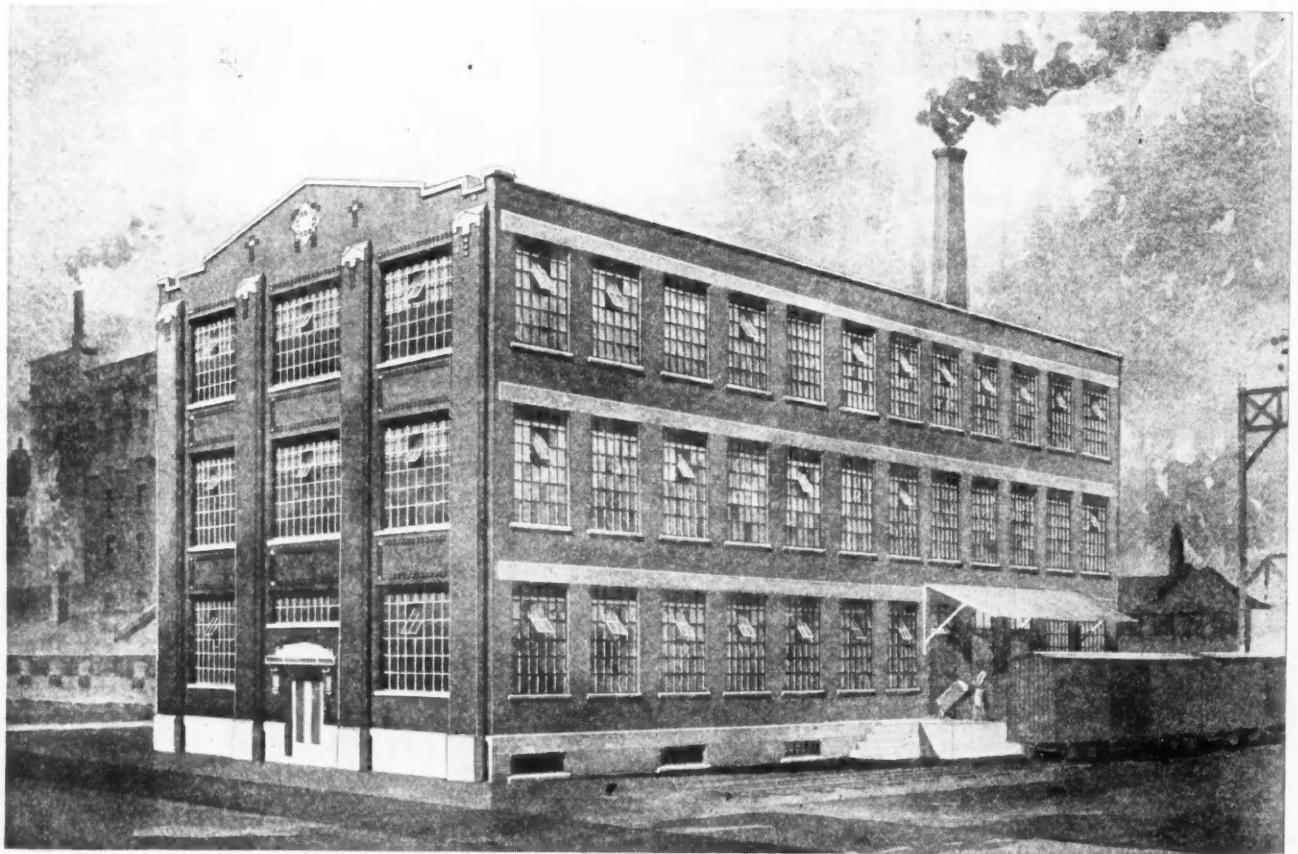
A Modern Daylight Factory

FIFTH OF A SERIES OF MISCELLANEOUS PUBLIC AND COMMERCIAL BUILDINGS—ILLUSTRATIONS SHOW PERSPECTIVE VIEW, FLOOR PLAN AND DETAILS OF CONSTRUCTION.

MANY of our readers have planned and built factories. They are being erected more and more in the smaller towns as far-seeing manufacturers are getting away from the cities. The type of work shown in the accompanying illustrations is what is wanted. The factory building shown here, 46 feet 6 inches by 114 feet, is of reinforced concrete trimmed with brick and terra cotta. The details show the type of construction and the floor plan shows the general arrangement. Steel sash is used which insures the maximum amount of light.



Ground Floor and Typical Floor Plan of Factory Building.



Factory Building of the Most Up-to-Date Type, with Outside Walls 60 Per Cent Glass Set in Steel Sash. Builders and All Others Concerned with Community Development Should Interest Themselves in this Sort of Factory Building.

A Church of Bungalow Design

By Charles Alma Byers

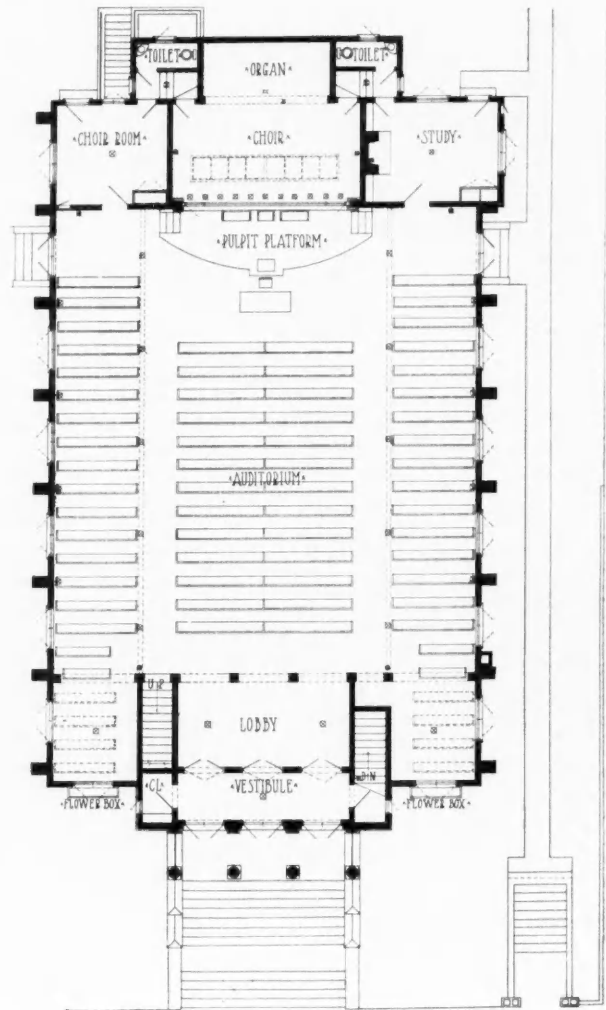
One ordinarily expects a church to be of rather imposing architecture, with some sort of steeple dominating the whole. In the new edifice of the North Congregational Church at Berkeley, Calif., however, a radical departure in church architecture has been made. This building is designed very much after the style of the California bungalow, and is particularly simple and pleasing in appearance. It has no steeple, or even belfry, of any kind, and its low, sweeping lines give it every resemblance to the popular bungalow residence. The majority of the homes in the section of the city where the church is located are of the bungalow type, and the aim was to harmonize the edifice with its surroundings as near as possible.

The structure is comparatively low and has a reasonably flat roof. The center portion of the roof is somewhat elevated, to effect the appearance of a very low second story, which admirably overcomes the possibility of too great severity. Small windows are inserted in the walls of this low projection, which help to light up the auditorium. The exterior of the building is of white cement plaster on metal lath, and the roof is shingled. Over the entrance is created a sort of pergola, with four plain concrete pillars, and with a covering of undressed timbers of true pergola arrangement. The broad steps leading up to the entrance are of white cement. The window casings, like all other outside timbers, are of California redwood, and all of the trimming is painted a soft brown color, except the window sashes, which are white.

The auditorium has a seating capacity of five hundred. The exposed rafters and the bracing timbers create a very attractive effect.

The walls inside are paneled to a height corresponding with the lower edge of the windows, and above

this point they are plastered. All of the woodwork of the interior is of redwood, which has been sanded, papered and waxed, leaving it possessed of nearly its natural color.



Floor Plan of Bungalow Church.



North Congregational Church, Berkeley, Calif. Cost \$15,000. James W. Plachek, Architect.



Interior View of Berkeley, Calif., Church Shows Quiet, Restful, Churchly Atmosphere.

Complete with pews and furnishings, it represents a cost of \$15,000. James W. Plachek of Berkeley was the architect.

Concrete Base Between Porch Piers and Under Porch Steps

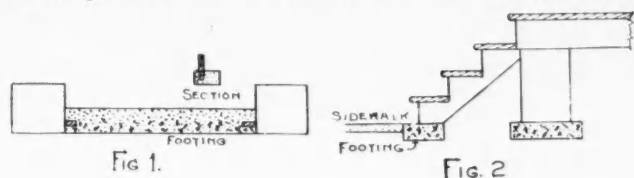
Our sketches show a few uses to which concrete can be used to a very good purpose around porches. Every carpenter and builder knows that it is a fact that between porch piers at the bottom there is never anything provided to fasten the bottom of wood lattice to, and as a result it is stuck in any old way to fall out in a short time or to rot away at the bottom next to the ground line.

One of the best and most substantial ways to construct this work is to put in a concrete base between the porch piers as shown by Fig. 1. This base should be about 7 or 8 inches wide by about 6 inches thick and the top of it should come about 2 inches above the ground, then lattice sits on the concrete and is not next to the ground, consequently will last much longer. 1 by 3-inch strips can be bedded in the concrete next to the piers to fasten the bottom of the lattice to, and

you then have a good, substantial job throughout. The 1 by 3 strips next to the piers can run from the porch sill all the way down into the concrete, which will be better yet, making a solid place to fasten the lattice panels to. This part of porch work is often of faulty construction. The method we have outlined is not expensive and is well worth the while to any one wanting a good job.

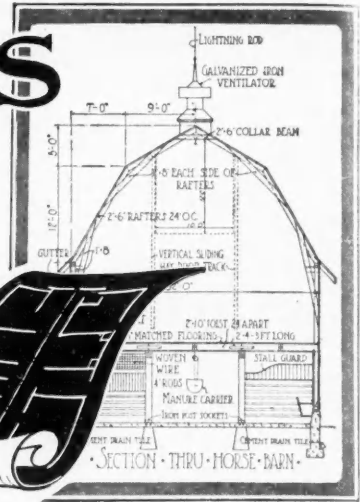
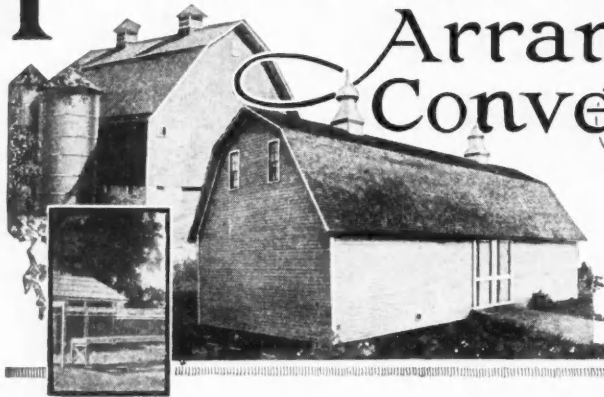
Another place for concrete is under porch steps. This is often a badly neglected place. Usually there is grading to be done and the steps are propped up temporarily with wood blocks or a few loose brick and left in this way; then when the grading is done and the walk put in, the walk just comes to the steps and the steps still stay stuck up on the temporary props to settle all out of shape in a very short time. It is very little work to finish up to grade a place sufficient to set the porch steps on. Make a wood form and put in a concrete footing about 6 by 10 inches, bringing it up level and true to just the right height to set the steps on; see Fig. 2. Then when the side walk is laid you can join to the base footing smooth and level and have the very best kind of a job. A job that will last for about all time to come. The woodwork will last longer and the base is always there as good as ever when new steps may be needed. For something good these two uses for concrete are well worth their small cost.

I. P. HICKS.



FARM BUILDINGS

Arranged For Convenience



A Big Little Barn

How to build a good looking, convenient small barn is answered by Plan A-295. It is 26 by 46 feet on the ground, but the peak reaches up higher than some barns with more ambitious foundations.

Like all good modern farm barns, this little fellow starts with a thoroly well-laid foundation wall of

stone or concrete, which includes, together with the foundation walls, the entire concrete floor. Above the foundation the barn is built of planks on the plank frame construction order, each pair of rafters forming an independent truss, which taken collectively, support the roof in a very substantial manner without the aid of intermediate uprights or crossbeams.

The corner posts are made by spiking the side of one plank against the edge of another in an L shaped manner. The sills are simply planks doubled and the plates are built up in the same way.

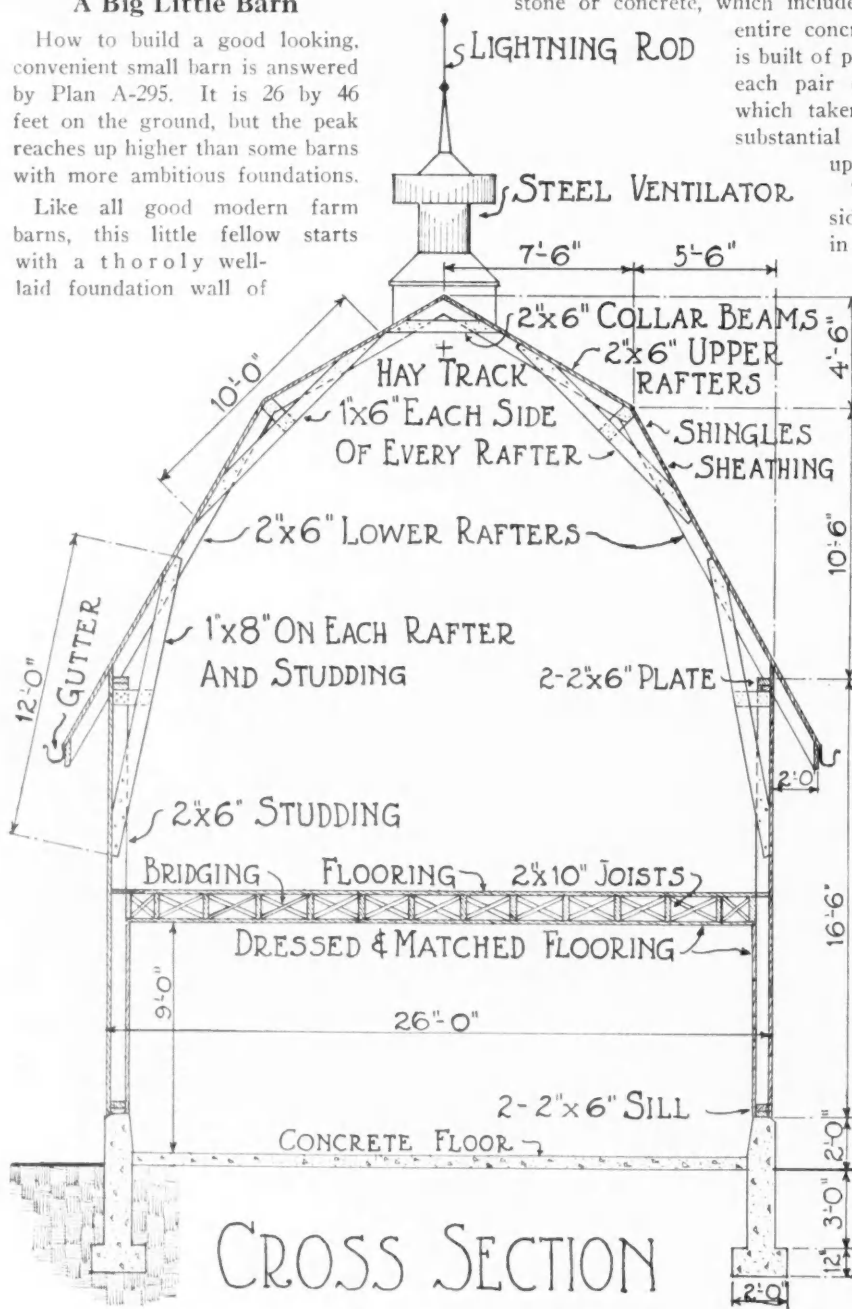
The haymow floor is placed 9 feet above the cow stable floor, which gives about 8 feet of head room in the cow stable. Eight feet is ample for the cow stall end of the barn for head room, and it is about right for ventilation.

The height of ceiling in the horse stable should be determined by the size and character of the horses. Eight feet is about as high as any man can reach to put a bridle on a high-headed horse, but farm horses are grown larger and many of them have high ambitions at times other than when taking the bit.

The floor all over the barn is made level and smooth except the manger and gutter and standing floor in the cow stable part. Extra plank floors are used in the horse stalls, which give the necessary incline to the horse standing floors and keeps the horses off the hard concrete. The section of concrete through the driveway is made especially heavy and tough to withstand hard use.

The horse department and the cow stable are both partitioned off from the driveway so that the two stables are entirely separate and removed from each other. The driveway is open to the roof in the center, but it is floored over at the sides of the barn 14 feet up from the floor to continue the mow space to hold as much hay and other roughage as possible. This driveway is used for various purposes, according to the kind of farming and whether it is the main barn on a large farm.

A pleasant feature of this small



CROSS SECTION

Cross-section showing details of construction of Barn Design No. A295, illustrated on opposite page.

barn is the abundance of light from the many windows. They look well and they are useful. Recent developments in farm barns have shown the advantage from a sanitary standpoint of an abundance of light.

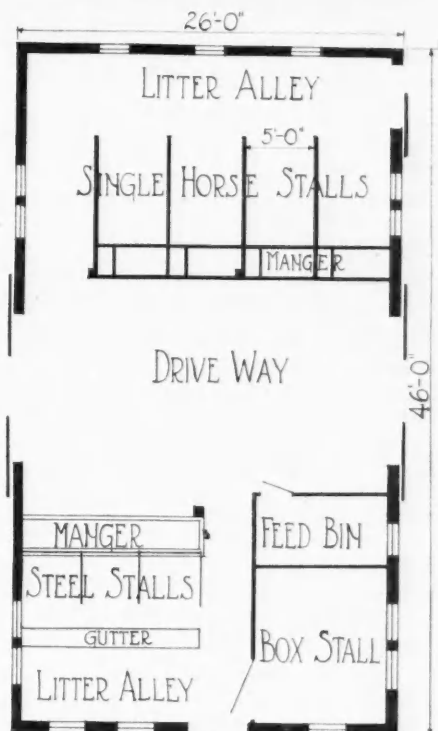
Window frames and window sash are so cheap that the extra expense does not count up at such a rate as formerly. A light and sunny stable is more healthful, because of the sunlight, and it is easier to keep a light stable clean. Cleanliness is being recognized as one of the most important features in connection with the raising of well-bred live stock.



A Clean Manure Pit

Every barnyard should have a manure pit. The whole plan of handling manure from the stables on a good farm includes the preparation of the land in the fall to receive manure fresh from the stables all winter.

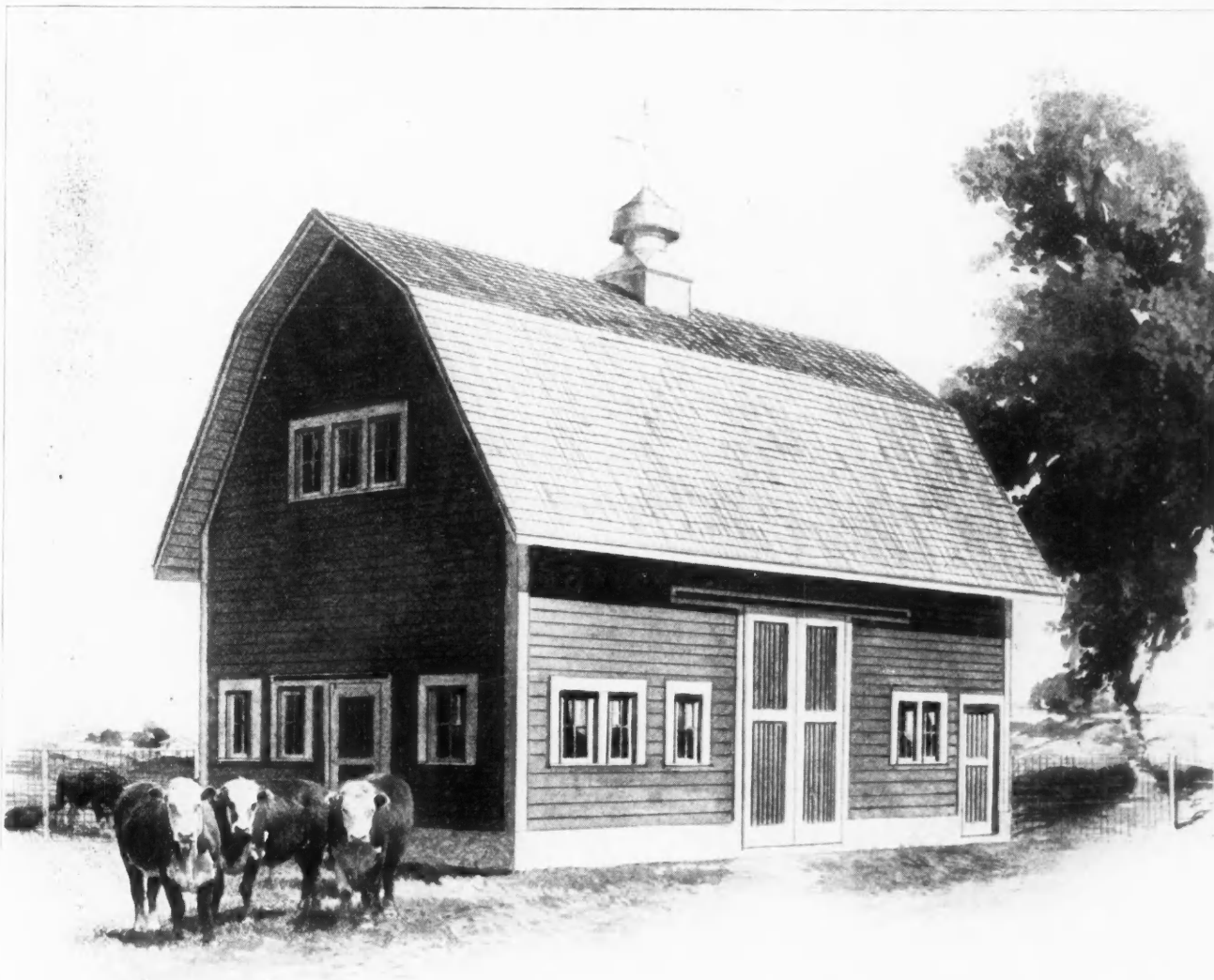
A manure spreader with wide tires is necessary equipment so that manure could be hauled out when the



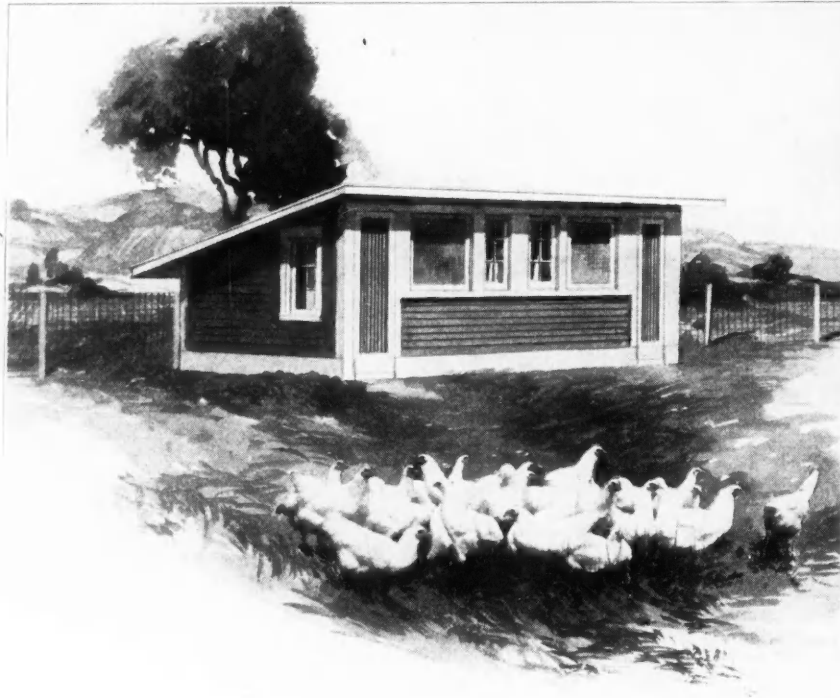
Floor plan of Barn No. A295.

ground is soft, without sinking deep in the mud. The manure spreader is in constant attendance because of the great value placed on the stable manure in the rotation of crops. The manure pit, therefore, is simply a unit in the general system of handling farm manure.

A shed over the manure pit is a protection to the spreader, so that it can always be left in one place to receive the loads from the manure carriers as the stables are cleaned each day. This manure shed has a concrete floor with a depression to catch the liquids from the stables. It is so arranged that the manure spreader is driven in at one end and driven out the other end to save turning or backing. There is a small manure pit or cistern at one side that is fitted with a pump. Each time when the manure spreader is loaded the liquid in the well is pumped over the top of the load and is carried out with the solids at once to the fields. Once a day after the stables are cleaned the floor in the manure shed is washed with water from a hose.



An Inexpensive Barn of Smallish Size But Large Capacity. Provides Stalls for 4 Horses and 3 Cows Besides Big Box Stall. We can Furnish Complete Set of Blue Printed Working Plans and Typewritten Specifications for Only \$5.00 Per Set. When Ordering Ask for Design No. A295.



Shed roof poultry house with three compartments. Size, 24 by 10 feet. Design No. A330. This is a practical complete Henery. Ventilation is supplied thru the two large squares of muslin which take the place of windows.

Shed Roof Poultry House

A small poultry house, costing very little money, may be made thoroughly practical as well as a larger house. Design A330 shows how the trick may be done.

This little house is 24 feet across the front, and it is 10 feet in depth.

The foundation is of concrete, according to the best practice, worked out by practical poultrymen during the last twenty years. It depends upon the climate how deep it is necessary to go with the foundation. This is a local matter that must be settled by the man doing the building.

But concrete or a stone wall is the only way to protect a poultry house against rats and mice. These rodents would rather burrow under the floor of a poultry house than to live anywhere else. Their liking for a variety of food such as good poultrymen furnish to their flocks is probably the main reason. Also rats are very fond of eggs, and they are experts at robbing the nests.

A shed roof is practical for a poultry house because it helps to supply inside conditions that are suitable to poultry comfort. A poultry house always fronts towards the south or southeast, so that the early sun shines in clear to the back of the house to brighten and clear the atmosphere.

Ventilation in this little house is secured by means of two curtained front windows of generous proportions. Air from such windows in a shed roof poultry house goes back along the floor and rises around the roosts and comes for-

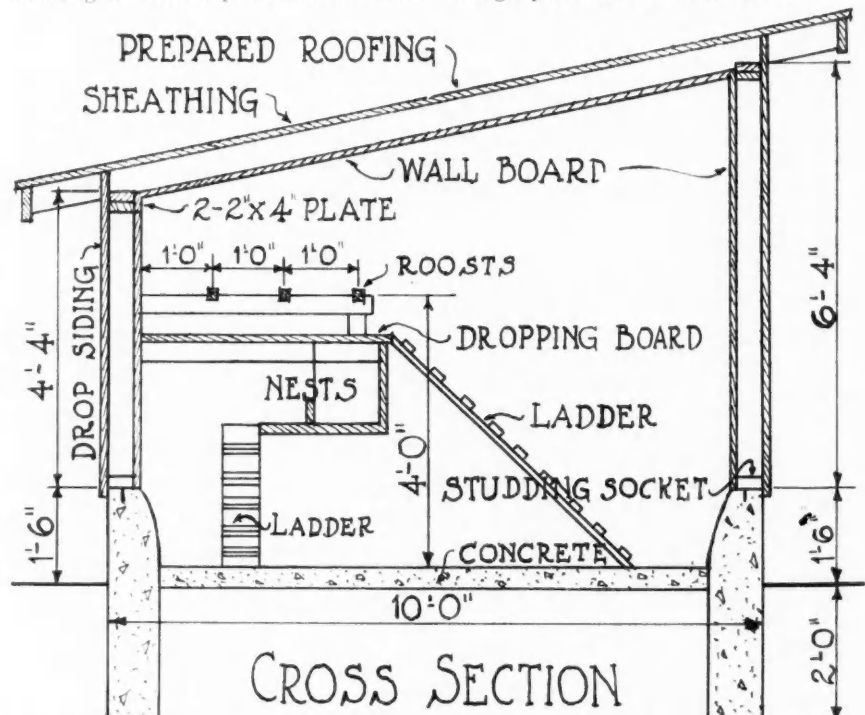
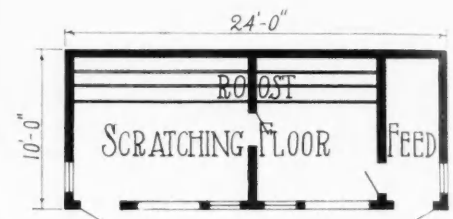
ward under the slope of the roof so that the air keeps constantly in motion.

The cross section shows how the foundation and the floor are built. The superstructure is of 2x4's, covered outside by drop siding, and the inside is covered with wallboard. Wallboard is a new material for poultry houses, manufactured to take the place of lath and plaster, and is made in sheets of different sizes, so it may be ordered to fit studding or rafters placed at the usual

spacing of 2 feet or 2 feet 6 inches or 3 feet on centers.

Wallboard is a non-conductor of heat and cold. It is airtight and vermin-proof. It makes a firm, straight, even ceiling or wall that may be whitewashed or painted the same as wood. When carefully put on and treated with a smooth finish, it is proof against lice, mites or harmful bacteria.

The roof of this poultry house is covered with matched sheathing boards, then a prepared roofing is stretched smoothly to shed water. It will be noticed that the roof has a good wide



Cross-Section Showing Details of Construction of Shed Roof Poultry House. Design No. A330.



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. 44. Strength of Beams

New Series—No. 1

THE BOSS EXPLAINS THE FUNDAMENTAL FORMULAS USED IN THE DESIGN OF BEAMS

“YOU fellows who have been in the calculating squad during the last four years,” said the Boss, “are familiar with all of the formulas which we have been using so much. But I find that there are a large number of the men who joined us later in the talks, and who need a little help on the earlier fundamentals. As a result of this need on their part, we have decided to bring out again these earlier principles and apply them to practical problems as we proceed in the work. This will give you new men a chance to learn, and will provide a kind of a review for the older members and possibly give them an opportunity to ask questions about points which they have not understood clearly.

“Today,” said the Boss, “I am going to explain the detail of the formula used in figuring the size of a beam needed to carry a given load, or to find the load which a beam of a given size will carry with safety. It is assumed that the kind of material that the beam is to consist of is already chosen.

“The formula for figuring the strength of beams is as follows:

$$p \frac{I}{e} = M \dots \dots \dots (1a)$$

In this formula, p is a working value of the unit bending strength of the material in the beam in pounds per square inch; I is the moment of inertia of the cross-section of the beam in inch quantities; e is the distance in inches from an axis thru the center of gravity of the cross-section of the beam to the outside surface of the beam farthest away from that axis, and M is the value of the maximum bending moment in the beam in inch and pound units.

“The value of p will vary with the material and with the

factor of safety used in the design. If a factor of safety of six is desired where timber is the material, then only one-sixth of the breaking strength of that particular timber should be taken. Table I will indicate the average breaking values for different materials used in beams.

TABLE I. BREAKING STRENGTHS IN POUNDS PER SQUARE INCH.

Pine, Long-leaf Yellow.....	7,000 lbs. sq. in.
Oak, White	7,000 lbs. sq. in.
Pine, Short-leaf Yellow	6,000 lbs. sq. in.
Fir, Douglas	5,000 lbs. sq. in.
Spruce	4,000 lbs. sq. in.
Hemlock	3,500 lbs. sq. in.
Structural Steel	60,000 lbs. sq. in.

“An average value of the factor of safety for wood construction is six, and for steel, four. This means that the value of p to be used in formula (1a) is $\frac{7000}{6}$ if long-leaf yellow

pine beams are to be designed. These values of the allowable working strength for various materials will vary somewhat in the building ordinances of different cities, and therefore should be determined for each city where there is a special ordinance relating to design. Where no values are specified, those given above may be used with a proper factor of safety.

“The value of I will vary with the shape and size of the cross-section of the beam. The average contractor or workman will be likely to meet but two general shapes of beams—the rectangular section and the I-shaped section. If the beam is of timber, as in Fig. 1a, the cross-section will be rectangular (or square, which is a special shape of the rectangular) and the value of I may be found by multiplying the horizontal breadth or thickness in inches by the cube of the vertical height in inches, and then dividing this answer by 12. The formula for this combination is as follows:

$$I = \frac{b \times d \times d \times d}{12}$$

“If a steel I-beam is to be used, then the value of p will be $\frac{60,000}{4}$, and the value of I , the moment of inertia of the cross-

section will have to be taken from the hand book of the manufacturer of the beam. These hand books are easily obtained and contain a large amount of valuable information for the designer.

The value of I will vary in the same beam according to the manner in which the beam is placed. If the larger dimension of the cross-section is placed vertical on the end supports, then will the value of I be greater than if the beam is placed with the short side vertical. This is true with both rectangular timber beams and with steel I-beams. It is a point that must be examined carefully.

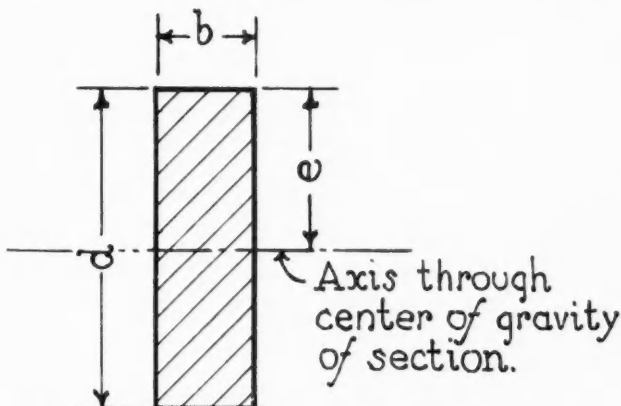


Fig. 1B. Diagram of Rectangular Beam Section, Showing Dimensions Used in Beam Formula.

"The value of e also depends upon the shape of the section of the beam and is always determined by first locating the center of gravity of the section. A rule in mechanics tells us that there is a layer of fibers of the beam material located at the center of gravity of the beam section which are neither in tension nor compression as the beam bends. The line made by this layer of fibers where it cuts the cross-section, is called the neutral axis of the section. The distance, e , as shown in Fig. 1b, is measured from this axis to the surface of the beam section which lies at the greatest distance away from this axis. In beams of rectangular section, e is one-half of the vertical height of the beam when placed in position.

"If it is not clear in regard to the material on one side of a beam section being in tension and the other in compression, bend a small stick and see how one side of the stick tries to lengthen and the other to shorten during bending. In a beam which is supported freely at each end and loaded along its length, the top part of the cross-section is in compression, while the bottom part is in tension.

"The value of M depends upon the length of the beam and the load on the beam. The principles of mechanics show us that in the case of a beam which is supported freely at each end and loaded with a uniformly distributed load, the value of M is $\frac{1}{8} Wl$. The letter W represents the total load

on the beam in pounds, while l is the length of the beam between supports in inches.

"If the beam has a single load at the middle and no uniformly distributed load, the value of M is $\frac{1}{4} Pl$, where P is the load at the middle in pounds, and l is as before. If both uniform load W and single central load P are present, then $M = \frac{1}{8} Wl + \frac{1}{4} Pl$. In another talk, we will see how to find the value of M for other combinations of loading.

"Some of the fellows have had a little difficulty in knowing how to determine the amount of uniformly distributed load carried by a single beam when that beam is one of a number used to hold up a floor or similar structure. The rule is to assume that each beam supports the load on a section of floor over the beam. This section of floor is taken as equal to the length of the beam in feet, and as wide as the distance in feet from the center of the space on one side of the beam to the center of the space on the opposite side of the beam. This dimension is shown in Fig. 1a. If the area in square feet thus found is multiplied by the load on the floor in pounds per square foot, the result will be W , the total load on the beam in pounds.

"We will show the use of formula (1a) by applying it to the case shown in Fig. 1a. If the beams shown form a part of a floor which is to carry a uniformly distributed load of 50 pounds per square foot of floor, and the beams are spaced 16 inches ($1\frac{1}{3}$ feet) on centers, the total load carried by one beam which is 16 feet long between the plate and center girder will be $16 \times 1\frac{1}{3} \times 50$, or 1,064 pounds. Assuming that we are to use long-leaf yellow pine 2 inches thick (b) with a factor of safety of 6 in the beam, we find that the depth, or d , is the quantity that we will have to solve for.

(Continued to page 73.)

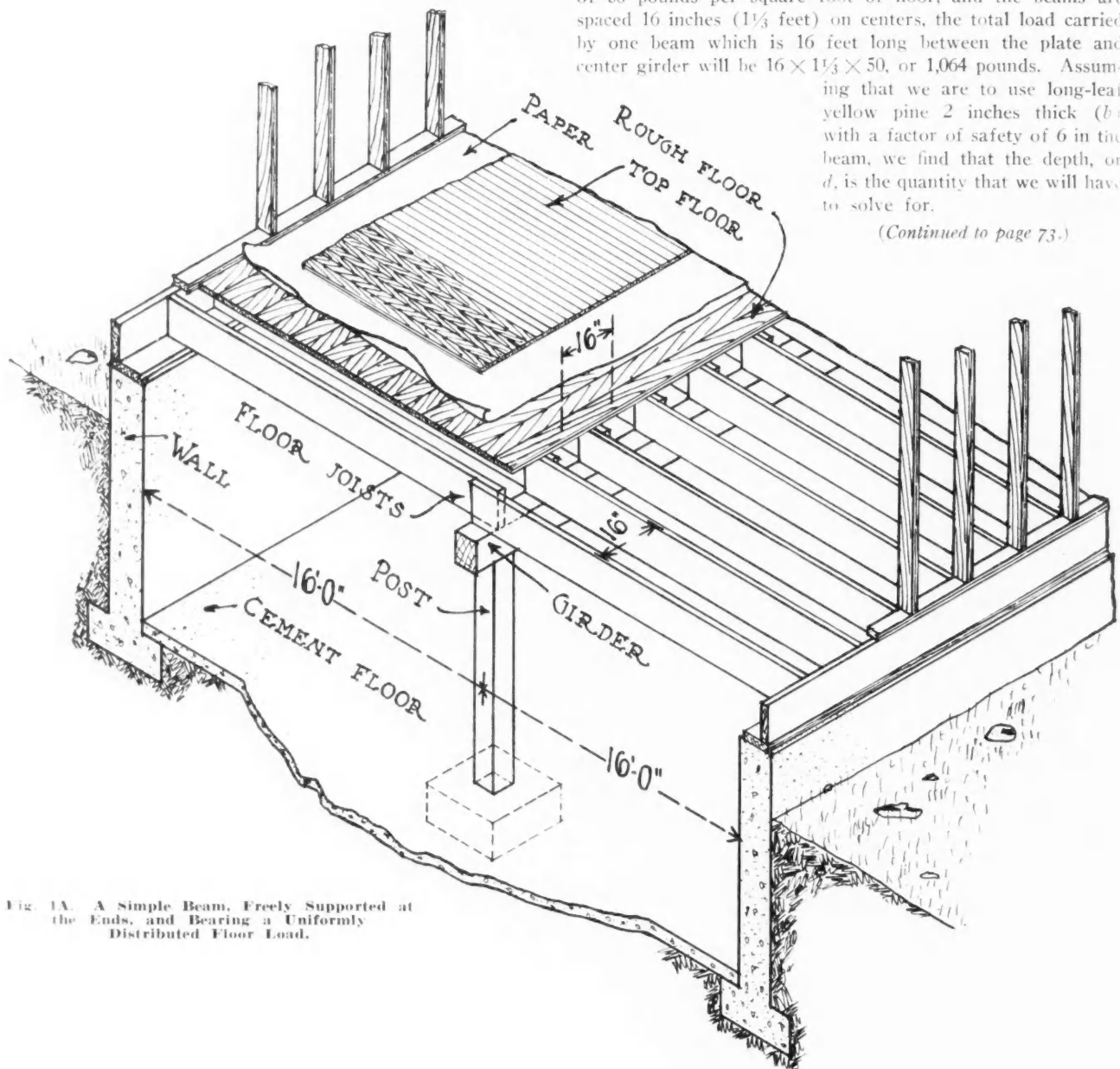
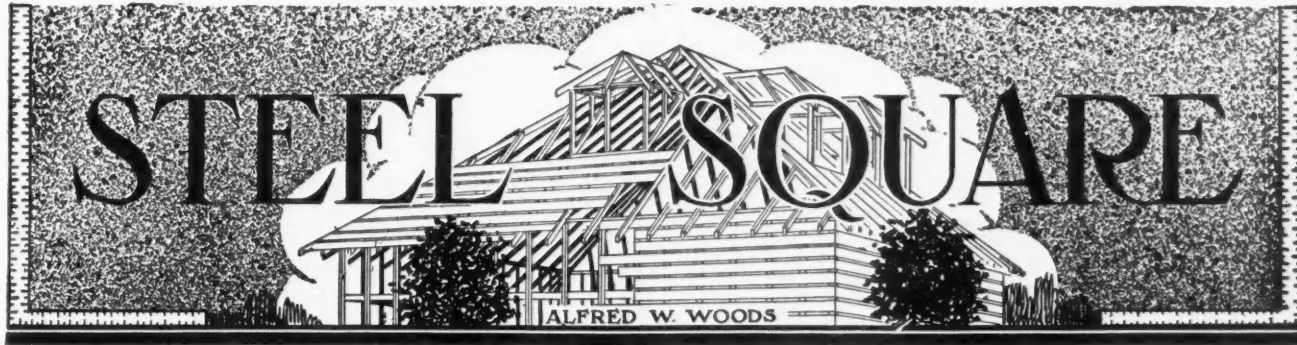


Fig. 1A. A Simple Beam, Freely Supported at the Ends, and Bearing a Uniformly Distributed Floor Load.



Possibilities of the Steel Square

ILLUSTRATING WITH THE USE OF TWO STEEL SQUARES THE FUNDAMENTAL PRINCIPAL FOR THE FRAMING OF RAFTERS FOR ANY ANGLE THE BUILDING MAY CONTAIN

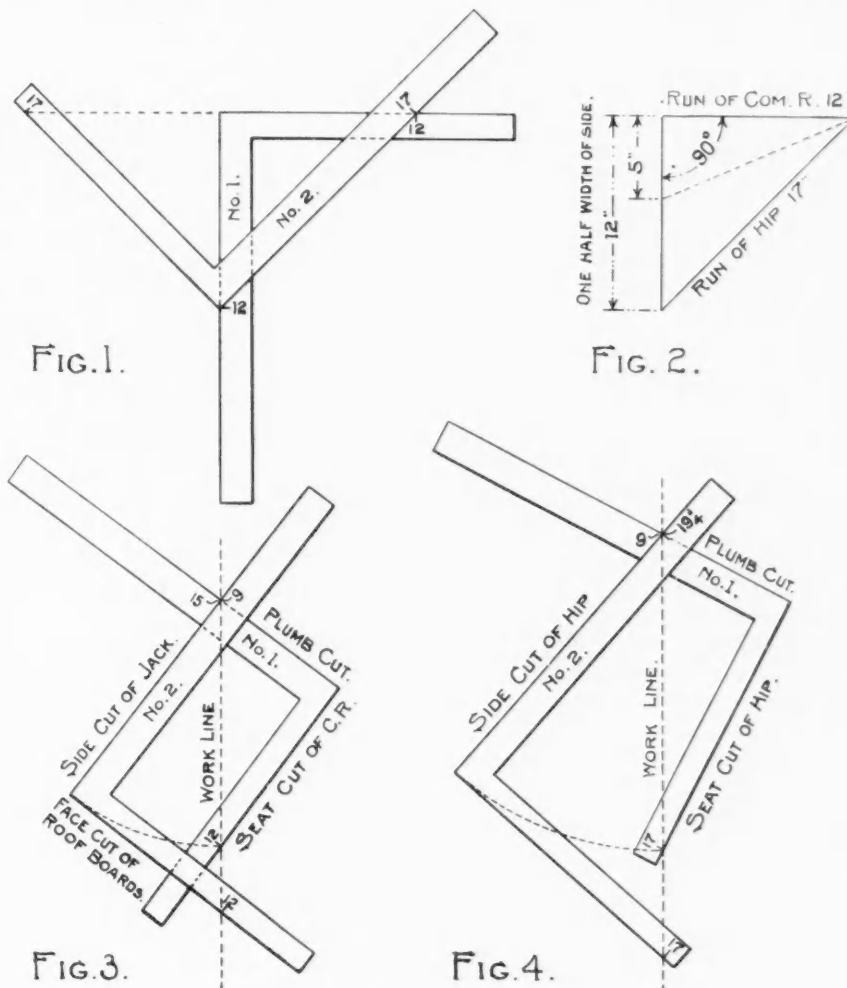
By A. W. Woods

WE are going to play a square game this month and in order to make it interesting, we will use two squares to do it. The square in itself, to the unlearned or casual observer, does not in its rigid form appear to be of much use beyond the use of its angle for squaring the end of timbers, and otherwise as a measuring instrument. But coupled with a knowledge of its usefulness when applied to the timber to be worked, it becomes a wonderful calculating machine that is practically unlimited in its scope. In the game we are going to play today, we will not illustrate by applying the square to the timbers to be framed; but by using two squares we are going to show how one can be made to help out the other. We will refer to them as No. 1 and No. 2.

So, in Fig. 1, we will begin by laying the foundation. Separately, they do not tell anything—just the common squares, that is all—but by placing them as shown, we have a complete plan for one-half of one side for a square-cornered building, and is all that is necessary, regardless of the size of the building, as it is based on the full scale for a 1-foot run. Now, by letting 12 on the tongue of No. 1 be a fixed point and by sliding the heel of No. 2 along the blade of No. 1 and with its blade always touching at 12 on the tongue of No. 1 we will have a plan for any angle the building may have that is more than 90 degrees. On the other hand, if an angle is wanted for less than 90 degrees, then the heel of No. 2 would drop down below 12 on the blade of No. 2. But, of course, this is out of the ordinary, and may

be looked upon by some as nonsensical, as cases of this kind may never come up in actual practice; but the point we wish to bring out is to illustrate the fundamental rule that applies to any condition that may arise. Therefore, the space covered by the crossing of the two squares furnishes all of the plan that is necessary to develop the proportions for finding the lengths, cuts and bevels contained in the roof.

The solid lines in Fig. 2 show the plan for a square corner per 1 foot run of the common rafter and for



Working Out Problems by the Combination of Two Squares.

all obtuse angles (where the angle of the plates rest at more than 90 degrees to each other) would fall inside of the plan for the square corner and just where the heel of No. 2 should rest for some desired angle, will furnish a real puzzle to the inexperienced and especially so when the angle is not that of a regular polygon. In this case, it is better to work to a scale of 1 inch to the foot for the full run of the common rafter; then the other measurement would be per scale from the corner to where the center of the foot of the first common rafter would naturally rest. This, of course, would change the figures to use on the squares; but they would be in the same ratio and the final results would be the same. The proportions shown in Fig. 2 are for the full scale for 1 foot. The figures then to use for the regular polygonal angles are as follows:

Pentagon, 8 $17/24$; hexagon, 6 $11/12$; heptagon, 5 $19/24$; octagon, 5; nonagon, $4\frac{3}{8}$; decagon, 3 $11/12$, and so on down. The more sides the polygon contains, the smaller the dimensions will be on the blade. In Fig. 2 we have shown but for one, the octagon as indicated by the dotted lines. These angles are determined by circular measure, as noted in degrees.

Passing on to Fig. 3, shows the application of the square to the work line, which may be the upper edge

of the rafter or at a line along its side.

In this illustration, we have chosen the $\frac{3}{8}$ pitch (12 and 9) for illustration purposes. Square No. 1 is placed for the seat and plumb cuts for the common rafter and the cuts will be on the square as shown. The length of the work line from 12 to 9 is 15, and this taken on the blade of square No. 2 and 12 on the tongue, will give the side cut of the jack and the face cut across the roof boards to fit over the hip. The reason 12 is used on the tongue is not because it represents the run of the common rafter, but because it represents one-half the width of the side or the distance from the corner along the edge of the plate to the center of the side. See the plan in Figs. 1 and 2. Now, then, if the framing was for an octagon, the procedure would be just the same as shown in Fig. 2, except in the second application 5 should be substituted instead of 12.

In Fig. 4 is shown the application of the squares for the corresponding cuts for the hip. It will be seen that the procedure is the same as for the common rafter, but of course using the respective parts in the plan as shown in Figs. 1 and 2 to obtain the cuts.

Of course there are other minor cuts that enter into the roof, but when the above principle is once mastered, these cuts naturally solve themselves.

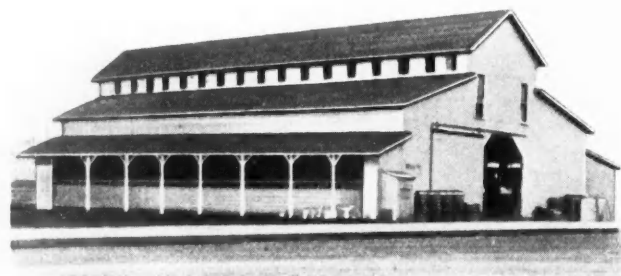
Building a Shed for 176 Lumber Piles

DETAILS OF 88 BY 112 FOOT DOUBLE SHED

By W. E. Frudden

WITH the high prices of real estate the retail lumber dealer has been forced to economize in space. To store his stock with the least possible deterioration he has been forced to keep every thing under the shed roof and thereby increase greatly the efficiency of retail yard management.

Line yard owners, as well as the independent dealer,



Efficiency Lumber Yard Shed Favored by Iowa Line Yards.

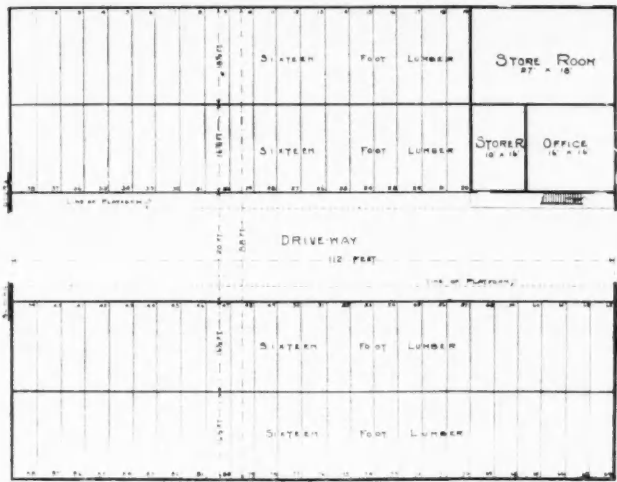
are often puzzled over the problem of economical lumber shed construction. Many have failed utterly in the building of these structures. Trying to economize in materials and labor has given hundreds of lumber yard owners unsatisfactory sheds. Many are improperly braced and soon sag out of shape, while others cannot be filled to capacity for fear that the whole shed will collapse. Other sheds are planned without regard to convenience in storing the lumber

or waiting on the customers.

Here are plans and details of a shed that has made good. It is being followed out by three different line yard lumber concerns operating thruout Iowa, Minnesota and the Dakotas. It has stood the test of time. Not a weak point can be found in the construction of the shed. This shed will house 176 lumber piles that are 4 feet wide and varying in height from 9 to 5 feet.

The cost records and the material list of this 88 by 112-foot double shed show that 17,370 feet of 2 by 4 and 16,100 feet of 2 by 6 dimension were needed for the framing of the building. Eleven thousand one hundred feet of sheathing and 3,200 feet of siding lumber, together with the roofing material make the material cost run up to the \$1,600 mark. The cost of the labor for this size shed will amount to about \$400, making the total cost of the building \$2000. Not a heavy timber can be found in the structure, nothing larger than 2 by 6 being used. The owners favor this type of construction in that every scrap a foot long can be used to an advantage in the planking together of the 2-inch material. As for strength, this design is favored over the more expensive timber frame method.

The outside bins of this double lumber shed are $16\frac{1}{2}$ feet and $18\frac{1}{2}$ feet in length, so that 16 and 18-foot stuff can be stored in them. However, since the



Floor Plan Layout of Efficiency Lumber Shed.

bins are practically continuous, 20 or 24-foot material can be stored in the 18-foot side, provided that 10 or 12-foot stuff were piled on the 16-foot side along the center driveway. This shed will house all the stock of the average retailer, with the possible exception of a few long timbers.

There are eighty 9-foot bins on the first floor, which are 4 feet wide. The outside bins are but one story in height, while the second deck is full 16 feet in depth, with the third deck used for only the light weight and short lumber. The platform on the second floor gives the yard man access to all the up-stairs lumber piles. The store rooms near the office house the supplies of roofing materials and moulding that are found in every yard.

In the planking together of the 2-inch material, a number of 16-inch spikes were used, so that they will not go thru. All the framework rests on the concrete piers, as is indicated by the cross section drawing. Four by six planked sills and end posts are used, while 4 by 4 inside posts are used, being braced in every direction.

This shed has ever remained plumb and no signs of weakness have appeared in the eight years of actual service it has rendered its owners.

Strength of Beams

(Continued from page 70.)

"Fill in the formula as follows:

$$\frac{p I}{e} = M, \text{ or}$$

$$\frac{7000}{6} \times \frac{1}{12} \times 2 \times d \times d \times d = \frac{1}{8} \times 1,064 \times 16 \times 12$$

$$\frac{d}{2}$$

Solving, we find that one d will cancel, leaving $d \times d = 66$ (about).

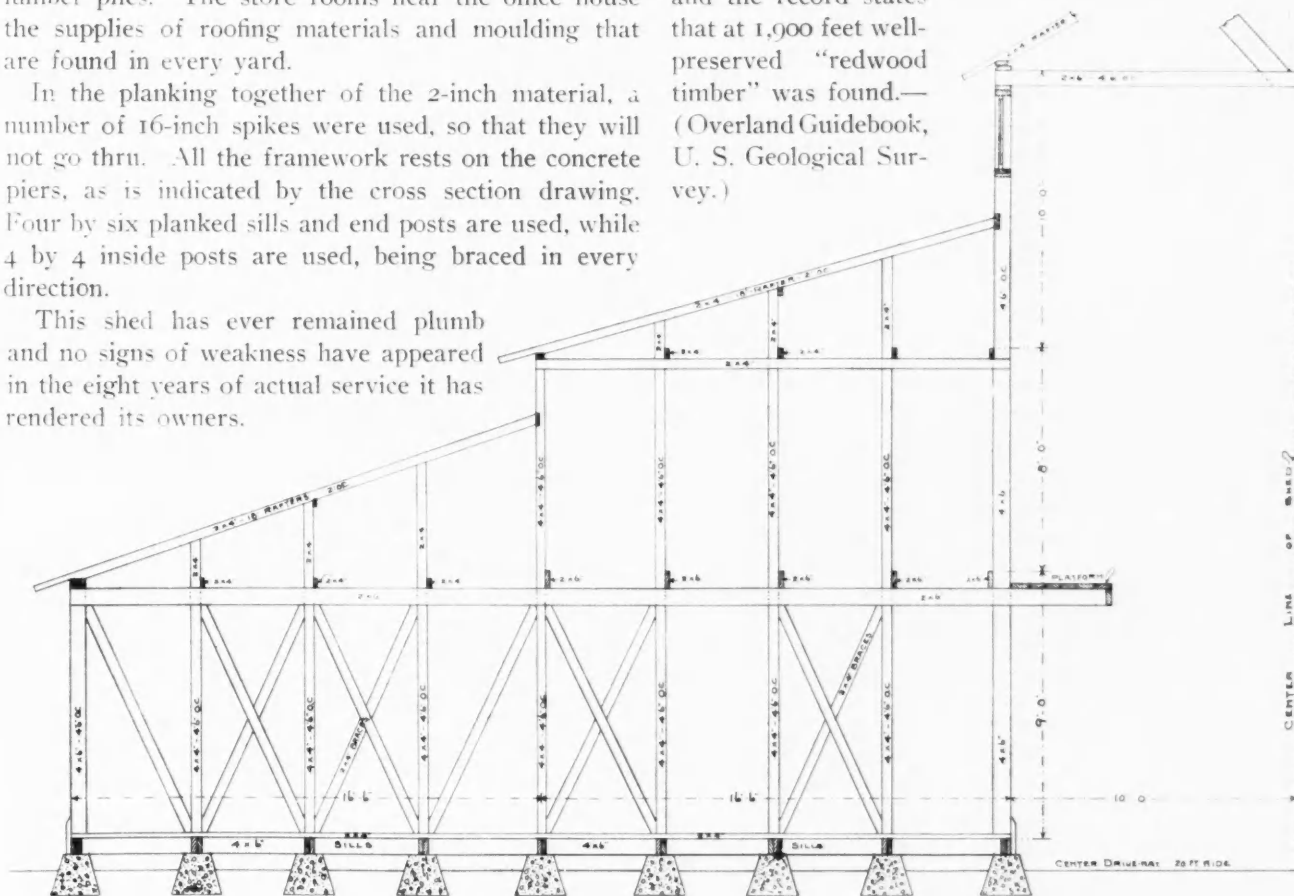
The problem now is to find a number which when multiplied by itself will equal 66. This number will be $8\frac{1}{10}$. Since lumber comes in even inch sizes, it is readily seen that a 2 by 8-inch beam would not be large enough to carry the load, while the next market size, a 2 by 10-inch, would be stronger than needed. It is best to use the 2 by 10-inch beam both on account of safety and for the reason that the actual size of a 2 by 10-inch piece of lumber is about $1\frac{1}{2}$ by $9\frac{1}{2}$ inches.

"Next time," said the Boss, "we will take up another side of this same problem and find out something about the stiffness of this beam shown in Fig. 1a."



Drill Struck Wood at 1,900 Feet

One of the first deep wells drilled in the West was put down near Huxley, Nev., by the Central Pacific Railway in 1881, in a search for good water. The boring reached a depth of 2,750 feet, but the water obtained was of very unsatisfactory quality. At 1,700 feet the drill encountered a bed of "petrified clams" and the record states that at 1,900 feet well-preserved "redwood timber" was found.— (Overland Guidebook, U. S. Geological Survey.)



FRAMING DETAILS AS SHOWN IN CROSS SECTION OF LUMBER SHED.
Details of Construction of Efficiency Lumber Shed.



CEMENT BUILDING CONSTRUCTION

Water-Storage Tanks for Farms

A FIELD OF GROWING IMPORTANCE FOR THE CONTRACTOR WHO IS EQUIPPED WITH SILO FORMS

By H. Colin Campbell, C. E.

FARMERS are rapidly coming to a realization of the advantages of a stored water supply on the farm. Many silos built recently, especially during the past year, have been finished with water-storage tank at the top. This gives water under pressure which is desirable in case of fire and for regular house and barn supply. Nevertheless the capacity of such a tank is not always as great as may be desirable. Sometimes it may be found more economical to construct a tank separate from the silo, especially where greater capacity is desired, because many contractors estimate at least \$100 as the cost of a tank floor when the tank is placed at the top of the silo, then add to this the regular per foot rate for the tank walls plus a variable amount to

cover the increased cost of hoisting material to the added height. The commercial silo forms are, of course, perfect equipment for constructing round water tanks; but safety of such tanks, especially when of the size of an ordinary silo and intended to be used exclusively for water-storage, demands different design as regards quantity of reinforcing metal used.

An accompanying illustration shows one of several water-storage tanks which have been built during the past season by a well-known silo contractor. He says that he has found this work even more profitable in the community where he operates than silo construction, since the demand for such tanks is rapidly increasing. The one shown is 12 feet in diameter and 30 feet high, having a capacity of approximately 27,000 gallons. The floor is about even with the ground line, the tank being located on the highest point of ground adjoining the farm buildings.

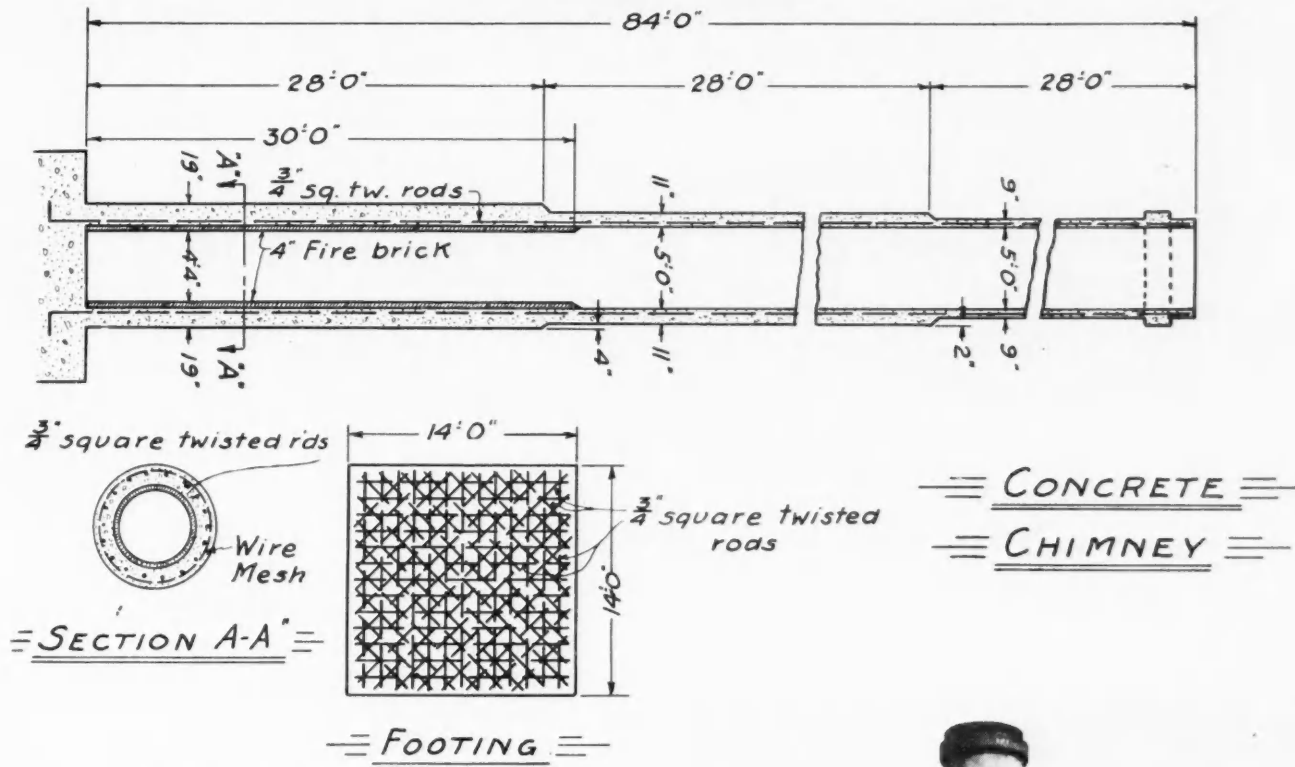
In the tank shown the floor was reinforced with two layers of $\frac{1}{2}$ -inch square twisted steel bars laid at right angles to each other and spaced every 6 inches at the center of the floor, being gradually increased to 12 inches toward the outer edge. Every other one of these reinforcing rods was bent up into the wall a distance of 2 feet.

In order to secure watertight construction at the planes where each day's work ended and the following began, there were inserted in the concrete last placed for one day, strips of tin several inches wide, one-half of the width being placed in the concrete and the remaining portion allowed to extend above it so that it would be embedded in the concrete placed the following day; also the surface in the forms was left rough and when concreting was resumed this and the projecting tin were painted with a cement grout paint.

Under the tank floor there is a service pit, with concrete wall and floor making a "gallery" for inlet and outlet pipes where the valves controlling flow of water might be housed against exposure to freezing. Such an arrangement also permits passing the service pipes directly into the tank from the bottom. In extremely cold weather such a pit permits placing a heater to warm tank contents.



Poured Concrete Water Tank, Size 12 by 30 Ft., Capacity 27,000 Gals. Standing on Farm Just North of Chicago.



Details of Mayville Concrete Chimney.

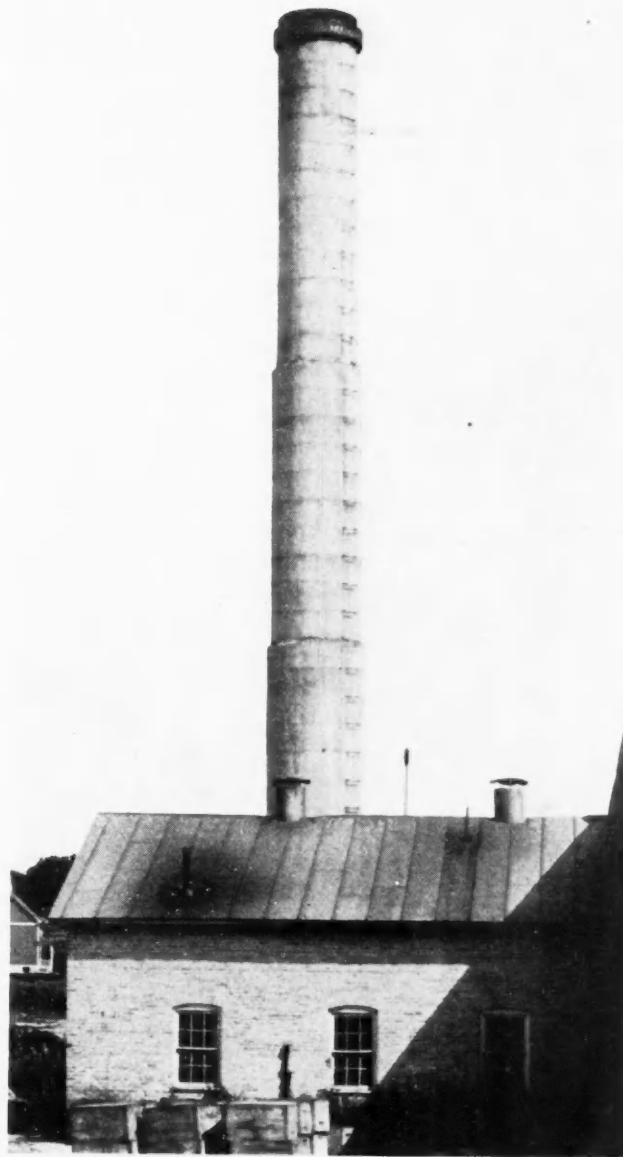
Canning Company Decides on Concrete Chimney

LAST Spring the Mayville Canning Company, of Mayville, Wisconsin, found it necessary to construct a smokestack, and after thoroly investigating the merits of different materials decided to build of reinforced concrete. Contract for this was awarded to one of the well-known local contractors who has specialized for a number of years on concrete silos, hence, was familiar with the requirements of round structures.

Accompanying illustrations show the design which was used in this work and photo of the finished structure. This chimney is 84 feet high from the top of the footing to top of stack. It rests upon a footing 14 feet square and 4 feet deep, this being reinforced with a mat of 3/4-inch square twisted rods, as shown in the plan sketch. The chimney is 19 inches thick for the first 28 feet, 4 inches of this consisting of fire-brick lining. For the second 28 feet, the walls are 11 inches thick and for the last 28 feet, 9 inches thick. The chimney is 5 feet in diameter which at the lower portion is reduced to 4 feet 4 inches on account of the fire-brick lining mentioned.

Vertical reinforcing consists of 3/4-inch square twisted rods which start 2 feet below the top of the footing and extend to the top while horizontal reinforcing consists of triangular mesh fabric.

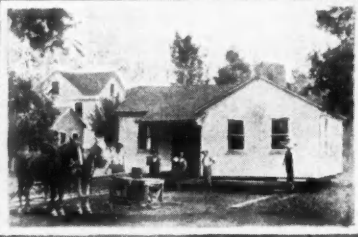
Thruout this work a 1:2:4 concrete mixture of quaky consistency was used, aggregates having been selected with a view to fire-resisting qualities. Probably it would not have been necessary to have extended the fire-brick lining up so far as was done in this case, yet there is, of course, no objection to it.



Concrete Chimney 84 Ft. High at Mayville (Wis.) Canning Co. Plant.

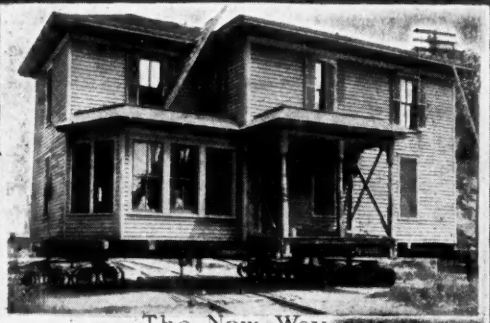
MODERN HOUSE MOVING METHODS

For the Carpenter and Builder



The Old Way

By
E. W. LaPlant
PRESIDENT OF THE
LaPlant-Choate
Mfg. Co.



The New Way

Shoring and Raising Buildings

HOW A FOUR STORY BRICK STORE BUILDING WAS SAVED FROM COLLAPSE AND BROUGHT BACK TO GRADE.

IN this article I will deal with raising and shoring buildings and store fronts.

I am giving an illustration, as it gives me an opportunity to show how to shore up a store front or an entire building.

Every carpenter and builder is called upon at times to shore up a store front, in order to put in a new steel column or to remodel the entire front. As this work is simple, the only thing necessary is the proper tools and the proper way of going at it. So many men make the mistake of putting in a few blocks and getting a timber on end, putting a jack underneath of it, and trying to do this type of work. This is mighty dangerous. Get a broad footing for your work, then put cribbing on it if necessary and jack and jack box

under it. Use good needles at the top; and you will never have any trouble if you set these vertical, so that there is no tendency to push on the building.

House moving today is a science, and so much so that there is not a structure standing but what an estimate could be obtained to handle it in any way, whether it is shoring or alteration.

That house moving is past its experimental stage is well recognized by all movers. The work is but application of what years of work and study have taught to be the most practical and at the same time keeping abreast with the times and accepting new ideas.

No line of trade of all the different departments of building can be classed with that of moving or shoring, as no business encounters so much risk, and ingenuity in handling the work.

When an old building is to be removed, there are so many defects and weaknesses, due to faulty construction, that it means the closest attention, most accurate calculations and knowledge of strength of material, etc. It requires practical experience to know where and how to take hold. There has been very little written on this subject and that is the reason why I am going into full details on it, to give a clear understanding of the proper methods of shoring.

My illustration will be the shoring of a building, size 80 by 140 feet, full four stories and brick walls. This building started settling immediately after roof was completed and the engineer and architect thought it would quit settling in a few days; but instead it kept settling more and more and it got so bad that the street had to be roped in by the city, because there was danger that the building would collapse, if it kept settling at the rate it had been. At this point I was called in on the job and in going over the building carefully, found that it had settled from four to ten inches in various points.

I immediately advised the architect that it would be necessary to get a much broader footing in order



Fig. 1. Shoring Building. Notice Front Has Been Raised 8 Inches Higher Than the Piers.

to support the weight. I told him I would be able to hold up the weight and get it level again so that they could go at it and get the new footing in.

The first thing that I did was to put in bracing timbers at different points around the building to hold it.

The illustration does not show this part, as photo was taken after work was practically completed.

Now, in order to carry the weight of walls and lower the footing to widen it, it was necessary to dig out pits down to the depth of new footing. In order to dig these pits for cribbing, we used 6 by 8-6 feet long for wall curbing, as shown in point (A), Fig. 2. This was done to prevent walls from settling and from

it had in front, the jacks were not wound as much, tapering the lift of this jack down to the proper height. This must all be gauged beforehand, so that when you start to raise a building, everything will come up in equal level and there will not be any need of jacking up and winding the jacks at different points a whole lot, after the work is raised to a certain height.

After getting my building up to the proper height I immediately placed in a post and let the building stand a few days to see if any point settled, and when the ground was a little soft in one place the building was brought up to the desired height and cribbing was so arranged that the mason could lay in the new footing for foundation. The way the outside walls were handled there was no loss of walls from the ground level down to the cellar floors, on account of needling clear down to the base and raising from this point.

The jack boxes which I mentioned several times in this article are made up of 2 by 4 and 2 by 8 and 2 by 10 nailed together in a form of a box or tube, and on the end we slip in one of our standard seamless crib jacks and put a plate on the top of the header block and you have the proper tube jack for raising.

This type of jack is in common use thruout the country. Most every reader of this article will thoroly understand what is meant by a jack box.

You will note in the front view that I have tied both outside boxes together. This prevents the boxes from falling in getting them started and also holds every-

(Continued to page 78.)

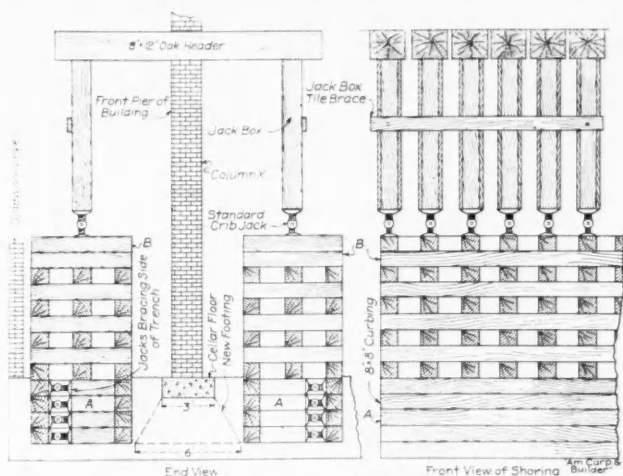


Fig. 2. Arrangement of Cribbing for Shoring Up Brick Wall.

caving in. As soon as we had our curbing in, we immediately placed cribbing inside of the trench and built up crib to level of sidewalk, for the front end of building.

We then used 8 and 10-inch drum, with jacks set underneath of cribbing; and placed these vertically and on top of these 8 by 12 oak beams. These were keyed up solid and placed in one at a time. Each jack was then wound until it showed a tension to hold the tube in place.

This is the way I handled the store front end of the building. But on the side walls it was necessary on the outside to dig down a 4-foot trench, 2½ feet from the foundation, and curb this in the same as was done on the front.

After I had this curbing in, we immediately set cribbing on the inside and outside of the wall, and cut in on the ground level and placed in my needles, composed of steel I-beams, putting these I-beams from 3 to 4 feet apart and putting them in in pairs. After these needles were all placed and jacks set under them, we took a tension on each one so that every one had received the right tension.

I assigned workmen to different sets of jacks, each man having certain jacks to wind.

At a given signal each man wound his set of jacks one quarter turn and stopped, waiting until the whistle was blown the second time, or second turn. At those points where the building had not settled as much as



Fig. 3. This Shows Shoring Store Front so that New Entrance and Front Can be Put in. The Jack Posts are Placed so that Clearance is Given for the New Columns.

CORRESPONDENCE



Questions Answered and Ideas Exchanged.

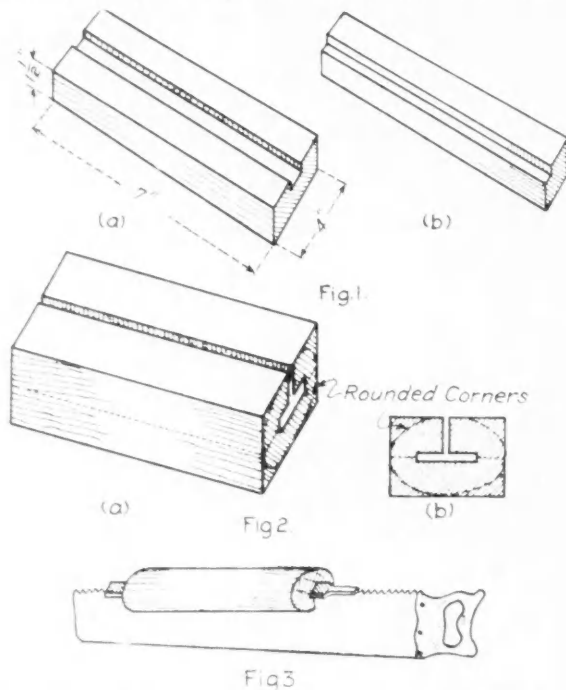
Our Readers Are Requested and Urged to Make Free Use of These Columns for the Discussion of all Questions of Interest to Carpenters and Builders

Devise for Insuring Uniform Length of Saw Teeth

To the Editor:

Wooster, Ohio.

A hand saw will give more efficient results with less labor if the teeth are of uniform length. To get the teeth even without some guide requires much practice and skill. By



Details of Device for Making Saw Teeth Equal in Length.

following the directions as shown in the diagrams a device for this purpose can easily be made in your own workshop that will prove very satisfactory. The groove should be made to fit the file. The groove thru which the saw moves should fit closely to prevent the saw from wobbling.

WM. F. MELLOTT.



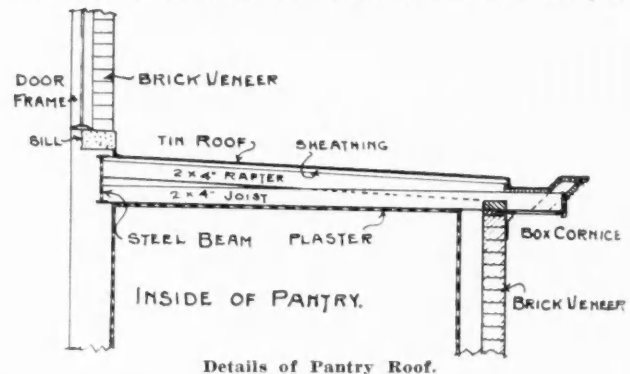
What Causes the Leak?

To the Editor:

Ft. Scott, Kan.

Am enclosing herewith a sketch of a pantry roof which has been the cause of much speculation among the building contractors in this vicinity. The building was erected some five or six years ago and has been giving trouble for two or three years in this way. The ceiling was first noticed to be wet, as if from a leak in the roof. This continued until the plaster on the ceiling finally fell off. Upon the removal of the lath, it was observed that the moisture gathered on

the under side of the sheathing in large drops, as the condensed by contact with the cold, outside air, which opinion was accentuated by the fact that this condition existed only during cold weather. Just before the cessation of the winter weather last spring, I removed the tin roof and applied one of two-ply rubber roofing, taking care to point up all flashings, and especially under the stone sill and wood threshold of the door. It was noticed that the only moisture evident was along the stone sill, and spreading out from that point



Details of Pantry Roof.

toward the lower side of the roof. No moisture was observed along the wall at any other place, and the ceiling was not injured toward the opposite end of the room from the door shown on the drawing. I might also mention that this pantry is on the west side of the house, and that this trouble is at the north end of the room and the farthest from the kitchen.

I would be pleased to have an opinion as to the cause of this trouble and its remedy, especially if caused by condensation of moisture.

W. S. HUFF,

Of W. S. Huff & Co., Architects and Builders.



Shoring and Raising Buildings

(Continued from page 77.)

thing in alinement until you have tension on all jacks.

In the end view the column end is removed and the new piers are placed in on front on account of the worst settling being on the front end of building.

In handling a store front a whole lot of this work is not necessary, simply getting a good foundation for the cribbing in the bottom in the basement and then building up cross headers and putting in your jack boxes and the header at the top to catch the steel beam of store front; and you can hold up a very heavy front this way by taking and putting in the jacks and getting the proper tension on them.

(Correspondence Department Continued to page 82.)

300 Plans For Builders FREE! Standard Homes— Ready-Cut Houses

Contractors! Write for These Two Big FREE Books

Get your copies of these books. Contain hundreds of ideas, space saving plans, new wrinkles, home suggestions that builders will appreciate, and all facts about our famous "factory-direct-to-you" selling plans. Over 300 plans shown in our two big \$10,000 Plan Books. Full details—photographs—floor plans—color schemes—wholesale prices. Despite the cost, we will send these books **Free** to contractors. You take **no risk** in dealing with us; **100,000** customers vouch for us. Ask your Bank about us. Each house built hundreds of times in every state. Let our Contractors' Department tell you about our quick shipments and special service bureau for builders. Highest quality. Wholesale prices. Guaranteed figures—no "extras"—no "come-backs."

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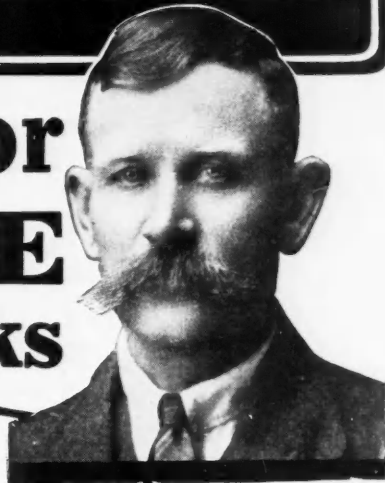
For Contractors! Get This Great Book

A veritable builders' encyclopedia. A price maker for over 10,000 contractors and carpenters. A money-saver for over 100,000 regular, satisfied customers throughout America. Packed from cover to cover with bargains which are shipped anywhere no matter where you live. A complete house or any part of a house at wholesale prices. Customers everywhere! Many near you, will give you local references if you wish. Three strong banks vouch for us. Everything sold subject to prompt, safe delivery and satisfaction or money back. Send the coupon now!

Gordon-Van Tine Co.

Established Half a Century

810 Federal St., Davenport, Iowa



Watertown, Minnesota
November 1st, 1915
Gordon-Van Tine Company,
Davenport, Iowa

Gentlemen:—

When I placed my first order with you people in January, I felt that I was making more or less of a gamble. You will remember that my first order was a carload of shingles and I will confess that I was worried for a while about delivery and half and made a fine profit. You can well imagine how anxious I was to see the shingles. The car came promptly and when we opened it we were all delighted—they were the best Red Cedar shingles any of us had ever seen.

Since that time, I have bought three more carloads of shingles and about 17 cars of your dimension lumber and several thousand dollars of millwork from you, and they were all just as satisfactory as were the shingles.

This last season has been the most profitable for me to deny the important part your firm played in making it so. This town has never seen your doors, trim and interior finish, and with grades and service it is conservative for me to say that I have saved \$900.00 this season by patronizing you.

Very truly yours,

(Signed)
EMIL PALMER

Read this Contractor's Letter

The saving of \$900 that Mr. Palmer made, you, too, can make.

He added \$900 to his profits in a single season. So can you.

Read his letter. Then act on the suggestion it contains. Buy wholesale from Gordon-Van Tine!

GORDON-VAN TINE CO., 810 Federal St., Davenport, Iowa

Please send me Free the books checked.

Building Material Bargain Catalog
Lumber, Millwork, Hardware, Paints, Etc.

Standard Home Plan Book

Ready Cut Plan Book

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Roofing Samples

Summer Cottages

Garages—Ready-Cut and Portable

Send me specific information about.....

Mention here articles in which you are most interested.

Name.....

Street No..... State.....

City.....

Occupation.....

MODERN STORE FRONTS

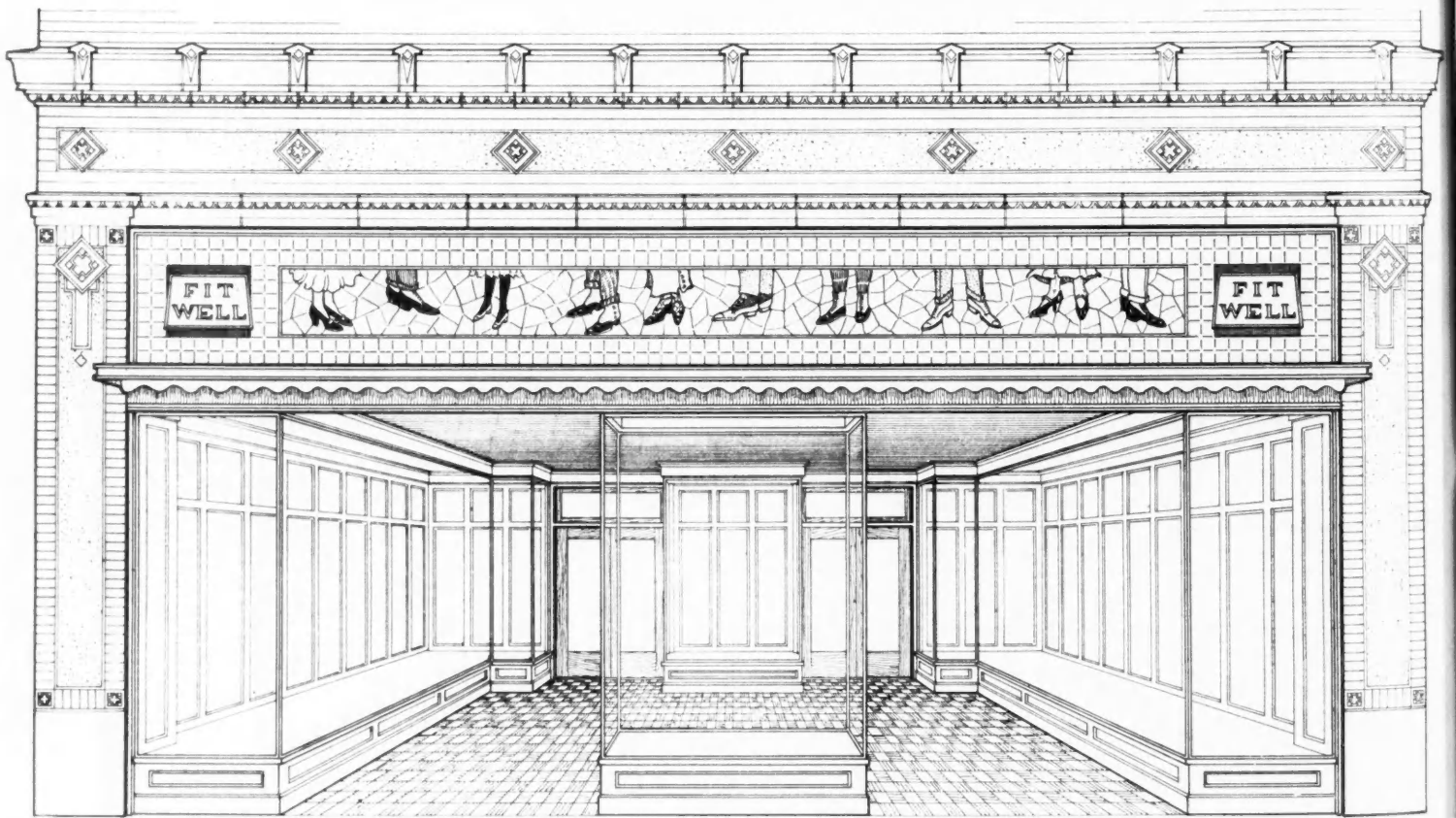
Their Design and Construction

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




IN 17 PARTS, PART 2. (SEE FEBRUARY ISSUE FOR OTHER DETAILS)

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



TYPE No 20

TYPICAL ELEVATION OF SHOE STORE

COPYRIGHTED BY
KAWNEER, MFG. CO.

THIS design is a typical elevation of an up-to-date Shoe Store Front.

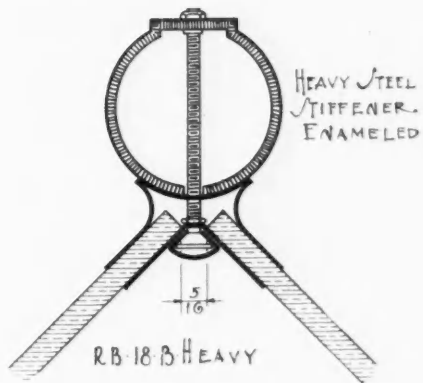
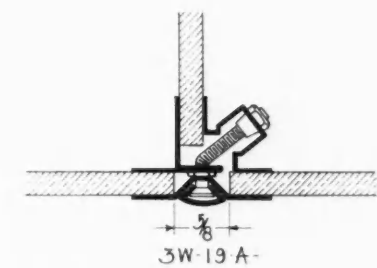
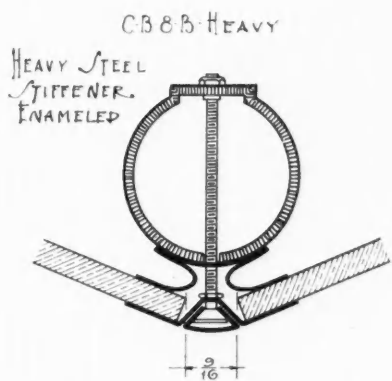
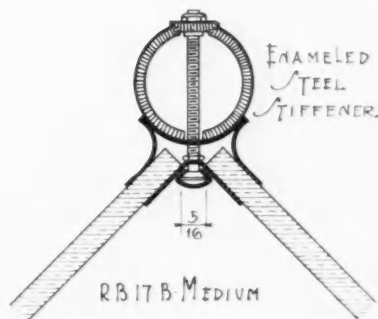
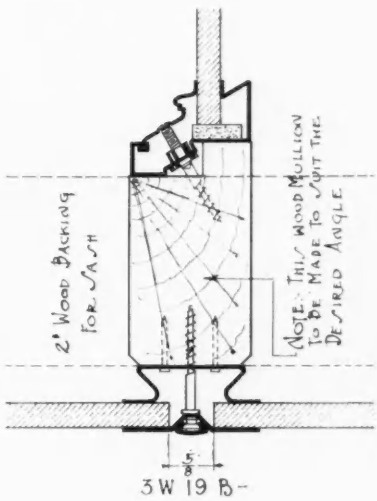
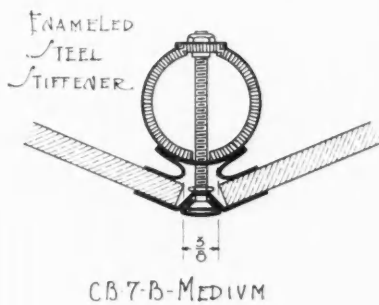
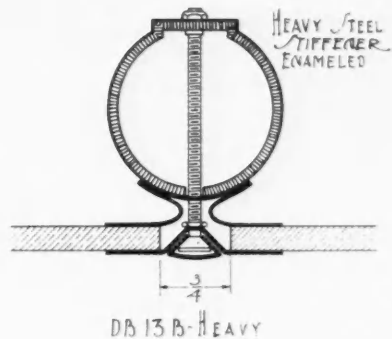
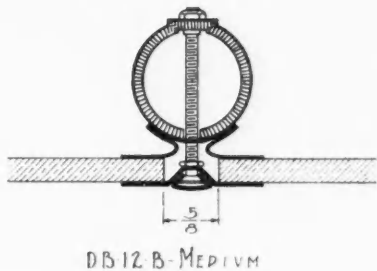
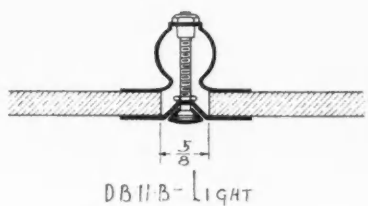
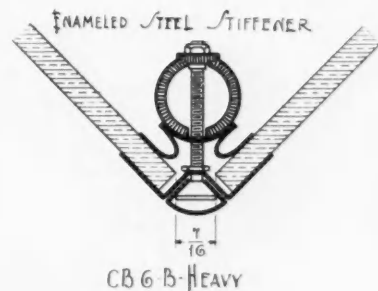
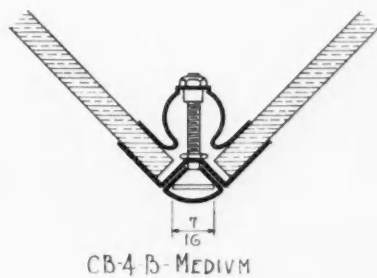
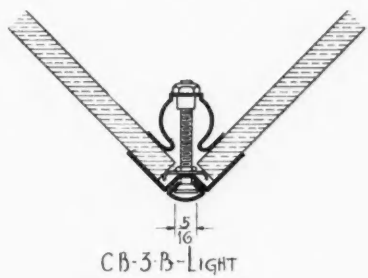
The most important features in a Shoe Store Front are: Bulkheads from eighteen to twenty-four inches high, plate glass windows with a height of eighty-four to ninety inches and shallow display decks of about three to four feet in depth. A good arrangement for effective unit display is the most important feature in **this** design.

The vestibule must be spacious and inviting. An attractive appearance can be achieved by the proper use of artistic floor

tile, well designed ceiling panels and a few, but attractive lighting fixtures.

Kawneer Mfg. Co. will, from time to time, show different designs of "up-to-date" KAWNEER Store Front designs, featuring various types of store fronts such as jewelry, candy, clothing, millinery, and department stores, etc.

We shall also show various detail plates of our new construction. The details on the opposite page, drawn half full size, show the various constructions of KAWNEER Metal Bars. Interested readers are asked to cut these out, as they will prove to be a valuable reference asset to them in the future.



VARIOUS DEGREES OF ANGLES



THIS CHART OF ANGLES WILL ASSIST OUR PATRONS TO SELECT PROPER DEGREES WHEN ORDERING CORNER BARS

PLATE NO. 1



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



Kawneer
STORE FRONTS

4 Shingles in 1

FLEX-A-TILE Diamond Point Slabs allow you to lay four shingles at one operation. No time lost in spacing and chalk-lining—each slab fits naturally and accurately into the course below. They save 50% in labor cost alone.

Diamond Point Slabs

Genuine Flex-A-Tile quality all through—the same pure, wool felt, the same rich, thick asphalt impregnation, the same rubbery gilsonite coating, the same pressed in slate or granite surfacing—Diamond Point Slabs economize in weight and material; require fewer nails. They actually save 35% in freight—38% in nails.

Agency Appointments Now Being Made

Get your application in at once. Remember this is the biggest roofing development in years—everyone, everywhere, will want to use Diamond Slabs. We have the exclusive patents and infringers will be prosecuted. Diamond Point Slabs come in both giant and standard weights. Get samples, prices and interesting descriptive literature now. Write today.

The Heppes Company
1010 Kilbourne Avenue, Chicago, Ill.

Utility Board No-Tar Asphalt Paint
Flex-A-Tile Roll Roofing
Other Guaranteed Heppes Products

Delivering Materials to the Job

To the Editor:

Fontanet, Ind.

Will you please give me some information on the following? If two parties make an agreement, one to do the work and the other to furnish material for same, should the party furnishing the material deliver and unload the same on the site, or should the party doing the work?

I always understood that the one to furnish material should put it on the job conveniently for use, unless specified differently. Also, who would be supposed to take care of material and protect same from weather, etc., until it is used? For instance, covering up bricks, sand, gravel, and other material so that rain, snow and frost will not make it unfit for use when needed.

W. H. HAMBLETT.

Answer—It is customary for the building material dealer, in making deliveries of materials, to bring and place them as conveniently to the building site as conditions will permit. While we don't know that there is any definite ruling covering this point, the accepted custom is for the dealer to deliver as close to the site as he can drive with his load. He, of course, follows the directions of the builder as to when and where delivery is to be made, but ordinarily, he is not supposed to take the materials into the building or closer to the site than he can safely drive. Special conditions requiring anything else would naturally call for special agreement before the contract is let.

Ordinarily, the responsibility of the party furnishing the material ends with the delivery of the material to the building site. The protection of the material is then up to the man who is to put the material in place.

EDITOR.



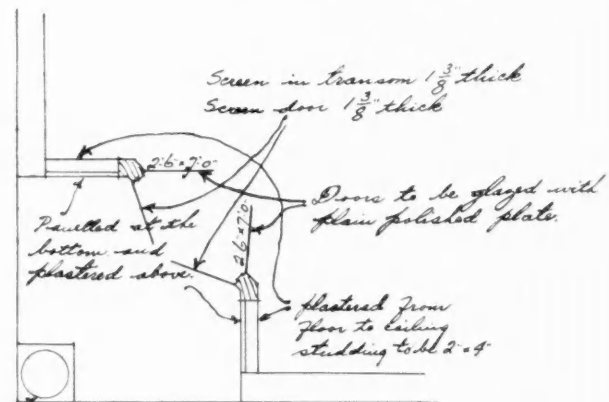
Corner Entrance for Bank

To the Editor:

Willcox, Arizona.

Enclosed you will find a sketch for a front or rather a corner entrance to a bank building which I am erecting. The plans are very incomplete, there being but one detail for the entire job.

Will you please help me out as to the proper construction



Column plastered on the outside with concrete lintel cover lead between the column and brick jamb on either side.

Sketch Shows Door Arrangement of Corner Entrance to Bank.

and finish for this entrance? The doors are 2 ft. 6 in. by 7 ft. by 1 3/4, with a transom overhead, the total height being 9 ft.

A small detail of this door jamb showing the construction of the jamb and the trim for it such as casing, etc., and the transom bar construction would be very welcome.

(Continued to page 84.)



For Roof *Beauty* and *Economy*—
Asphalt Shingles

YOU rarely find so much *beauty* and *efficiency* combined in a building material as in *Asphalt Shingles*. Especially at a *moderate cost*.

Asphalt Shingles give a distinctive touch to the outside appearance of any house on which you use them. They add \$1000.00 to the looks at no extra expense. Their rich coloring stands out in pleasing contrast to the other building material used.

Cold weather cannot harm them—they do not crack or split, and as water cannot penetrate them, they never freeze. With all these advantages to the houseowner, they can be laid so much faster than common roofs that you *save labor charges*—which puts you in a strong position to get more business.

Big, National Advertising To Help You

We are starting the building season with big advertising space in Magazines and Farm Papers, featuring *Asphalt Shingles*. This helps you to help yourself and help your *customers*. It aids you in showing them better roofing value for their money. It assists you to use this efficient, economical, handsome roofing, and secure more business.

Our free booklet, "*The Roof Distinctive*" should be in the hands of every Contractor and Builder. Send for your free copy.



The mark to always look for on packages of good Asphalt Shingles.

In all of our advertising we always refer the house owner to his Architect and Contractor about Asphalt Shingles.



The mark to always look for on packages of good Asphalt Shingles.

Asphalt Shingle Publicity Bureau
 855 Marquette Building ∴ ∴ CHICAGO

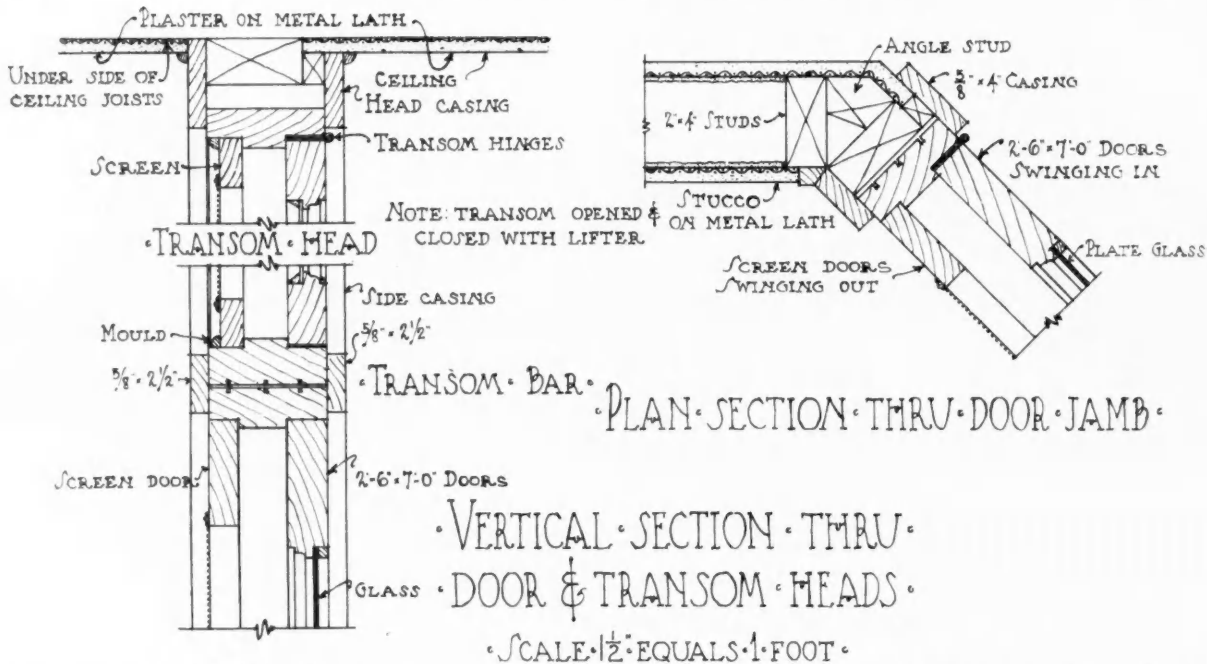
This is a new proposition to me as all of my previous experience has been on a different line of work. The balance of the work on the building is work that I am familiar with.

I would under no circumstances be without the AMERICAN CARPENTER AND BUILDER as long as I am in the building and contracting business, as I find many helpful articles and ideas in it.

ROBT. L. DAVIS.

Answer—The accompanying details show the construction of the door and transom for the corner entrance you mention. The blue prints show the vertical section thru the door and the transom head, and also show the plan section thru the door jamb. If the construction is not clear to you from the blue prints, we will be glad to furnish you any other information you desire.

EDITOR.



Details of Transom Head and Door Jamb for Corner Entrance to Bank. These Details Show Clearly the Type of Construction Needed for this Class of Work.



J-M Responsibility—the logical outgrowth of over half a century's progress, achievement and business integrity—stands as a stronger assurance for your satisfaction than even the most complete written guarantee.

COVERS THE CONTINENT

Flying Sparks are no menace to a J-M Transite Asbestos Shingle Roof

Being fire-proof, J-M Transite Asbestos Shingles are a safe-guard to the home or building they cover. And not only are they fire-retardant, but because of their composition, sharp freezes or sudden thaws have no effect on them. They actually toughen under such conditions. The artistic possibilities of J-M Transite Asbestos Shingles are limitless, too, because they are made in nine shapes, nine sizes and two thicknesses; rough or smooth edges in gray, Indian red and mottled brown colors. Have all the information on these shingles in your files. Get the facts from any J-M Branch. J-M Transite Asbestos Shingles are tested, approved and labeled by the Underwriters' Laboratories under the direction of the National Board of Fire Underwriters. Laid American method they are given class B rating; laid French method they secure C rating.



H. W. JOHNS-MANVILLE CO.

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| Atlanta | Buffalo | Columbus | Indianapolis | Memphis | New Orleans | Pittsburgh | San Francisco |
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| | Cleveland | Galveston | Louisville | Newark | Philadelphia | Salt Lake City | |

Residence of Mr. D. T. Dickson, Wayne, Pa.
Francis Gugert, Architect, Wayne, Pa.



Architect
BENJ. EDWARDS
Scarsdale, N. Y.

Residence of F. P. Taintor, Scarsdale, N. Y.
Roofed with Asbestos "Century" Shingles

Contractor
BENJ. EDWARDS
Scarsdale, N. Y.

The Owner Wins So Does the Contractor Who Applies Them

Both win and they deserve to. The owner, because he no longer is willing to take a chance on everything. He wants facts—the permanence, the cost of upkeep, and the dependability of the roof. That is why Ambler Asbestos "Century" Shingles appeal to him. They are the kind that fill the requirements of property owners insisting on value.

These shingles do not split, crack or decay. There is no replacing, no painting, no repairing, no worry. They last a lifetime without repairs. To the owners who want the cheapest coverings for permanent buildings these shingles will appeal.

Ambler Asbestos "Century" Shingles

The contractor wins because this roof covered with Ambler Asbestos "Century" Shingles will stand as a permanent booster of his business. It will outwear the building as a witness of his reliability.

Whether you are specifying or laying roofs on churches, schools, hospitals, garages, houses or on any kind of a building, you will best serve the owner and

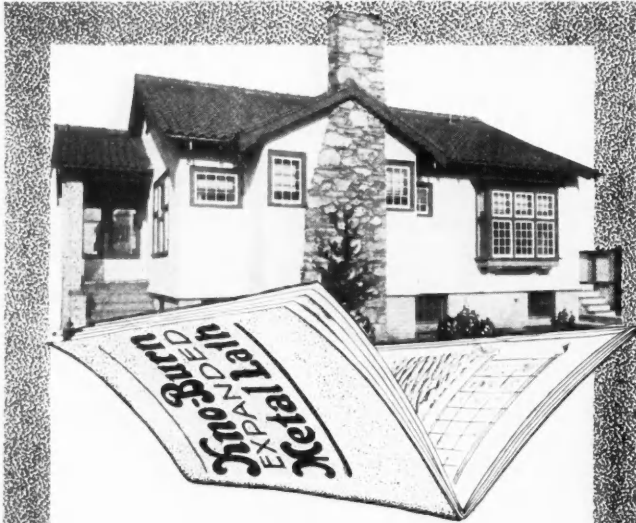
yourself by using Ambler Asbestos "Century" Shingles.

Contractors and builders catering to discriminating and intelligently buying clients should be able to supply these shingles. You can cash in on their worth.

***We have samples for your inspection.
We shall gladly send these and trade prices. A line from you will bring them.***

KEASBEY & MATTISON COMPANY, Factors
Dept. B2, Ambler, Pa.

*Branch Offices in Principal Cities
of the United States*



The "Kno-Burn" Book is Chuck Full of "Reasons Why"

Every house you contract to build—brick, frame or stucco, calls for lath as a base for the interior plaster work.

The "Kno-Burn" Book was written to convince you that the best all-around base for you to use is metal lath and the most practical all-around metal lath is

Kno-Burn Expanded Metal Lath

You'll admit that metal lath is logical because its lasting qualities more than balance its slightly higher cost.

We can convince you that "Kno-Burn" is worthy of your choice in every instance if you will let us lay before you its exclusive features of superiority.

Do us the favor of sending for booklet 33, the "Kno-Burn" book that contains our arguments for your business. Then, if you'll read the book, we'll get your next order.

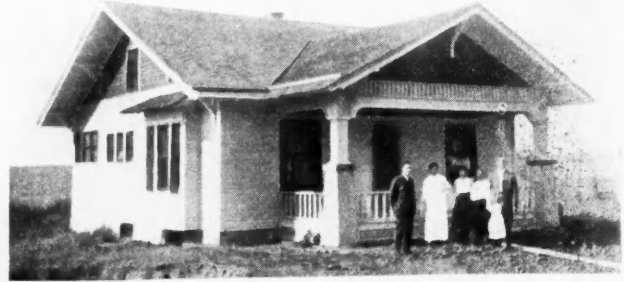
North Western Expanded Metal Company

Manufacturers of all types of Expanded Metal
903 Old Colony Bldg. Chicago, Ill.

From a Converted Stone Mason

To the Editor: Everest, Kansas.

Here is a modern bungalow I have built this past season, planned by myself. I have not been working at the carpenter trade long, only about three years, having changed over from



Modern Bungalow Built at Everest, Kansas, by C. H. Wheeler, a Former Stone Mason.

stone mason, and I consider a great deal of my success due to the "American Carpenter and Builder," which I have read for about four years.

I also have your book of Details and two volumes on Steel Square, and several other books pertaining to the trade. I don't think a man can get too much information about the trade.

C. H. WHEELER,
Carpenter and Contractor.

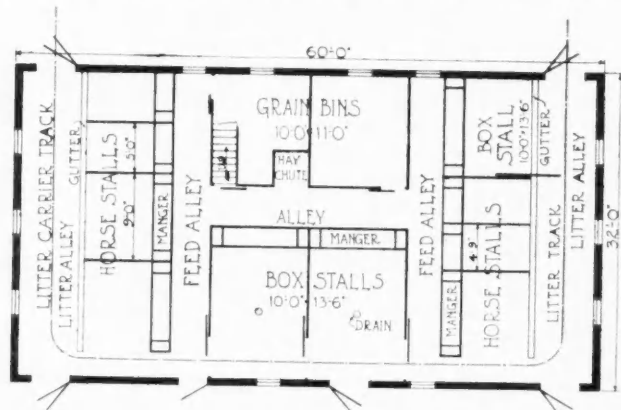


A Concrete Block Barn

To the Editor: Odebolt, Iowa.

I have endeavored to give you an exact floor plan of my barn. This is my own idea of a horse barn. Of course, I use the box stalls for cows with calves when necessary. This same plan could be nicely used for both horses and cattle, using one end for horses and the other for cattle, by changing the manger.

This barn has a litter carrier which makes a complete circle, extending 32 ft. back of barn. The drain is a concrete box 8 inches wide and 10 inches deep. The cover, a 2 by 12-inch



Floor Plan of Horse Barn Built of Cement Blocks. For Photo of Barn See Page 88.

plank, sits down into a 2-inch rabbet or shoulder on each side. Notches are cut on either side of 2 by 12-inch which lets the water into the drain, and a hole is cut thru foundation which lets water out.

In box stalls on the south, I have a box drain in each stall which goes thru tile to outside of barn and empties into a cement tile.

This barn has cement floor thruout. The blocks are laid on a 14-inch foundation wall which goes down 5 feet under ground to a 24-inch footing.

(Continued to page 88.)

KEEZON CELLULAR LATH

Saves approximately thirty per cent in Labor Cost and Material.

Keezon Lath holds the plaster so firmly that it cannot be soaked off with water, and cannot be damaged by any unusual shock, such as bumping or hammering, except at the immediate point of contact. And the plaster on Keezon Lath will not burn except at the extreme edges, making a flame impossible.

Two coats of plaster can be applied at the same time without moving the scaffold. Any plaster, and a much thinner coat can be used than with any other lath.



STAYS ON

The studding can be placed sixteen inches apart, while with metal lath, it is necessary to place the studding twelve inches

apart. Furthermore, there are no sharp, jagged edges to catch and tear the hands.

And Keezon may be applied directly to any flat surface, and will key perfectly without "furring." This feature alone is an important factor in the saving of 30 per cent.

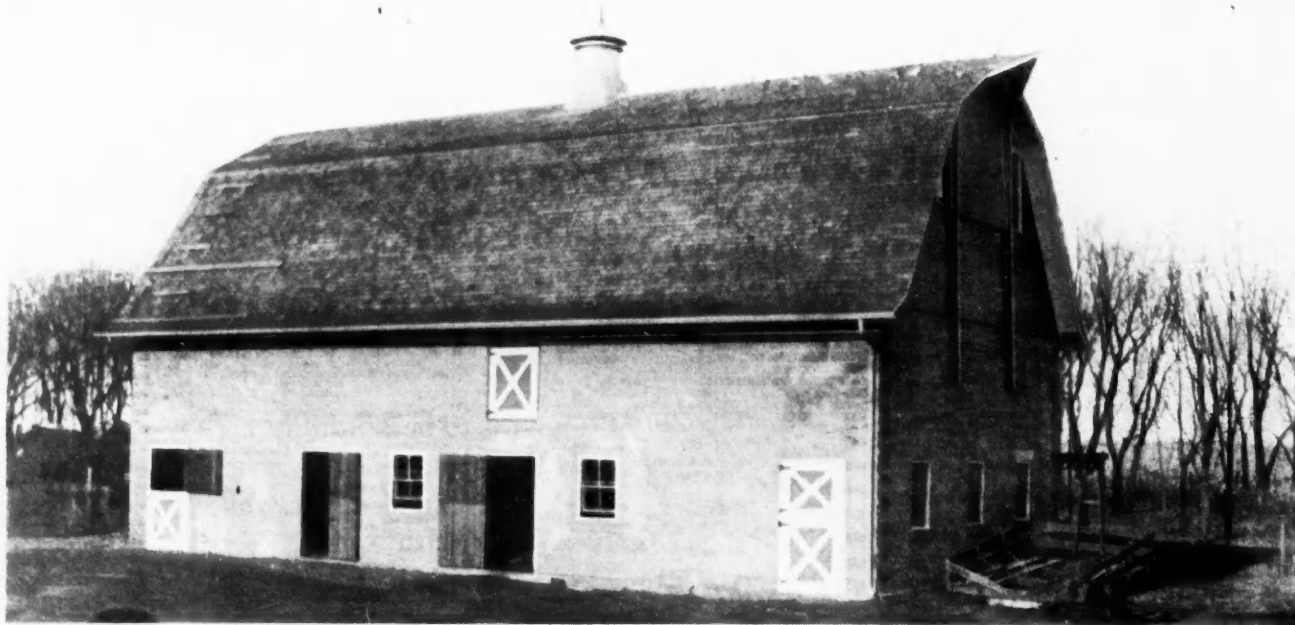
Taken altogether, Keezon can be used in more places; gives more satisfactory service.

It's new, but it has been tried and proven successful by the leading contractors of the country.

Send for our catalogs, and find out what you can do with this lath.

**Cellular
Lath
Company**
St. Louis, Missouri





Horse Barn Built at Odebolt, Iowa, by Harry W. Hanson. The Walls were Built of "Anchor" Blocks and the Floor is Cement Also.

I built this barn in 1912, and I am very well pleased with it. It is very cool in summer and warm in winter. If I was going to build another, it would be of the Anchor block. I can say nothing that would show my satisfaction better than this.

In regard to the partitions; they are built 4 feet high of 2-inch lumber with a metal guard rail above made of 5/8 rods

2 feet long and fastened into a frame of 2 by 4's. This permits a breeze to pass over the horses during resting hours.

This barn cost me \$2,000, but it could not be built again for the same, as I bought the material right. Again, I will say I would never build a frame building. The stone cost more at first, but are cheaper in the long run.

HARRY W. HANSON.

NOW You Can Get Great, Wide Panels of

This big news should be welcomed by every carpenter who wants to get more business—and lots of it.

It is one of the most important announcements ever made by a wall board manufacturer. For 64-inch Upson PROCESSED Board opens up many new avenues of use. It is the widest board on the market.

The giant panels give practically unbroken wall surfaces and overcome any fancied objection that some people have heretofore had to paneling. Only two of these large 64-inch panels of Upson PROCESSED Board are needed to cover an ordinary wall area. Where no openings occur between the usual openings, one panel will be sufficient. Or by running 64-inch Upson Board around the room at picture moulding height in combination with a frieze panel, all up and down paneling is done away with. And the wall looks about as a plastered wall would look.

Dealers predict that 64-inch Upson Board will **double the sale and use of wall board.** Seldom has such a fine, profitable opportunity been offered to the carpenter!

This really remarkable innovation is, of course, inaugurated by the Upsons, better known as the "FIBER BOARD AUTHORITIES," who have been responsible for practically every improvement in wall board during the past five years and whose ingenuity has largely standardized the use of wall board as a staple building material. It is another hint that no carpenter—with fairness to himself or his trade—can overlook Upson PROCESSED Board. For Upson PROCESSED Board is made good to make good! It is unfair to condemn Upson Board because some wall boards have been unsatisfactory.



THE UPSON COMPANY, Fiber Board Authorities
12 Upson Point
LOCKPORT, NEW YORK



Overcomes Fancied Objection to Paneling

they will warp and twist and curl worse than ever, while the punky boards in this width will be almost impossible to handle. Upson Board looks, feels and *works* like lumber. It cuts clean instead of crumbling, tearing or gumming the saw. Carpenters say that they can handle one-third more of it than other wall boards in the same time. And, of course, each UPSON panel is *scientifically* processed: KILN CURED like interior trim, WATER-PROOFED and SURFACE FILLED.

Write today and let us send you samples for your own test. Let us show you how you can easily build up a permanently, profitable all-year round business.

Let us prove why you can safely recommend and use Upson Board.

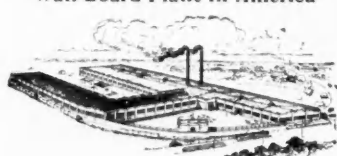
Don't defeat your own best interests by doubting! Get your sample now and be your own judge as to Upson quality.

Upson PROCESSED Board is made of specially selected, long, tough, pure wood fibers which are compressed into harder, stiffer and more woodlike, panels. It is free from cheap "chip" fibers with their tendency to curl, pull and twist, as well as short, punky "jack pine" fibers that make a weak, brittle, short-lived board.

64-inch Upson Board will be imitated. But, remember! No inferior wall board can be *successfully* made in panels 64 inches wide because

in panels 64 inches wide because

The Most Completely Equipped Wall Board Plant in America



“I Am the Neponset Man”

“They called me that at first to jolly me.”

“They didn’t believe I had shingles that couldn’t crack, rot, rust or rattle loose.

“But now the name Neponset is my capital. The first job where I used

NEPONSET SHINGLES

broke the ice for me. That one job led to a second, and the two soon became four. And so my business grew.

“Every one of these red and gray roofs here in town are mine. And many of the others, too, for I got a reputation as a roofer on account of my success with Neponset Shingles.”

The same materials are used in Neponset Shingles as in the well-known Paroid Roofing, also used in Neponset Proslate, the highest grade colored ready roofing ever made. Neponset Wall Board, Neponset Waterproof Building Paper and Neponset Floor Covering are other well-known Neponset products.



Why Not Make Every Room Habitable?

Almost every home builder economizes somewhere. Often a room is left unfinished. In such a case you can give that extra bit of service that is so well appreciated.

Recommend that it be finished with


NEPONSET WALL BOARD

There are three finishes to choose from, all are waterproofed to prevent warping.

If you do not know Neponset Wall Board you can not know the possibilities that lie in this substitute for lath and plaster. Let us send you a sample. Details are given in “Repairing and Building” but you should examine the board itself. Mail your request today.

We want a carpenter in your town to be known as the “Neponset Man.” Will you be the one? Send coupon today for particulars.

COUPON



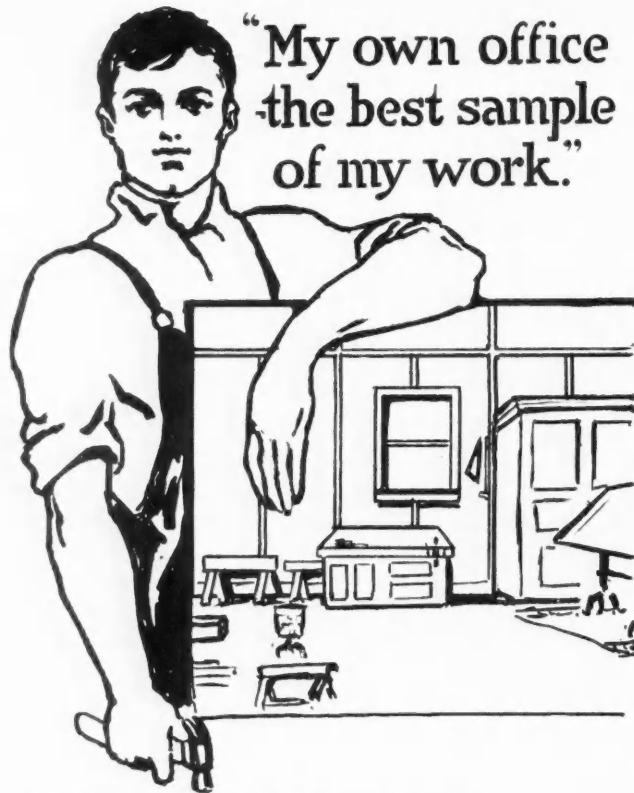
BIRD & SON, Dept. C, East Walpole, Mass.

Please send me information and samples of the Neponset Shingle and Neponset Wall Board. Also a copy of your book “Repairing and Building.” This request, I understand, does not put me under any obligation whatsoever.

Name.....

Address.....

COUPON



"My own office
the best sample
of my work."

Utility Board

in grained wood finishes

PLAIN OAK — QUARTERED OAK — CIRCASSIAN WALNUT — MAHOGANY

"I've got something definite to show my customers when they want to know how grained wood Utility Board is going to look," writes an Illinois carpenter contractor. "I show them my own office. Most of them can hardly believe their eyes when they find that what they thought was genuine quartered oak panelling is really Utility Board."

For every kind of work

whether office or residence, public building, store, factory or garage — there's a Utility Board that will exactly suit the purpose; economical and always satisfactory.

If your stock of samples is diminishing or, if you haven't complete information on the entire Utility Board subject, by all means

write for additional samples and literature today

The lasting in-built durability of Utility Board, together with its artistic appearance, is winning new friends by the thousands. Be sure you are prepared to participate in the big increase in Utility Board business that the coming season will bring.

THE HEPPE'S COMPANY

4503 Fillmore Street

Chicago, Illinois

Flex-A-Tile Diamond Point Slabs

Flex-A-Tile Roll Roofing

No-Tar Asphalt Paint

Other Guaranteed Heppes Products

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Building News from Alaska

To the Editor:

Anchorage, Alaska.

Enclosed please find post card of a building just completed way out here. It is a small hotel, 16 rooms and 10 by 44-foot dormitory in attic; windows 46 by 52-inch, French; hot water heat. To this will be added in the coming spring an 80-foot extension. The house is lined thruout with three thicknesses of tarred felt, making it warm and comfortable.

There are about 3,000 people wintering here, Anchorage being the Temporary Terminal of the Alaska Government R. R. to the Matanuska anthracite coal field, 75 miles inland.

Anchorage is situated on the shore of Cook Inlet. The second highest tides in the world prevail here (27 feet); there is shallow water for one-half mile or more. A beautiful background; to the north, Mt. Faulkner, and a little further Mt. McKinley, 23,000 feet high, 150 miles away. A low range is to the east, with some five to eight thousand mountains, snow-capped the greater part of the time; west, the same scenery prevails. Lower down we have a timber belt of spruce, birch and cottonwood.

At present (Nov. 29, 1915) we have two feet of snow, and fine sleighing. At about zero, hundreds are living in tents, as the townsite was not thrown open early enough to permit homes being built comfortably; while to a certain extent a shortage of building material prevails.

A queer feature of this community is that some 800 Greeks, Austrians and Italians from British Columbia and Canadian territory are living on what is called Poverly Row on the outer edge of this government townsite, burrowed like rabbits, and every new member added goes down another tier, over which a tent is stretched.

The wage feature and finance of this Commission is dominated by a head engineer, who is trying to build up a reputation for economy at the expense of the workmen. The government is paying 37½c per hour (8 hr. time); board \$1.00 per day for muckers and station men; 50c per hour for bridge men and shop men. All employees are exempt from hospital fees. Living is high; pork and mutton at 35c per pound; beef, 25c; eggs, \$17.00 per case; potatoes 5c per pound; sugar, \$8.50 per 100 lbs. Common dimension, shiplap, and stock stuff, \$35 per M at the yard. Litharge, \$2.50 per ton or thousand; team hire, \$2.50 per ton or thousand. Verily, it's your death sentence unless you stay away from here.



Hotel built by Wilson Freeman at Anchorage, Alaska.

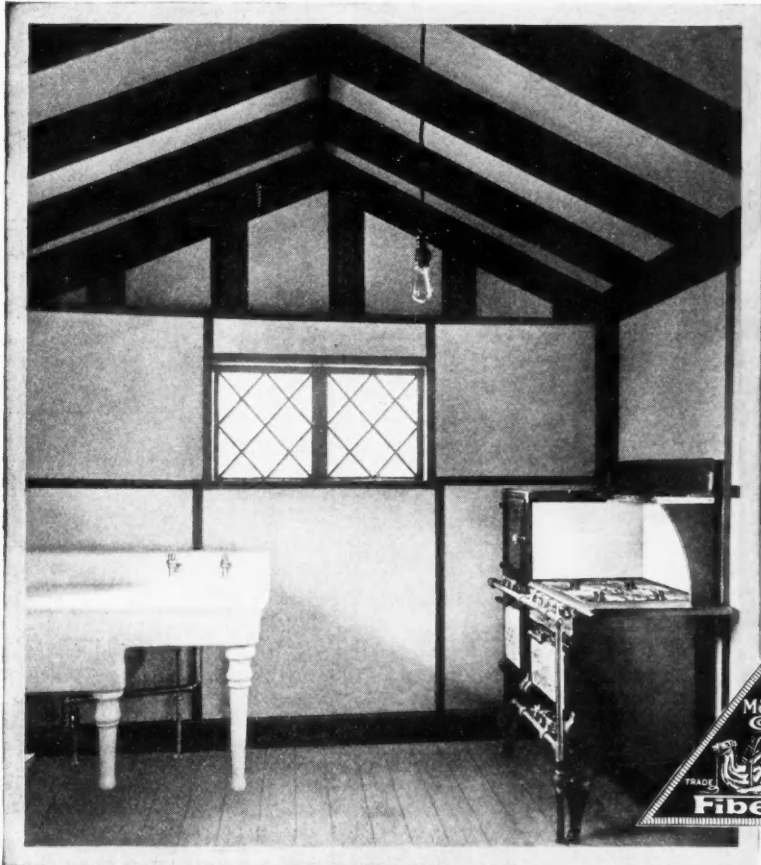
Enclosed you will find \$2.00 for a starter subscription. For the first four months send as first-class mail, as otherwise it is impossible to have it come thru from Seward, as all we are allowed is only 800 pounds of first-class mail at a trip. This comes in by dog team 110 miles.

Is this a Canadian country or U. S.? For of the 1,300 men employed this past season, you would not have found 150 citizens, full fledged or otherwise. In the office force I know

(Continued to page 92.)

Fiberlic

For Walls
and Ceilings



Specify Fiberlic from Basement to Garret

FROM basement to garret—in any kind of building—there isn't a single room for which you can't safely specify Fiberlic Wall Board. For instance, take the Fiberlic surfaced kitchen illustrated above.

A kitchen surfacing, to be worth its price, should be absolutely *vermin-proof*, *odorless* and *fire-resisting*. These three essentials stand out boldly in Fiberlic—the superior wall board. For that reason builders who spend their clients' money judiciously specify Fiberlic.

But Fiberlic possesses other marked advantages. It is a sound-deadener and has great strength and lasting qualities. It is more economical than lath and plaster and thoroughly sized *throughout*.

All these superiorities are due to the exclusive patented Fiberlic chemical process that treats every fiber in the board.

Send for a sample of Fiberlic and try this test: Take your sample and pull it apart. Then do the same with the ordinary wall boards. Compare them and you'll immediately detect the absence of odor in Fiberlic.

We manufacture special Fiberlic paints and stains that come in 24 different colors and shades. Ask about them.

THE FIBERLIC COMPANY, CAMDEN, N. J.

LONDON (England) BRANCH: MacAndrews & Forbes, Ltd., Finsbury Court, E. C.

of only two who can claim that honor, cashier and time-keeper. The superintendent at the commencement was not even a naturalized product, but at the present time carries for effect his first papers.

Your correspondent has 16 years to his credit in Alaska, and by right is not a native by adoption, but a full fledged Yankee, and when he started to send you this order, it occurred that a little information would be appreciated by his fellow tradesmen.

I will answer anyone who wishes more information, personally.
WILSON FREEMAN.



Makes Hand Craft Furniture

To the Editor:

Long Beach, Calif.

Your magazine has been a great help to me. I used your plans for home-made furniture six years ago. I made a 7 ft. oak davenport, sold it for \$30; one 6-ft. chestnut davenport for \$20; one 4-ft. oak settee I own. I made and sold two taborets; one library table; one desk; one piano bench; one Morris chair; one leg rest, and some other pieces. I have with me now shipped from Ohio two large upholstered Morris rockers and one settee to match, bookcase, desk, two hall chairs and hall treet, pedestal and princess dresser. I made here in California one extension dining table, one dressing table with octagonal mirror, one library table of combination artcraft and reed-craft. I have the reed craft-artcraft combination designs of different pieces: Porch swings, beds, baskets, chairs, etc. It is a swell combination.

Yours respectfully,

B. H. CHARLES.

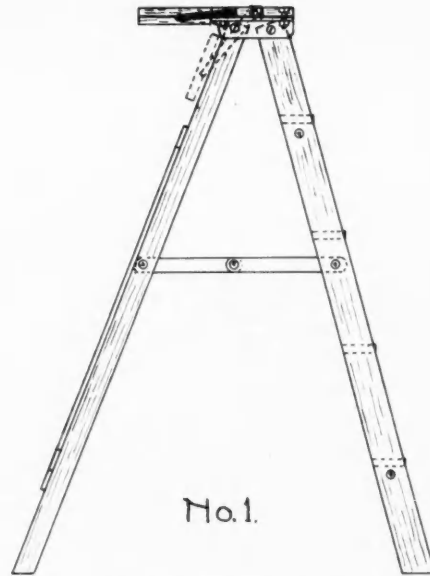


Improved Step Ladder

To the Editor:

Bushnell, Ill.

Am sending you sketch of an improved step ladder I made during winter months when not much was doing. It is pat-



Step Ladder with Shelf at Top. Made by J. B. Robertson.

ented and a good seller. I call it the Robertson Top Shelf Step Ladder. It is the mechanic's and household friend and fills a long-felt want. Anyone who has ever used this ladder will have no trouble to decide that the top is the proper place to have the shelf, instead of a small one part way down on the opposite side.

In painting, cleaning windows, or where tools are used,

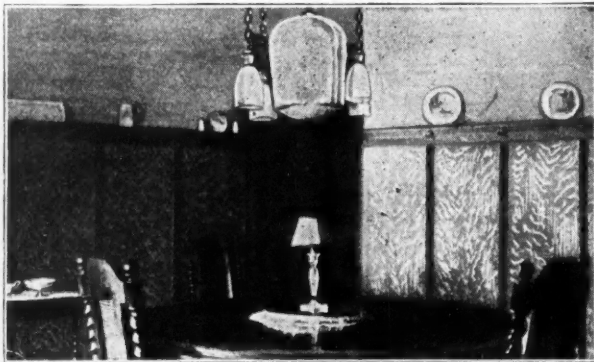
you have a large, strong shelf which is handy to get at and cannot be accidentally tripped. When not needed, raise the shelf edgewise, and let it drop down against the legs, as shown by the dotted lines. (See cut.)

Try this ladder and you will use no other.

I have a shop and find little time to loaf. When not working for others, I always find plenty to do for myself in the way of improving tools, etc.

Have been a subscriber to the "A. C. & B." for the past five years and devote much time to studying it, which nets me good returns.

J. B. ROBERTSON,
Contractor and Builder.



ROBERDS IDEAL WALL BOARD

Ideal in Cost, Service, and Appearance

It can be installed at just about one-half the cost of plaster and lath, and

in comparison with other wall boards it is from ten to twenty per cent lower in prices, and fifty per cent more satisfactory.

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

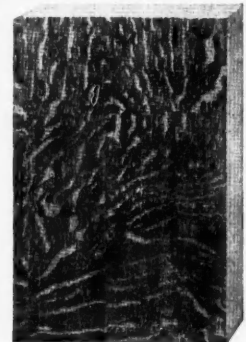
But the grained appearance of the Ideal is what first catches your customer's eye. The most artistic and pleasing effects can be secured in interior decoration. The walls can be papered, painted, tinted or paneled to good advantage.

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

THE ROBERDS MFG. CO.

100 Spencer Avenue

MARION, IND.




IF IT'S


BEAVER BOARD

—IT'S THE REAL THING





INSTRUCTIONS



Right There!

Right there on the back of every panel of the *real* Beaver Board you'll find these two things:
 One is the old original Beaver Board Trade-Mark.
 The other is "Instruction for Use."
 You can't go wrong, for they're on *every* panel.
And if they're not there it isn't Beaver Board.
 Don't go by the looks. Many a man has taken poison by mistake because the bottles looked alike.
 That's why we put the trade-mark on the back—to protect you from the innocent-looking wall boards that imitate Beaver Board in appearance but not in service.
You can't cover up a bulge with paint.
 The defects in a piece of lumber usually show when you buy it. The defects in a poor grade of wall board show *after* it's on the wall.

Beaver Board is made from selected white spruce fibre and that alone. It's made from the log to the finished panel in the Beaver Board mills. It's made by experts under constant laboratory inspection. *It must be up to the Beaver Board standard before it leaves the plant.*
 Surface-sealed by a patented process, front and back, it resists moisture better than any other wall material and is easier to paint.

Every lumber, building material or hardware dealer doesn't handle Beaver Board. Some sell other so-called wall boards which they may honestly believe are just as good (we'll give them the benefit of the doubt). But you can't get Beaver Board service unless you get genuine trade-marked Beaver Board from a real Beaver Board dealer.

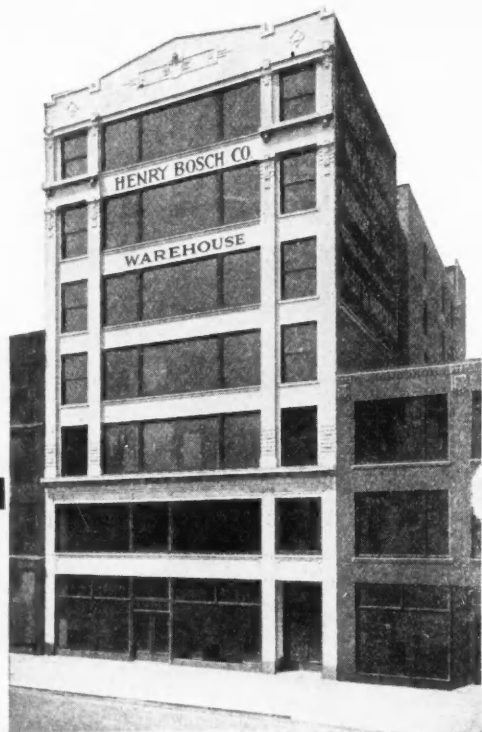
The Beaver Board Companies
 United States: 511 Beaver Road, Buffalo, N. Y.
 Canada: 781 Wall St., Beaverdale, Ottawa.
 Great Britain: 4 Southampton Row, London, W. C.

Branch offices in Boston, New York City, Philadelphia, Baltimore, Cleveland, Detroit, Indianapolis, Chicago, Minneapolis, Omaha, Kansas City, Mo., San Francisco, Los Angeles.

Ask about our free design and decoration service. Whether it's new work or remodeling, we'll be glad to help.

BEAVER BOARD

For Better Walls and Ceilings - supplanting lath, plaster, steel and wood



Ceresit Ends Water Troubles Here—

Penetration of water into basement of this fine building rendered the basement unserviceable. No end of trouble was experienced—even the installation of a big pump failed to keep the water out.

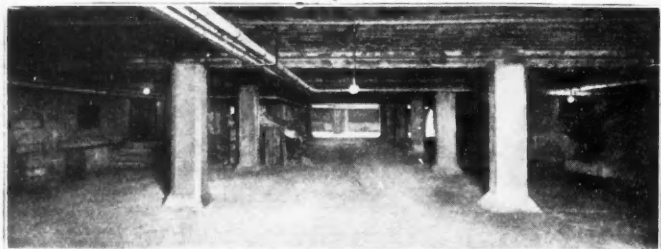
Then enter CERESIT—exit water, permanently! A cement mortar coating on the inside walls of the foundation and columns and a four inch floor slab, both waterproofed with CERESIT Waterproofing Compound made the basement bone-dry, to the great satisfaction of the owner.

Safeguard YOUR clients by using CERESIT—the results will always vindicate your judgment.

Specification Data Book

Every Contractor and Builder should have a copy of this new book — contains the most complete data on all phases of waterproofing, damp-proofing and floor hardener work ever issued. Invaluable for your files — write for your copy NOW.

Ceresit Waterproofing Co.
910 Westminster Building CHICAGO



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Cuts at Knuckle Joint

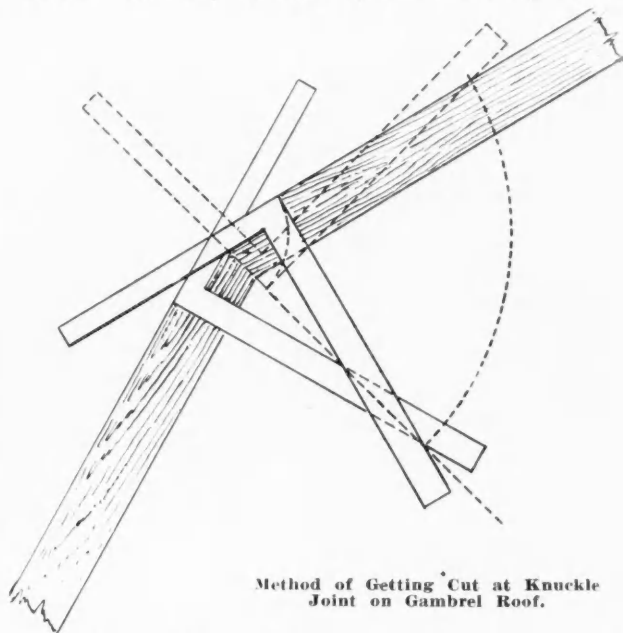
To the Editor:

Quincy, Mass.

I would like to know how to get the cut of a gambrel roof of any pitch where the two rafters come together forming the knuckle joint.

C. B. THOMPSON.

Answer—This may be found by taking two squares and



placing them with tongues together, as shown, forming the angle that the pieces are to join each other and intersecting at any desired figure that will cause the blades to intersect. Then the intersecting figures thus found will give the required angle for the cut as indicated by the square shown by the broken lines.

A. W. Woods.

Questions on Stair Building

To the Editor:

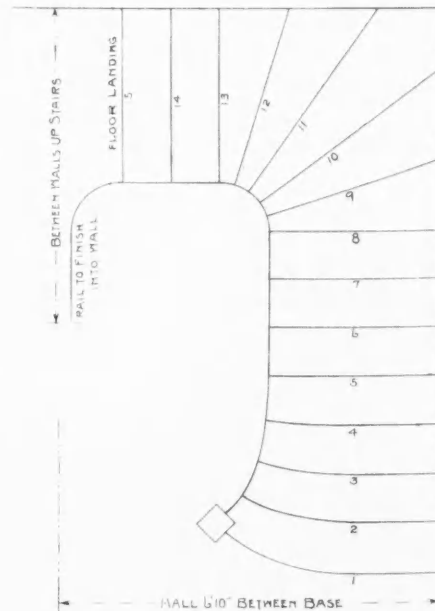
Woodstock, Ont., Can.

I have a stair to put in similar to enclosed plan and would like to tackle the job myself from start to finish; but as my knowledge has been largely limited to straight stair work, am a little uncertain how to go about this one.

Have seen various questions asked and how to build my string, answered in the "A. C. & B." on stair work, but nothing that will help me now.

Would like some brother reader to give me simplified drawings of how to build my string, how to get radius of bottom treads, also best way to bend risers for same and how to lay out hand rail. Information that will help me in this matter will be greatly appreciated.

JOHN WEBB.



Information Wanted on this Stair Plan.

Information that will help me in this matter will be greatly appreciated.

Crown Your
Buildings with

VULCANITE

Ornamental
Roofing and
Shingles



A Most Pleasing
Variety of Effects Obtainable in Colors and Designs

SAFETY AND BEAUTY

Heretofore, safety has been secured by the wealthy by using slate and tile roofs. The man of moderate means had to take chances and has repeatedly seen all he possessed destroyed by a flying spark or a fire brand. Temporary color effects have only been possible by the use of stains and paints, but these did not withstand sun and rain for any length of time.

It has remained for the Patent Vulcanite Roofing Co. to give the public a roofing material that perfectly combines the qualities of safety, comfort and beauty at so low an initial cost, that no one now needs to put over his home such a flimsy, highly combustible and temporary covering as a wood shingle roof.

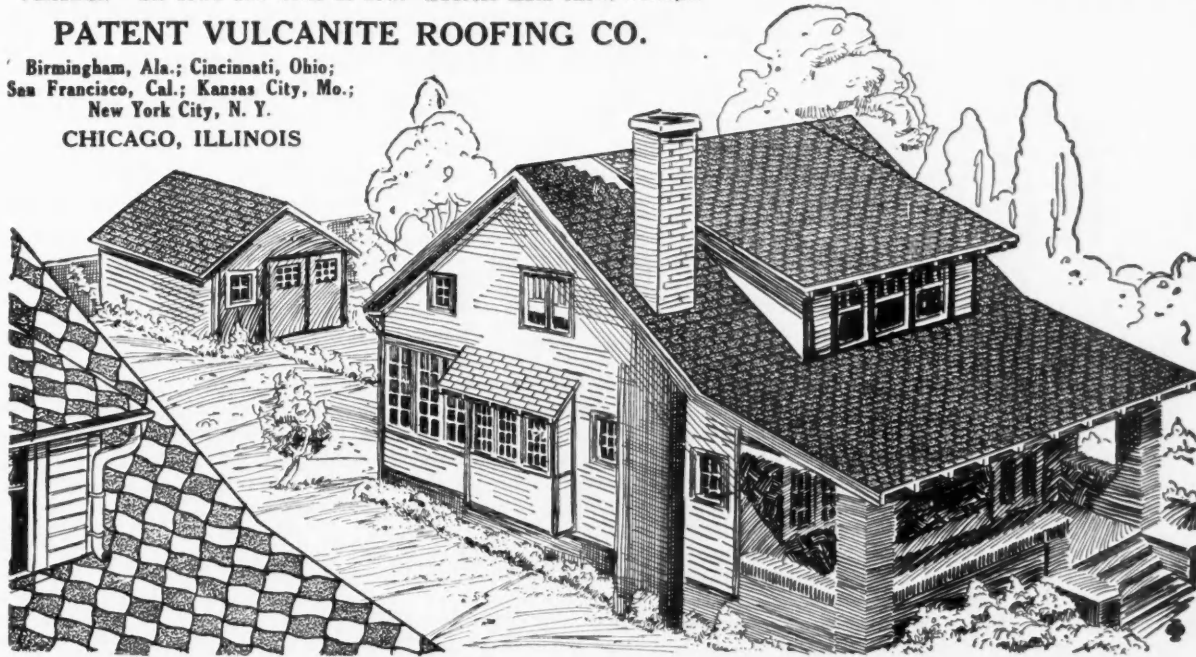
Vulcanite Roofings are an unfailing weather-proof and fire-resisting material. Twenty years' service is a reasonable expectancy. Vulcanite comes in rolls and shingles in several patterns that can be worked into a large variety of truly artistic effects.

We shall be very glad to send you our large illustrated catalogue which will show you some of our popular roofings and how they add to the appearance of a building. We'll also tell you just what we do for Builders to help them lay more "Vulcanite." Sit down and write us now. Address main office, Chicago.

PATENT VULCANITE ROOFING CO.

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

CHICAGO, ILLINOIS

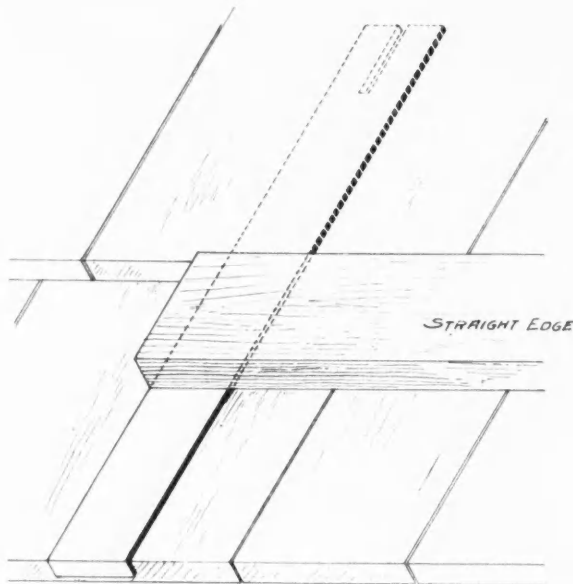


A Guide for Shingling

To the Editor:

Waldoboro, Me.

Am enclosing a shingle guide which I have found to be a very useful thing to have around. The guide is made from strap iron about an inch wide by an eighth inch thick. This screws on the under side of the straight edge with the end which is turned down about one-fourth of an inch, up against the butts of the shingles; and by driving a shingle nail in the slot at the upper end we are ready to proceed with



Simple Shingle Guide. Made by W. H. Bean.

the shingling. After the course is laid a tap or two on the upper edge of the straight edge will drive the guide out from under the shingles; proceed with the next course as before.

W. H. BEAN.



Values Information Exchange

To the Editor:

Freeport, Me.

I wish to thank Bro. Stivers, of Winchester, Ohio, for the sketch of the way he frames purlins. The one I sent in was the way a carpenter framed the purlins of a barn near home, and I wondered if that was the regular way to frame them. I like Mr. Stivers' way the best, and appreciate his kindness in sending it in.

As I am young at the business, it seems good to get a helping hand, and I have learned more since I have taken the AMERICAN CARPENTER AND BUILDER than thru all the men I have ever worked under. Most of the bosses consider it a bother when they are asked to answer questions. Talk about the boss carpenters! I worked with a man a short time ago who claimed he had educated two or three men who were now able to take charge on large jobs; but this same man framed a piazza roof and when he cut the jack rafters, instead of sawing them by rule, he hewed them off to match against the hip rafter, and the job was a disgrace to any man. When I saw it, I made the remark, "If that man can educate others to be boss carpenters, I am able to start a college."

I wish we could have some of those fast shinglers here in the East; some of them here fairly kill the jobs. But sometimes I don't wonder, for people here put off shingling jobs till it's cold weather.

I worked on a repairing job last winter and I was about frozen. They think it's cheaper, but if they only knew, it

(Continued to page 98.)

AHNAPEE VENEER & SEATING CO.

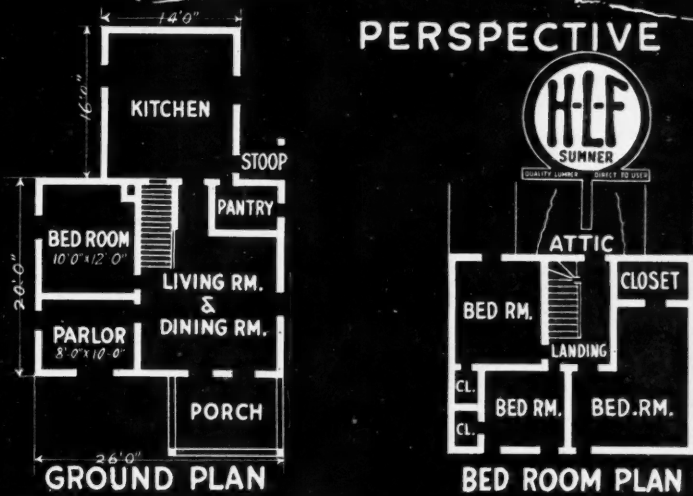
Main Office and Panel Plant: Algoma, Wisconsin
Veneer and Saw Mill: Birchwood, Wisconsin

ESTABLISHED 1892

We are pioneers in the handling of figured woods and manufacture of panels. Our work from log to finished product is backed by 30 years of actual experience.

The very best native woods are selected for house finish panels. We also make all kinds of bent work, in the white or finished; veneer seats for theatre chairs; shoe store, railway and hall settees; lodge furniture, etc. ||

SEND SPECIFICATIONS FOR PRICES



-FREE-
Blue print
like this and
guaranteed
quotation

Use this H-L-F Service

—show your customers just what they're going to get

Say to prospective builders: "Give me an idea of how you want the rooms laid out, and I will have prepared for you a blue print showing a perspective blue print of your home just the way it will look, also floor plans drawn to scale, together with a price covering materials that I absolutely will guarantee to be enough for the building." Do this and the other fellow won't have a chance.

You will get the *inside track*; and H-L-F will give you this service without charge, with the *expectation*, however, of getting the lumber order, if our price entitles us to it.

MATERIAL BILL NOT NEEDED—just do this

Simply send us a rough sketch, showing room arrangement, with dimensions, tell us the kind of roof you want, and we prepare the blue print, and figure the price by our unit system of pricing.

Send lumber bills quick —prices climbing fast

We'll figure all bills sent *now*, at the low winter price. Soon as present stocks are gone, you'll pay a lot more. Some grades are already \$2 to \$4 per thousand feet higher. Hardware, paint, windows—all materials are *going up*. You'll pay *war prices* if you wait. Don't do it. SEND YOUR BILLS NOW.

New H-L-F Millwork Catalog a Winner

You never saw such millwork bargains as you'll find in our new catalog. Send the coupon for it. It's free. Also send for Barn Builder's Guide, 4c.

Hewitt-Lea-Funck Co., 308 Funck Street,
Sumner, Wash.
CAPITAL \$1,000,000 Not in any trust or combine

**\$100 worth
of building
ideas, 10c**

Send for new fifth edition of H-L-F Plan Book. Most practical book of plans ever put out at any price—100 homes—just the kind that are wanted in your part of the country.

Hewitt-Lea-Funck Co.,
308 Funck St., Sumner, Wash.

Gentlemen: Kindly send us the following:

- Delivered freight paid price on enclosed bill of materials.
- H-L-F Millwork Catalog (free). H-L-F Plan Book (10c).
- Barn Builder's Guide (4c).
- Blue print showing perspective and floor plan, also guaranteed freight paid price on house. Rough floor plan sketch attached.

Name _____

Street or R. F. D. No. _____

Post Office _____

Business _____



Rose Inn, Crosssett, Ark. Frank W. Gibb, Architect
Finished throughout in Arkansas Soft Pine

WHEN specifying Interior Trim for semi-public buildings, the prime considerations, of course, are attractive appearance and durability. The chosen wood must be serviceable, yet afford a satisfactory base for the desired color treatment.

In these respects

Arkansas Soft Pine

will meet your every requirement and at the same time completely satisfy your client, whatever his taste.

This wood possesses well-balanced absorbing qualities, due to the absence of rosin or sugar. It will take applied stains evenly, definitely avoiding any tendency towards a "blotchy" appearance so often experienced in stained work, at the same time admitting of a rich-looking waxed or varnished surface, which will retain its lustre permanently.

Together with these advantages, Arkansas Soft Pine is readily obtainable, due to an abundant supply, and therefore at a comparatively

Moderate Cost

Believing you will gain a clearer idea of the wood by personal inspection, we will send a set of finished samples on request. Address Department D.

See that your dealer supplies you with Trade Marked Arkansas Soft Pine. He can.

Arkansas Soft Pine Bureau
Little Rock, Ark.



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

costs about double, for a man can't do a decent day's work in cold weather, and he gets just as much and by good rights should get more.

Now, Brother Carpenters, I want to ask a question and hope you will help me. I have got a bay window to build, and



Plan of Bay Window Which is to Terminate in Dormer on Roof.

it is to extend up and terminate in a dormer window on the roof. If it was to be a square bay window, the job would be easy, but it is to be as sketched. How would you finish it off to make a good job where it terminates on the roof? The dormer window is to have a gable roof instead of flat.

J. B. SYDLEMAN.



Well Lighted Cheap School House

To the Editor:

Chester, Neb.

Am enclosing photo of a county school house I built last fall.

J. M. HOWARD.



Country Schoolhouse Built at Chester, Neb., by J. M. Howard.



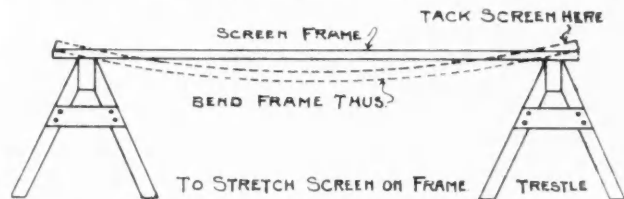
To Stretch Screen Wire

To the Editor:

Perry, Okla.

I saw in your most valuable magazine a year or so ago, where some one was giving a good way to stretch screen wire on the frame. He advocated using the hammer to stretch the screen wire on the frame, by pressing the wire down over the end of the frame with the head of the hammer.

I believe I have a better way than that. Place the frame on the trestles, placing one trestle at each end of the frame.



Method of Getting Screen Stretched Tightly on Frame.

Tack the screen at one end of the frame, then draw the wire over the other end; next, bend the frame down about 2 inches in the middle, tacking the wire at the other end and let the frame straighten out, which you will find stretches the wire nicely.

RAY COLBURN.

Why White Pine?

A Reminder of a Few Facts Every Experienced Carpenter Knows

It would be presumptuous for us to try to tell you men who are working with wood every day, anything about the superior qualities of White Pine. You know the facts enumerated below. We simply wish to remind you of them before the rush of another building season is upon you.

WHITE PINE

It Lasts Longer. Three centuries of building experience in America have proved that no other wood can withstand the attack of time and weather so successfully as White Pine.

It Holds Its Place Better. White Pine does not shrink, swell, twist, warp or rot. Once in place it "stays put," even after years of exposure in the closest fitting mitres and in delicate mouldings and carvings.

It Works Easier. Because of its softness and smooth, close grain, it works more easily under your tools. It does what you want it to do—without waste of time and needless wear on your tools.

Could Any Wood Do More?

There is still plenty of White Pine. If the lumber dealers supplying the materials for those for whom you are building are at any time unable to furnish it, we would appreciate the opportunity of being helpful to you in securing it.

Address, WHITE PINE BUREAU,
1335 Merchants Bank Building, St. Paul, Minn.

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



Residence of S. M. Strouffer, Sac City, Iowa. Built from Special Radford Plan in 1911 by W. J. Parrish, Contractor.



Who Knows about Rustic Oak Finish

To the Editor:

Mount Vernon, N. Y.

I would like to get some information from one of the brothers about an interior finish which is new to me.

A friend of mine wants a bungalow built. The interior is to be finished in oak. Small oak trees about 3 in. in diameter are to be ripped in half, planed and smoothed; but one side is left rounded.

If one of the brothers could advise me how to work this out in a satisfactory manner, I would be very thankful.

W. H. MICHAELSEN.

Building a Brick Smokehouse

To the Editor:

Montrose, Pa.

Last fall I was called upon in my capacity as a bricklayer to build a smokehouse for the proprietor of our local meat market. As I had never built or seen one that was built just right, nor had he, and could find no plan or description anywhere for one, we had to work it out as we went along with the result that we got a thoroly satisfactory job in every way. Feeling how I should have appreciated a description for such a job, I am sending you this, hoping it may help some one else.

The building was 4 by 8 by about 12 feet inside, built of brick, two bricks thick, as it was too late in the fall, or I would have advocated concrete blocks. We excavated and put in a trench wall of rubble concrete below frost line. At ground line I put up a form 12 inches high, and filled with rubble concrete, and upon this started my brick work.

The building is close against the rear end of the meat market, the only openings into it being from this rear room. There are two doors, a small one about 12 by 18 inches, thru which the smoke fire is built, and a larger one just over it to allow the drawing up and removing the smoked product. About three feet from dirt floor we put in a 3/4-inch water pipe along each long side, with ends projecting into wall, supporting cross bars upon which we laid very heavy fence wire, also laid in walls at ends and sides to prevent possible harm from falling into the fire. At intervals of 30 inches, 24 inches and 20 inches, more pipes were laid into the wall the same as the others were, with shorter ones the narrow way, upon which the meat is suspended from suitable hooks. The building was then covered with a concrete roof laid over expanded metal. A chimney 8 inches by 8 inches inside with a damper operated by a small chain allows smoke regulation and draft.

GEO. M. NOLL.

PROTECTION

Against loss and damage from fire, storm and weather, demands roofs made from **KEYSTONE Copper Steel Terne Plates**



Prime Plates—carefully manufactured in every detail—accurately re-squared. Soft, pliable, annealed to perfect working quality. Coating uniform and properly applied.

Stamped "Keystone Copper Steel" in addition to brand and weight of coating as indicated on MF brand. Look for the stamp—it protects you against substitutes and plates of inferior value. Keystone Copper Steel Sheets and Roofing Tin insures lasting sheet metal work and tin roofs of quality and service. Send for booklet describing actual service tests.

American Sheet and Tin Plate Company

GENERAL OFFICES: Frick Building, PITTSBURGH, PA.

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Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis
Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City
Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle

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BUY your lumber and millwork direct. Every contractor, carpenter and builder should have our big free catalog of building material—the book of 8000 price bargains. A copy is ready and waiting for you and will be sent free, postage prepaid, at your request. *The tremendous saving* afforded by our method of supplying building material direct to the actual builder has proven a boon to thousands. Let us show you how to make more money by saving more money.



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Everything in Building Material

is described in this big book. It quotes low, net, rock bottom prices for lumber, flooring, roofing, doors, windows, interior trimmings, cabinet work, colonnades, porchwork, hardware, tile, paints, wallboard, metal work, plumbing and heating equipment, cement machinery, water supply outfits and thousands of building specialties. It is a handy book of information and reference that no builder can afford to be without.

Free Architect's Blue Prints

You do not need to have costly plans prepared by high-priced architects, thus adding to the cost of building, because we have had just such plans prepared for us by some of the ablest licensed architects in the country. These plans are complete in every detail and include a full set of specifications. Our FREE PLAN BOOK tells how to secure these plans without one cent of cost to you. A contractor will find this book of the utmost assistance in securing new trade because with it he can show his customers newer and better designs that may be built for less money.

Houses of Standard Construction

These buildings are of standard construction. They are built from high-grade guaranteed material with all cutting and fitting done by the carpenter on the job. They are not "ready-cut," "factory built" or freak houses in any sense of the term, but are erected as any house must be put up to secure best and most lasting results. Practical builders will readily appreciate the importance of this feature. It means more work for them and a better and less expensive building for their client.

Two Big Free Books

We want every carpenter, contractor and builder to have a copy of our big, free catalog, whether or not he is now in need of building material. It will keep him in touch with the very lowest prevailing prices and prove an invaluable guide to right buying. "Plan Book of Modern Homes" is filled from cover to cover with designs of convenient bungalows, handsome suburban residences, town houses, practical country homes and barns. Write for either or both these books today. Both are free. A postal request will bring them by return mail, or fill out the coupon below.



For \$1043

We will furnish all material, except masonry, to build this 8-room house. Plans free.



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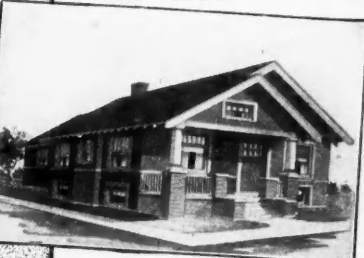
For \$806

We will furnish all material, except masonry, to build this 6-room house. Plans free.



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We will furnish all material, except masonry, to build this 7-room house. Plans free.



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We will furnish all material, except masonry, to build this 5-room Bungalow. Plans free.

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

1422 W. 37th St., Chicago

Write for 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.

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Date _____

Chicago Millwork Supply Co., 1422 W. 37th St., Chicago

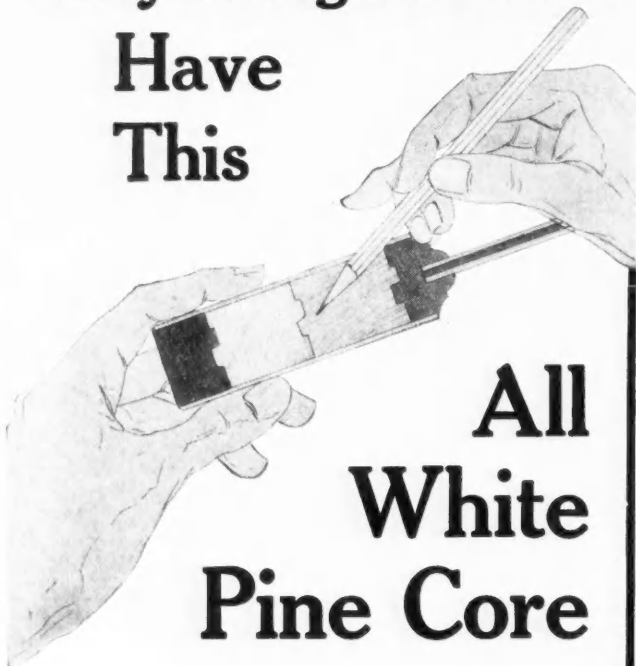
Gentlemen: Please send your FREE Books listed below to

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Address _____

Catalog No. 43, of Building Material
Plan Book No. 53, House and Barn Plans

Only Morgan Doors Have This



All White Pine Core

So far as we are able to learn, no other manufacturers use an *All White Pine Core* in their doors.

This thoroughly kiln-dried, Morgan-joined, All White Pine Core used exclusively in Morgan Doors means easy mortising — doors that fit and *stay* fit — absolute prevention of swelling and shrinking. No extra work for you. No time wasted retrimming, rehanging, tinkering.

MORGAN DOORS

reflect the quality workmanship of the contractor who uses them. They are a credit to you because they bespeak your knowledge of correct construction and your faultless taste. Morgan designs "stand out" and assure distinctive effects.

Don't be satisfied with ordinary doors when Morgan doors are most satisfactory to you and your customers at practically the same price.

Morgan Mill Work Handbook FREE!

For Your Protection
Every Morgan Door is stamped "MORGAN" on the top rail. Look for this distinguishing mark of door reliability and know you're giving full measure of value. If your dealer doesn't handle Morgan doors, write us.

Learn more about Morgan All White Pine Core Doors and why live contractors prefer them.

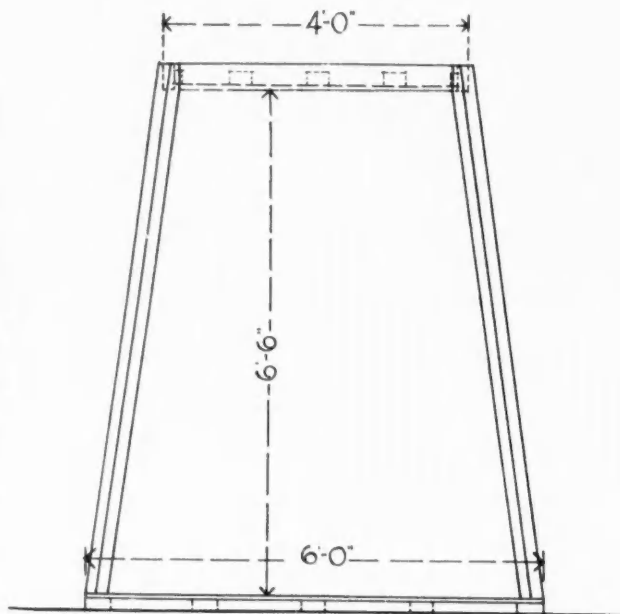
Write a postal now for Morgan Mill Work Handbook — it's free.

MORGAN SASH & DOOR CO.,
Dept. A-23 CHICAGO

Factory: Morgan Co., Oshkosh, Wis.; Eastern Warehouse and Display: Morgan Millwork Co., Baltimore; Displays: 6 E. 39th St., New York; 335 Palmer Building, Detroit; Building Exhibits: Insurance Exchange, Chicago and Soo Line Building, Minneapolis.

Platform for Punching Bag

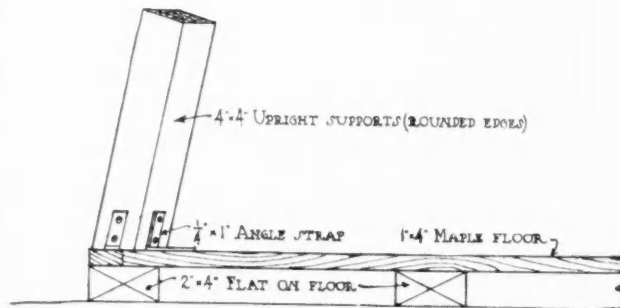
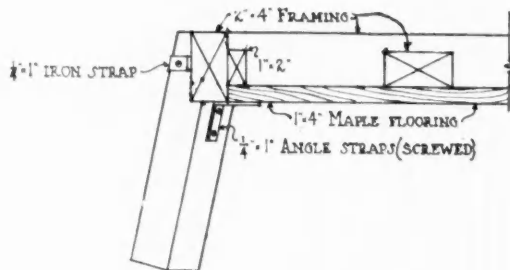
To the Editor. Uhrichville, Ohio.
I would like to know how to build a platform for a punching bag such as professional boxers use. The platform is to be set on four legs in the floor.
CARL JONES.
Answer—The illustrations shown here give the construction of a punching bag stand, as requested in your letter. We



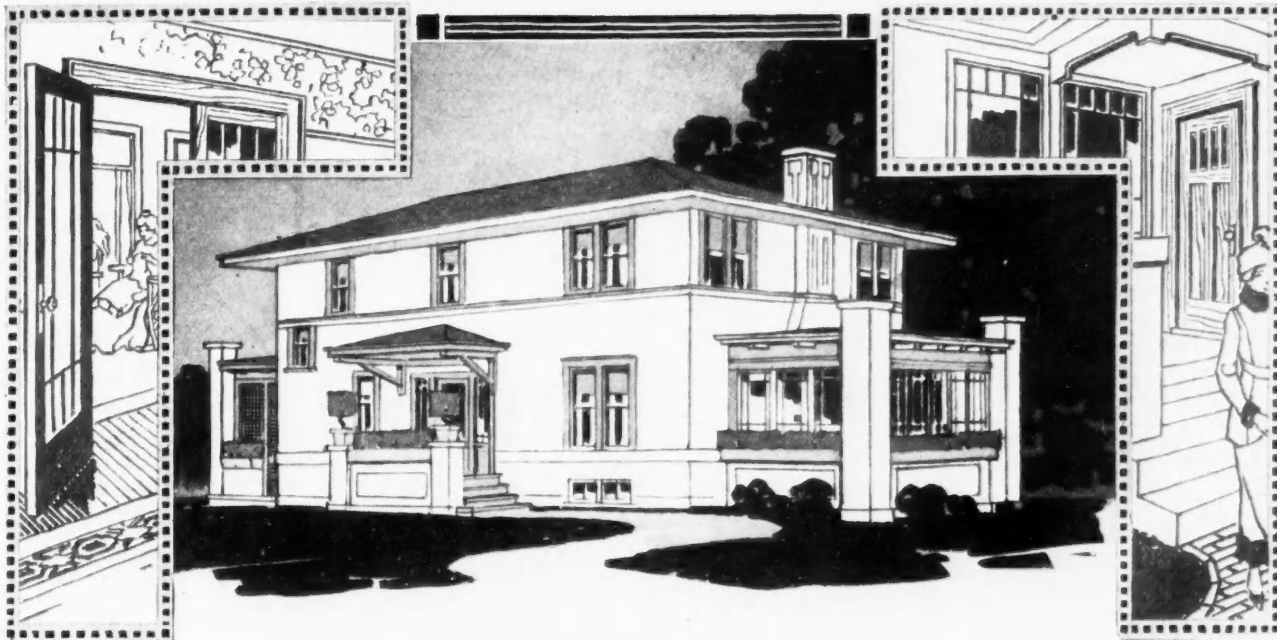
ELEVATION OF PUNCHING BAG STAND

Dimensions and Shape of Punching Bag Stand.

would suggest that you buy a wooden ring, however, such as is generally used, and which fastens to the wall. Unless you had the lumber on hand for the platform punching bag stand, the ring arrangement would be much cheaper. These rings can be obtained thru most hardware stores. EDITOR.



Details Showing Method of Building Punching Bag Stand.



It Costs \$50 to Use 75 Cents' Worth of Sandpaper

The time and labor cost of sanding a job cuts right into your profit. That's simply one way of saying that Quality always is greater than Price.

1866 CURTIS WOODWORK

"The Permanent Furniture for Your Home"

is sanded at the factory. You reap the benefit of this, and other extra precautions for quality, in labor and time saved.

"On-Time Service" is a

further feature of Curtis Woodwork that appeals to dealers and contractors. Write for complete details of "On-Time Service" and what it means to you.

THE CURTIS COMPANIES, SERVICE BUREAU

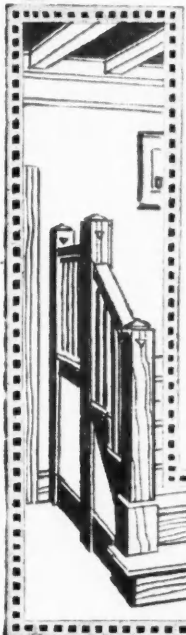
1401-1501 South Second Street, Clinton, Iowa

Manufacturing and Distributing Plants at Clinton, Iowa; Sioux City, Iowa; Oklahoma City; Lincoln, Neb.; Minneapolis; Wausau, Wis.; Chicago; Detroit

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*The Makers of CURTIS Woodwork
Guarantee Complete Satisfaction
to its Users.*

"We're not satisfied unless you are."



Trade Notes and Items of Interest

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

Ney's New No. 6 Monarch Barn Door Rail and Hangers

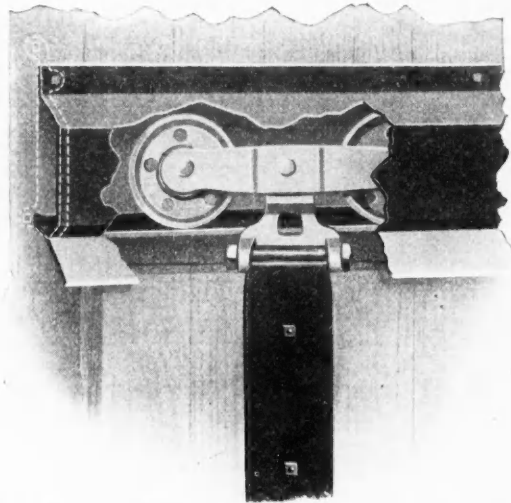
The Monarch barn door rail is made of one solid piece of heavy pressed steel, with flat tread, giving a wearing surface many times greater than is the case with hangers using curved tread. This gives a rail which will stand up under hard service. The tread is also doubly thick, which also greatly strengthens it.

The rail is bird-proof, and the projecting portion covers the track in such a way as to make it absolutely storm and rain-proof. It is made in 6, 8 and 10-foot lengths.

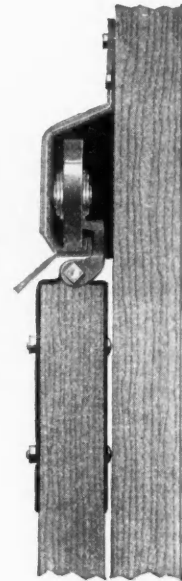
The coupling brackets are made so as to insure, at all times, a firm and close-fitting joint.

The hangers are made in two styles: No. 70, steel strap; No. 80, adjustable strap, giving both vertical and horizontal adjustments. They are packed one pair in pasteboard box with bolts and end brackets; one dozen pairs to the case.

The makers of the Monarch barn door rail and hangers are the Ney Manufacturing Company, Canton, Ohio. They will gladly send further information and catalogs on request.



Front View of Ney's New No. 6 Monarch Barn Door Hanger and Rail. Rail Cover Cut Away to Show Construction.



Sectional View.

GET ONTO THIS APPROVED SAFETY SCAFFOLD BRACKET

Take no chances of injury or as to damages

U. S. Patent issued June 8th, 1915, also patented in foreign countries

APPROVED BY STATE DEPARTMENTS OF LABOR AND INDUSTRY, for Your Safety

THE MINNESOTA DEPARTMENT OF LABOR AND INDUSTRIES SAYS:—

"We do not hesitate to say to you in the interests of safety and practicability in the erection of scaffolds on buildings, that we consider the safety bracket manufactured by the Safety Bracket Company, Thief River Falls, Minn., the best of its kind that has been called to our attention, and we heartily approve of the same and recommend its use in building construction work.

Yours truly,

W. F. HOUK, Commissioner of Labor.
Per J. P. Gardiner, Assistant."

SAFETY BRACKET CO. THIEF RIVER FALLS, MINNESOTA.

It saves accidents to workmen and damage suits against contractors, time, money, materials, and covers the least building surface (appreciated by stucco men). The safest, simplest, cheapest, strongest and most practical scaffold bracket ever invented.

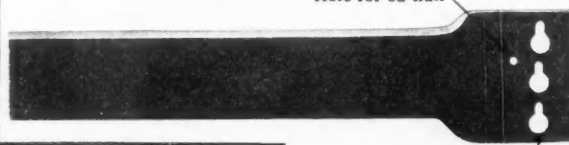
It brackets perfectly completely around the building. The **ONLY** one-piece, all metal, scaffold bracket made. A child can easily put it in place, and take it down.

If your hardware dealer does not have them, write us and we will give you discount prices on your first order. Order immediately, and protect your workmen and yourself.

Brackets are made in 4, 5 and 6 foot lengths as ordered. Standard 4-foot lengths, **\$12.00 per dozen.**

For further information or particulars, write us.

Hole for 8d nail

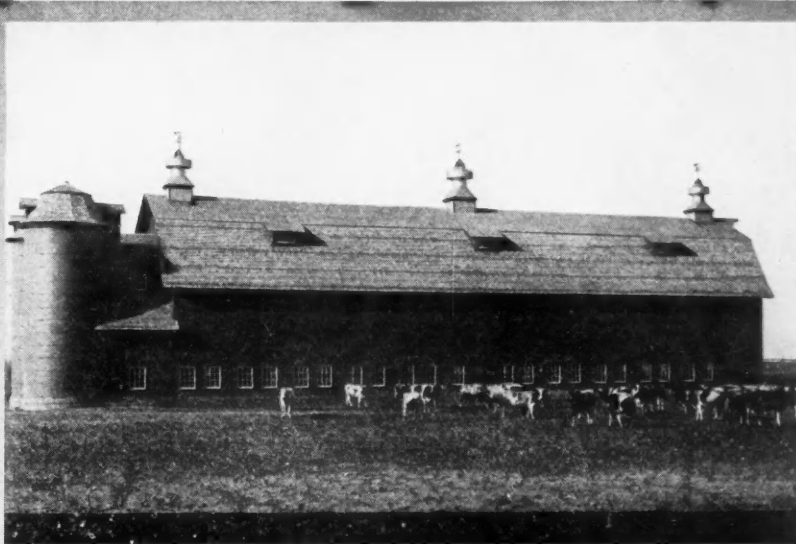


Slotted holes for 20d nails—

Safety Bracket Co.
Thief River Falls, Minn., U. S. A.

KING AERATORS

A Credit to You—
A Pride
to the Owner



KING AERATOR
The First Part of the King System
of Ventilation

“Yes, I Recommend King’s Every Time”

Scene—Near the barn—just finished.

Barn Owner:—“Good job, Fred. I rather like these King Aerators you recommended, too.”

Contractor:—“I knew you would. Beat the old style wooden cupolas forty ways from the jack. More beautiful; bird, snow and rain proof; lighter on the roof, and strongest wind can not blow them off.”

Barn Owner:—“Finished the job quicker, too, didn’t you?”

Contractor:—“Yes, I saved fully two days’ time by putting on King Aerators.”

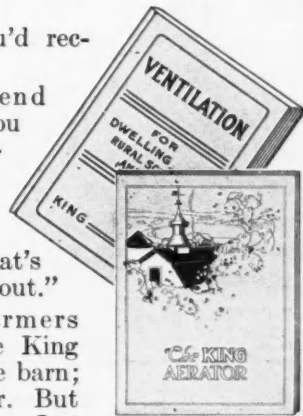
Barn Owner:—“Should think you’d recommend them more.”

Contractor:—“I do—I recommend King’s on every barn job. You see, they are more than beautiful ornaments. They are the first part of the **King System of Ventilation.**”

Barn Owner:—“Oh! That’s so. That’s the system I’ve been reading about.”

Contractor:—“Exactly. Some farmers have me install the complete King System while I’m building the barn; others put in the system later. But whenever they install the System I at least start them right. And, that’s another thing that I’d recommend to you, Jim. Look into the subject of King Ventilation. You now have the King Aerators—the most important part of the King System. Suppose you drop a card to the King people and get their proposition for completing the system.”

Barn Owner:—“Good suggestion, I’ll do that.”



Send for These Two Books

One is our catalog, which is full of photographs of fine barns equipped with King Aerators. A valuable book to show your customers when recommending King Aerators. The other book is Prof. King’s famous volume on Ventilation. (Heretofore sold for 75c.) Mailed for 10c to cover postage and packing. Write today.

King Ventilating Co.
1120 Cedar Street Owatonna, Minn.



No White Lead in England

In a recent address the editor of "The London Decorator" said: "One objection to white lead is that it is not really quite white, but something approaching a yellow."

The gentleman may be right about English lead, for they have no Carter over there, but no American who knows Carter would agree with him. In the Carter process of making white lead, perfect corrosion is attained and anything that might discolor it or impair its paint value is carefully excluded. There is not the slightest tinge of yellow, blue or gray in Carter White Lead.

Carter not only makes a white paint that is perfectly clear, pure white, but delicate tints come out with a new beauty when mixed with Carter as the base.

While every retailer of paints in the United States does not yet handle Carter White Lead, he can get it just as conveniently as any other brand. A comprehensive system of warehouses and wholesale stocks affords perfect facilities for quick shipments anywhere.

What one should know in order to supervise a job of painting intelligently is told in The Carter Paint Calculator. It is a vest pocket sized book, of which the price is 25 cents, but one copy will be sent to any contractor or architect with our compliments on request.

Carter White Lead Co.
West Pullman Station "B"
Chicago, Ill.

Elastic Glazing Composition

Skylights must be very carefully glazed as they are more likely to leak than any other part of a building. The glazing here, as well as in all other windows, must be carefully done with special precautions to prevent leaking.

For this class of work Kuhls' Elastic Glazing Composition has achieved fine results. This material has also been used with great success in all kinds of glass work, in placing tile, and in pointing up stone work, terra cotta, and brick work.

The material is very elastic and never becomes hard. By remaining flexible there is no danger that the glass will be broken. The makers say the composition adheres readily to nearly all materials, such as iron, steel, wood, glass, stone, concrete, brick, etc.

When used for stone, brick or artificial stone work, a special liquid is made to paint in between the pieces so that the oil that keeps the composition flexible will not be drawn out.

Kuhls' Elastic Glazing Composition is usually made a light gray in color, but it can be had in any color to match the work that is being done. It is made by H. B. Fred Kuhls, Third Avenue and Sixty-fifth Street, Brooklyn, New York.

A free sample and also a list of the agents in the United States will be sent on request.



Wolverine Tool Company Succeeds Ideal Level Works

The Ideal Level Works has recently been consolidated with the Wolverine Tool Company, and the Wolverine Tool Company will now handle the line that was formerly handled by the two concerns.

The line will be known as the "Wolverine" aluminum and wood levels, and the name "Ideal" will no longer be used. All orders for "Ideal" levels will be filled by the Wolverine Company with the same promptness that has characterized the former concern.

Circulars describing their product can be secured by writing to them at 1517 E. Jefferson Ave., Detroit, Mich.



Dealers in Contractors' Equipment

A proposition to handle a line of contractors' equipment of all kinds should appeal to many of our readers. The Lansing Company, Lansing, Michigan, are making new contracts for 1916 with reliable dealers and agents in unoccupied territory, and have an attractive proposition for responsible men who are interested in a line of this kind.

The Lansing Company has been established for 35 years and have a most complete line of contractors' equipment, including five popular sized concrete mixers, paving mixers, mortar mixers, hoists, and wheelbarrows.

Further particulars of their plan can be secured by writing to them direct.



The Jaeger Spouting Plant for the Average Concrete Job

Spouting systems have become almost universal in concrete work where considerable concrete is placed over a rather large area. When chutes are used, it is not necessary to move the mixer around, but it can be placed in the most convenient place and the concrete chuted from a tower or elevation directly into the forms.

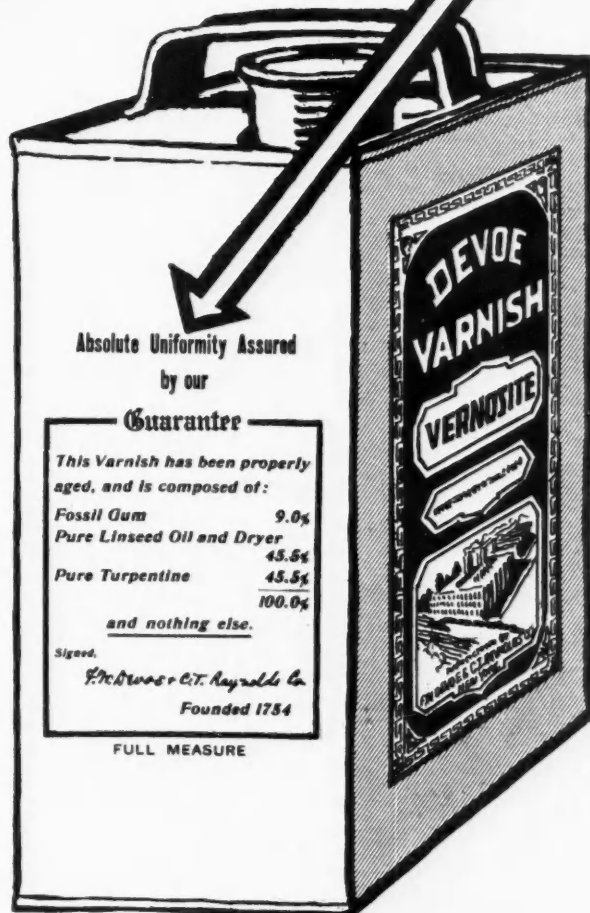
Here is an arrangement—and it was the big sensation of this year's Cement Show—that is particularly suited to the average concrete job, whether large or small. On the average small job most of the concrete is placed below grade and up to about 10 feet above grade. The inclined track with the

(Continued to page 108.)

No More Paint Mystery



No More Varnish Mystery



WE ARE the oldest manufacturing concern in the United States. Founded in New York in 1754, we have continued without interruption for 162 years.

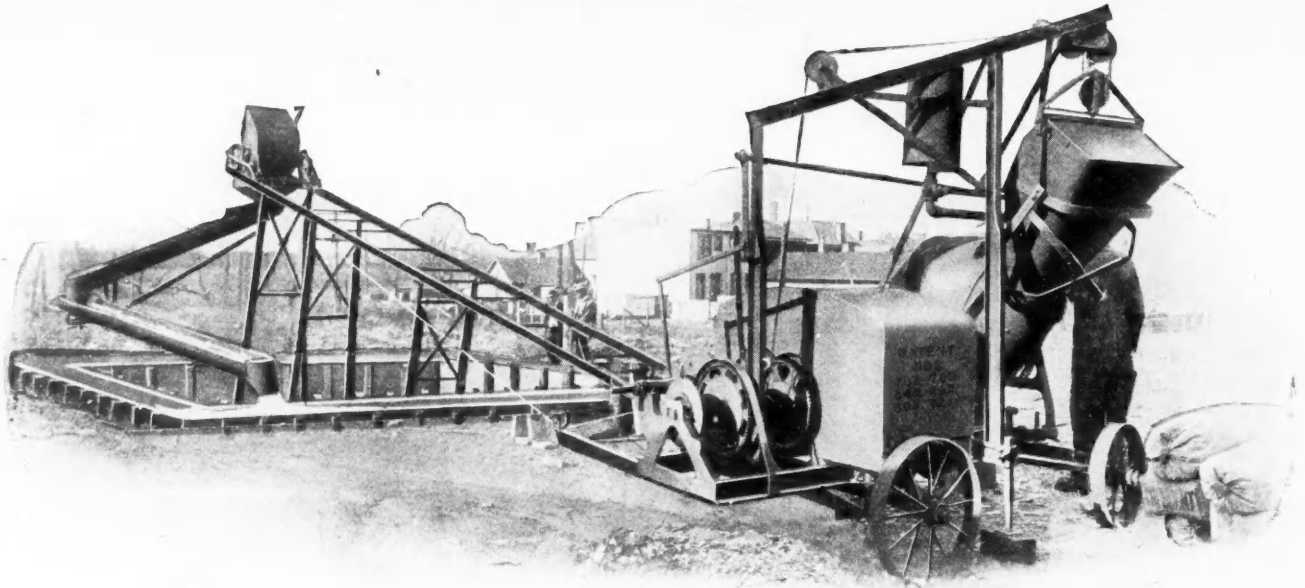
In most towns the best dealers sell DEVOE Pure Paints and Varnishes—the best painters use them—because painters and dealers everywhere have learned that the DEVOE Guarantee of Purity and Satisfaction protects them as well as their customers.

F.W. Devoe & C. T. Raynolds Co.

NEW YORK BUFFALO NEW ORLEANS HOUSTON
BOSTON SAVANNAH PITTSBURGH

Devoe & Raynolds Co.

CHICAGO KANSAS CITY
DENVER MINNEAPOLIS



The Jaeger Spouting Plant. Mixer and Material are Placed at Most Convenient Point and Inclined Track Laid from Mixer to Center of Form. Skip Car Discharges Concrete into Double Jointed Spouts to Reach all Points.

skip car and the two chutes will make placing of concrete on these jobs very simple. The illustration shows the location and use of the equipment on the average job. The mixer can be placed in the most convenient position and the inclined track run to a position where as large an area of the work can be covered as possible.

The speed of the work is increased because the entire batch is dumped into the skip car and not into several wheelbarrows. This arrangement also increases the capacity of the mixer as a new charge can be mixed when the skip car

is being dumped.

The power to operate the skip is furnished by an auxiliary hoist that is connected to the engine on the opposite side from the mixer. The whole plant for mixing and handling the concrete is therefore operated by one man.

This useful and efficient system of spouting is being placed on the market by the Jaeger Machine Co., 318 W. Rich St., Columbus, Ohio. They have an attractive little booklet entitled, "Nine Reasons Why You Should Decide on the Jaeger Spouting Outfit." Ask them to send you a copy.

BUILD for permanence and beauty—of concrete or stucco, finished with Bay State Brick and Cement Coating. This will give absolutely weatherproof walls—rain and snow can't seep thru.

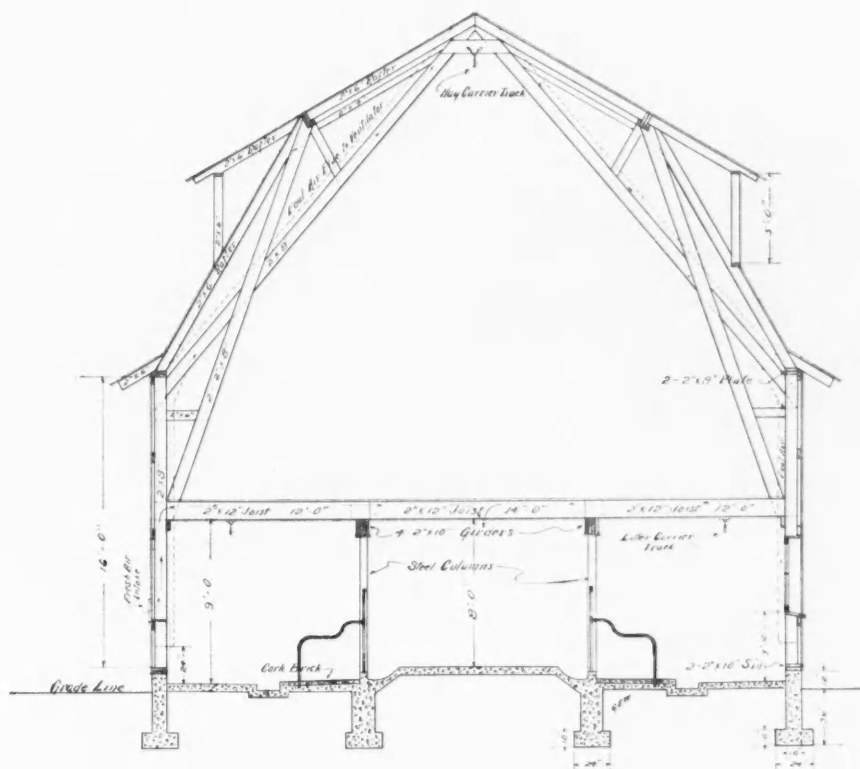
Bay State *Brick and Cement* Coating

also beautifies—it makes possible a variety of rich, artistic effects in white or tints. Architects and builders in all parts of the country have proved it out for sixteen years.

Bay State Coating is for every type of building. It is made for interiors, too, being light-reflecting, fire-retarding and damp-checking.

Try it—free. Write for a sample of "Bay State," saying what tint you prefer. Ask for booklet 30.

WADSWORTH, HOWLAND & CO., Inc.
Paint and Varnish Makers
Boston, Mass.
 New York Office, Architects' Building



CONTRACTORS—

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.

PORTER STEEL STALLS, COW STANCHIONS, LITTER CARRIERS, BARN DOOR HANGERS, HAY CARRIERS, FORKS, HAY SLINGS AND OTHER TOOLS ARE ACKNOWLEDGED LEADERS EVERYWHERE

Investigate and determine the prospective barn builders in the community; then call on us for any assistance relative to interior arrangement, construction, ventilation, etc., and see to what extent Porter Service serves.

New Barn Plan Booklet and Complete Catalog 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, Illinois

The Answer to the Outside
Painting Problem
ZINOLIN

*Get this
for your Files*

This LEAFLET
is yours for the asking. Write
for it. Inform yourself about
Zinolin, the "Wonder Paint."

Know why Zinolin saves you and your
clients' money. Know why its brilliant
luster lasts indefinitely making any building
always look newly painted. Know why

ZINOLIN

the "Arnold-ized" zinc

protects better—why its dazzling whiteness
cannot be duplicated in any other outside
paint. Know why its colors never fade no
matter how delicate the tint when colors are
used. Know these things. It will take
but one second—it will cost but one cent to
write—and know the greatest achievement
in all paint history. Then you will real-
ize fully why you should specify and use
Zinolin.

Write today, now, don't delay or you may
forget.

Keystone Varnish Company

N. B. Arnold, President
Makers of

Keystona—the original and justly famous, washable, wall paint.
Edelvice—a superior enamel for inside or outside use.
Floorstona—a wonderfully durable Floor Varnish.
Multiproof Varnish—for anything, proof against everything.
Prevento—prevents Concrete and Bricks from crumbling. Absolutely
waterproof.

2000 Keystone Building BROOKLYN, N. Y.

In-a-Dor Beds Eliminate Waste Space

The tendency in all branches of building at the present time is to secure the largest amount of useable space. This is true in bungalows, houses, flats, apartments, hotels, etc. Any arrangement that increases the amount of available space for a given area is sure of success.

Builders who have used the Murphy "In-a-Dor" beds in buildings of all kinds say that this modern device makes two rooms for the price of one. "In-a-Dor" beds have been proven to be a great convenience and space saver in the many installations that have been made of them. They are not a new and untried building improvement, but are in use and giving satisfaction in thousands of apartments, hotels and residences in all parts of the country.

They make available any room as a parlor, living room, or dining room during the day and as a bed room at night.

The bed itself is of solid metal construction and is arranged to fold back into a closet when not in use. The door of the closet can then be closed and the bed is concealed from view.

Every Murphy "In-a-Dor" bed that is installed makes an extra room at no additional cost. All our readers should be familiar with its construction and its space-saving features as its use in the average small house will be a source of great convenience and saving to the house owner with the resulting gain for the builder or contractor.

Write today to the Murphy Door Bed Co., 110 S. Dearborn St., Chicago, and get their booklets, blueprints and circulars. This is one of the most truly interesting propositions in the building field today. If you are not thoroly familiar with it already, write to them now or call in at their nearest display room.



The Wood-Working Mill with the Solid Top

Strength and rigidity are probably the most important features of a combination woodworker. It is impossible to do good work with a table that is not solid, as the vibration will handicap the best workmen.

The strength of Berlin Portable Woodworking Mills is assured by the special table construction. The table top and the frame are made as one unit. The steel angle legs are securely bolted to the steel lower frame and also to the table top which is made of semi-steel. No wood is used in this construction. The entire frame and table thus form a solid steel box-like structure of great rigidity.

The table top is not raised or lowered but the saw is raised and lowered thru a slot in the main frame by means of a handle and clamp screw. This adjustment can be made without touching the belt-tightener, which is self adjusting.

The band saw is included as a regular part of this rig and is arranged so that all the space on the table can be used for any purpose if desired. The bracket supporting it is fastened rigidly to the table by one bolt. This can be swung out of the way when the table is to be used. The side table, that the band saw runs thru, can be tilted for cutting angles. The entire attachment can be removed for taking the machine to another part of the work.

The following attachments are furnished regularly with this machine: Band saw; mortising machine, with hollow chisel; jointer; dado head; disk sander; emery wheel; molding attachment; boring attachment with $\frac{3}{8}$, $\frac{1}{2}$ and $\frac{3}{4}$ -inch standard bits; and rip and cross-cut saw.

The table construction and also the arrangement of the band saw bracket make this machine of great value to the builder for all kinds of work. It is made by the Schaefer Manufacturing Company, Berlin, Wis. Full descriptions of this combination woodworker, which is made in several sizes, will be sent on request.

(Trade Notes Department Continued to page 114.)



FOR thirty years—as manufacturers of fine hardwood flooring—we have been searching for a good, reliable cleaner for floors. We wanted a cleaner that would do the work without ruinous acids—and we have only just found it. We hasten to bring it to you—our good friends—readers of “American Carpenter and Builder”—who have so loyally used and recommended our other products—Johnson’s Prepared Wax, Wood Dye, etc. You will find our new product of the same high quality.

JOHNSON'S CLEANER

really cleans—it will remove spots and stains that other cleaners won't touch—we recommend it for floors, woodwork, furniture, automobiles, bath-tubs, sinks, and in fact all wood, metal and enamel surfaces.

Johnson's Cleaner contains absolutely no acid of any kind—it cannot scratch or injure the finest finish.

Don't you frequently have customers ask you what to do with old, hardwood floors that have been scrubbed with soap and water until they have lost all their beauty? Hasn't this always been a hard question to answer? It needn't trouble you any more—try Johnson's Cleaner on one of them and see how wonderfully it cleans and restores the natural color of the wood. A coat of Johnson's Paste Wood Filler and then wax or varnish will complete the transformation.

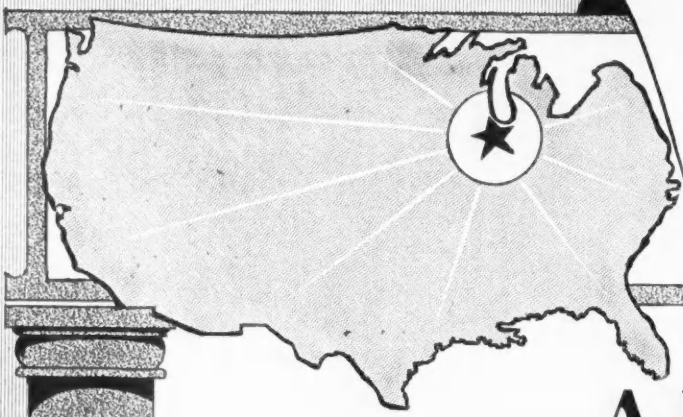
Use coupon for trial can—free and postpaid—or send 50c for a pound by Parcel Post.

NOTICE

We have not advanced the price of Johnson's Wood Dye—you can still purchase it at the same old price, notwithstanding the tremendous increase in the price of raw materials—colors, solvents, etc.

S. C. JOHNSON & SON, Racine, Wis.

S. C. JOHNSON & SON, Racine, Wis.
 Please send me a sample can of Johnson's Cleaner, free and postpaid. ACB-3.
 Name
 Address
 City and State
 My dealer is



Look Before You Build

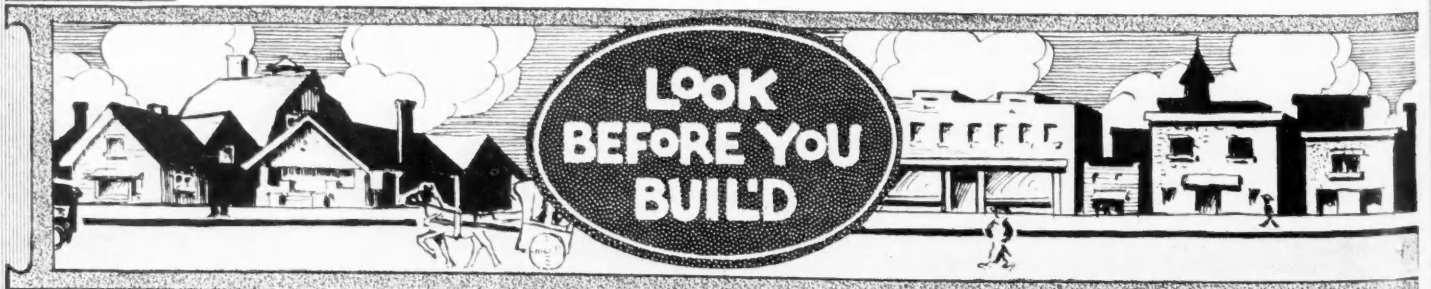
Here, under one roof, is the World's Greatest Building Shopping Center. Here the prospective home builder can see for himself just what his needs require. Here the contractor can get in direct touch with the people from whom he buys, and knowing them personally can better serve his clients and himself. Here the architect can become better acquainted with materials that he is asked to specify. Here can be bought practically everything that enters into the construction of a building, whether it be a skyscraper or a Bungalow.

A Permanent Exposition For

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Thomas Moulding Brick Co.</p> <p>ARCHITECTS' MAILING SYSTEM.
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BUILDING MATERIAL EXHIBIT, Entire Second Floor, Insurance Exchange CHICAGO, ILL.



Look Before You Build

On these two pages are the names of the most responsible and progressive Manufacturers in Building Materials. Use these pages—they will appear every month—as your Buyers' Guide. When in Chicago make this Exhibit your headquarters. A few hours on this one floor will save you days of time. Our location is central—Jackson Boulevard and Fifth Avenue and is right in the heart of things in Chicago. We are in business to save you time and money. Remember, "It's Free to See" and you will be cordially welcomed.



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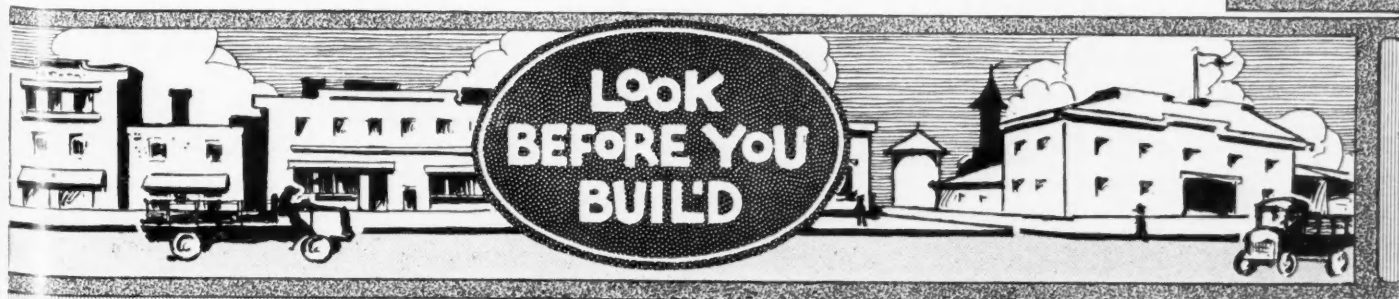
WIRE GLASS.
Mississippi Wire Glass Co.

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BUILDING MATERIAL EXHIBIT,

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NORTH CAROLINA PINE

Give Them Hardwood Effects Without the Hardwood Cost

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

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

North Carolina Pine

"The Wood Universal"

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

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

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

Our New Reference Book is Yours for the Asking

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

North Carolina Pine Association
Norfolk, Virginia



Well Pleased with Sayre Hatchets

The greatest test of a tool is service. If the man out on the job is completely satisfied with a tool, the manufacturer deserves to be congratulated on the quality of his product.

Many favorable comments have been received by L. A. Sayre & Son on the quality of their hatchets when put to the test in actual work. The following two are examples:

Bayard, Neb.

"Received one of these hatchets from you some time ago and am well pleased with it. It is the best hatchet I ever used. I have three men working for me and they all want one.

J. F. BILLITER, Contractor and Builder."

Prairie Du Chien, Wis.

"Never had a tool that I got so much good out of and wouldn't be without one for \$10.00.

J. E. COATES."

Builders and carpenters should be familiar with tools that cause such favorable comment. Further particulars can be obtained from the makers located at 8 Oliver St., Newark, N. J.

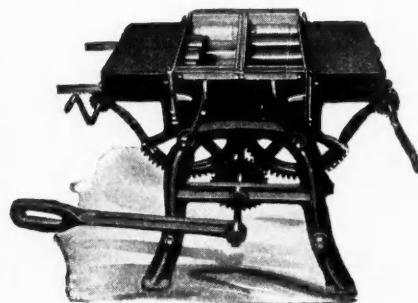


Consolidation of the Northwestern Mfg. Co. and the Monarch Mfg. Corporation

The Northwestern Manufacturing Company, of Sioux City, Iowa, makers of the "Double Speed" block and brick machines, and the Monarch Manufacturing Corporation, of Boone, Iowa, makers of "Monarch" tile machines, have combined as one concern and will be known as the Monarch Manufacturing Corporation. The new concern will continue to make the machines that were formerly manufactured by the two companies.

This arrangement will be of great value for the makers of concrete products, as a complete line of machines for all purposes can now be obtained from the one company. The tile machines, brick and block machines, and the power tamper will be known as the Monarch Double Speed hereafter.

The speed of the brick or block machines of this brand is due to the fact that the machine is double so that each

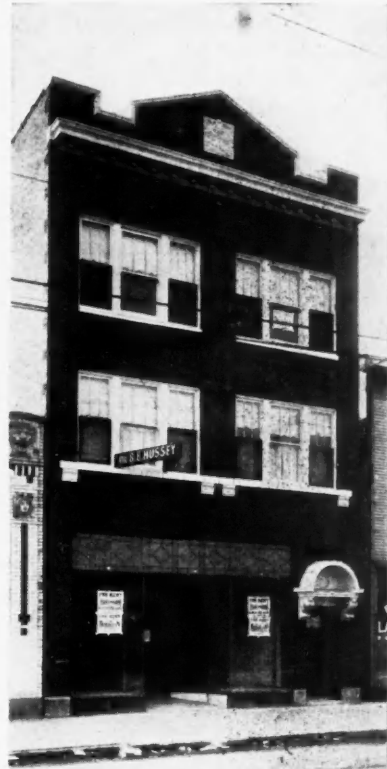


The Well-Known "Double Speed" Block Machine Now Made by the Monarch Mfg. Corporation.

operation makes twice as many blocks or bricks as would otherwise be made. The brick machine is designed to make 16 bricks. They are placed eight on each side and are made with one movement of the lever. The block machine is made double so that two blocks are made with one movement of the lever.

The tile machine is very strong and rigid so that it will stand up in fine shape under all possible conditions. The design is a decided departure from the methods usually employed in tile machine construction. It is built in one solid unit, eliminating all chances of the machine getting out of alignment. This saves time, worry, and trouble for the tile manufacturer in making his product. The machine is equipped with an automatic table that makes it possible to operate at high speed when making tile.

The complete particulars and details of their full line of machines can be obtained from the new concern, the Monarch Mfg. Corporation, Box 206, Boone, Iowa. Their catalogs contain much valuable information for the man engaged in making concrete products.



SHOPS
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TERRA

MIDLAND
TERRA COTTA
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CHICAGO, ILLINOIS

¶ White enamel stock terra cotta—similar to that used on these buildings, can be had for immediate delivery.

¶ Send in your plans for ideas and estimate.

COTTA

WILL ATTRACT
CUSTOMERS



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Fireproofing Colon, Panama

Municipal authorities in Colon, Republic of Panama, have established strictest supervision over the building materials used in re-building and repairing the areas devastated by fire in the early summer.

This is a revolutionary action for Central American authorities to take. Colon, since it was first founded, has been built almost exclusively of highly inflammable materials, and devastating fires have marked the years as it grew. Only four years ago one of these, more virulent than others, ate thru the heart of the city, and again last spring another conflagration reduced nearly the entire city to a black heap of ashes. At last the authorities have taken delayed but stringent measures to obviate the necessity for periodic re-building of the city. They are determined to "blanket" their city with materials that are positive fire retardants.

The products which meet the stringent requirements set up by the authorities are doing a maximum business.

As soon as the authorities approved the H. W. Johns-Manville Company's J-M Corrugated Asbestos roofing, J-M Asbestos Roofing and J-M Transite Asbestos Shingles, the company was deluged with orders for immediate delivery. Orders for four car load lots of the Corrugated Asbestos roofing alone, shipment from factory to be made within ten days' receipt of the order, were accepted by the company on the spot. Every boat from New York brings new consignments of such high grade fireproof materials for the rebuilding of the city by the Canal.



The "Jiffy" Way for Handling Screen Doors

Quick and easy methods of hanging screen doors should be of considerable interest to all our readers. The time that

is wasted in trying to get the screen doors back into position can be very easily saved if advantage is taken of modern appliances.

The two illustrations show the contrast between the old-fashioned screen door hinge and a modern "Jiffy" detachable hinge.

The "Jiffy" hinge is made in two pieces. The main part of the hinge with the spring, etc., is fastened to the door so that it can be kept in good condition. The part left on the frame consists of a plate with the back edges bent over in two



"The OLD WAY" A Semi-annual Nuisance
A Rock City Mfg. Co.'s Quick Detachable Screen Door Hinge Gives Satisfaction.

places. The hinge on the door has two projecting edges that fit under the bent plate. There is also a lever that locks the hinge firmly by merely pressing it down after the two parts are placed together.

This screen door hinge is made by the Rock City Mfg. Co., Wabash, Ind. They will be glad to send full particulars of the various styles and prices of these hinges to all our readers that are interested.

W. H. COLLINS PRES. L. E. COLLINS V. PRES. W. H. COLLINS SECT.

W. H. COLLINS INVESTMENT COMPANY
 REAL ESTATE, RENTALS AND LOANS
 1508 WALDHEIM BUILDING OFFICE HOME PHONE N. 4808
 RESIDENCE HOME 2615 WOODBELL AVE. HIGHLAND BELL PHONE N. 1217

KANSAS CITY, MO. June 2nd, 1914.

Mr. W. Syd Gordon, V. P.
 Murphy Door Bed Co. of St. Louis,
 Kansas City, Mo.

Dear Sir:-

We are pleased to give you an expression of our opinion of, and experience with, the Murphy "In-a-dor" Bed.

Practically every one of our purchasers and all who have looked at our bungalows are delighted with our new arrangement, and especially with the great convenience of the Murphy "In-a-dor" Bed.

Every bed we have used has practically added another room to our bungalows without the cost of building it. The purchaser has this extra room without the cost of furnishing it, or the work of caring for it.

Therefore the bed has been a source of profit both to ourselves and to our purchasers.

You can rest assured that we will use them again.

Thanking you for your many courtesies, and wishing you the success that your bed so justly deserves, we remain,

Yours very truly,
 W. H. COLLINS INVESTMENT CO.
 By *W. H. Collins*

Mr Collins Says :-
"every Murphy In-a-dor Bed adds another room without the cost of building it"

Cut your building cost. Build a five-room cottage (with six or more room efficiency), which will bring the six room price. We'll show you how.

Each Murphy In-a-dor bed properly used, **SAVES** one room—**SAVES** cost of building it—**SAVES** the expense of heating it—**SAVES** cost of decorating it, and yet

Your customers get all the efficiency of a bedroom and **SAVE** the expense of furnishing it and the domestic drudgery of keeping it in order.

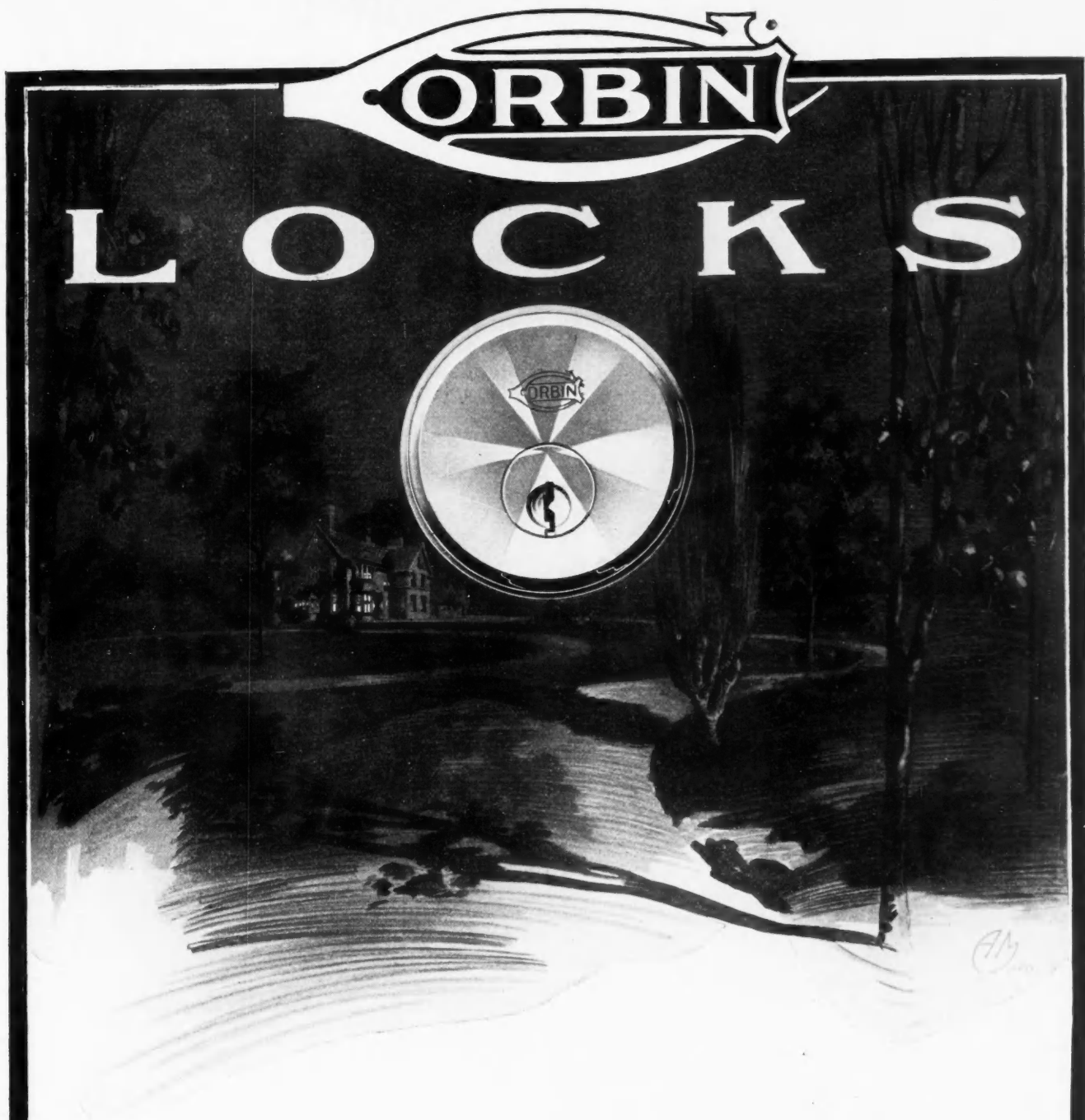
A. C. B.
 March, 1916.
Murphy Door Bed Co.
 110 So. Dearborn St., Chicago

Murphy Door Bed Co.
 110 SO. DEARBORN ST. CHICAGO, ILL.
 659 LEADER NEWS BLDG. CLEVELAND, O. CHEMICAL BLDG. ST. LOUIS, MO.
 GLENDALE BLDG. KANSAS CITY, MO.

Gentlemen: Please send full information.

Name.....
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Send Coupon for "How to Use Murphy Beds"



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For Isolated Homes

Give the protection their exposed location makes necessary. Circular YK88 explains. Sent upon request.

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P. & F. Corbin Division
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GERMANTOWN
MASTER BUILDER

TOOLS HAVE BEEN *PROVING* THEIR SUPERIORITY FOR 57 YEARS

Think of that! They helped to build the Centennial Exhibition at Philadelphia, the World's Fair at Chicago, the St. Louis Exhibition, the present Fair at San Francisco. And in all these years the quality that made them the favorite with early American Master Builders has never once deviated from its high standard. They are made *absolutely right*, in material, workmanship, design, temper and balance.

This hammer is made in three sizes, No. 745, 11 oz., No. 746, 16 oz., No. 747, 20 oz. Each \$1.00. The hardness is ideal, the claw grips and holds all size nails, the balance is perfect, the second growth hickory handle never comes loose.



"MASTER BUILDERS" are made under ideal conditions, and are inspected at every stage of their manufacture. They are hand forged and individually tempered. You can rest assured that when you purchase one you are getting a perfect tool, free from even the slightest defect.

This Broad Hatchet possesses a balance and swing that will instantly appeal. It has a thin bit and a swell bevel that will throw the chip and prevent wedging. The rounded edge makes a "draw" cut. Subjected to the most severe test before leaving our hands. Made in four sizes, from \$1.25 to \$1.50 each.

Germantown Tool Works
Philadelphia, Pa.

Branch: 62 East Lake St., Chicago

Specify Stock Sizes of "Fenestra" Steel Windows

Announcement is made by the Detroit Steel Products Company of Detroit, makers of "Fenestra" Solid Steel Windows, a short time ago, that they were going to sell standard sized steel windows "right off the shelf."

Heretofore it has been customary in building operations of any size for the architect to draw up the plans and specifications in accordance with the ideas of the owner, giving the width and height dimensions, and the contractors and supply people followed his specifications. Unfortunately, however, very few architects designed a building using the same size windows thruout.

Of course, it is evident that with every building demanding window variations peculiar to itself, every building operation had to be handled individually, and windows for each job had to be made up "special," the cost being considerably greater than it would have been had it been possible to use one or two standard types and sizes.

Then, too, "special windows" require weeks for manufacture, whereas a standard window can be made up in quantities and held in stock ready for immediate shipment.

It seemed, therefore, that if a market for standard sized windows could be sufficiently developed to warrant the manufacturer in making up these types in quantities, the cost would be greatly reduced. This would apply not only to the big building operation but also to the hundreds of little jobs in which, heretofore, it had been cheaper to use windows of some other construction than steel.

The Detroit Steel Products Company believed that such a demand could be established: first, by getting the architect to specify standard sized windows; second, by making the price of standard windows low enough to compare favorably with the price asked for wooden windows, and, thirdly, by offering a shipping date of ten days from receipt of orders for standard windows. To develop this demand the Fenestra Stock Sash Sales Department was organized with Mr. George P. Richardson manager.



George P. Richardson, Manager
Fenestra Stock Sash Sales Dept.



The Republic Low-Charging Light-Ten

The two greatest advantages of a mixer for the average contractor are convenience and light weight. The light weight must of course be consistent with the capacity, but the lighter a machine is for a given capacity the more readily can it be moved from place to place. The convenience may be in the form of easy charging features or methods of handling material, and it is also well known that certain capacities that handle even sacks of cement in charging are more convenient than ones that require the splitting of bags.

The mixer shown here combines these good qualities in an

(Continued to page 120.)

Rust-proof Nails



ZINCLAD SHINGLE NAILS

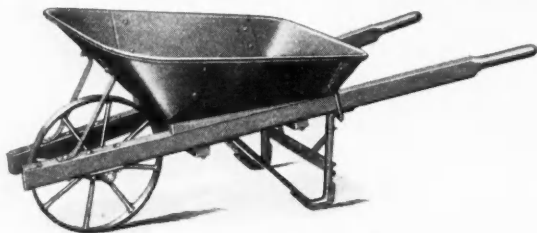
The safest kind on the market—because they have a 10% covering of pure genuine zinc applied by the hot dip process. Made in 3d, 3½d and 4d sizes, both cut and wire styles, sold only in modern sanitary five pound cartons. Get them for every shingling job from your local lumber dealer when buying shingles. Price 10c per pound.

Sent prepaid on receipt of price if your dealer cannot furnish them.

W. H. MAZE COMPANY, Peru, Ill.

WHEELBARROWS

are not mere incidents, in a contractor's cost sheet



The *cost* of a wheelbarrow is a small matter.

The *work* it does is tremendously important.

Not merely the number of days it holds together, but the *tonnage* it carries each day!

Sterling **Barrows**

are scientifically designed and balanced to carry extra heavy loads. The wheels are self-oiling—thus wheel easier under a heavy load than is possible with the ordinary wheelbarrow.

It is a fact that laborers load more materials and make more trips with STERLING barrows simply because they are *easier on the man*.

The riveted channel leg and the keyed axle eliminates the constant necessity of tightening nuts on leg bolts and nuts on wheel axles.

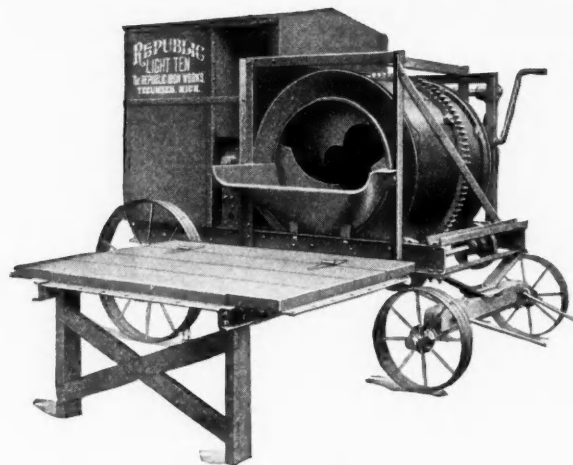
And added to these big features of the larger daily earning power of STERLING Wheelbarrows is the incidental fact that, while they cost a little more, they last from two to three times as long as ordinary barrows.

This positive fact is due to the superior design, materials and workmanship employed in their construction.

Our Catalogue No. 19 explains why. Just ask for it.

STERLING WHEELBARROW COMPANY
6207 Shenners Ave. WEST ALLIS, WIS.

Makers of Patented Channel Steel Foundry Flasks, Snap Flasks, Skim Gates, Wedges, Foundry and Contractors' Wheelbarrows and Carts, Steel Fill and Wood Trucks.



Republic Low-Charging Light-Ten Mixer.

attractive way. It is a one bag machine and for this capacity is unusually light. The charging platform is 24 inches high and can be folded back out of the way when the mixer is being moved from one job to another. The charging can be handled with a hoist also or a power loader if desired.

The intake opening is 26 inches wide, which makes the charging even more simple.

The engine is encased in a steel housing and is made dirt and frost proof with plenty of excess power.

Another feature claimed for this mixer by the manufacturers is the speed of discharge. They say that a batch can be completely discharged in 12 seconds.

The Republic Light-Ten is described in an attractive circular that is being sent out to all who are interested by the Republic Iron Works, Box 445, Tecumseh, Mich.



A New Product of Distinctive Merits

Kahn Portable Steel Buildings are completely illustrated and described in a new catalog just now being distributed. The whole idea of these portable buildings has been developed along new and original ideas. They are substantial buildings of exceptional quality not to be compared with the ordinary flimsy, light gauge materials that have often been sold for portable buildings.

The field of usefulness of Kahn Portable Steel Buildings is practically unlimited, covering the range from the smallest garage to large general shops for manufacturing purposes, and including contractors' houses, hospital buildings, school houses, factory buildings of all types, summer cottages, boat houses, election booths, etc.

Among our readers there are undoubtedly many that would be interested in some application of these houses. The catalog will be sent to interested parties if they will address the Trussed Concrete Steel Company, Dept. H-44, Youngstown, Ohio.



Roofs of Metal Shingles and Tiles

The value and usefulness of metal shingle and metal tile roofs are shown to the best advantage in the new booklet issued by the Berger Manufacturing Company, Canton, Ohio. The booklet is especially valuable to builders because complete instructions are given for handling all varieties of ornamental metal roofings. This information makes it possible for all builders to get the best results with this class of roofing material.

The booklet is attractively gotten up and contains illustrations of all kinds of roofs and roof trimmings. The directions for handling all this material are very complete. The

(Continued to page 122.)



**Make Sure of Genuine G. & B. PEARL by
Looking for the Copper Wires and Round Tag**

IF you want the one screen material that ends paint and repair expense—that really resists rust, look for—ask for—and insist on genuine G. & B. PEARL Wire Cloth. To make sure of the real article look for the two copper wires in the selvage and the Round Tag bearing the name Gilbert & Bennett—you'll find them on every roll of the genuine article.

The biggest selling branded wire cloth in America is G.&B. PEARL. Why? Simply because in addition to being the handsomest screen made, it is the best wearing one—as near rust-proof as metal can be.

*For Permanently
Screening Doors,
Windows and Porches*



*Made in Two
Weights—Regular
and Extra Heavy*

G. & B. PEARL is beautiful, smooth surfaced and absolutely sanitary—easy on the eyes and the longer it's used the less visible it becomes. The one reason why imitations fall far short of the genuine lies in the fact that the metallic rust-proof coating of PEARL, which does away with painting and repairs, is a secret process, exclusive with the Gilbert & Bennett Co.

While there is only one quality of PEARL—it is made in two weights—regular and Extra Heavy. Go to the best dealer in your town and judge PEARL for your self. It represents real screen economy.

Or—if you prefer—write our nearest office for samples and booklet.

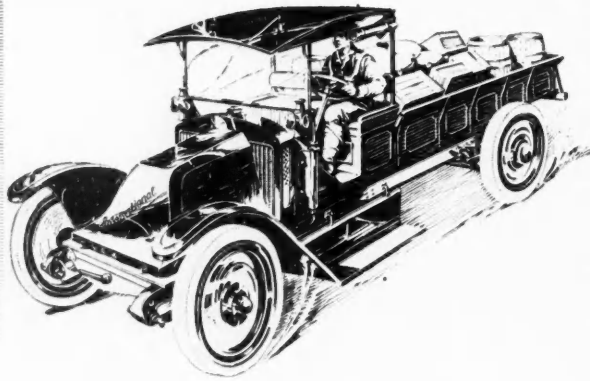
The Best Hardware Dealer in Your City Sells "PEARL."

The Gilbert & Bennett Manufacturing Co.

Dept. A. 277 Broadway, New York
Georgetown, Conn.

(Established 1818)
Wireton, Ill.

Dept. A. 35 S. Dearborn Street, Chicago
Kansas City, Mo.



International Service

Money invested in an International Motor Truck pays a high rate of interest. An International truck keeps customers satisfied by giving them prompt, regular service. With an International, business is extended to its widest limit. But, more important than these, is the fact that—

The International Motor Truck is sold by a Company whose Success depends upon the Service it gives

This Company maintains a complete service station in 88 principal cities throughout the United States. Each station employs expert truck men and carries a full stock of repair parts, from a set of chains to complete power plant. Both men and repairs are at a customer's command instantly in case of accident. We make it our business to keep our customers satisfied, just as you do. We hope a buyer of an International will never have an accident, but if he should have, we do not allow it to interfere with his business for one minute longer than is absolutely necessary.

These are the newly announced rock-bottom prices:

All prices cash f.o.b. Akron, Ohio	{	Model MA—1,000 lbs. capacity, air-cooled . \$ 600
		Model M—1,000 lbs. capacity, water-cooled 710
		Model E—1,500 lbs. cap., heavy duty motor 950
		Model F—2,000 lbs. capacity, chassis only . 1,500

Write for complete information on International Motor Trucks.

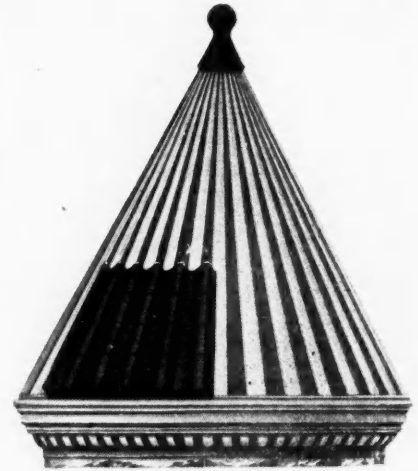
**INTERNATIONAL HARVESTER
COMPANY OF AMERICA**
(INCORPORATED)

70 Harvester Building CHICAGO U S A

metal shingles are made single or in groups and the tile are set up in groups in different sizes. The different sizes and styles make this roofing suitable for all purposes.

This concern is also distributing a booklet of the Stark Rolling Mills Company, which tells the story of the production of "Toncan" metal, that is used in many of the products of the Berger Company.

The reasons are given for the remarkable durability of "Toncan" metal and under many adverse conditions. Copies of these booklets can be obtained from Berger Manufacturing Co., Canton, Ohio. Ask for Booklet E. A. B.



Graduated Tile for Roofing Conical Tower.
Illustration Copyrighted by the
Berger Mfg. Co.

✦ Con-ser-tex for Roofs and Floors

A book of suggestions and interesting information for the carpenter and builder has just been issued for distribution by the William L. Barrell Company, 8 Thomas Street, New York City.

This book not only tells about the long life of "Con-ser-tex" Canvas Roofing, but also gives many valuable pointers for making larger profits on your repair jobs and new buildings.

Briefly, "Con-ser-tex" is a canvas roofing chemically treated to preserve the fibre from mildew and the detrimental action of the oil in paint. Unlike most roofing fabrics, it remains unaffected by any kind of

weather. It is used with the greatest satisfaction to the owner and economy to the builder and contractor for porch and house roofs, piazza and other floors.

A postal will bring you a copy of our book entitled "Facts and Figures on Roofing" and full information.

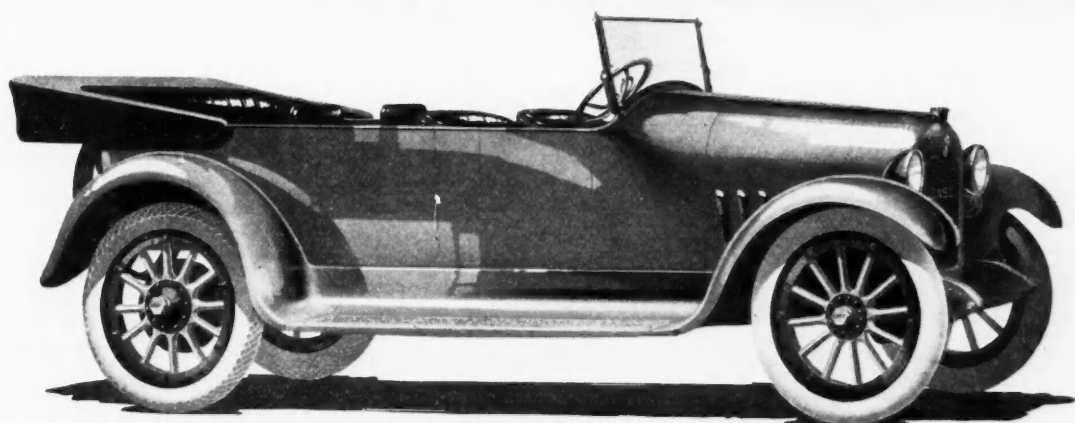
✦ Minneapolis Cornell Board Office Established

Recognizing the importance of St. Paul and Minneapolis as a great distributing center for the northwest, the Cornell Wood Products Company of Cornell, Wis., and Chicago, thru their President, Mr. C. O. Frisbie, have just opened offices of considerable proportion in the First National Soo Line Building, Minneapolis, Minn.

This office is in charge of Mr. W. N. Spires, who is the Assistant Sales Manager in charge of the northwest district for the Cornell Wood Products Company.

It has been the custom of the Cornell Wood Products Company to become thoroly established in their various districts and divisions thruout the United States, and in doing so they have spared no expense to serve the interest of their clients fully and completely.

(Continued to page 124.)



NEW CASE "40"—\$1090. F. O. B. Racine, Wis.

Inherited Merit

At Racine, in Wisconsin, is a city of uncommon workers. In the pioneer days of 1842, Jerome I. Case, as a youth, came "far" west. He started, then, a small workshop. From that modest beginning there has developed a great institution—known and respected the world over for the merit of its products.

The sincerity of purpose of the founder of this Company—his wisdom—is proved by the success of this Company. The merit that has made its own way through generations of tests, is again expressed in the new Case "40." This car, we know, will continue the good name of this Company because it combines those essentials of motor car value—fundamental thoroughness and dignified good taste.

Tomorrow's Car Today

The new Case "40" is introduced to the world—Case cars are found in Europe, South America—yes, in South Africa—as a car with an unusual pedigree. This fact means a whole lot in these days of adjustment in motordom.

The new Case "40" we say is Tomorrow's Car. You will be struck with its unusual lines—its blended, plastic modeling. You are bound to stop and admire it. You are bound to envy one's ownership.

Commanding Superiorities

Your first mile in this car will delight you with its unusual comfort. This is gained not alone by the use of cantilever springs, but by the Case way of suspending these springs from the rear axle so that they do only spring duty.

The divided front seats—the upholstery in real grain leather, which, by the way, is removable as a unit, for cleaning or changing to another color—together with the unusual room both in the front compartment and in the tonneau, will excite further praise.

Then when you come to test those parts beneath the hood in a hard pull or up a steep incline, or on the car's 100,000th mile, you will find the Case motor well deserving of the characterization—"the motor that makes extra cylinders unnecessary."

More Details

Such care in the planning of details is illustrated by the fact that all wiring is housed in waterproof, rustless, flexible conduits. The junction box between the body and the chassis also indicates the sincerity you will find if you go through this car with a microscope. By the way, we urge you to study minutely every part. Of course Westinghouse ignition, lighting and starting equipment needs no further comment.

New Car—New Price

In announcing this car at the new price of \$1090, with the statement that it contains all of the merit of our earlier "40" which sold for \$2300, we give you proof of the progress which this Company has made in the automobile field. We have always stuck by those fundamentals instilled in the early workers of this Company by its founder.

In designing and building this car, we have thought of you who buy with an intelligent understanding of what makes value. Let us prove to you, if you will, what Case means by value. Preliminary data will be sent at your request. We welcome the opportunity of showing and explaining to you a car that we believe will appeal to your good judgment and good taste.



J. I. CASE T. M. COMPANY, Inc.

Founded 1842

751 Liberty Street

Racine, Wis.



This policy has been emphatically inaugurated in this district thru the Minneapolis office.

The company has arranged at considerable expense a demonstration and show room in connection with their office in the First National Soo Line Building.

Mr. Frisbie has sent out an announcement thruout this district, at the same time extending an invitation to all the dealers in the Northwest to call upon them at their Minneapolis office.

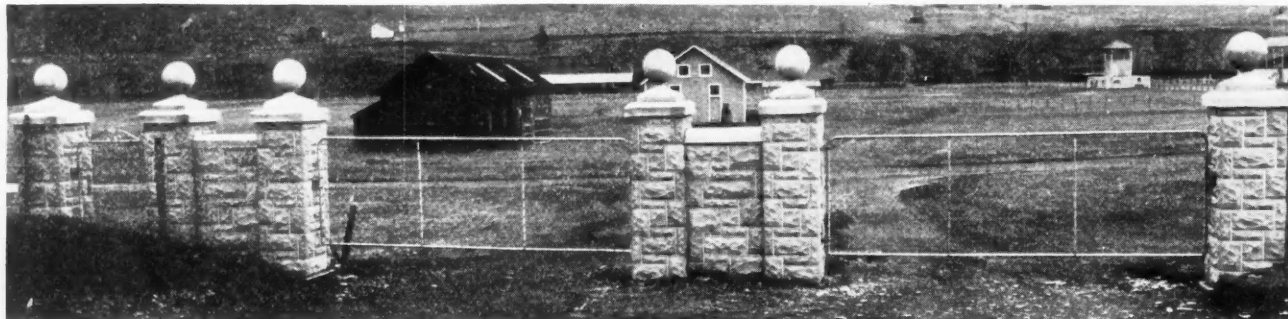
Blocks for Broken Ashlar Masonry

There is nothing that looks better than broken ashlar work. The lights and shadows on the rough surface of the stone

moulded on real rock faces and which reproduces the sharp corners and rugged features of the natural rock.

The artistic effect that can be obtained with these blocks is shown in the gate posts in the illustration. This class of work is particularly adapted to porches, residence and business fronts, chimney work, churches, etc. Some fine work has been done in altering buildings by changing over the fronts and porches.

The contractor can handle this kind of work in several ways. A wall can be built up to consist of a four-inch veneer of rock-faced block, and the rest of the wall can be built of cheap brick or block. Masons can lay this type of block very easily though sometimes a rough detail is made showing



Gate Posts of "Hobbs" Real Broken Ashlar Concrete Blocks.

make for great variety and for pleasant and artistic appearance. The same features can be obtained by the use of a true rock-faced block that shows the sharp clear cut lines of the stone.

Various methods have been developed for getting the true rock surface and the one used by the Hobbs Concrete Machinery Company has given remarkably good results. They use a special Ironstone composition face plate that is

the location of the blocks to secure a complete wall.

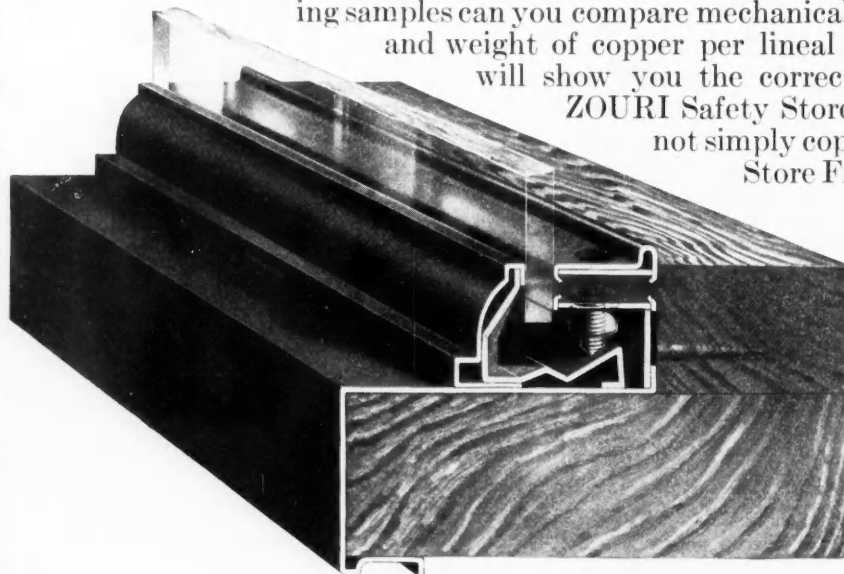
This line of business presents many opportunities to the contractor for all classes of work. The Hobbs machine contains considerable extra equipment that enables it to do all classes of brick and block work. The details of this equipment together with prices can be obtained from the Hobbs Concrete Machinery Co., 1447 West Grand Boulevard, Detroit, Mich.

There is only One Safety Store Front

Zouri gives greatest satisfaction because it minimizes breakage of glass, and, thereby, saves the tenant the loss and annoyance of having his windows out of commission.

Zouri

Get together all the facts about store fronts and study them. And in investigating, remember that in no other way than by actually examining samples can you compare mechanical construction, safety features and weight of copper per lineal foot. Such an examination will show you the correct mechanical lines on which ZOURI Safety Store Fronts are built. They are not simply copper mouldings. Each ZOURI Store Front is a mechanism in itself.



Please note the sectional cut which enables you to understand the principles on which these store fronts operate.

Write today for catalogue, transparent detail sheets and samples of ZOURI construction.

Zouri Drawn Metals Co.
Chicago Heights, Ill.

On the job—

—They display that rare value of being always on the job.

The satisfactory operation of your mixer—hoist—pump; the hours of operation; the volume of work produced is all dependent upon the one factor of importance—POWER.

You will find in Ideal Power that live pulsing action which means constant service on the job.

Your equipment when Ideal Powered proves a better worker—a producer of greater results—a builder at larger profits.

We can't tell in print the wonderful results you will obtain from equipping for 1916 with only

Ideal Engines

—Power plants of considerable value—

The elimination of engine vibration prolongs the life of all the workings part of any outfit.

As most powered contractor's units are put into inexperienced hands—simplicity of the operation of the engine is essential.

The value of larger cooling surface and valves with smoother, quicker action is obvious.

The self oiling bearings and enclosed crank case are features of utmost importance.

These and many other advantages are to be had in Ideal Power.

When it comes to constant service use Ideal.

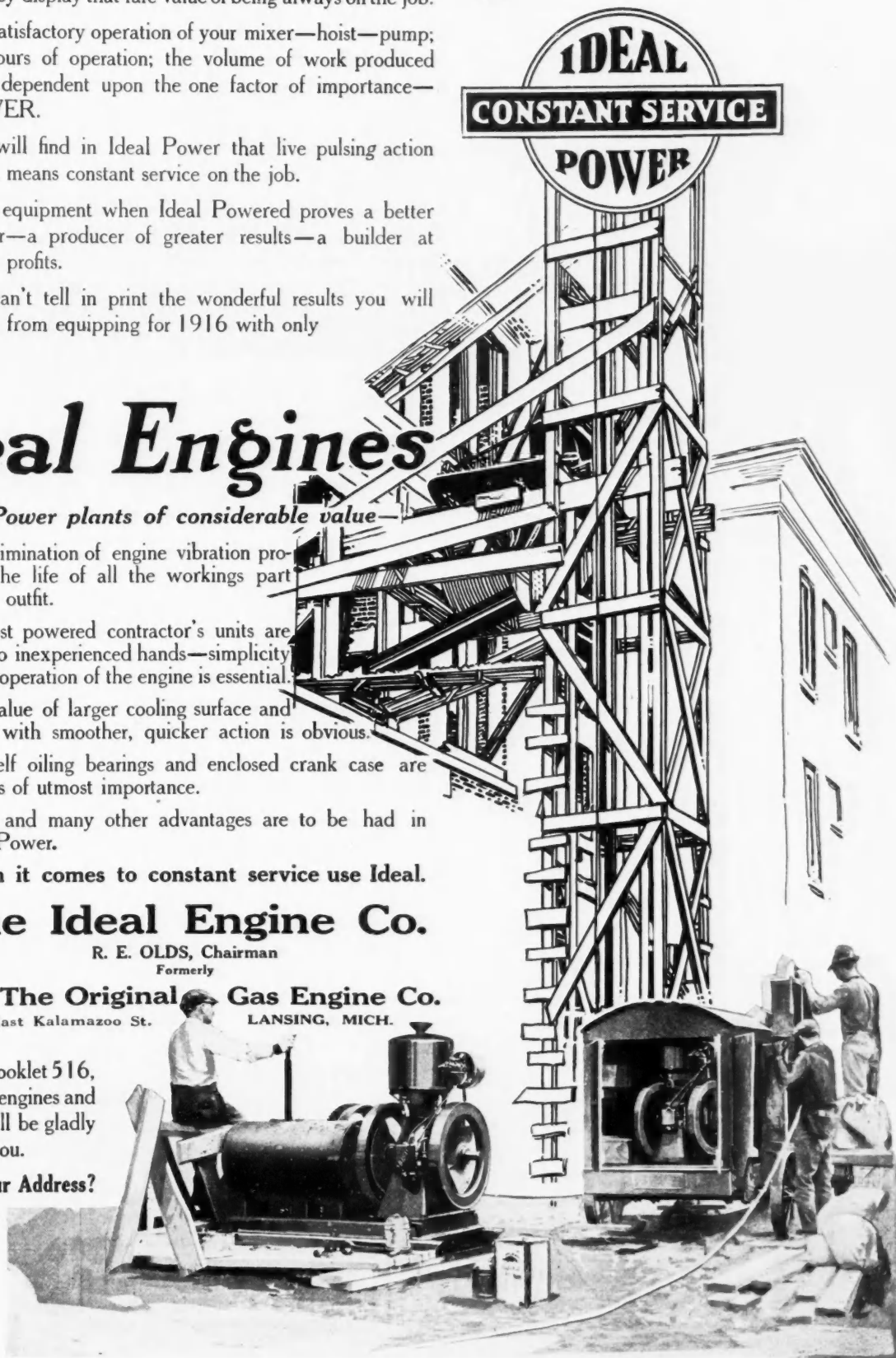
The Ideal Engine Co.

R. E. OLDS, Chairman
Formerly

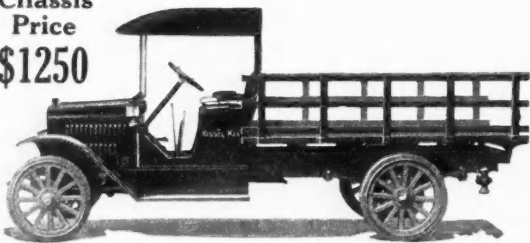
The Original Gas Engine Co.
630 East Kalamazoo St. LANSING, MICH.

A special booklet 516, of value on engines and their use will be gladly mailed to you.

What's Your Address?



Chassis
Price
\$1250



Built to Carry a Ton

Lowering the Cost of Haulage

THIS new KesselKar Worm Drive Truck at \$1250 is the net result of eight years of truck building experience. It will establish new low-cost haulage records.

It is a remarkably sturdy truck of liberal dimensions, and more substantially built than most trucks of the same rate capacity.

It is built to stand the grind and to hold down the up-keep charges. Its power plant is in excess of all requirements and equal to any emergency.

In addition to the new worm drive model there are five other sizes—ranging in capacities from 1000 lbs. to 6 tons. Chassis prices, \$950 to \$4350. All types of bodies.

Ask us for particulars.

Kissel Motor Car Co.
546 Kissel Ave., HARTFORD, WIS.

KISSELKAR TRUCKS

Something New

The David White Company, Inc., 419 E. Water St., Milwaukee, Wis., whose constant aim is to rank foremost in the manufacture of surveying instruments for architects, contractors and builders, has recently placed on the market a new and improved Tilting Level. General views of the instrument are shown by the accompanying illustrations: Fig. 1, showing the instrument when used as a level, and Fig. 2, showing the

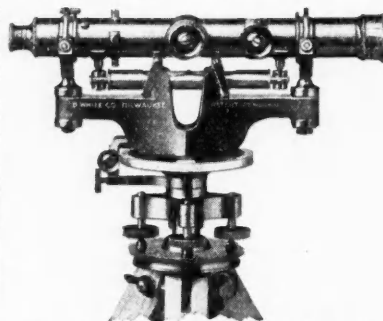


Fig. 1. White Instrument Used as Level.

same used as a transit. The company points out that the chief advantages of this instrument are as follows:

The drop-center construction of the cross-bar with standard cast in one solid piece obviates the necessity of attaching and detaching the standards each time it is desired to use same as a transit. The level can be converted into a transit in ten seconds' time. The standards are so constructed as to not interfere in the least when the instrument is used as an ordinary level. The standards, which are cast solid onto the cross-bar, are constructed of a steel-like bronze and are ground true, requiring no further adjustments. But last and not



White Instrument Used as Transit

least, the standards are permanently fixed on the bar ready for use any time, on ten seconds' notice, and are not in the instrument case, in the office, or misplaced somewhere so the busy contractor cannot lay his hands on same when he wants to use the instrument as a transit. Catalog which describes this new level in detail contains also illustrations, descriptions as well as prices of a big variety of up-to-date instruments for up-to-date contractors. Ask for it. It's free.



Renovating of Offices Opens New Field to Contractors

Just because a man operates a coal yard does not mean that his office should be grimy and unattractive; in fact, an orderly, well kept, cleanly office has a certain sub-conscious influence on the casual visitor or finicky customer; it suggests that the customer will get similar business-like attention and courtesy in his dealings with that concern.

An interesting incident along this line occurred when a certain carpenter contractor was making some repairs in the flooring of an Indiana coal dealer's office. The contractor suggested that for just a little additional outlay he could make over the entire office in a most attractive way.

"Don't want to spend the money—lumber is too high. Besides, people are going to buy coal just the same no matter

(Continued to page 128.)



—Bigger Profits

this year with a

Sultan Saw Rig

The perfect saw rig you builders have been waiting for; the one it took us three years to build.

The Sultan with one man will get out more material in one day than six men with hand saws can put out in two days. A saving of eleven men's wages. To say nothing of getting your work just as you want it, and when you want it.

That sliding cross-cut table saves you elbow grease and doubles the cross-cut output. A gauge is provided for any angle, octagon or hexagon, or mitre right or left. For cut-off work the lumber does not have to be marked. Any novice can do good straight work.

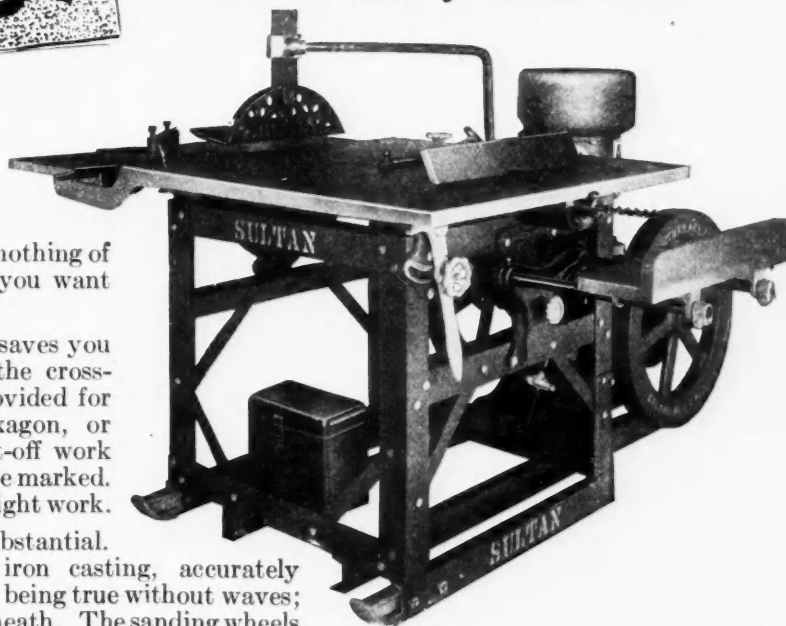
The frame is rigid, and substantial.

The table-top is charcoal iron casting, accurately machined to size, the surface being true without waves; and is heavily ribbed underneath. The sanding wheels have a safety lapping device and means for quick adjustment. The jointer head is not exposed,

eliminating the danger of cutting your hands. Every Sultan is equipped with non-adjustable safety saw guards that require no setting, and work automatically, regardless of the varying thicknesses of the lumber used. A simple device that does not interfere with either cross-cutting or rip-saw work.

And the real Power is behind the Sultan saw, not under it. Dirt and grit and cold weather have no terror for the Sultan Engine, and you get power to burn.

Why pay excessive prices to the mill man when the Sultan will pay for itself in thirty days. In winter you can get out stock, and in summer outside work, as one Sultan Saw Rig, man and upkeep costs but five dollars and fifteen cents per day. Figure up how much you can save and how much you can make. Let us send you our catalog. It explains in full the special money-making features of the Sultan.



Whitman A. Co.

7003 South Broadway St. Louis, Mo.

what kind of an office I have," growled the coal dealer.

After the contractor had pointed out how he would use wall board, how little it would cost and how he could get the effect of a handsomely panelled quartered oak wall and ceiling by using grained wood Utility Board, the coal dealer grudgingly gave his consent. The result was really surprising.

The fact that that coal dealer's business has increased considerably, that people are now glad to call on him at his office and that his own efficiency has improved 50 per cent, may not be due entirely to the Utility Board with which his walls are panelled—but it certainly is due to the fact that his office is a better place to work in and to transact business in.

In every locality there are lots of similar places, offices where a little up-to-date renovating will do a world of good. Any interested contractor who wants to find out how to get this class of business need only write to the Heppes Company, Fillmore Street and Kilbourne Avenue, Chicago. They will gladly send full details and liberal samples of their new grained wood Utility Board.

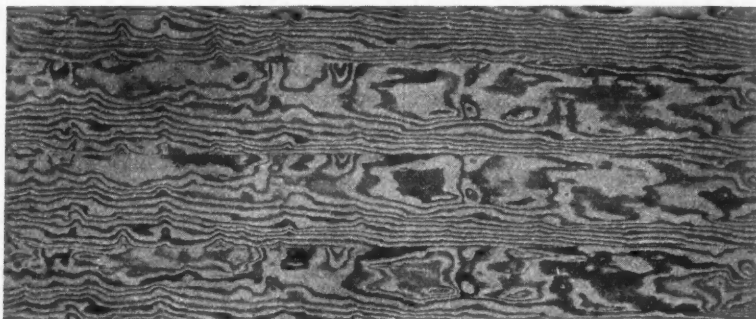


Directions for Finishing Southern Yellow Pine

The above title is given to a very interesting and instructive booklet that has been recently published by the Southern Pine Association describing the uses and methods of finishing Southern Yellow Pine for all classes of construction work.

Exterior painting is taken up first and suggestions are given as to the best methods to follow in order to secure the most satisfactory finishes.

Painting interiors which are finished in this wood is then



Southern Yellow Pine Veneered Panel, Giving a Hint of the Varied and Beautiful Grain of the Wood.


taken up and this is followed by suggestions for obtaining various effects in interiors with a natural finish. The different grains that can be obtained with Southern yellow pine make this type of interior finishing very popular and attractive.

Another method of finishing interiors is by staining and varnishing and this is treated in the next section of the booklet. A colored supplement shows the appearance of Southern yellow pine when finished in seven different ways. The accompanying illustration shows a veneered panel and gives an idea of the varied and beautiful grain that can be obtained.

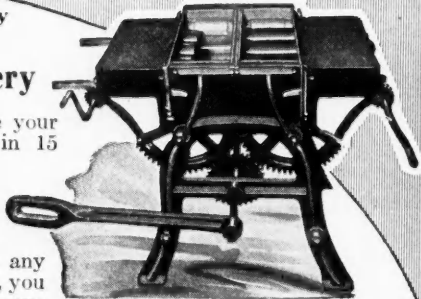
The last part of the book deals with the construction and finishing of floors made of this material.

The book is handsomely illustrated with many pictures of interiors and exteriors that are made of Southern yellow pine.

Copies of this booklet can be obtained by writing to the Southern Pine Association, 676 Interstate Bldg., New Orleans, La. The information contained in this booklet will be of great value to all builders.



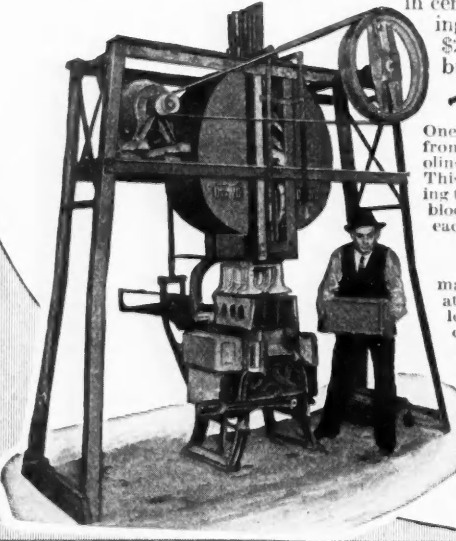
**Earn Twice as Much—No Extra Outlay
with
Double Speed Cement Machinery**



These doubles double your output, and double your profits. They actually pay for themselves in 15 days.

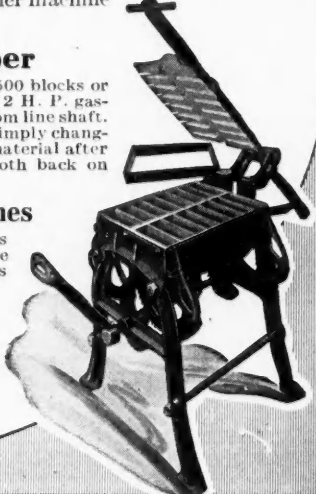
The Double Speed Block Machines

The Monarch Double Speed Block Machine will make 1,500 blocks or slabs in an 8-hour day. Each block will stand 10,000 pounds more crushing power than any two-core block and weighs 5 pounds less, which means, with 1,500 blocks per day, you save 7,500 pounds material or 1,800 pounds of cement at 45 cents per cwt. You save in cement alone \$8.10 per day. Taking cement, labor and other material, your saving with the Monarch Double Speed Cement Machinery will amount to nearly \$20.00 per day. You cannot afford to use any other machine but the Monarch Double Speed.



Double Speed Power Tamper

One DOUBLE SPEED Power Tamper will turn out 1,500 blocks or from 12,000 to 15,000 bricks per day. It only requires a 2 H. P. gasoline engine or electric motor to drive it or can be run from line shaft. This tamper can work over the brick or block machine by simply changing the feet. Has automatic device for removing surplus material after blocks are tamped, which means a perfect face and smooth back on each block.



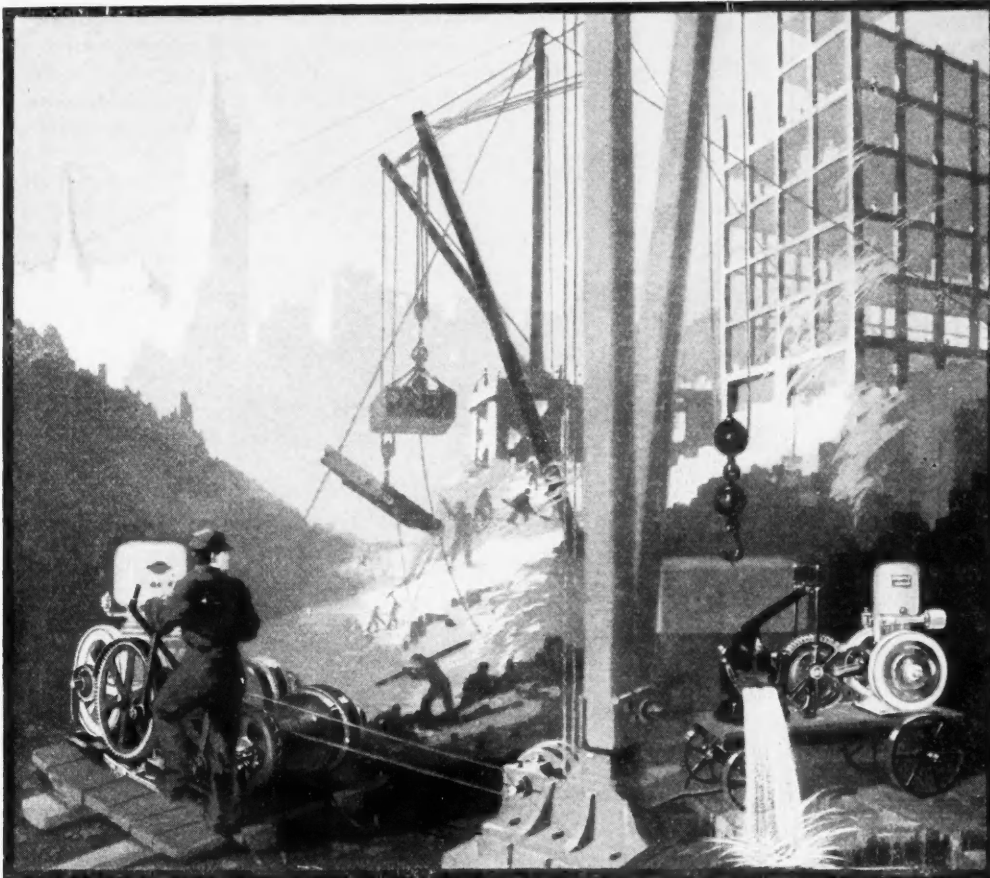
Double Speed Cement Brick Machines

make sixteen bricks at one time—delivering eight bricks at each side of the machine with one operation of the lever. It is also a face-down machine, allowing all kinds of ornamental faces to be produced on it.

Send for our catalogs today. Find out why "Double Speed" spells "Double Profits."

All Double Speed Machinery formerly manufactured by North Western Mfg. Co., Sioux City, Iowa, will in the future be manufactured and sold by the Monarch Mfg. Corporation.

Monarch Mfg. Corporation
box 206, Boone, Iowa



Four Novo Engines help build new, big addition to Continental Motor Works plant in record time. Read this letter from builder.

National Construction Co.
Contractors
Detroit, Michigan

The Novo Engine Co.:

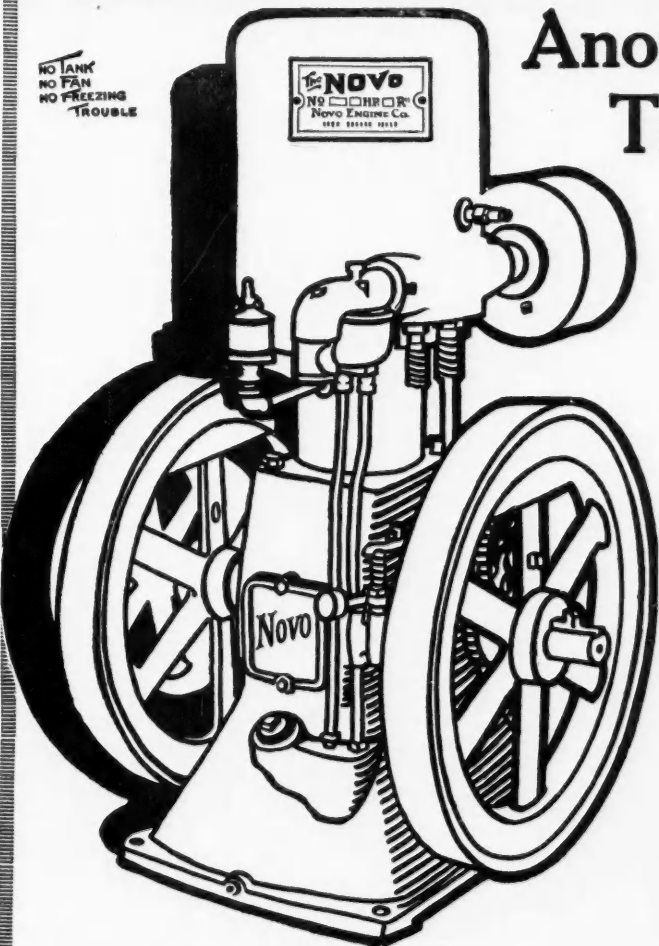
You will be interested to know the record our four Novo Engines made on the new, big addition to the Continental Motor Works plant in Muskegon, Michigan.

This building was completed and elevators in operation 12 weeks after we started the foundations. The building is four stories in height and contains over 75,000 sq. ft. floor space. Over 100,000 cu. ft. of concrete was used.

This building was erected with two concrete mixers and two hoists operated with Novo Engines. The equipment was kept in continuous operation 24 hours a day until the entire building was poured, and during this entire run we did not experience any trouble or delay with your gasoline engines. We operated the equipment with unskilled labor, which showed considerable saving over steam equipment which demands skilled labor.

National Construction Co.
Harry C. Spillman
President

**Write on your letterhead for valuable booklet—
"Reliable Power"**



NO LAMP
NO FAN
NO FREEZING
TROUBLE

Another Novo Triumph!

90 Cents for Six Years' Repairs

V. R. KEELER
Contractor and Builder
Monon, Ind.

Novo Engine Co.:

Please send me by Parcel Post, piston rings for Novo Engine No. 1128, 2½ h. p. Have run engine on a No. 1 Grand Mixer six years, with \$.90 repairs. Cylinder is in first class condition.

V. R. Keeler

NOVO ENGINE CO.
Clarence E. Bement, Sec. & Gen. Mgr.
445 William St., Lansing, Mich.

NOVO
REG. U.S. PAT. OFF.
ENGINES and OUTFITS

"The Engine for Every Purpose"



This Heater Means BUSINESS

And More Business

When you specify or recommend a Williamson *New-Feed* UNDERFEED Furnace or Boiler you can guarantee to cut the customer's coal bill $\frac{1}{2}$ to $\frac{2}{3}$ and we back you. Every UNDERFEED you install in this way is a permanent advertisement for you and your business. Your startling guarantee and UNDERFEED performance will bring you more and more business.

The UNDERFEED "means business" in another way, too, for it is *sootless, smokeless*, does not cause dust or clinkers, and burns cheap or slack coal with as good results as highest grades. And a child can operate it. Specify The UNDERFEED, your prospect or client will be glad to install.

For You Can Guarantee Your Customers $\frac{1}{2}$ to $\frac{2}{3}$ Fuel Saving with



Remember, a million dollar corporation stands back of that guarantee. The Williamson Heater Company, one of the world's largest manufacturers of heating apparatus warrants the $\frac{1}{2}$ to $\frac{2}{3}$ coal saving claim. We can do this safely because of UNDERFEED actual performance in over 35,000 homes and buildings. The UNDERFEED saves coal and delivers clean, even heat all the time for the reason that it is built on the correct combustion principle—the principle that keeps an upright candle's flame burning clearly without smoke or waste.

The "Candle" Principle

The candle's fuel is fed from below. That means the flame is always clean and bright—no fuel waste. In the UNDERFEED the fire is likewise *on top*; coal is fed from below; soot and smoke are burned during combustion *in the air* above the fuel. This means high heat power and clean heat at lowest fuel cost. The UNDERFEED is adapted to warm air, steam, or hot water.

35,000 Users Every UNDERFEED in use today is a year 'round ad for the man who specified it. To recommend the UNDERFEED shows knowledge of the latest and best in heating apparatus.

Write Today Sign the coupon below. It will bring you by return mail the full details of our special proposition for carpenters, builders, contractors and architects. This trade offer will surprise and please you. Don't miss it.

Mail the coupon today—now

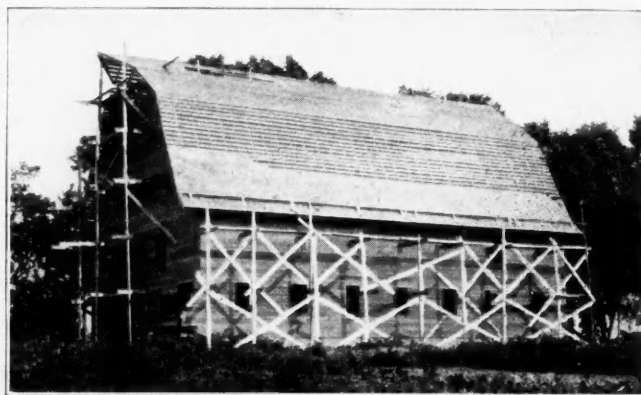
The Williamson Heater Company
97 West Fifth Avenue Cincinnati, Ohio

THE WILLIAMSON HEATER COMPANY,
97 West Fifth Avenue, Cincinnati, Ohio.
I would like to know HOW to cut clients' coal bills from $\frac{1}{2}$ to $\frac{2}{3}$ with a Williamson NEW-FEED Underfeed.
Warm Air _____ Steam or Hot Water _____
(Mark an X after system interested in.)
Name _____
Address _____
My dealer's name is _____
My business is _____

Strong Construction in Barn Building

An eminently satisfactory way to fasten the studding to concrete floors or foundations in barns or other farm buildings, is found in the use of Ross studding sockets, low-cost post supports that have been thoroly tested out by the building trade.

Every builder knows that it pays to build barns "wisely and well" and that fastening studding to concrete has been a difficult problem. Ross studding sockets do away with wooden



Many Ross Studding Sockets are Used in Barns.

sills, and make a solid building, adding strength at the very place where strains are greatest.

These post supports are made by G. M. Ross & Co., 1324 Broad St., Grinnell, Iowa. They are available in sizes from 2 by 4, 2 by 6, on up to 6 by 6 and 6 by 8. Builders say they are convenient to use, and contractors can recommend them on the strength of service tests.

G. M. Ross & Co. will mail their interesting illustrated catalog free on request.



New Branch Office for Ceresit Waterproofing Company

Mr. Frank Adams Mitchell, Vice-President of the Ceresit Waterproofing Company, 910 Westminster Bldg., Chicago, just returned from an extensive southern trip, during which time he investigated the general industrial conditions in the south as thoroly as could possibly be done during ten days' time. His findings supplemented the belief previously gained by correspondence that the south, as a whole, is recovering from the depression of last year, and that conditions there are improving constantly in every line of endeavor.

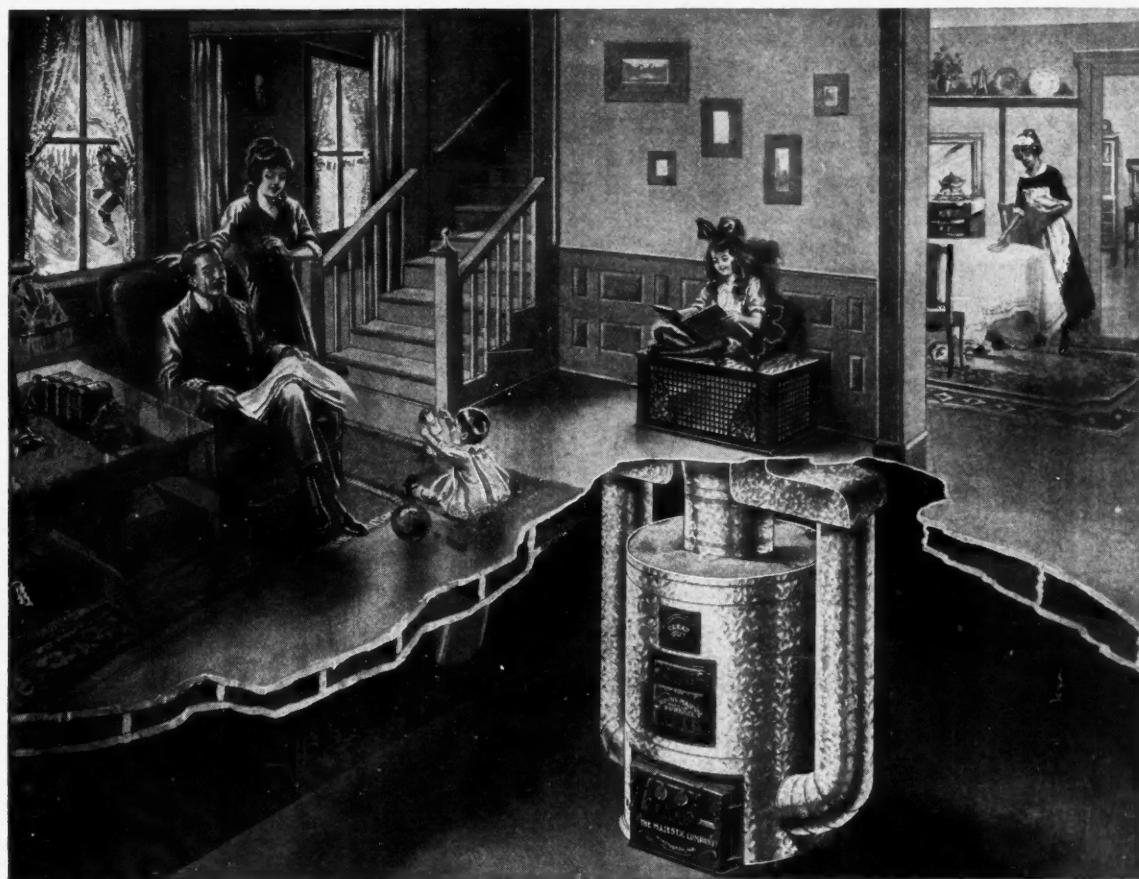
The faith of the Ceresit Waterproofing Company in the immediate prosperity of the south is indicated by the fact that they opened a branch office at Atlanta on February 1 under the management of Mr. Straiton Hard. A full stock of Ceresit Products will be carried, including Ceresit Waterproofing Compound, C. W. Co. Damp-proof Plaster Bond, C. W. Co. Damp-proof Coating, C. W. Co. Stone Backing, C. W. Co. Floor Hardener, Weather-Wear Roof Coat, and Ceresitol, so that they will be able to make deliveries to their southern customers without the delay necessitated by shipment from Chicago.

Mr. Hard, the manager of the Atlanta branch, is a graduate engineer of Columbia University, and during the past few years has been engaged in the Engineering, Construction and Waterproofing business in Atlanta. By education and experience he is well fitted to take charge of the Ceresit's Atlanta branch.

We understand a new book of complete waterproofing specifications is about to be issued by the Ceresit Waterproofing Company. The book will show many valuable drawings and it will be a practical guide to waterproofing work.

We have before us the January issue of "The Ceresit Waterproofer," a monthly house organ issued by this com-

(Continued to page 132.)



A Pipeless Furnace You Can Sell

At last a pipeless furnace so efficient and so all round satisfactory that you can sell them and believe in them. It's the Majestic One Register Duplex Heating System with the patented Projecting Register.

The Majestic gives all the features of ordinary pipeless systems minus the disadvantage of the floor

level dirt catching type so common to ordinary pipeless furnaces. This projecting register is the big secret of the Majestic success. It wipes out the last objection to pipeless systems. It's a big talking point. But only on the Majestic can it be secured. No other pipeless furnace gives you this big selling feature. It helps you close the sale.

Majestic One Register Duplex Heating System

The projecting register does away with the danger of crawling children getting burned, as is common with the floor level register. The grill work on the Majestic Register never overheats because of greater surface for diffusing the heat.

This projecting register affords many varieties for placement. It can be set at the side of the wall and opening into two rooms, and the heat diffused evenly or otherwise. Or it can be placed between two rooms in the base of the colonnades. Built-in bookcases can be placed directly on top of the register.

Another big point in favor of the Majestic is its flexibility. An extra pipe or two can be run to any out-of-the-way, hard-to-heat rooms without interfering or affecting the direct central heat flue. Thus, a bathroom, kitchen, etc., may be heated by a separate register.

The Majestic may be installed in any size cellar and is as easy to erect as a stove. It does not matter if the

entire basement is excavated or not. Just a small part of the cellar space is needed.

Do not compare the Majestic Duplex One-Register Heating System with the ordinary pipeless furnace. The Majestic is brand new and entirely different from any other type.

While it has just been announced, we have been years perfecting it, and it is backed by a concern who have been making good furnaces since 1899. All our years' furnace-building experience has been crystallized in this wonderful new pipeless furnace with the patented projecting register. We are furnace specialists and build one of the best lines of standard type in America. The popular Majestic Down Draft Furnace is famous the country over and is in use in thousands of homes. So when you sell the Majestic you are selling a furnace that gives universal satisfaction. Be the one in your community to show the Majestic and get all the "pipeless business."

Send Coupon for Catalog and Offer

Investigate the Majestic pipeless furnace. It represents the first really practical furnace of its kind that you can profitably sell. Get the whole story in our very interesting catalog. Send coupon for it today.

THE MAJESTIC CO., 610 Erie St., Huntington, Ind.

Manufacturers of Coal Chutes, Garbage Receivers, Milk and Package Receivers, Metal Basement Windows, Rubbish Burners, Street and Park Refuse Cans, Metal Plant Boxes, Pipe and Pipeless Warm Air Furnaces, Hose Reels, etc.

THE MAJESTIC CO.,
610 Erie St., Huntington, Ind.

Please send me catalog of Majestic Duplex One Register heating system and dealer offer.

.....

pany. It is mailed to Architects, Contractors, and others interested in Waterproofing problems. They are constantly revising their list and are always glad to add the names of those interested in waterproofing in any of its phases.



"The Mixer That Shovels"

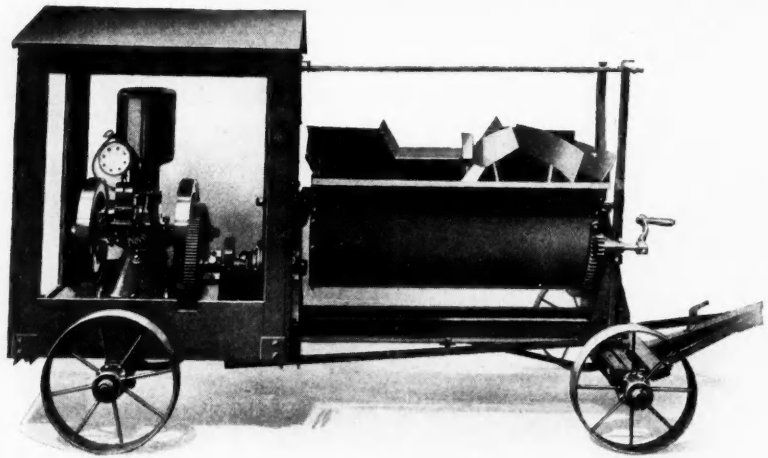
Concrete must be thoroly mixed in order to give the greatest amount of satisfaction. Studies of the mixing action of concrete mixers are therefore very useful to the man who is using concrete in building.

The illustration shows a Blystone mixer in which the mixing action is particularly arranged to get a thoro mix of the concrete. The mixing is done by the Blystone Patented Reverse Spiral Shovel System. There are six shovel blades—three of which shovel the material one way while the other three shovel it in the opposite direction. The blades are made of high-carbon steel and are mounted on malleable iron arms.

The three shovels at one end of the drum get under the batch, turn it over, and shovel it toward the other end. The three at this end then repeat the operation and shovel the material back to the opposite end. The mixing is thus taken care of in good style.

The blades are made adjustable so that the wear in them can be easily taken up. The drum is also made of high carbon steel so that the wear will be cut down as much as possible.

This positive mixing action has proven very successful for



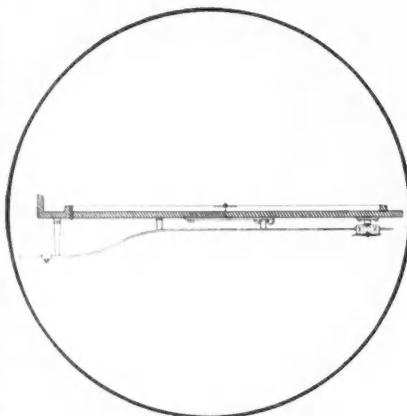
Type "D" Blystone in 7 and 9 Cubic Foot Sizes.

all classes of concrete and mortar mixing. It is particularly suited for semi-dry concrete such as is used in many block, brick, or tile plants. It has also been used with success for hardwall plaster, lime and hair mortar, and brick layers' mortar, where very thoro mixing is most important and may mean the difference between success and failure.

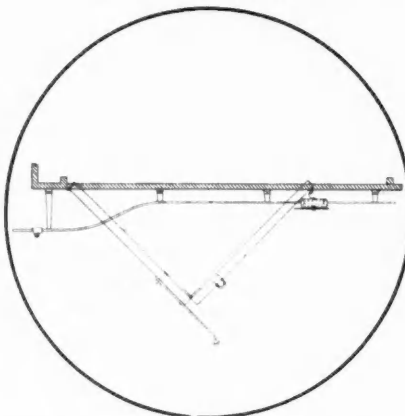
The adaptability of the Blystone mixer makes it a valuable machine for any contractor. Full details can be secured from the Blystone Manufacturing Co., 316 Carpenter St., Cambridge Springs, Pa.

Topping's Folding Garage Door Hanger

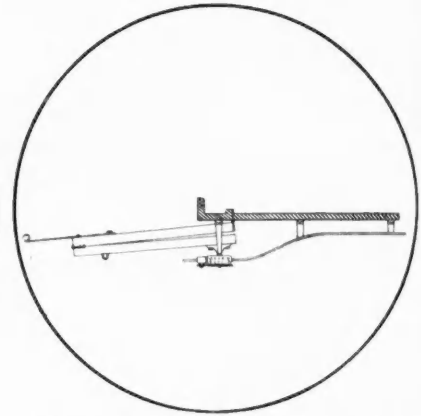
Patent Pending



Section Thru Doors, Closed



Doors Swung Out Partly Open



Doors Fully Open and Out of Way

Can be used in single or double sets, and its simple design, combined with ease of operation and ability to withstand rough usage, make it a practical outfit.

You do not have to purchase a garage holder with this outfit, for its movable stop and lock permit of the doors being held full open, half open or any set position the operator desires without further attention on his part. There is an easily operated adjustment on the hanger to care for any sag which may come in the doors after years of use.

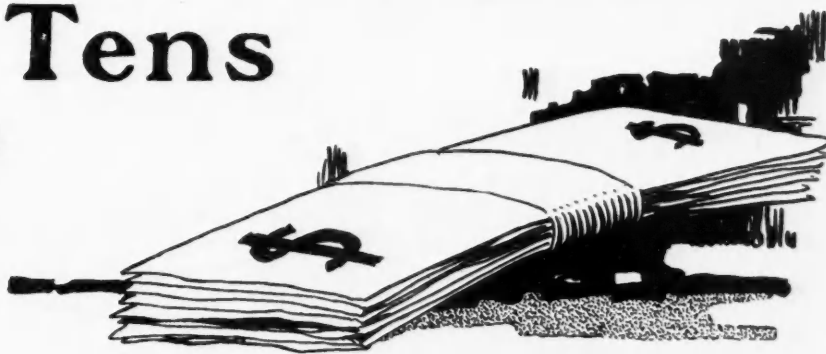
Simple, Practical, Durable. Write for trade prices now.

SAFETY DOOR HANGER COMPANY, Ashland, Ohio

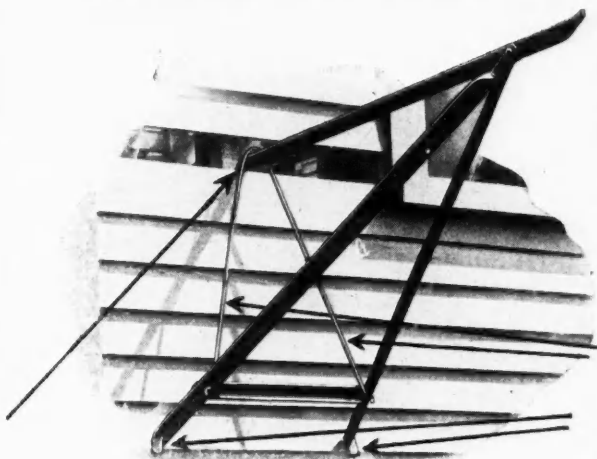
"We make nothing else but Door Hangers"

—two Tens
for a
Five

Not a joke, but an actual fact when you invest your money in



“Trouble-Saver” Scaffolds

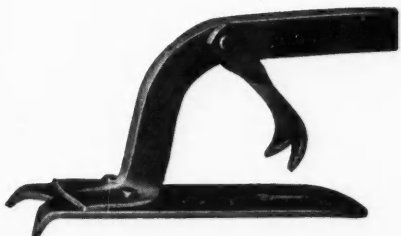


Hundreds of satisfied contractors have testified that a “Trouble-Saver” has saved them four times and over its original cost.

It will cut out all the useless expense and wasted energy connected with the old-fashioned wooden scaffold. You can do a half-day’s work in ten minutes—no nails to drive—no bother with screws or bolts. Simply hook the bracket around the studding.

And the “Trouble-Saver” stays where it is put without any wobbling or tearing loose. The two legs hold it absolutely rigid. When you take it down, simply unhook the “Trouble-Saver” from

the studding, fold it up, and load about twice as many to the square yard as any other scaffold.



The “SNAPPING-TURTLE” Lightning Shingler, a small “Trouble-Saver,” is just as efficient in its line. One man can nail on five hundred more shingles than he can with any other bracket.

And the Porch Builders’ Trestle is a big “Trouble-Saver.” Illustrations show how it can be adjusted for all kinds of trestle work, such as plastering, painting, decorating, porch-building, etc.

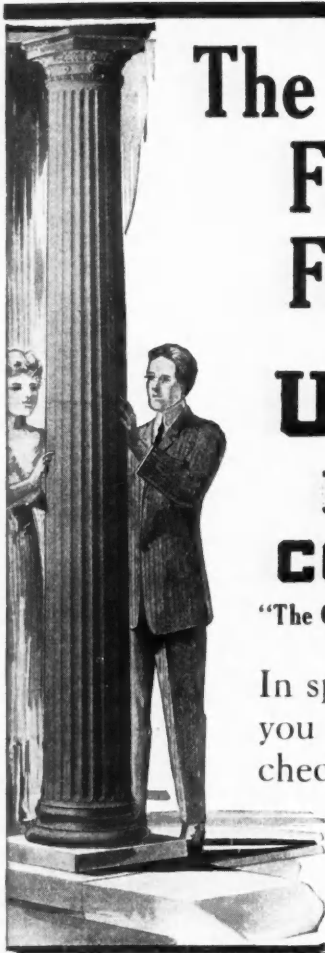


All three “Trouble-Savers” are sold on a 30-day Free Trial offer, just to prove that they **are** an investment.

Figure up how much lumber you waste on scaffolds; how long it takes your men to build them and tear them down; how cautiously and slowly your men have to work in dangerous places, with every once in a while an accident.

Write today for our proposition, and see how much you can save.

The Steel Scaffolding Co.
EVANSVILLE, INDIANA



The Owners
Find No
Flaws in

**UNION
METAL
COLUMNS**

"The Ones That Last a Lifetime"

In spite of every care
you take splitting,
checking and rotting
will occur in
wood columns.

It is the nature
of wood, but
nevertheless the owners often feel
that you are responsible.

You can forever rid yourself of such
troubles by using columns with
shafts of galvanized pressed steel—
UNION METAL COLUMNS—
The ones that last a lifetime.

These columns are correct in every
detail of design. They are made in
all sizes up to 36 inches in diameter
and 32 feet in height.

Ask for Column Book No. 13

The Union Metal Mfg. Co.

Manufacturers of

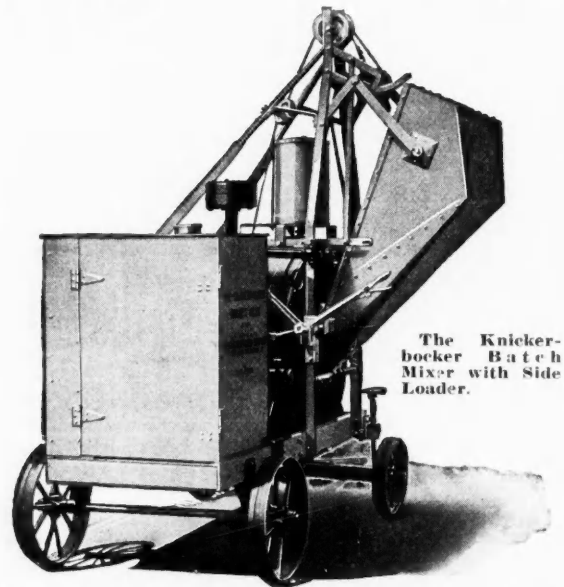
Lighting Standards and Architectural Columns

CANTON, OHIO

The Power and Durability of Knickerbocker Mixers

Power is probably the most important consideration in a mixer. No mixer will do its best work if it hasn't power enough to operate under all conditions. In the hands of an expert a machine that is low in power will often show fine results; but out on the job where the operator knows nothing about the machine plenty of power will mean satisfaction to the contractor. The last thing a contractor should skimp on is power. Always have enough and some to spare. After six months' service the man with plenty of power will not be having any operating troubles, while the man who had barely enough at the start will be having engine troubles due to the slight wearing of all the parts.

Plenty of power is a hobby with the Knickerbocker Company, and a special effort is made to have extra power on all their mixers. Their No. 8 is equipped with a 6 H. P. engine



The Knickerbocker Batch Mixer with Side Loader.

and their No. 7 with a 4 H. P. engine. The illustration shows the No. 7 fitted with a power loader. This model can also be had with a standard charging hopper.

The idea of durability is carried thru the entire machine. The frame is built very solidly and rigidly of steel to prevent vibration. The drum is made of heavy steel plate which is securely riveted to the drum heads of cast semi-steel. The drum heads and tracker bands are cast in one piece. The tracker bands and the trunnion rollers are specially chilled to make them hard and to give a lasting wearing surface.

The charging hopper is constructed on straight spout lines so that materials can be readily discharged. The hopper can be raised in seven seconds with the charge. The control of the hopper and all other parts of the machine is centralized at one side of the mixer.

Contractors who are considering mixers should investigate the four sizes made by the Knickerbocker Company, Jackson, Mich. They will gladly send particulars to any of our readers.



\$1,000 Better Appearance on a House, at no Extra Cost

New advertising of the Asphalt Shingle Publicity Bureau is directly aimed at helping the contractor who wants to give the biggest possible value to his customers. It features the fact that the use of an asphalt shingle roof with its beautiful rich coloring makes the roofing add greatly to the handsome looks of the house without adding a penny to the cost. The soft colorings of asphalt shingles, which are given by the crushed rock surface, are absolutely changeless and will

(Continued to page 136.)

This ROOFING CATALOG

(The Largest and Most Complete Ever Printed)

Will Help You in Your Work



The *Rex Products* catalog contains 112 pages and more than 180 pictures and illustrations. Besides complete instructions for laying all styles of asphalt shingles and prepared roofings, you will find in it a full description of each one of the 27 different *Rex Products* which we manufacture. You will also find much helpful information about slate, tile, asbestos shingles, tin and corrugated steel roofings.

We will send you this splendid catalog and a set of samples without cost or obligation to you. Write—

Flintkote Manufacturing Co.

90 Pearl St., Boston, Mass.
67 Beaver St., New York, N. Y.

659 Peoples Gas Bldg., Chicago, Ill.
Hennen Bldg., New Orleans, La.

REX STRIP SHINGLES

Will not blow up in the wind because the spaces between the shingles do not extend under the shingles in the course above, and so there is no opening for the wind to get under them and lift them. This is why Rex Strip Shingles make a *tighter* roof than any individual shingles.



REX STRIP SHINGLES
ARE ONLY ONE OF THE
REX PRODUCTS
DESCRIBED IN THIS CATALOG



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

keep their handsome appearance indefinitely.

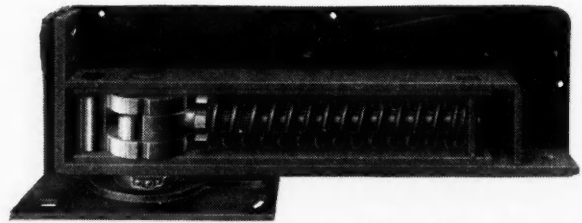
This beautifying effect is a very desirable feature for the man building a moderate priced home. It means that he can get the utmost value for his money and that the house he builds will look as tho it cost a thousand dollars more than it really did. This is important also to the contractor who is anxious to give his customers the best possible value. It means that the house he builds, using asphalt shingles, will look so much more pleasing and the customer better satisfied, that an unusual amount of credit will be coming to him for suggesting their use.

This new advertising in mediums of large circulation, like the "Saturday Evening Post" and the "Farm Journal," will also show the long life and freedom of repairs that characterize asphalt shingles. The advertisements will make plain that when a man invests once in asphalt shingles, he will be thru with repair expenses and will never need to use paint or stain of any kind, and yet his original cost for asphalt shingles will be no greater.

In all of the advertising the bureau's trade-mark will be featured and the buying public taught to insist that the shingles they buy bear this label on the package. This trade-mark shows an asphalt shingle roof over an outlined map of the United States, with the words, "Asphalt Shingles—Destined to Roof the Nation's Homes" lettered on it. This slogan—"Destined to Roof the Nation's Homes"—is very true, as proven by the remarkable growth in the sales of asphalt shingles to every class of home builders, both to those who can afford any roofing made and who buy it because they know it is more efficient, and to those who are building a moderate priced bungalow and who want the most roofing value for the least amount of money. This trade-mark and the slogan are so effective that they are already being imitated by others, which is perhaps the sincerest tribute to their truth and advertising value.

National Builders' Hardware for 1916

The 1916 catalog of the National Manufacturing Company, Sterling, Ill., has recently been finished and is now ready for distribution. It is finished in the usual attractive style

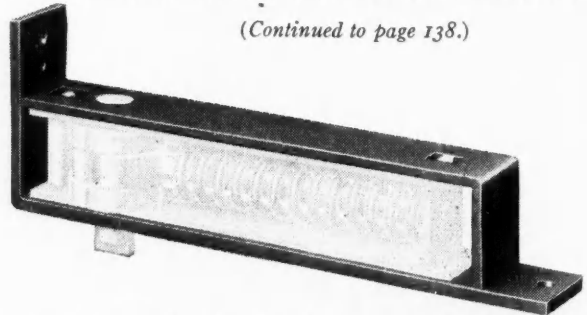


View of No. 240 Ball-Bearing Floor Hinge Showing Hinge with One Side Plate, Back Plate and Floor Plate Attached.

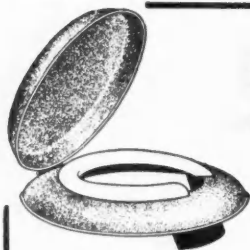
and is a useful reference book for all builders. Several new features have been added to the line and one of them, No. 240 ball-bearing floor hinge, is shown in the accompanying illustrations.

The makers say that this hinge differs from all others on the market in several different ways. The part that carries the

(Continued to page 138.)



Dark Part Carries the Weight of the Door Independent of the Spring Closing Feature.



Carpenters

Earn \$10 to \$25 daily. You are the men to profit most by introducing the greatest home necessity of the century in towns without sewerage—taking the country by storm—\$25 a day if you will hustle.

No home is safe—no town is progressive that tolerates the danger and nuisance of **unclean, unsightly, unsanitary garden privies.**

Schools, churches, stores, hotels, and all public buildings can do much to make their communities sanitary and attractive by installing the **Comfort Indoor Closet.**

In homes it is a boon for the sick and invalid—a convenience that promotes the health of women and children because it encourages regular habits and prevents exposure in bad weather—keeps the premises free from bad odors, flies and typhoid germs—offers a clean, decent and comfortable safe-guard to the entire family—avoids embarrassments to guests—is recommended by physicians and State Boards of Health—is a home necessity that every refined household, lacking sewerage, should install **without delay.** Contents emptied only once a month—just like throwing out coffee grounds. Chemicals in retort kills all germ life. Mail coupon quickly.

YOU are home builders—you believe in attractive homes, in healthy homes, in comfortable homes. Therefore you are interested in new improvements which offer greater convenience, comfort and health to your family and your neighbors. Help rid your community of the unsightly, germ-infested outdoor privies. Every home in your town should be equipped with one of these **odorless, sanitary, germ-proof Comfort Indoor Closets.**

Comfort Chemical Closet Co., 303 Factories Building, Toledo, Ohio. Mail me full details about your Comfort Indoor Closet. Also advise if you will appoint me your agent in this territory.

Name

Address

COMFORT CHEMICAL CLOSET CO.
303 Factories Building TOLEDO, OHIO



WE want one builder in every town to handle the "HYPCO" ASEPTIC CLOSET.

The closet with the low price. The closet which has no equal, which is the most sanitary and which possesses important patented features not found in any other chemical closet.

These are the talking points which make it the most easy to sell; and the number which can be sold, plus the complete satisfaction which the closet will give, make it the most attractive selling proposition of its kind.



ASEPTIC CLOSETS

MADE in two styles—portable and stationary—which cover every possible requirement and meet every criticism heretofore made in regard to chemical closets.

Nation wide popularity already secured. Prominent health officials and sanitarians throughout the country greatly interested.

Sold on a binding guarantee to do the work or money refunded.

Suggest and install the "HYPCO" ASEPTIC CLOSET in your buildings where sewerage is not available

It will sell itself on your suggestion; and every sale means a nice profit for you, and will pave the way for many other sales in the future without any effort or loss of time on your part.

Write immediately for our proposition, and the exclusive rights to your territory.

THE HYGIENIC PROMOTION CO., Inc.
DETROIT, MICH.



This Pioneer Invention Is Revolutionizing Rural Sanitation ARE YOU CASHING IN ON IT?

It is a permanent, built-in-the-house installation which every carpenter or mechanic can install.

You can add hundreds of dollars to the selling value and desirability of every home you build—simply use the

Kaustine Closet System

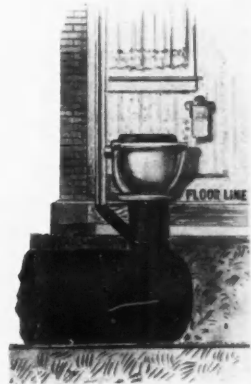
Kaustine, the powerful germ-destroying disinfectant, is actually the only successful system that carries city comforts, convenience and sanitation to unsewered districts.

No sewer, water, or cesspool needed. There's positively no odor whatsoever—no germ-laden atmosphere possible. Endorsed by health authorities all over the States during 5 years of successful installations.

Kaustine is accepted as standard sanitary

equipment. Thousands of buildings—public and private—are now equipped. Add to your reputation as the most advanced local builder.

The use of Armco Iron in the construction of all metal parts of **Kaustine Closets** typifies our policy of using only the best materials obtainable.



We guarantee fully every Kaustine Closet installed.

Read this letter from Mr. Pharis, contractor agent of Saginaw, Mich.—one of hundreds in your line who are linking up with our success and taking their liberal profits. He writes:—

"I took the agency for **Kaustine Closets** six months ago. I have sold 41 outfits—30 to schools, balance to private parties. Am planning to spend my entire time next year. A \$50 **Kaustine Closet** will add \$100 to the selling price of your house."

Think over the immense possibilities of boosting your own business by the inclusion of the **Kaustine System** in your buildings—as pointed out in the above letter from Mr. Pharis—then send us the attached coupon for our **Special Builders' Offer**. Clip the coupon now—fill in—mail it before you misplace this magazine.

KAUSTINE COMPANY, Inc. Dept. 1138, Buffalo, N. Y. Also C. P. R. Building, Toronto, Ont.

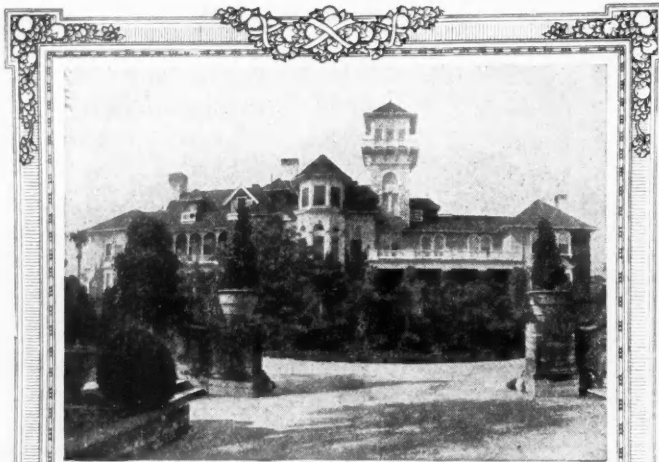
What This Contractor is Doing—YOU Can Do

Kaustine Co., Inc.
Dept. 1138, Buffalo, N. Y.

- I am at present particularly interested in
- Factories.....
 - Schools.....
 - Churches.....
 - Workmen's Homes.....
 - Suburban Homes.....
 - Summer Residences.....

Send me special booklet on installation for the purpose marked X above.

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



Residence of Mrs. Lucie C. Carnegie, Fernandina, Fla.

Planned With the Building

The Refrigerator should be a part of the plans and specifications. It is just as important as the heating and plumbing systems and means much to the comfort and satisfaction of the owner and occupants. If you want to install the most efficient refrigeration system specify a

McCray Refrigerator

There is a McCRAY—either in stock sizes, or made to order, for every type of building, from the finest hotel, public building or private residence, to the modest cottage or bungalow. An outside door for icing is an ideal arrangement.

The linings are opal glass or solid porcelain and are sanitary and easy to clean. All the foods are kept fresh, cool and free from spoiling by scientific refrigeration. All the odors and impurities are carried away through the water sealed drain pipe.

McCRAY Refrigerators are used wherever perfect refrigeration is demanded.

Free Plan Service

Send us your floor plan and we will send you refrigerator suggestions Free. We maintain a complete draughting department and employ practical draughtsmen, thoroughly trained in the principles of scientific refrigeration.

Get These Catalogs for Your Files—

- No. 92—Regular Sizes for Residences
- No. 50—for Hotels, Clubs, Institutions
- No. 61—for Meat Markets
- No. 70—for Grocers
- No. 74—for Florists

McCray Refrigerator Co., 660 Lake St., Kendallville, Ind.
New York: McCray Bldg., 7-9 W. 30th St. Chicago: 1000 S. Michigan Ave.

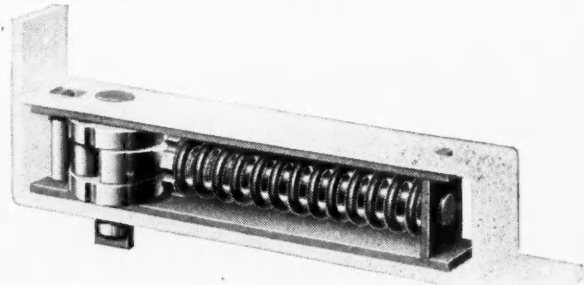
Agencies in all Principal Cities



Special McCray Refrigerator installed in Mrs. Carnegie's Residence

weight of the door and the spring closing feature are independent of each other, tho they are of course combined.

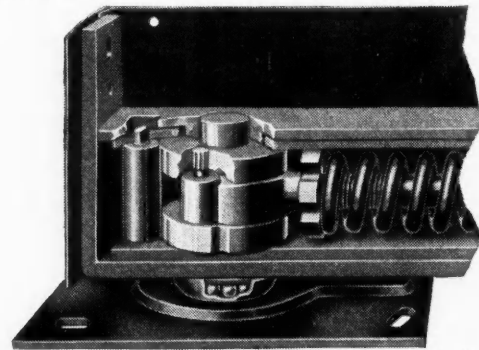
The spring pressure is not against the hinge bearing but is absorbed by a 1-inch case-hardened roller. This arrange-



Dark Part Shows the Spring Closing Feature Independent of the Part which Bears the Weight of the Door.

ment prevents wear on the hinge, as it is only supporting the weight of the door the same as any ordinary hinge. The hinge will thus keep the door firmly supported in the center of the opening.

The pivot for the top is fastened by simply boring four

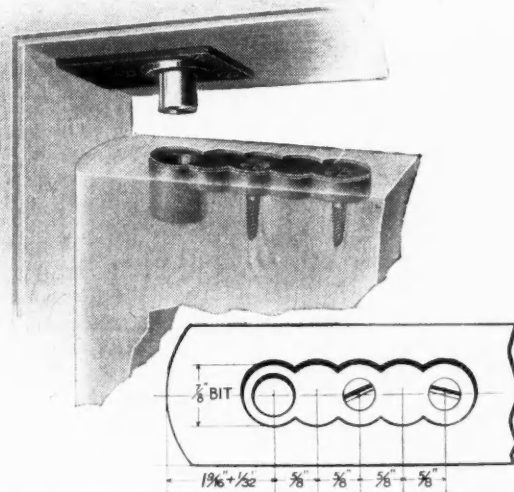


View with Parts Broken Away to Show Roller Bearings and the Pin which Stands the Wear and Tear.

$\frac{7}{8}$ -inch holes. No chiseling or mortising is required. The pivot plate for the head jamb is made so that the end can be placed against the jamb, and after three screws are inserted the bearing portion is in the correct position.

The illustrations show the details of all the parts of the hinge.

All types of door equipment are shown in the catalog in



Phantom View Showing How Easily Top Plate and Pivot Plate are Put On.

addition to the new features. Copies of this will be sent to any of our readers that are interested. A card addressed to the National Mfg. Co., Sterling, Ill., will bring a copy.



EAST AND WEST HILL, RESIDENCES OF WM. L. GLATFELTER AND PHILIP H. GLATFELTER, SPRING GROVE, PA. J. A. Dempwolf, Architect

The Glatfelter Residences at York, Pa.,

are proof of our claim that whenever Builders of standing have had an opportunity to test BAYONNE by comparison with other prepared materials, BAYONNE Roof and Deck Cloth has been given the preference.

For veranda and piazza roofs, especially roofs with flat pitch; on decks and sun parlors; and for use on sleeping porches—where it was used exclusively on the Glatfelter Residences at York, Pa.

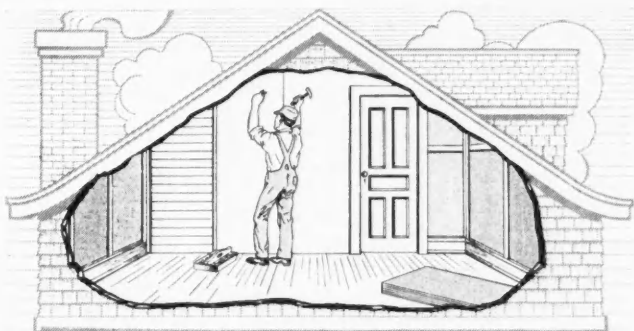
BAYONNE leads all metal and other prepared coverings. It is unequalled in wearing qualities, simplicity of handling, neatness of finish and economy.



Write for Sample Book N giving prices and laying instructions. See Sweet's, Page 539

JOHN BOYLE & COMPANY, Inc.
New York City
112-114 Duane St. 70-72 Reade St.
Branch House: 202-204 Market St., St. Louis

BAYONNE is highest quality duck, made practically indestructible by our special process. It is laid directly on the dry boards (no "wet" setting or painting of edges in laying) and one coat of paint is sufficient for ordinary purposes. Unlike any metal covering it does not expand or contract with heat or cold, nor does it peel, crack or buckle. BAYONNE does not corrode, never leaks—and we have yet to hear of the first yard of BAYONNE to give way to the most constant wear.



**THERE'S A JOB FOR YOU
IN EVERY ATTIC IN YOUR TOWN**

Ask any house owner in your town whether he is proud of his attic. He will tell you "NO". That dark, dirty, unfinished loft is only a storage place for cast-off furniture and an invitation to fire. But you can convert it into bright, livable rooms, clean, available storage space and pleasant play rooms for the children with



Explain this to your customers. Tell them that you can do this without interfering with their regular household convenience, without dirt or noise, without tracking sand and mortar through the house.

Carey Ceil-Board comes to the job all ready to be nailed to the studding. It is clean and light and attractive. It can be finished to suit individual tastes.

For wainscoting and paneled walls we supply Ceil-Board in natural grain hardwood finish at slight additional cost.

Write today for Price-List and Samples.

THE PHILIP CAREY CO.
1021 Wayne Avenue, Lockland, Cincinnati, Ohio



**Traditions
Die Hard!**

—but the "good old things" must give way to the better things.

Lath and plaster must give way, and is giving way, for the more durable, stronger, stiffer, more economical and altogether more satisfactory



Trade Mark Reg. No. 94745

This is no ordinary wall board—it is a wall board in a class by itself, the **only** wall board with a center core of kiln-dried wood slats, else we would not claim it to be **better** than lath or plaster. It does not have to be paneled, but can be made into walls and ceilings smoother than lath and plaster. Can be decorated by any method—even papering—which other wall boards can not stand.

Are **you** going to stick to tradition or give your customers the more modern and more satisfactory wall lining in their buildings. **Talk to us** about some of the common false notions on the subject of wall boards, and let us make clear to you just what you're overlooking.

The Compo-Board Company

5777 Lyndale Ave. No.

Minneapolis, Minn.



Concerning That Roof

THE ease and rapidity with which Cortright Metal Shingles can be put on is of particular advantage to Contractors. No necessity for hiring special skilled labor — any good mechanic can make a perfect job by following carefully our illustrated Instruction Sheet.

Costs less per square to lay than wood shingles — a saving in labor which means more profit to you.

With Cortright Metal Shingles on the roof you are assured a pleased house owner, the best advertisement for you.

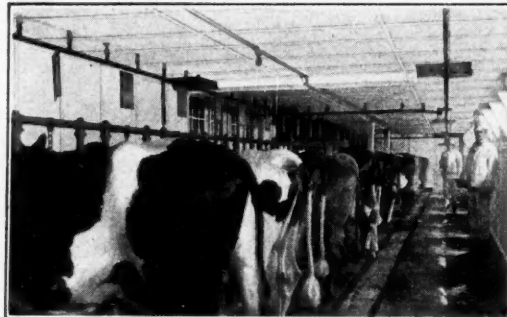
Write us for any special information you wish. Our service is yours for the asking.

Cortright Metal Roofing Co.
Philadelphia and Chicago

"Noverm" For Farm Buildings

Farm animals of all kinds must be protected against vermin and disease germs. This is accomplished by the use of disinfectants and cleanliness. One of the reasons that wall board has been used so much for the interior of barns is because its smooth surface is so readily kept clean.

Now a wall board has been placed on the market that is designed particularly for use in farm buildings. In making it up, the fibre is treated with a disinfectant which makes "Noverm" repulsive to vermin of all kinds. It can be nailed



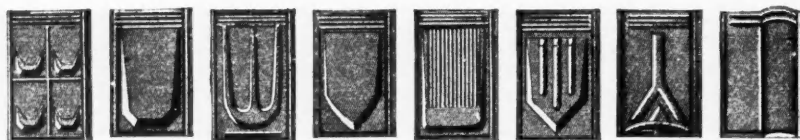
Dairy Stable Finished in "Noverm."

directly to the studding on the walls or the joists or it can be furred to brick or concrete walls.

"Noverm" is a product of the Beaver Board Companies, 560 Beaver Road, Buffalo, N. Y. They say that no white-wash coat is needed for a wall finished in "Noverm" as it presents a fine appearance in its natural color. It is made in 24 and 36-inch widths and in lengths of 4, 5, 6, 7, 8, and 9 feet. The many different sizes make it possible to fit all conditions with very little cutting.

A sample of "Noverm" with a description attached will be sent to our readers on request. The name of the nearest Beaver Board dealer can also be secured from the company.

WALTER'S AND COOPER'S PAINTED TIN SHINGLES



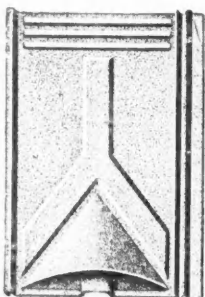
The Shingles that Last

THIS IS THE ROOFER'S OPPORTUNITY

We require an agent in your town; may we have the pleasure of sending you a selling proposition, the acceptance of which will put you in a way to unusual profits?

Why use high priced Galvanized Roofing? Walter's or Cooper's Painted Tin Shingles will make a roof just as lasting and cost you about one-half as much.

A painted tin shingle to be enduring must have as its base a heavily coated sheet of roofing tin, well covered with a lasting coat of paint. This paint must be flexible and dry, tough and hard. On exposure to the sun, it must not flake, chip or scale.



Walter's and Cooper's Interlocking Tin Shingles

are stamped from the best grade of roofing tin, and are individually coated by the dipping process in a bath of paint to the above specifications.

Walter's and Cooper's Painted Tin Shingle roofs put on over thirty years ago, are in as good condition today as when first put on the roof. Not only are they long lasting, but they are fire, wind, snow, storm and lightning proof, and are sold under an iron-clad guarantee that they are right in every way.

NATIONAL SHEET METAL ROOFING CO.

339-345 Grand Street

JERSEY CITY, N. J.



THREE HOMES IN ALBANY, N. Y., DESIGNED BY ARCHITECT W. H. VAN GUYSLING, ALBANY, N. Y.

Many examples of the use of "CREO-DIPT" Stained Shingles in various color combinations on roofs and side walls are furnished by architects, builders, contractors and realty companies, who have found satisfaction not only in quality of shingles, but permanency of stain in these shingles. Owners are pleased with distinctive color effects and the saving of painting and repair expense. Builders are pleased with economy of labor and material in laying, and the unfailling good results.

We are responsible both for exceptional shingle-quality and permanency of even colors.

"CREO-DIPT" STAINED SHINGLES

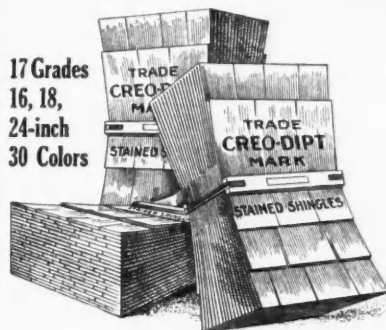
"They come in Bundles Ready-to-Lay Without Waste"

Your lumber dealer, if sincere, will tell you he cannot buy such shingles in the open market. He should carry "CREO-DIPT" Greens, Reds and Browns in stock for general work and reshingling. Give us his name.

Write today for Book of Homes, Sample Colors on Wood and Prices Special Colors, "Thatched Roof" Effect and "Dixie White" on order.

Standard Stained Shingle Co., 1028 Oliver St., N. Tonawanda, N.Y.

We have Factory in Chicago for Western trade



REYNOLDS



SHINGLES

Reynolds Shingles are not designed for the city home exclusively—they fit every requirement of a good roofing material. The suburban home, the summer cottage or the farm buildings are the natural places for large volumes of these shingles.

Reynolds Shingles are the best of their kind; they give entire satisfaction; they are guaranteed; they are beautiful, economical to lay and they are fire-safe.

Supplied in four durable mineral surfaced colors—garnet, red, gray and green.

If your dealer does not carry them in stock, we will send samples of colors and mineral finishes on request.

H. M. Reynolds Asphalt Shingle Company

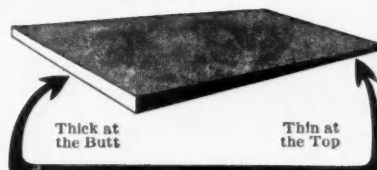
"Originators of the Asphalt Shingle"

Grand Rapids :: :: :: Michigan

Don't Lay
Another
Roof
Until We
Send You a

Winthrop Tapered Asphalt Shingle

Just ask for a sample shingle. See how tough, how pliable and how durable it is. See how it is made like a wooden shingle—thick at the butt and thin at the top. See how easy to lay it is. See what a beautiful roof it will make—red, green or slate-black. Then you will understand why owners want the Winthrop when they know about it.



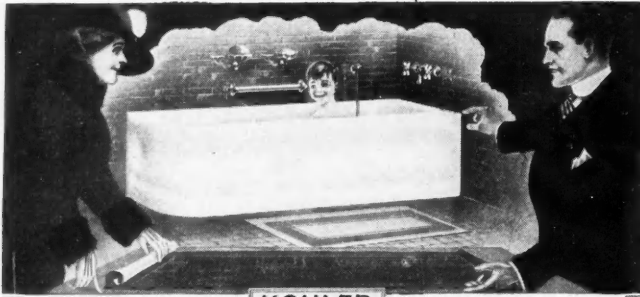
Winthrop Tapered Asphalt Shingles will enable you to get most of the roofs in your town. They win out with less argument than anything you ever tried to sell, for they look better than wood shingles and they have all the protection of asphalt.

The Beckman-Dawson Company
ASPHALT SHINGLES

Factory: Argo, Ill.

1413 Y. M. C. A. Bldg., Chicago, Ill.

The Only Tapered Asphalt Shingle



"Viceroy" One-Piece Bath **KOHLER** Plate No. V-12-A
(Patent applied for)

This trade-mark—KOHLER—is on every piece of KOHLER enameled plumbing ware. It is incorporated in faint blue in the enamel at point indicated on illustration.

Enameled Plumbing Ware that is notable for its beauty and excellence

One of the characteristics of KOHLER Plumbing Ware is the beautiful whiteness of the enamel.

Its attractiveness compels attention and is an added value to the purchaser.

KOHLER enameling is in keeping with the excellent construction and uniformly high quality of our products.

KOHLER

designs are modern
and hygienic

Our designs represent twentieth century ideas in bathtubs, lavatories and sinks. The *one-piece* construction and KOHLER enamel make cleaning easy.

The KOHLER trade-mark is our guarantee of excellence.

Builders throughout the country select KOHLER Enameled Plumbing Ware because it is always of one quality—the highest.

Write for our "Viceroy" Book, describing the "Viceroy" *one-piece* built-in tub. The "Viceroy," low-priced, due to manufacturing economies, is the most popular built-in bathtub made.

MAKERS
OF
Trade-marked,
Enameled
Bathtubs,
Lavatories
and Sinks

"It's in the Kohler Enamel"
KOHLER CO.
Founded 1873
Kohler, Wis. U.S.A.

BRANCHES
Boston
New York
Pittsburgh
Chicago
San Francisco
London

Boss High Speed Remixing Action

An extraordinary pamphlet has been issued recently by the American Cement Machinery Co., showing the construction and specifications of their light weight steel type Boss mixer. This booklet is very attractively made up and shows their various types and sizes of mixers in detail.

One of the pages is devoted to a description of the mixing action of the machine. Each deep scoop lifts the mass of concrete up high and then throws it down with a whirling motion, forcing the concrete away from the sides and into the center of the drum. The makers say that the discharge is very fast and a batch can be discharged in 10 to 15 seconds. This is due to the fact that the discharge spoon extends nearly two-thirds of the way thru the drum and all the scoops discharge into it.

The mixer has been very successfully used in mixing lime and cement mortar, stucco, wood fibre, etc.

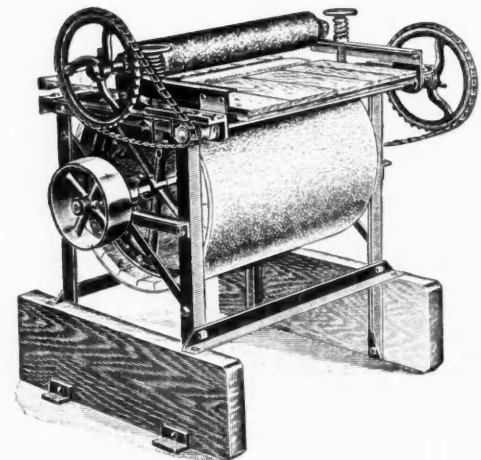
Copies of this bulletin with the complete specifications and illustrations of their mixers can be obtained by writing to the American Cement Machinery Co., Inc., 1006 Johnson St., Keokuk, Iowa. A copy of these specifications should be on every contractor's desk.



New Parks Drum Sander

The Parks Ball Bearing Machine Co. are offering to our subscribers a line of sanding machines that are very reasonable in price and they are shown in the new catalog which will be sent to any one upon request.

The Sand Drum has proven to be a great labor-saving machine for smoothing up all kinds of hard and soft woods, either that have lain around and need to be freshened up or with new sharp sand paper you can smooth up material that has never been planed.



Parks Drum Sander.

The Self Feed will be found to be of great value as it relieves the operator of the hard pressure to hold the board by hand and also danger of board being jerked from under the hand and getting cut by the sand paper. The roll is covered with a coarse grade of sand paper which serves to pull the board thru. The feed works with a link belt from drive shaft and can be changed by using different sized sprocket wheels to feed fast or slow, is adjustable to take in different thicknesses by hand wheel screws, which are provided with a spring to allow a variation of thickness. It will take in 2½ in. between roll and sand drum. Feed is arranged to swing down below table surface to clear table surface for extra wide material or for sanding boards on the edge.

Double Drum Sander is furnished with feed on each drum; the one in front arranged so as to swing down in front of machine, and the other arranged to swing down in the rear of machine so as to clear table surface for extra wide material or for sanding boards on the edge. The great advantage in using the Double Drum Sander is you can use coarse paper to cut fast on the one drum and fine paper on the other for finishing, so the board will come out with a fine finish.

San-a-Bestos Stucco—

Needs no Paint

TIME and weather will not mar the artistic finish of San-a-Bestos Stucco. It is the most durable stucco on the market—absolutely fire-proof, damp-proof and crack-proof.

We also manufacture San-a-Bestos Composition Flooring at a low cost—the equal of tile, terrazzo or marble.

Write us for information on San-a-Bestos Building Products.

Franklyn R. Muller and Co.

Waukegan, Ill.



Elastic Glazing Composition

For bedding and glazing skylights, conservatories and glass construction generally, setting tiles in floors, walls, etc., KUHLS' ELASTIC GLAZING COMPOSITION is unequalled.

FOR POINTING UP stone work, terra cotta, granite, etc., made specially to match any stone. A special liquid is made to paint in between stone, etc., before applying ELASTIC GLAZING COMPOSITION.

IT IS ELASTIC and as it never sets hard, retains its elasticity indefinitely, hence saves breakage of glass, as it yields slightly to atmospheric conditions and always makes a tight joint.

Sample on request. Send for booklet giving agents in U. S.

Manufactured by

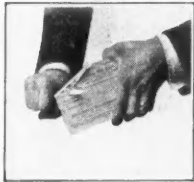
H. B. FRED KUHLS

3d Ave. and 65th St.

Brooklyn, N. Y.

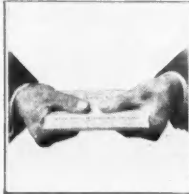
TRY THESE NOVEL TESTS YOURSELF

Whittle it



Hard

Bend it



Stiff

PLASTERGON WALL-BOARD

Samples for testing sent upon request

Pour water on it.



Waterproof

Paint it



Sized

PLASTERGON WALL BOARD CO., 101 Fillmore Street, Tonawanda, N. Y.

Mr. Reader—

Publishers of this paper claim that its subscribers are keener for manufacturing propositions of merit than any other paper on earth. If you are one of 'em, ask for our Catalog A—describing our Burial Vault Machine, one sold in a place, cheapest to make, wholesale profit 400%.

THE NORWALK MOLD CO.

Citizens Bank Bldg.

NORWALK, OHIO

Experts Want the Best

The old-fashioned Handmade In-laid Bitt.

STEEL POLL

Hammered out, not machine made. For the steady and expert and severe user. SAFE and ECONOMICAL.



WARRANTED

Has special welded and hardened head for severe hammering and driving spikes. Has thin, long-lived edge-holding bitt. Lasts long in blade and poll. HANDMADE; therefore STRONG, DEPENDABLE and LONG-LIVED.

\$1.50 postpaid (specify weight). Handle .50c extra

THE G. WHITE AXE CO.

Honesdale, Pa.

The Well Known Willis Skylights

The popularity of Willis skylights is greater every year. Over 1,000 of these have been placed in use during the past year, which shows that builders as well as their clients realize the value of Willis quality.

These skylights are made of the best grade of sheet metal, strongly reinforced, and the Willis Mfg. Co. fully guarantee them not to sag. These skylights allow the largest possible glass area and are perfectly watertight. Other features of the Willis are that no putty is required, and no tools are needed but a hammer and screw-driver. Any carpenter can put these up.

Several different sizes and styles of skylights are manufactured by the Willis people. In addition to their well known ventilators they also have a complete line of sheet metal building materials. When in need of anything in this line write the Willis Mfg. Co., Galesburg, Ill., for their catalog, which fully describes their products.



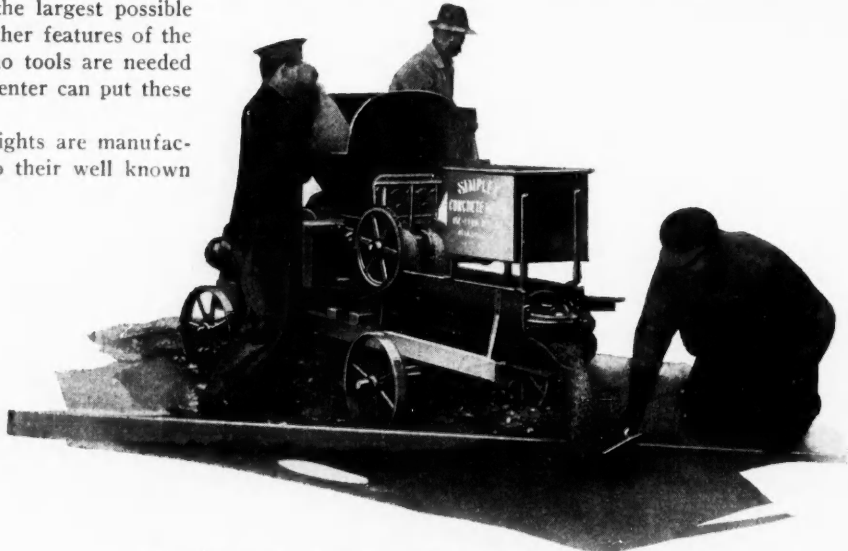
Simplex Junior Cement and Mortar Mixer

Mixing is the most important feature of concrete work as concrete will only develop its full strength when it is properly mixed. To attain this result in a continuous mixer, the blades have to be specially designed.

In the Simplex Junior the makers say that the blades are built on an entirely new principle. The blades are of steel and split the material in the same manner as a hoe. Twenty-one blades move the material forward and seven move it in

the opposite direction. This insures a most complete mix, which makes it possible to handle either mortar or concrete with good results.

The feed from the hoppers to the mixing trough is taken care of by means of a belt that feeds the material in an even and unbroken stream and prevents clogging. Either side of the hopper can be used for sand or cement as the pro-



The Simplex Junior Pours Concrete Directly Into Place.

portioning is taken care of by means of sliding gates in front of the hoppers.

The Simplex Junior Mixer is made by the Western Manufacturing Co., Oskaloosa, Iowa. A circular describing their machine and its construction can be had on request.

Steel, Skill and the "Know-How"

are what make a

SIMONDS SAW

the most satisfactory one to own



SIMONDS SAW
PRONOUNCED SI-MONDS

We make our own steel, and our exclusive tempering process gives the teeth a toughness and hardness which enable them to hold their quick-cutting edges under long, hard usage. You can't keep saw-teeth sharp if they are not tempered right, and a dull saw is almost worse than none.

And a Simonds has the right "hang" and the right "feel," so quickly detected by a master carpenter. You don't have to force a Simonds. All you do is guide it. It cuts fast and true, and will still be cutting years after the cheap saw has lost what little edge it had.



You can't buy a better saw, and you don't want a cheaper one. Send for our catalog, also "The Carpenter's Guide Book"—free, and full of interest for every carpenter.

Simonds Manufacturing Co.
5 Factories Fitchburg, Mass. 11 Branches



Every Home You Build

is a prospect for GLOBE FENCING, either for front, rear or division purposes. Why not include fencing in your contract?

GLOBE FENCING

harmonizes with any style of house, is strong and serviceable, easy to erect, on any style of post, on uneven ground—and no repairs. Encourages sanitary conditions. These are strong features that will enable you to secure orders.

GLOBE FENCING is cheaper and easier to erect than board fencing and is much more attractive. Our "complete" fence includes posts, rail, fittings, fabric, etc., and is made up at the factory according to exact measurements—all ready to erect. Saves time and waste of material. Working diagram and complete instructions sent with every shipment. No special tools required. Easy to erect.

Give us an opportunity to submit prices on your next job!

We have constructions suitable for every purpose—all A-1 goods.

You can readily develop a large and profitable fence construction business if you choose. Catalog and special discounts to contractors sent on request.

GLOBE FENCE COMPANY (Un-inc.) 20 22nd St., NORTH CHICAGO, ILLINOIS



The Taylor-Boggis Foundry Co., Cleveland, Ohio.
Contractors, John Gell & Son, Architects, Cleveland Engr. Co.

The Stiffest, Strongest and Most Efficient Plate for Reinforcement

RIB-TRUS

PATENTED

This remarkable Berger plate has greater tensile strength than any other similar plate on the market. Especially adapted for reinforcing thin concrete slabs for roofs, floors, sidewalls and partitions. It serves both as a reinforcement and centering.

The vertically expanded meshes prevent, to a great extent, the soft concrete from dripping through upon materials, machinery and men on floor below.

Ribs, running throughout the length of each sheet on 6" centers, stiffen the plate and support it while the soft concrete is being poured. No supports are required for ordinary spans. Furnished 24" wide and standard lengths in multiples of 1 ft. to 12 ft.

For strength, permanency and all-around economy, use Berger's Rib-Trus

Other Berger Economy Products:—Ferro-Lithic Reinforcing Plates, used extensively for reinforcing concrete slabs for flat or arched roofs and floors, sidings of buildings, sidewalks, etc.; Berger Steel Cores, for coring out concrete floors and roofs. Multiplex Re-

inforcing Plates, for heavy service floor, roof, bridge and sidewalk construction; Expanded Metal Lath, used on stucco walls, partitions, ceilings and every other kind of work requiring plaster; Corner Beads, for protecting exposed corners of plastered walls.

The Strongest, Most Durable and Easily Erected Structural Material

Metal Lumber

PATENTED

The most practical and satisfactory building material for both the contractor and owner. Adaptable to any size building, in any climate. Throughout the country, it is replacing wood, piece for piece, because of its safety, durability and economy.

Each unit is designed for a definite purpose, making erection speedy and economical—cutting labor costs in half.

Absolutely fireproof, and indestructible—proven so by official fire, water and load tests. Practically no strain is too great for it to withstand. Moreover, it is sound, damp and rodent proof.

Every pound of Berger Metal Lumber is made from a special analysis steel, which is low in phosphorus and sulphur—two of the important corrosion elements. This accounts for its permanent strength. Use Berger's Metal Lumber on your next job.

Fill in and mail coupon now. We have some valuable information to give you

The Berger Mfg Co., Canton, O.

Branches:

Boston New York Philadelphia Chicago
St. Louis Minneapolis San Francisco



Architect, Otis Goddard, Kansas City, Mo.
Metal Lumber Interior Construction.

FILL IN AND MAIL COUPON NOW

A. C. & B.—3-16

GENTLEMEN:—I am interested in your _____
for (kind of Building) _____

Please send literature (check which).

- Berger's Metal Lumber.
 Berger's Concrete Reinforcing Materials.

Name _____

Address _____

City _____

State _____



Tested by Chemists Every Hour—Day and Night

DESPITE standardization, the making of Portland Cement is—as an authority recently expressed it—“an extremely scientific proposition requiring the exercise of the greatest care and long experience. It is a scientific and chemical procedure representing the antithesis of guess-work or slipshod methods.”

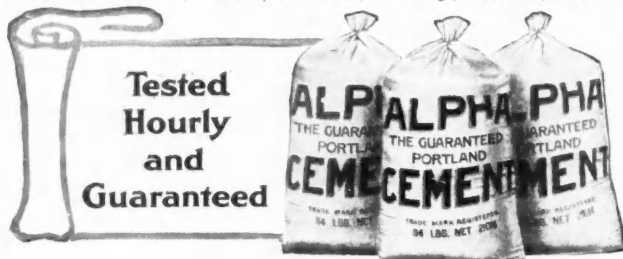
Is it not well, therefore, in selecting cement that is to become the very sinew of your construction, to choose the product of a manufacturer whose output represents 25 years of experience in cement-making—who has made the chemist a man of real authority in all plants—who has for years followed a strict system of hourly tests to insure exact proportioning, thorough burning and grinding that will more than meet standard requirements?

Under the ALPHA system of supervision it is impossible for cement that lacks binding power to be shipped out. ALPHA Cement costs no more than other good Portland Cements.

Six great plants on six trunk-line railroads—capacity 25,000 barrels daily—enable us to render ALPHA service that is on a par with ALPHA quality.

Let us send you our Art Envelope No. 10, containing illustrations of distinctive concrete constructions, and a copy of the 80-page book, “ALPHA Cement—How to Use It.”

ALPHA PORTLAND CEMENT CO., EASTON, PA.
Sales Offices: New York, Philadelphia, Boston, Pittsburgh, Baltimore, Savanna



The Eureka 5-6 Batch Mixer

Concrete mixers have been designed in many different ways to prevent the concrete from slopping out during the mixing. The blades and buckets have been arranged to prevent this and the drums have been shaped in different styles for the same reason.

The makers of the Eureka 5-6 mixer say that they have accomplished very good results by the use of the double cone drum. They say that with this drum the mixing action is a constant pouring of the mass from ends to the center. This action is helped along by the steel buckets and blades. The makers say that fewer blades are needed because of the end to center action.

Two types of loading arrangements can be had with this mixer—either a power loader or a batch hopper. The power



Eureka 5-6 Batch Mixer.

loader is equipped with an automatic release which frees the clutch as soon as the spout reaches the discharge position. This eliminates any possibility of breakage. The batch hopper is separated from the mixer by a slide so that a complete batch can be assembled while one is being mixed.

The discharge chute reaches past the center of the drum and is quite wide. The end to center mixing action helps to make the discharge very fast.

The power for this mixer is furnished by a 3½ H.P. New-Way engine which assures plenty of reserve power.

Complete descriptions and specifications for this mixer are contained in a circular that the Eureka Machine Co., 124-30 Handy St., Lansing, Mich., is sending out. A copy will be sent on request.



Valuable Free Book

Every builder who owns an engine or expects to buy one, ought to know about engines—how to judge them, how to apply simple tests, how to figure exactly what an engine is worth. This interesting and valuable information is given in the free illustrated book, which will be sent without any obligation to any reader. Simply send name today to E. H. Witte, 177 S. Oakland Ave., Kansas City, Mo.




Minister Batch Mixer Eliminates the Waste Time in Loading

Any piece of apparatus that cuts down the time wasted in doing work is of great interest to everyone in this age of

(Continued to page 148.)

LOUDEN GARAGE DOOR HANGERS



Low enough in cost for the cheapest garage—Classy enough in appearance for the most particular buyer.

Swinging doors for a garage are clumsy and inconvenient. A sliding door track that extends to a post in the yard takes up valuable room and does not present a neat appearance.

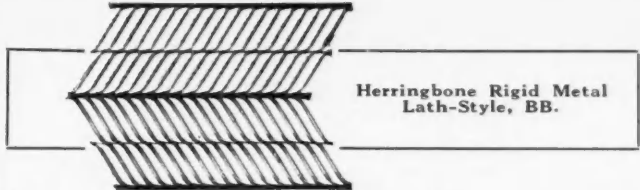
The Louden Special Garage Door overcomes these faults, and is far superior to any other type. Being hinged in three parts it follows a very short curve in the track and creates no waste space, either inside or outside the building.

The track is supported every 12 1/2 inches by a strong malleable bracket; cannot sag or get out of shape. The door always hangs true. The swiveled trolleys are roller bearing. They cannot bind or jump the track. One section of the Louden Garage Door swings like an ordinary hinged door.

Prices per set, including all hardware for door, ranges from \$3.70 to \$4.15.

Write for booklet No. 9.

The LOUDEN MACHINERY CO.
A 5502 Court Street, Fairfield, Iowa



Success WITH Stucco!

BUILDERS tell us that the success of a stucco job depends largely upon the lath beneath it. That's why they prefer metal lath to wood lath and

Herringbone RIGID METAL LATH

to any other style. Note the illustration of Herringbone above, and you, too, will recognize its practical value.

Herringbone has strong lengthwise ribs which stiffen each sheet, and make it easy to erect and quickly plastered.

This same rigidity saves plaster by eliminating the pockets that form in lath which sags between the studs.

And the flattened strands curl the plaster around into a sure and lasting key.

GF Cold Rolled Channels and GF Corner Beads are good products for the Builder to use with Herringbone.

If you are not getting our little magazine, "General Fireproofing", send your name, and a copy will be mailed each month.

The General Fireproofing Company
6003 Logan Avenue - YOUNGSTOWN, OHIO

GF Steel-Tile for Floors—Self Sentering for Roofs.



Sanitary Barn Equipment

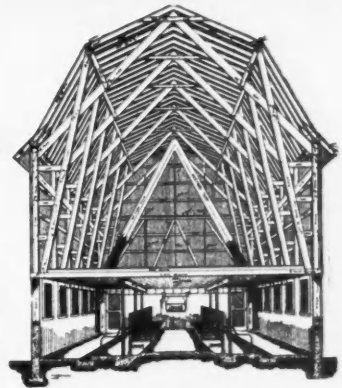
Of vital importance to every Barn-Builder

OUR Carrier Systems, Steel Stalls, Stanchions, etc., are made to meet all modern requirements in the best possible way. We have equipped thousands of barns throughout the country; and each one is a real money-maker for its owner.

Get our catalog, "Modern Stable Equipment," and find out how you can make your barns more sanitary and comfortable; how you can save money, and labor for your customers; and how you can get more barns to build.

Glor Bros. & Willis Mfg. Co.
East Main St., Attica, New York

Helpful Ideas On Dairy Barn Building FREE!

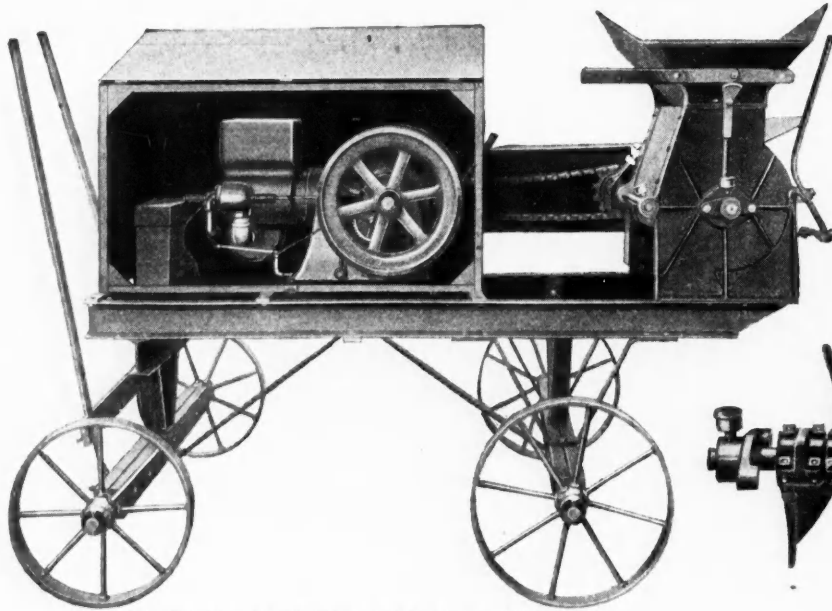


If you learn more about the newest, best, most economical and most sanitary methods of Dairy Barn Construction,—you will make more money. Our free book "Building the Dairy Barn," tells about proved principles that it will pay you to know about. It tells facts about plank frames; King system of ventilation; proper width and arrangement; lighting; stable floors; site; size; appearance; design; drainage; and sanitary barn equipment with floor plans. The valuable, interesting book will be mailed to you free if you tell us these facts: "For whom do you expect to build or remodel Dairy Barns? (Give names and addresses.) When? For How Many Cows?" Address—



Special Blue Print Offer
We have complete blue prints, specifications, floor plans and lumber bills for several different types and sizes of modern dairy barns. Ask about them. Also ask how to get the free help of our Architectural Dept.

James Mfg. Co.
8575 Cane St.
FT. ATKINSON, WIS.



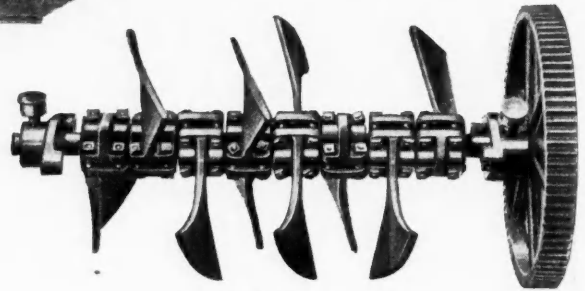
Complete Minster Batch Mixer with Brown-Wall Engine.

efficiency. Many new devices have been developed in connection with the concrete mixer to eliminate the wasting of time in charging. The power loader and low-charging arrangements are examples.

The machine illustrated here has shown remarkable capacity for a small mixer because of the arrangement of the charging and mixing devices. The charging hopper is "V" shaped and is filled with the material for one batch. A lever dumps this charge by releasing the catches holding the bottom plates together. The weight of the load spreads these and the

material falls into the cylindrical mixing chamber. A new charge is then shoveled into the hopper while the mixing is going on.

The smaller cut shows the construction of the mixing blades. There are ten of these turning at the rate of fifty revolutions per minute. The material can be mixed dry first and the water added later. The mixed concrete is discharged by another lever that opens one side of the



Detail of Mixing Paddles.

mixing chamber.

The power is furnished by a 1½ to 3 H.P. engine. The engine is placed well away from the mixer under a steel housing so that all the moving parts will be well protected from the sand and dust.

The Minster batch mixer is made by the Cummings Machine Co., 209 Ohio St., Minster, Ohio. Their catalog, describing this machine more in detail, can be obtained on request.

Portable Woodworking Mills—

BERLIN



Easily moved from job to job—but strong and rugged enough to withstand the hardest service building contractors may put it to.

And a Berlin actually does the work of 20 men, on 20 to 50 cents worth of gasoline.

The Berlin Portable Saw Rig, shown below, 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 costs no more to move than a carpenter's tool box. Equipped with either a gasoline engine or electric motor mounted on its own base. Easily started, and always accessible.

Guaranteed for two years.

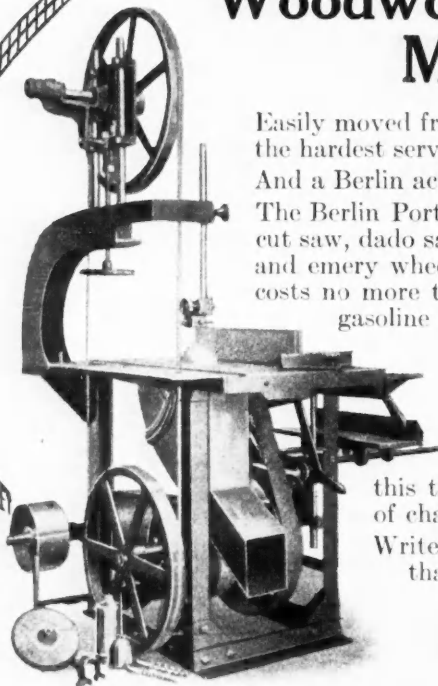
All Berlin Saw Rigs are equipped with highest grade saws, knives and accessories; and are guaranteed against defective workmanship or material for a period of two years. During

this time any broken or defective part will be replaced free of charge.

Write today for details and information about the machine that will keep you busy all the year round.

Schaefer Mfg. Co.

Berlin, Wisconsin





Let us send you Crib and Granary Plans FREE

Don't figure on any crib or granary without reading our circular of crib plans. It shows how to get greatest capacity at least expense. Meadows Inside Elevators are most convenient and economical to use. Elevates small grain as well as ear corn.

Write for complete information regarding the

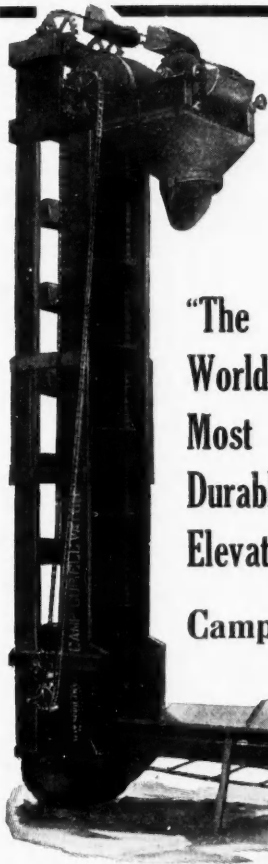
Cribs 36 feet or less in length with half-pitch roofs require no cupola. Picture shows 40-foot crib. Cupola need not be as large as shown in picture. Elevator is confined to one side of driveway. No pit is necessary for dumping grain. A hole 16 inches deep is necessary into which boot of Elevator is set. The Jack for dumping the wagon is fastened to the joists, is entirely overhead. Our crib plans give complete information, except lumber specifications—we leave that to you.

Meadows INSIDE STATIONARY CUP ELEVATOR

TRADE MARK REGISTERED

Crib plans, catalogs and large posters telling all about our outfits and their application. Working together will be of mutual advantage. Farmers are demanding the modern two-story cribs. Installation of our Elevators makes these possible and enables you to satisfy the demand. Asking for the information that we want to give you puts you under no obligation whatever. Write today.

THE MEADOWS MANUFACTURING CO., PONTIAC, ILL.



The Only Hydraulic Grain Dump Made

"The World's Most Durable Elevator"

Be in a position to give the farmer practical grain elevator advice—get our catalog and all information and be convinced that the

CAMP

is the grain elevating equipment that should be installed in every crib or granary that you build. Let us send you details for your file reference.

Camp Brothers & Company
Washington, Illinois

"Made Right to Stay Right"



Put Good Equipment in Good Barns

HARRIS Barn Equipment

because of its simplicity, its durability and many improvements is becoming most popular with farmers. Harris Barn Equipment because of its profit-making possibilities and ease of installation is finding great favor with builders.

The Harris line includes the famous HARRIS Stanchion, several styles of Stalls, Feed and Litter Carriers, Hay Tools, Ventilators and miscellaneous equipment. In order to get clear ideas of our products and their installation you should write for our large catalogue—it shows and tells all.

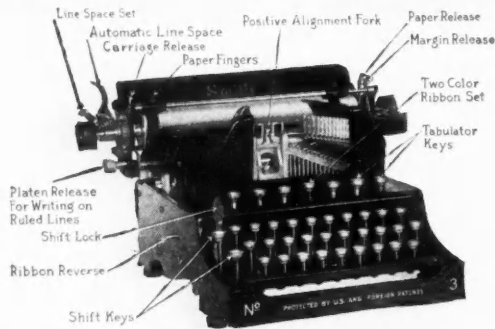
HARRIS MFG. CO.

Box 224

Salem, Ohio



Typewriter Sensation!



Greatest Typewriter Bargain → EVER OFFERED ←

Only \$2.00 a month until the bargain price of \$29.60 is paid and the machine is yours. **This startling offer has astounded the typewriter world.** Absolutely the greatest typewriter bargain ever offered. For a short time only I offer a limited number of these standard

Visible Writing MODEL No. 3

typewriters at this exceptional price. **Perfect machines, not damaged or shop worn.** Complete outfit, cover, tools, instructions, etc. Machine of standard size, but light weight and portable, keyboard of standard arrangement, writing the full 84 characters, two color ribbon, tabulator, back spacer, writes on ruled lines; **in fact, every late style feature and modern operating convenience,** at less than a third of the regular price, and each letter visible as printed and all previous writing completely visible at all times.

FREE Trial! You Take NO RISK

My brand new Model, No. 3 offer for but \$29.60—and only \$2.00 per month.

I won't let you buy this typewriter before you see it. I want you to be absolutely convinced that this is the greatest typewriter bargain ever offered. If you have the slightest use for a typewriter you should accept this amazing offer. **You cannot equal this wonderful value anywhere.** When the typewriter arrives deposit with the express agent \$5.60 and take the machine for a five days' trial. If you are convinced that it is the best typewriter you ever saw, keep it and send me \$2.00 a month until my bargain price is paid. If you don't want it, return to the express agent, receive your \$5.60 and he returns the machine to me. I will pay the return express charges. **This machine is guaranteed just as if you paid \$100.00 for it.**

Only 100 Typewriters at This Price

There is no time to lose. Fill in the coupon and mail it today—sure. The typewriter will be shipped promptly. There is no red tape—no solicitors—no collectors—no chattel mortgage. It is simply understood that I retain title to the machine until the full \$29.60 is paid. You cannot lose. **It is the greatest typewriter opportunity you will ever have.**

-----TEAR OUT—MAIL TODAY-----

H. A. SMITH, 721-231 N. Fifth Ave., Chicago, Ill.

Ship me your Model No 3, F. O. B. Chicago, as described in this advertisement. I will pay you the \$24.00 balance of the SPECIAL \$29.60 purchase price at the rate of \$2.00 a month. The title to remain in you until fully paid for. It is understood that I have five days in which to examine and try the typewriter. If I choose not to keep it I will carefully repack it and return it to the express agent. It is understood that you give the standard guarantee for one year.

Name.....

Address.....

New Buildings Authorized by Detroit Steel Products Company

Two new concrete buildings to be used for the manufacture of Fenestra Solid Steel Windows were authorized by the Board of Directors of the Detroit Steel Products Company following the annual meeting of the stockholders held at the company's office recently. These new buildings will be started immediately and rushed to completion and will increase the capacity of the factories approximately 100 per cent.

Prospects for 1916 all indicate that the next twelve months will show nice increase over 1915, and the management is therefore increasing its manufacturing facilities to meet the unprecedented demand.

At the meeting of the stockholders the following directors were elected: Walter S. Russel, Henry Russel, M. P. Rumney, C. H. O. Meyer, Robert S. Drummond, J. G. Rumney and Leo M. Butzel.

The directors re-elected officers as follows: President, Walter S. Russel; Vice-President, Robert S. Drummond; Sec.-Treas. and General Manager, J. G. Rumney.



No. 384 Lightning Hollow Chisel Mortiser and Relisher

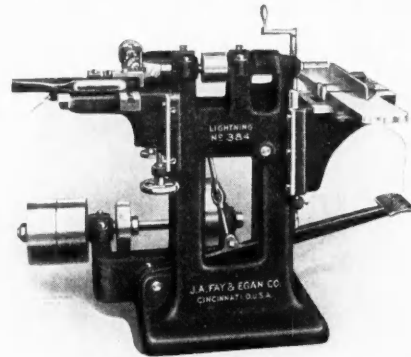
Mortising sash stiles, rails and muntins and relishing out the tenon and cutting away that part of the tenon which is under the mould, while closely related operations have heretofore always been done on separate machines.

The cost of three separate machines, together with space required, has been too much for the jobbing shops and smaller manufacturers of window sash; and they have, therefore, always had to do most of this work by hand.

Such people will eagerly welcome a new machine recently placed on the market as illustrated herewith.

It is in the first place a high grade general purpose hollow chisel mortiser, working material up to 6 inches by 6 inches, 3 inches deep or by reversing thru, 6 inches. It will carry chisels up to 3/4 inch square and any larger or irregular shaped mortise can be made quickly and easily by overlapping cuts.

It has a traveling relishing table, relishing head being car-



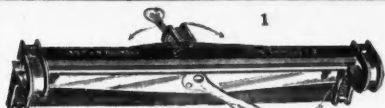
J. A. Fay & Egan's No. 384 Mortiser and Relisher.

ried on the same spindle with the bit for the hollow auger.

At right angles to the relishing head is a boring bit that cuts away that part of the tenon which is under the mould.

This machine is entirely self-contained, takes up small floor space, uses very little power and does clean cut and accurate work. It is so simple to adjust and easy to operate that a boy can run it. No pounding or jarring; mortises are perfect corners, square and sharp; no chips left to be picked out by hand.

The advantages and economy of this small combination machine, which is being made to sell at a very attractive price, can be learned and further information regarding it can be had upon application to the manufacturers, J. A. Fay & Egan Co., 545-565 W. Front St., Cincinnati, Ohio.



FOLDING STEEL SAW VISE

Made of steel, finished in Japan. Parts not japanned are nickel plated. Back jaw faced with rubber. This prevents vibration and makes the filing of saws practically noiseless. Length over all 12". Length of jaws 10 1/2". Width, 2 1/4". Weight, 2 lbs., 10 1/2 oz.



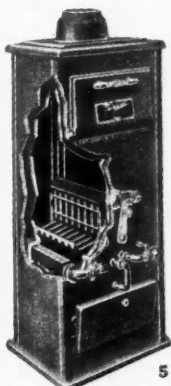
STEEL BAR CARPENTER'S CLAMP

The "T" shaped bar is rolled from a special quality of stiff steel; it is notched on the lower side, giving great holding power. The screw is steel with a deep cut square thread. SIZES: For ordinary work, 3-16x1 1/2" bar, 1/2" screw. For extra heavy or large work, 1x1 1/2" bar, 3/4" screw.



ECCENTRIC ANVIL SAW SET

Exceptionally easy to set. Indicator and dial, showing number of teeth to the inch. Made with a revolving eccentric anvil that has the necessary bevel and length for all saw teeth ranging from 4 to 16 to the inch.



The INCINERITE
—the modern necessity for every apartment house, restaurant, club, department store, office building, or properly equipped residence. The only sanitary way of disposing of garbage. Clean, efficient, time and money saving. 5000 already in use and the list rapidly growing.

FIVE POINTS FOR BUILDERS

Here are five "Specials" in the Stearns line of Builders' needs, which show that the equipment we sell is really *different*.

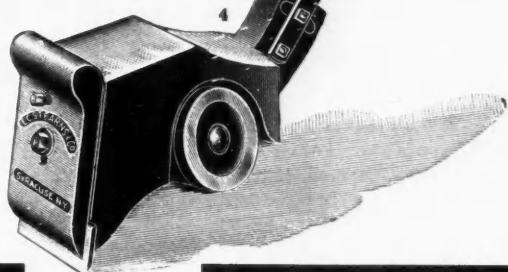
Stearns

stands for good mechanical design and good values. Send for our Catalog today. Mention by number (see numbers which a dial in illustrations) which ones of the five specials you are most interested in.

E. C. STEARNS & CO.
500 Oneida St. SYRACUSE, N. Y.

Floor Scraper

Scrapes clean and smooth, in the corners, close up to the walls, and scrapes without those wavy lines so often caused by "chatter." Double-edged knife — wears twice as long as any other. The adjustable handle, rubber tires and distribution of weight are all exclusive features of the STEARNS No. 10. Write for our special 15 days' FREE Trial Offer.



Money to Loan

We make loans in amounts of \$150,000 and over, on properties in the larger cities of the United States. (Fee or long term leasehold.)

We specialize in loans on—

- Office buildings,
- Hotels,
- Industrial plants with heavy land values, occupied by prosperous corporations,
- High grade apartment buildings.

We make these loans in the form of First Mortgage Serial Bond issues.

Ample equities required. Construction loans a specialty. Immediate action on all applications. No loans considered under \$150,000.

ESTABLISHED 1882
S.W. STRAUS & Co.
INCORPORATED
MORTGAGE AND BOND BANKERS

STRAUS BUILDING, CHICAGO. 5th & HENNEPIN, MINNEAPOLIS. ONE WALL STREET, NEW YORK.

THIS MACHINE WILL EARN \$20 to \$50 Daily Profit for You

Making Cement Bricks and Blocks

Factory owners are the biggest money makers in America and this machine will place you in their ranks. You can start with little capital and even without experience. This machine makes pressed cement bricks and blocks under 80,000 pounds pressure. No tamping and easy work. It makes 1,000 blocks or 10,000 bricks daily. No burning required. Ready for the market in a few days' time. They are necessary for the



Helm DRY WALL Building System

This is the system that appeals to builders, contractors and architects. It overcomes the opposition to concrete because it offers absolutely **DRY WALL** construction. It saves money for builders, as **no furring and lathing are required**, and it makes **rigid walls and fireproof walls**. This is the system which is bound to get you business and give you the advantage over all other products. **\$50 and up starts you.**



Send for This FREE CONCRETE BOOK

Tear of the corner coupon right now before you turn this great opportunity which is open to you today. It will tell you all the details of this system, about the Helm Press and the DRY WALL building system. It will show you how easy it is to start a profitable business. It tells how each product is made, how it is cured and sold. Write today. Do it now.

Helm Brick Machine Co.
273 Mitchell St.,
Cadillac, Mich.

Please send FREE the book on concrete and Helm Presses.

Name

HELM BRICK MACHINE CO.
273 Mitchell St.,
CADILLAC, MICH.

Address

SAVE HALF Your Paint Bills

By using GOOD PAINT which will give LASTING SERVICE and SAVE YOU cost of frequent repainting.

Ingersoll Paint

has proved itself the MOST DURABLE by 74 years' use and is the ONLY PAINT Endorsed by the "Grange" 42 years.

Made in all colors—for all purposes.

Get My FREE DELIVERY Offer

It is to your advantage to use the BEST PAINT. You can buy it "Direct from our Factory" at WHOLESALE PRICES, and

SAVE MIDDLEMEN'S PROFITS

This means a big saving to you, both in first cost and satisfactory results.

Tells all about Paint and Painting for Durability. How to avoid trouble and expense caused by Paints fading, chalking and peeling. Information WORTH MANY DOLLARS TO YOU—FREE with Sample Color Cards. Write me.



Do it Now—I will Save you Money

O. W. INGERSOLL
272 Plymouth Street
BROOKLYN, N. Y.

The Oldest Ready Mixed Paint House in America. Estab. 1842

Present Prosperity in Building Industry Shows Itself in Heating Field

The coming season promises to be the greatest in building activity for many years. From every source in the building field are reports of coming prosperity. The "good times" wave has struck not only the big city contractors, but the carpenters and builders of even the smallest villages. Many people who have put off building during the past year are now giving the word to the architects to "go ahead." And there is more than the normal amount of building for this year in addition.

The reasons for this condition are not far to seek. For the past year a peculiar business condition has existed as far as building operations were concerned. In many places building was almost at a standstill. Not considering local causes, such as strikes, etc., there still remained some unexplained reason for only desultory building. It could not be charged directly to the war, political conditions or rumors of panics. Perhaps it was a combination of all of these things. Whatever it was, it retarded business in the building field. And whatever the cause, it is now removed, for business in the building field, as in other fields, promises to be phenomenal this season.

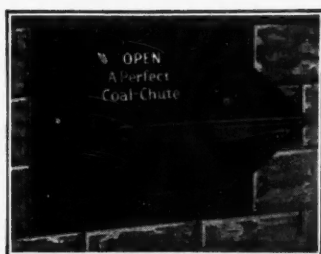
However, the depression of the past year had one very important result. It taught people economy such as they had not practiced before. It led them to demand the very utmost for their money. It made men question values before they bought, made them fine comb the market for bargains. In a word, it brought about close buying, and a tendency to demand *saving* at every point. And this tendency has out-lived the depression of the past year. It is seen plainly in the midst of the business prosperity of today. That prosperity is not reckless; the greatest spenders are demanding the greatest values for their money.

In no field is this seen more plainly than in the heating equipment business. After war-scares and panic-rumors had exhausted themselves, there was a mighty swing of the business pendulum, and this showed itself at once in the heater and boiler industry. Architects are specifying and contractors recommending the best heaters and boilers obtainable. And clients are agreeing with these specifications and recommendations. But clients are demanding *value*, too—they want to see a cash *saving* before they invest their money. They are demanding reduced coal bills, lower cost of operation.

An indication of this is the startling increase in business reported by The Williamson Heater Company, 97 West Fifth Avenue, Cincinnati. This long established firm is one of the world's oldest and largest manufacturers of heating equipment, so the experience of The Williamson Company is certainly representative. Williamson "New-Feed Underfeed" furnaces and boilers are selling at a hitherto unequalled rate, says one of the officials of The Williamson Company. And this remarkable sales increase is taken to be another indication of the demand for equipment that will show an actual saving to the user. Williamson "Underfeed" furnaces and boilers are guaranteed by the makers to cut coal bills one-half to two-thirds. The Williamson Heater Company offers to stand back of that guarantee when it is made by any one placing Williamson equipment. Thus, a furnace dealer or contractor can give his own personal pledge that Williamson "New-Feed Underfeed" furnaces or boilers will cut clients' coal bills one-half to two-thirds. This personal guarantee makes a great hit with the client, and, as the Williamson official says, "Underfeeds make good or we make good."

A large part of the extraordinary success of the Underfeed is due to this striking guarantee, the manufacturers say. But, of course, it would have to warrant such a guarantee by actual performance. "And this is just what the 'Underfeed'

(Continued to page 154.)



**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**

Write for Booklet C.

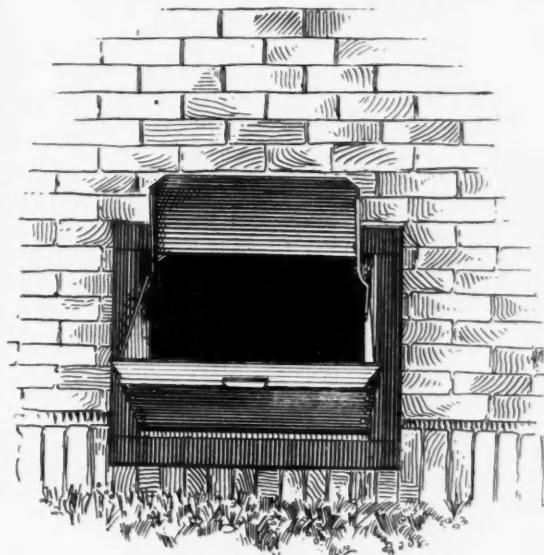


Holland Furnace Company
Holland, Mich.

World's Largest Direct Installers of Furnaces.

KEWANEE ALL STEEL COAL CHUTES

Pay You a Profit



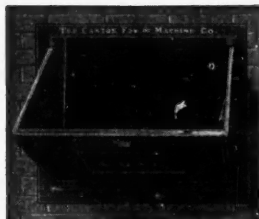
Every building you erect needs a Kewanee All-Steel Coal Chute, and every one installed means a profit to you. Kewanee Chutes being constructed of boiler steel are indestructible. They are automatic in action, and give every possible protection to the building. Furthermore they are easy to install in any building, old or new.

Special Proposition to Contractors and Dealers

KEWANEE MANUFACTURING CO., Kewanee, Ill.

**Be Prepared !!
for the
Coal Man**

Protect the foundations of your buildings; prevent broken windows; and guard against dirty lawns by installing



CANTON COAL CHUTES

Popular with builders, because they are easy to install, make a hit with the owner, and the cost is small.

They come in three handy sizes, and open either on the inside or outside.

Write for our catalog "B-4" of Builders' Iron Work.

Canton Foundry & Machine Co.
CANTON, OHIO

**The Window
Chute for Coal**

It opens from inside which makes it burglar-proof. No catch, screw or bolt to make it possible to be opened from outside.

The door is fitted air and water tight.

The simplest design made. Sizes 15" x 20" and 18" x 20".

Send for Catalog and Prices

The Ravenna Furnace and Heating Co.
RAVENNA, OHIO



"Best" Stud Sockets

in concrete construction are as much ahead of timber plates as concrete is ahead of lumber for the floors. Easily and quickly set.

Economizes in labor and materials and prolongs the life of your buildings.

Write for circulars.
STERLING FOUNDRY COMPANY
8 Ave. A,
Sterling, Ill.



Going up?

-or down?

HERE is your future charted for you, based on the actual average earnings of trained and untrained men.

Which way will you go? You'll either go *up*, through *training*, to a position that means good money and more comforts as the years go by, or you'll go *down*, through *lack of training*, into the ranks of the poorly paid.

It rests entirely with you which way you go. You can make or break your own future. And *now* is the time to decide. Not next year, not next month, but *now*. You *can* go up if you want to. You can *get* the training that will command a trained man's salary. The International Correspondence Schools have helped hundreds of thousands of men to qualify for advancement. Let them show *you* how *you* can prepare yourself, in your own home, for the position you want in the work you like best.

At least, *find out* what the I. C. S. can do for you, by marking and mailing this coupon. It will be the first step upward. Choose your future from this list, then get this coupon into the mail today

I. C. S.
Box 8128
Scranton, Pa.

CUT OUT HERE

INTERNATIONAL CORRESPONDENCE SCHOOLS
Box 8128, SCRANTON, PA.

Explain, without obligating me, how I can qualify for the position, or in the subject, before which I mark **X**.

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| <input type="checkbox"/> Electric Lighting | <input type="checkbox"/> Window Trimmer |
| <input type="checkbox"/> Electric Car Running | <input type="checkbox"/> Show Card Writer |
| <input type="checkbox"/> Electric Wiring | <input type="checkbox"/> Outdoor Sign Painter |
| <input type="checkbox"/> Telephone Expert | <input type="checkbox"/> ILLUSTRATOR |
| <input type="checkbox"/> MECHANICAL ENGINEER | <input type="checkbox"/> DESIGNER |
| <input type="checkbox"/> Mechanical Draftsman | <input type="checkbox"/> BOOKKEEPER |
| <input type="checkbox"/> Machine Shop Practice | <input type="checkbox"/> Stenographer and Typist |
| <input type="checkbox"/> Gas Engineer | <input type="checkbox"/> Cert. Pub. Accountant |
| <input type="checkbox"/> CIVIL ENGINEER | <input type="checkbox"/> Railway Accountant |
| <input type="checkbox"/> Surveying and Mapping | <input type="checkbox"/> Commercial Law |
| <input type="checkbox"/> WINE FOREMAN OR ENGR | <input type="checkbox"/> GOOD ENGLISH |
| <input type="checkbox"/> Metallurgist or Prospector | <input type="checkbox"/> Teacher |
| <input type="checkbox"/> STATIONARY ENGINEER | <input type="checkbox"/> Common School Subjects |
| <input type="checkbox"/> Marine Engineer | <input type="checkbox"/> CIVIL SERVICE |
| <input type="checkbox"/> ARCHITECT | <input type="checkbox"/> Railway Mail Clerk |
| <input type="checkbox"/> Contractor and Builder | <input type="checkbox"/> AGRICULTURE |
| <input type="checkbox"/> Architectural Draftsman | <input type="checkbox"/> POULTRY RAISING |
| <input type="checkbox"/> Concrete Builder | <input type="checkbox"/> Textile Overseer or Supt. |
| <input type="checkbox"/> Structural Engineer | <input type="checkbox"/> Navigator |
| <input type="checkbox"/> PLEUMBING AND HEATING | <input type="checkbox"/> Chemist |
| <input type="checkbox"/> Sheet Metal Worker | <input type="checkbox"/> AUTO REPAIRING |
| <input type="checkbox"/> SALESMANSHIP | <input type="checkbox"/> Auto Repairing |
| | <input type="checkbox"/> Spanish |
| | <input type="checkbox"/> German |
| | <input type="checkbox"/> French |
| | <input type="checkbox"/> Italian |

Name _____
Occupation & Employer _____
Street and No. _____
City _____ State _____

does," says the Williamson official; "our 35,000 enthusiastic users are the best backing we have in making the 'one-half to two-thirds saving' guarantee. We have thousands of letters from users, telling of cleaner and better heat at less cost the 'Underfeed Way.' The 'Underfeed' burns cheap slack, buckwheat, or 'run of the mine' coal with as good results as the most expensive grades, and users everywhere are saving money because of this. Our proposition for contractors and furnace or boiler dealers is making a sensation, too, because of our discounts, etc., and remarkable sales helps. But the greatest element of our success, we believe, is that we meet the present cry for economy with a concrete answer—a furnace or boiler that we guarantee cuts coal bills one-half to two-thirds."



The Richards-Wilcox Door Closer and Check

Door closers and checks are coming into use more and more because of the fact that they effectually close the doors and also prevent them from slamming shut. A check to be of the most value must be of very simple construction and must be adaptable to many different conditions.

The illustration shows a new closer and check that has been recently put on the market by the Richards-Wilcox Manufacturing Company. It is a liquid check and the makers say that the construction is very simple so that it is easily kept in the best order.

The spring is protected from over-winding by the tooth-dog that is arranged so that the tension in the spring can be varied to suit conditions, but the limited number of teeth on the dog make it impossible to over-wind the spring.

The check is made completely reversible so that it can be used on either a right or a left-hand door. The arm can be swung to either side as the pawl is placed, so that it will engage the tooth-dog from either side. This makes a truly reversible check.

The makers say that the check is absolutely leak proof. The oil used is a non-freezing type and has high lubricating qualities as all the moving parts are immersed in it.

This check is one of the latest features added to the line of the Richards-Wilcox Company. It is a good indication of the progressive condition of a concern and the quality of their products when they are always improving their line and adding to it.

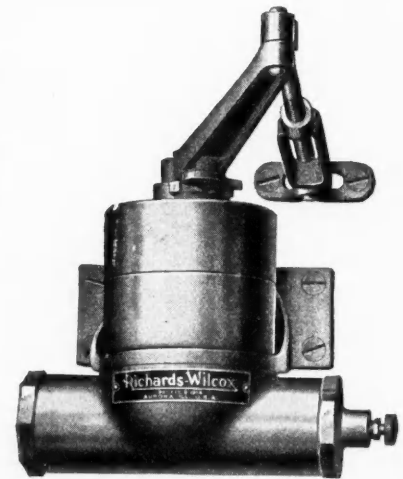
Details of this new feature and their many other hardware specialties can be obtained by writing to this concern at Aurora, Ill.



The Latest in "Sultan" Saw Rigs

Safety devices of different kinds are among the most important features of saw rigs. Men will be more willing to work and will do faster and better work when they know they are protected by safety devices.

(Continued to page 156.)



New Richards-Wilcox Door Check and Closer.

THE DIAMOND METAL WEATHER-STRIP
 FOR DOORS AND WINDOWS
 HAS EXCLUSIVE FEATURES OF ITS OWN —
 LARGEST MOST COMPLETE LINE IN U. S. A.
REDUCES FUEL BILLS 20 TO 40%
KEEPS OUT WIND, DIRT, & STORM
 SEND FOR OUR NEW BOOKLET

THE DIAMOND WAY OF PRACTICAL WEATHER-STRIPPING **AND POSITIVE PROOF FROM PARTICULAR PEOPLE IT WILL INTEREST YOU**

OUR 365 AGENCIES IN U.S. AND CANADA ARE READY TO SERVE YOU AT A MOMENT'S NOTICE CAN BE PUT IN OLD OR NEW BUILDINGS WE WANT 1000 MORE AGENTS TO SELL AND INSTALL OUR WEATHER STRIP CONTRACTORS-CARPENTERS WRITE FOR OUR AGENCY PROPOSITION, YOU'LL LIKE IT. EXCLUSIVE MAKERS

DIAMOND METAL WEATHER STRIPS THE DIAMOND-METAL STAMPING COMPANY COLUMBUS, OHIO, U. S. A.



The Owner of this House—

saved \$21.15 on his fuel bill during five months of severe winter weather, a saving of over 20%. And his wife wasn't bothered with dust, dirt or drafts. Every window was equipped with

Pullman All-Metal Weather Strips

One man in your town will get exclusive territory in which to install them. If you want the easiest and most profitable side line ever offered to a contractor, write today for sample and terms of our agency offer.

PULLMAN METAL WEATHER STRIP CO.
 York, Pa.



HIPPED TURRET SKYLIGHT



with swinging sash. Size 24" high; all windows on each side made to open at the same time. Operating device locks them open or closed.

The Skylight is of guaranteed quality. You can use it on any of your buildings with the assurance that it will stand the wear. Watertight. Can be set up in a moment by an inexperienced man.

Write for our Skylight Catalog and Prices

Galesburg Sheet Metal Works - Galesburg, Ill.

NEW! CHIEF VENTILATING SIDEWALL WINDOWS

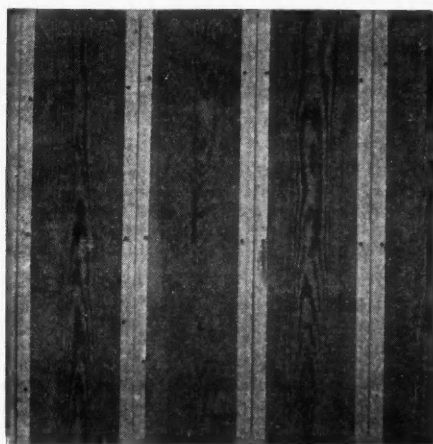


Latest and best model of modern sidewall window for hog houses, barns, sheds, poultry houses, work shops, etc.

Admits fresh air freely without direct draft. Chief Ventilating Windows open inward—tilt open at top like a transom. Open to four positions (see cut) and are held by a strong latch.

Made of steel—can't rot, warp, shrink or swell. Absolutely leak-proof, rust-proof and fire-proof, nothing to wear out—need no paint or repairs. No putty used—glass fits in steel frame. Fit into any building—old or new. Easy to install. Please ALL users. Write for full information and prices, today.

SHRAUGER & JOHNSON
 430 Walnut St., Atlantic, Iowa



METALLIC BATTEN STRIPS
 PRACTICAL—EVERLASTING—ECONOMICAL

These Batten Strips of Galvanized Metal will never warp, split, or draw away from the boards. Offer no obstruction to sliding doors. Allow for expansion and contraction of the siding. Made in 8-foot and 10-foot length with interlocking joint. Easily cut; no waste. Nailed directly to siding with small nails.



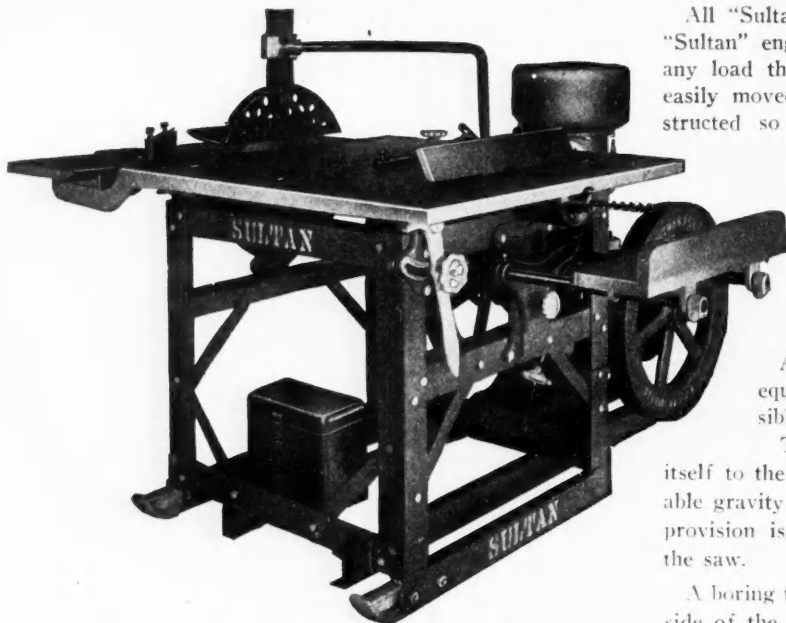
End view showing joint closed. A perfect fitting Batten at all times, in all weathers. Beautifies any building.



End view showing joint open. Provides for expansion or contraction of the siding so nails will not work loose.

Metallic Batten Strips make strong, neat joints. They make the building wind-proof, weather-proof and rat-proof. Also valuable for lining grain bins or wagon boxes.

Write for Free Sample and see for Yourself
METALLIC BATTEN COMPANY Owensville, Indiana



The Sultan Improved Three Horse Power All Round Portable Wood Worker with Sliding Cross Cut Saw Table.

One of the features of the "Sultan" saw-rig is the sliding cross cutting table. The material to be cut can be placed against the guide and the entire table moved past the saw. It is therefore not necessary for the hands to come near the saw with the attending danger. The guide is held in position by steel dowel pins that permit the swinging of the gauge thru an arc for cutting hexagon, octagon, straight, or any angular work. The sliding table is machine-grooved and slides freely back and forth.

All "Sultan" saw rigs are equipped with the well known "Sultan" engine. This engine is powerful enough to carry any load that may be put upon it, yet light enough to be easily moved from place to place, and is very simply constructed so that the inexperienced person can operate it satisfactorily and with perfect safety.

The power plant is located so that it will not interfere with any of the work on the table. By placing it just outside the table, it is possible to put in extra power so that there will be no slowing up on hard work. This was not possible when the power was placed under the table, the makers say.

All the attachments for the table are standard equipment and are arranged for the greatest possible convenience and accessibility.

The saw guard works automatically and adjusts itself to the varying thicknesses of the lumber used. A reliable gravity blower is provided with each saw rig and ample provision is made for carrying away all the sawdust from the saw.

A boring table and attachment are provided for the opposite side of the table from the saw. Provision is also made for sanding wheels and emery wheels. A jointer is provided with a safety circular jointer head, which is machined from a solid billet of steel and has milled slots into which the knives are inserted.

"Sultan" saw rigs and engines are made by the Whitman A. Company, 7003 South Broadway, St. Louis, Mo. An attractive catalog describing their products will be sent to builders and contractors on request. The information contained in this booklet will be of great value to any one interested in building.

LORENZEN— Tiles and Mosaics



Write

For Bathrooms, Kitchens, Hall-rooms, 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," the most comprehensive and complete catalog ever issued on fireplaces, should also be in your files. Write for it when building.

Chas. F. Lorenzen & Co.
103 N. Clark St. CHICAGO

Costs
but a
few
cents a
foot

KEEP YOUR MEN BUSY THIS WINTER AT A BIG PROFIT TO YOU



THERE IS A
BIG PROFIT TO
YOU in SELLING
AND LAYING
"SANTILITE
COMPOSITION
FLOORING"
IN THE DULL
WINTER
MONTHS

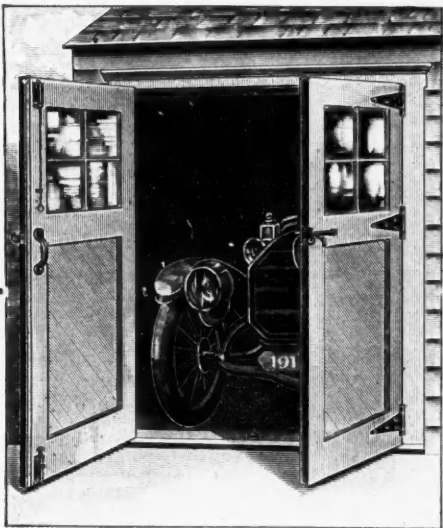
As you know, "SANTILITE COMPOSITION FLOORING" is laid just like plaster $\frac{1}{4}$ of an inch thick on any sub-floor of wood or cement—sets in 6 to 8 hours into a smooth, jointless, absolutely sanitary surface, without cracks to collect dirt, germs and filth—absolutely no trouble to keep clean—never grows dusty regardless of wear—extremely easy to stand and walk upon—fire will not burn it—water will not soak it—of permanent, pleasing appearance—never requires painting and will last the life of the building.

"SANTILITE" is the ideal floor in the home for the kitchen, pantry, bath or any room where a sanitary, dustless floor is wanted. It is extensively used in the factory for offices, halls, lockers, toilets; and the store, restaurant, cafe, public, semi-public buildings, in areas subjected to heavy wear, where a pleasing appearance, durability and absolute sanitation are required.

There are many masons, building and cement contractors who are making big profits in selling and laying "SANTILITE." It enlarges that branch of your business where there is an ever increasing demand—every home with a wooden bath room or kitchen floor needs it—every public place that has lots of wear must have it. You will find that there is little competition in your own locality, and it is especially attractive for it keeps your men profitably busy during the closed or Winter Season.

Write for samples, illustrated instructions for laying "SANTILITE" and our proposition to make your winter's work profitable.

SANITARY COMPOSITION FLOOR CO.
131 Plum St. SYRACUSE, N. Y.



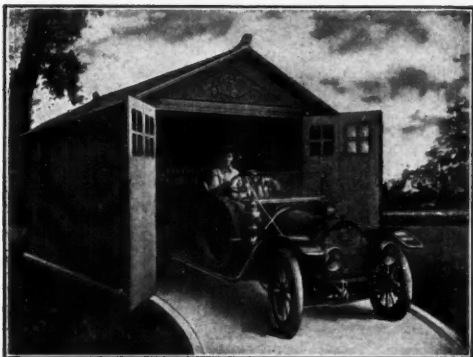
**Equip Those New Garages
With STANLEY'S No. 1776-J1 Set**

Complete Hardware "Trim" in One Package, for Garage with Double Doors, Finished in Dead Black Japan—A Quality Set at Moderate Cost.

Write for Descriptive Circular "A"



**YOU'RE MISSING A BET
MR. CARPENTER
IF YOU ARE PASSING UP THE
METAL SHELTER GAME**



IT'S THE BEST BET YET

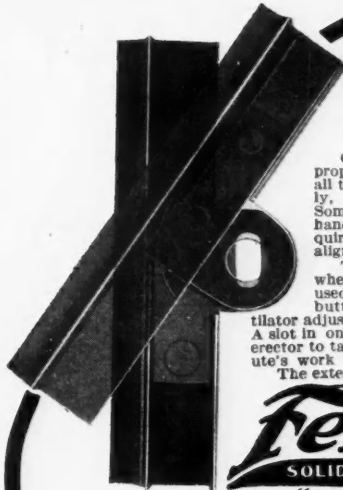
The METAL SHELTER Agency gets you more business, more customers, more work for your men, more money for you, better and quicker results, and—get this—
A REAL BUSINESS OF YOUR OWN

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

WHEN WRITING ADVERTISERS PLEASE MENT



**Erection Made Easy by
the Fenestra External
Adjustable Butt**

One of the chief precautions in the proper erection of steel sash is to make all the ventilators shut evenly and tightly, so that they weather properly. Sometimes when sash are roughly handled in shipment extra work is required to get all the ventilators in alignment.

This important detail is made easy where Fenestra Solid Steel Windows are used, because the external adjustable butt—an exclusive feature—allows ventilator adjustment after the sash are erected. A slot in one member of the butt allows the erector to take up almost any variation. A minute's work with an ordinary wrench does it. The external adjustable butt supplied on all



also allows easy removal of the ventilator if desired.

This is only one of many reasons why Fenestra Solid Steel Windows appeal to builders of all types of construction. Another feature is low cost. Standard sizes of Fenestra can often be purchased at the cost of good wood sash. Send for literature upon this subject.

DETROIT STEEL PRODUCTS COMPANY, Dept. K 16, Detroit, Mich.



**At Last! A Practical Home-Study Course for
CARPENTERS**

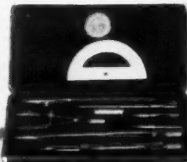
FOREMEN—SUPERINTENDENTS—CONTRACTORS
and all other men in the Building Lines

**Plan Reading, Estimating,
Architectural Drawing, Contracting, etc.**

This is a course for practical men. We send you actual blue print plans of buildings now being built or recently completed. Practical training, not book knowledge, is what you want—it's what we give. When you think of the opportunities this training offers, you will take time—right now—to mail the coupon for full information.

To Succeed in any branch of the building business you must have a complete knowledge of plans and specifications. You must be able to estimate closely the cost of material and labor. Guessing won't do—you must know. This knowledge is what makes successful foremen, superintendents and general contractors. This knowledge means money—thousands of dollars—to any builder—to you!

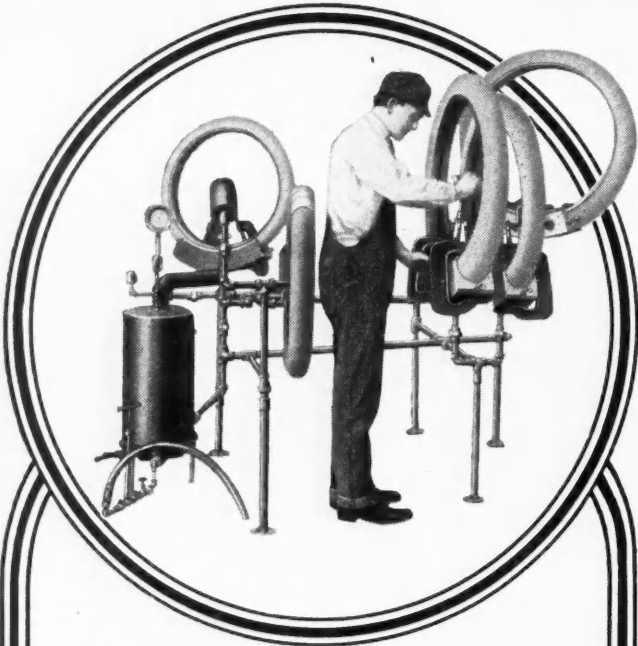
Your spare time is enough. You can master these subjects in your own home by this new, easy, quick method.



This elegant set of Drawing Instruments and Complete Outfit is yours FREE to you.

Special Trial Offer!

For only \$2 we will send you the complete set of working blue print plans for a large residence just completed in Evanston, Ill. Also the complete specifications for this job. We will also include questions concerning the plans and a complete itemized estimate showing how to figure the cost of the building down to the last penny. This is information worth many times its cost to you. Supply of plans on this offer is limited and will not last long. Send for your set today.



MAKE THIS YOUR BUSINESS AT \$3,000 PER YEAR

Repairing and Retreading Automobile Tires. There isn't a business you could get into that offers such sure possibilities of **success and fortune.** One man and a Haywood Tire Repair Plant can **make \$250 a month and more.** Scores already have done it and this year there is a greater demand than ever for tire repair work.

"15 Million Tires to Repair"

That's not a myth nor some man's dream. It's an actual fact. Tire factories everywhere are building new buildings—enlarging their plants for the biggest period of prosperity in the automobile business. **15 million tires will be manufactured and every one will need repairing.** Why not cash in on this opportunity? **Punctures and Blow-Outs are Common** Start in the business while it is yet young. A business that's growing and getting bigger and better. As it grows it will make big money for you.

No Experience Necessary

No previous training, no apprenticeship, is required to enter this business—not even the faintest knowledge of tires. If you have a little mechanical turn of mind, you can quickly become an expert. We teach everything. **You learn in a week.** Handle all kinds of jobs—figure prices at big cash profits. Nothing is easier to master completely.

A Rich Opportunity for Carpenters

Awaits ambitious men everywhere. No city too large—no town too small—everywhere the same opportunity exists. **A moderate investment** starts you. Get one machine and build the business from there. Business comes easy. We show how to get it. You grow and grow. You're soon a **real manufacturer—a success—a mighty big factor** in your community.

Write for the Facts

INVESTIGATE. Send the coupon below, a letter or postal. This brings full information—and a big interesting catalog. Tells all about tires and how to repair them. Shows how to make money—to become independent. Do this today—NOW—before you forget it.

HAYWOOD TIRE AND EQUIPMENT CO.
695 CAPITOL AVE. INDIANAPOLIS, IND.

The "Reliable" Burial Vault

The construction of burial vaults presents a good opportunity for contractors. The proposition has been handled with success in two different ways. Many men have taken it up as their entire business while others have handled it as a side line. In either case it has proved a good proposition.



Look Into This Concrete Burial Vault Proposition.

The "Reliable" burial vault presents a good opportunity for the contractor or builder.

This vault is cast in two pieces—the upper and the lower half. The joint between the two parts is of the tongue and groove type. The groove is on the lower half. This is filled with the sealing mixture and, when the upper half is placed in position, the mixture is forced out to fill the entire space between the two sections.

The "Reliable" burial vault is made by the Norwalk Mold Co., Norwalk, Ohio. They have a special offer to builders and contractors and will be very glad to send details on request.



Wonderful Business Born of the Automobile

"Two of the first three industries of the United States are largely dependent upon the automobile industry, which is officially fourth in rank," says H. P. Branstetter of the KisselKar.

"I refer to the metal and lumber trades. Of the former hundreds of thousands of tons were used in 1915 motor cars, while an enormous quantity of hardwood was consumed in building car bodies. Then consider the relation of the great leather, rubber, glass, paint and cloth trades to automobile building. Recent statistics show the following totals entering into the construction of last year's motor car output:

"Seven hundred and sixty thousand tons of fabricated steel; 8,450,000 board feet of manufactured wood; 67,232 leather hides; 3,280,000 square yards of imitation leather; 11,405,250 yards of top material and linings; 489,356 yards of burlap and so on thru the long list of materials entering into the modern automobile.

"Just think for a moment of the vast number of people interested in the production of a KisselKar. Workers in steel and lumber, employing millions of men, are but examples. Men of the jungles, the forests, the highways, the mills, the foundries—all are favorably affected thru the wonderful sale of automobiles. Literally millions of men in 1915 participated, directly or indirectly, in the \$691,778,950 which the automobile output brought in the retail market.

"To realize what all this means to business in general, it is but necessary to stop and ponder that this vast army of men to whom the rise of the motor car industry has meant so much, are in turn important consumers of every necessary, and many of the luxuries, of life. You occasionally meet a man who professes to believe that the demand for motor cars has hurt other lines of business. He is not a thinker."

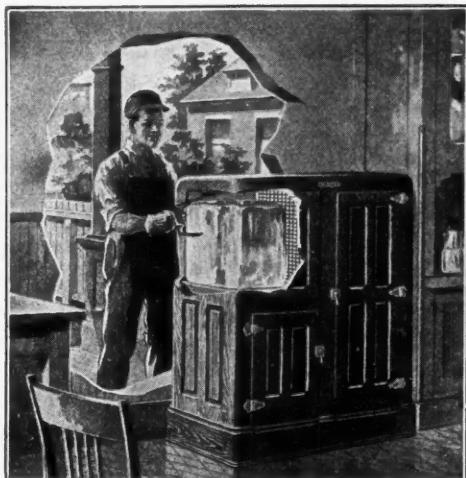


Majestic Duplex One-Register Heating System

The one-register furnace is becoming more and more popular among people all over the country, and the builder that understands their installation and operation will be able

(Continued to page 160.)

about the refrigerator—



Before you figure on it, it will pay you to investigate

The Herrick Outside Icing Sanitary Refrigerator

It's a new and practical idea in building. Saves more ice, gives more space in the kitchen, and does away with tracking the floors. The housewife can lock the doors with the assurance of the ice being delivered without the danger of anyone entering the house or getting into the refrigerator. In cool weather no ice is needed, and in summer only the minimum amount. Add to your reputation by specifying the Herrick. Our Service Department will be glad to figure your plans with you. What we ask is just a chance to demonstrate the advantages of our product.

HERRICK REFRIGERATOR CO.
Waterloo, Iowa



THERE are two things that you should know about paint. One is white lead. The other is linseed oil. All that you need to know about white lead is that it is

Dutch Boy White Lead

All that you need to know about linseed oil is that it is Dutch Boy Linseed Oil. Paint made of Dutch Boy White Lead and Dutch Boy Linseed Oil wears long and looks well on exteriors. It produces a washable, durable, beautiful finish of any tint on interiors.

Folders Our handy, general painting specifications and useful chart of color combinations should be in your catalog file.
"A" Write nearest branch for Folders "A."
F R E E

NATIONAL LEAD COMPANY

New York Chicago Boston Cincinnati Buffalo Cleveland St. Louis San Francisco
(John T. Lewis & Bros. Co., Philadelphia)
(National Lead & Oil Co., Pittsburgh)

Have You Ever Investigated This Stairway?

This Cut shows stairway in half position



Send Us a Postal Now

We will mail you our booklet and quote prices. State whether contractor or architect.

You have probably read our advertisements time and again. At the time you thought "Looks like a good thing. Guess I'll write them." But did you? The coming season from all indications is going to be a big one for contractors and architects. Prosperity rules the country over. Be prepared with information on all the latest appliances.

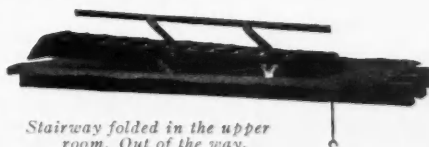
Its Uses The Bessler Movable Stairway is today installed in bungalows, 2½ story houses, hospitals, schools, office buildings, cottages, and in luxurious mansions.

The Bessler Movable Stairway Co.
Department 1 AKRON, OHIO

Folds Up Into Ceiling When Not in Use

When the Bessler Movable Stairway is not in use it occupies no floor space in the room below.

Folds up into the ceiling leaving the room below clear. A neat panel is the only visible part.



Stairway folded in the upper room. Out of the way.

THE "STANDARD" DADO & STAIR ROUTING ATTACHMENT

Do your dadoing and grooving on top of your saw table, where you can see your work.

This attachment fits most any ordinary saw table, it is put on the saw table by two thumb screws and two U bolts.

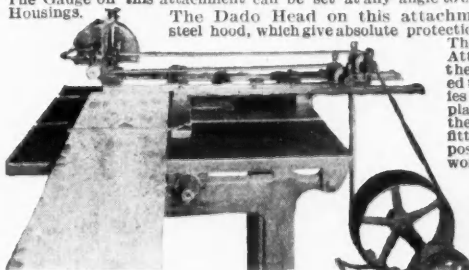
With this attachment on your saw table you can cut a groove clear across a 12" board and any depth or any width.

The Gauge on this attachment can be set at any angle to cut the grooves for Stair Housings.

The Dado Head on this attachment travels under a steel hood, which give absolute protection to the operator.

The Main frame of the Attachment is fastened to the saw table, and is planed true, the frame that carries the Dado Head is also planed true and runs in the main frame in closely fitted guides, so it is impossible to get any other work than accurate work.

The attachment is provided with idlers to give the proper tension to the belt. The Mandrel runs in Bronze Bearings and also the idlers, and are provided with oil cups.



Universal Woodworkers of all sizes. Write for prices.

STANDARD MACHINE TOOL & SUPPLY CO., Kansas City, Mo.

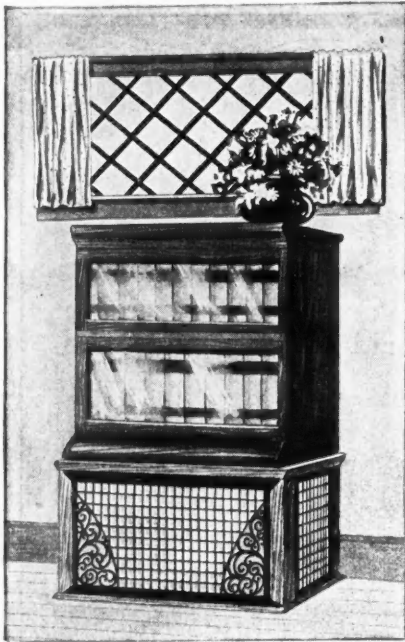
Showing The ATEN SEWAGE DISPOSAL SYSTEM

The ATEN System meets the needs of the country home. Simple and inexpensive to install. Indestructible and "fool proof". Will last a lifetime. Cleaning out not necessary.



Contractors and builders can install this system with unskilled labor, at a good profit. Write for further particulars and our Book No. 8.

Address
ATEN SEWAGE DISPOSAL CO.
286 Fifth Ave. New York City



Majestic Duplex Register is Insulated on Top, Discharges Warm Air in Front, and Takes in Cool Air at Ends.

head room enough to install a large furnace with all the pipes. Also the larger furnace with its many pipes tends to keep the cellar warm, which may be a disadvantage in the farming districts, where the cellar is used for storing fruits and vegetables.

The one-register heater gives a large amount of heat for the coal consumed because none of the heat is wasted in warming the pipes. The heat

to get some nice business.

There are several reasons for the popularity of the one-register furnace. In case of a small cellar, there may not be

goes directly upward and out thru the register into the middle room of the house.

The larger of the two illustrations shown here gives an idea of the simplicity of the installation. In this particular instance another smaller pipe is run up to the second floor to a wall register in addition to the large register on the first floor.

The construction of the main floor register is shown in the smaller illustration. This register discharges the warm air thru the face into the room. On each side is an opening that allows the cool air to go back to the furnace. The makers say that there is no danger of the register over-heating, when built in this way.

The Majestic Company, 610 Erie St., Huntington, Ind., are the makers of this furnace. More complete particulars can be obtained from this concern. Write for their book, "Majestic Modern Building Specialties."

✱
"Keezon" Cellular Lath

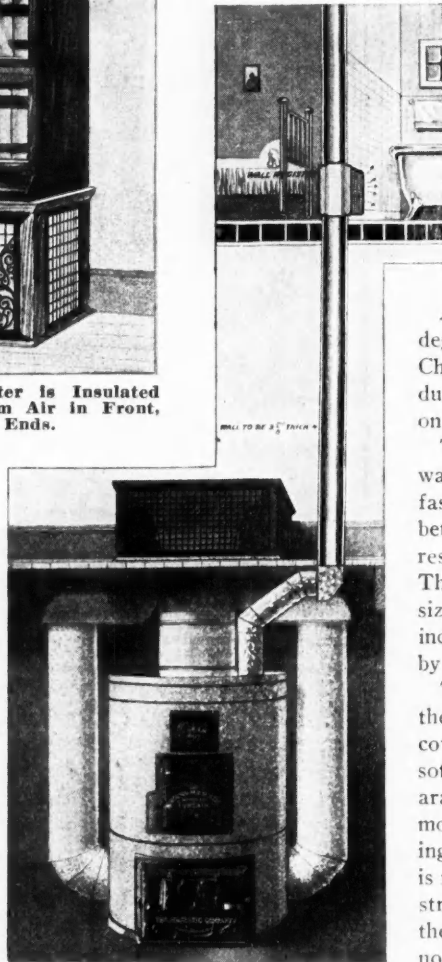
The object of all lath is to provide a good key without wasting any more plaster than is necessary.

A new lath has accomplished this result to a remarkable degree and caused much favorable comment at the recent Chicago Cement Show. It attracted considerable attention due to its unique construction, and the key that was obtained on the sample wall construction that was shown.

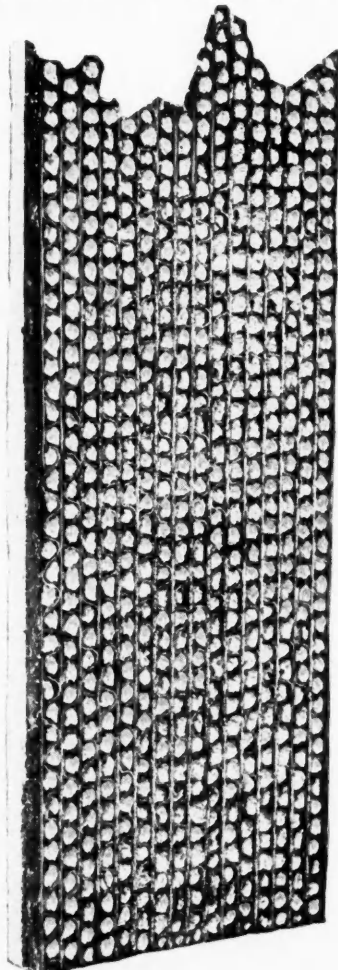
This "Keezon" lath is made in an entirely new and different way. It consists of narrow wood strips set on edge and fastened together with fiber board that weaves back and forth between the wood strips. This construction gives a lath that resembles a honey-comb in arrangement and is 3/8 inches thick. There are six of the cells to each square inch. The standard size of each unit is 48 inches by 6 3/4 inches by 3/8 inches.

The fiber board and the wood strips are covered with a creosote damp-proof preparation that prevents moisture from affecting them. As there is no metal in the construction of the lath, the effect of rusting is not considered.

No furring strips are necessary in using



Majestic Duplex Register for Warming Main Floor and Supplementary Heating Pipe for Upstairs.



Section of "Keezon" Plastered Wall Viewed from the Rear. Note Strength and Uniformity of Key Without Any Plaster Wasted.



Easy to own this good engine

Send for my new money-saving offer, before you arrange to try any engine for any price. Compare my engine with any other; consider my low prices—(easy terms if you wish), and you will see your advantage in having one of my

BAUER ENGINES

Gasoline, Kerosene, Distillate and Gas

Sizes, 2, 3, 5, 7, 9, 12 and 16 horse-power. Now sold only direct from my own factory at surprisingly low prices. All sizes, up-to-date, long stroke, valves-in-head, even speed type of engine. Over 20 years ago I made my first engine with my own hands. The thousands of my engines now at work prove that you take no risk when you get a Bauer Engine.

Write for Free Book Send me your address now, so I can send you my free book, with my latest and most liberal offer.



A. F. BAUER ENGINE CO.,

227 Bauer Bldg. Kansas City, Mo.

Winter Profit!

ARE YOU GETTING YOUR SHARE?

A Contractor says: "I made \$500.00 last year out of this business."

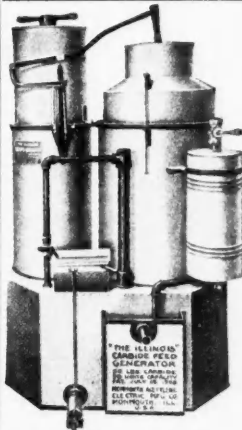
You can do as well.
Sell DAVIS light plants for country homes
Used all over the world for fifteen years.
We help you sell.

NO INVESTMENT ASKED

The proposition does not ask you to risk your money on our goods. It is our business to help you sell and we do. Ask for full description of plan.

Davis Acetylene Company

90 Prospect St., Elkhart, Ind.



Lighting Systems

that are Safe, Simple, Reliable and Efficient

Illinois and Monmouth Pit Generators

represent the pinnacle of Perfection in Lighting Systems. Their convenience and fine lighting facilities are appreciated by every rural resident. They are very easy to sell and yield you a handsome profit. We give Carpenters and Builders special Prices and Discounts and help them close sales by sending all prospects, handsome booklets and literature showing the desirability of our Generators.

Simply send us the names of persons who might be interested; we'll work together and you act as our direct agent installing and selling them. In the meantime learn more about Illinois and Monmouth Generators by reading over our Catalogue and Proposition—Write

Monmouth Acetylene-Electric Manufacturing Co.
Dept. AB. MONMOUTH, ILL.

You simply Push-



the Button-

No Engineer - No Large Battery

The **Bruston Automatic Electric Light** plant, for country homes, churches, hotels, small towns, etc., is absolutely automatic.

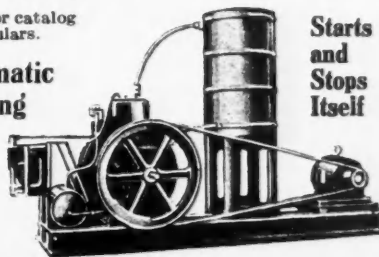
Generates current from 50% to 75% less than rates usually charged by lighting corporations. Over a thousand in successful operation.

We have a special proposition for Carpenters and Builders in small towns and country districts to install and sell the **Bruston Plants** at a good profit.

Write to us now for catalog and further particulars.

Bruston Automatic Electric Lighting & Power Company, Inc.

126 Liberty Street
NEW YORK CITY



Starts and Stops Itself



Model "C"
Brass, Bronze
or Nickel
\$2.50

—your customer wants it—

Even though he doesn't know there is one on the market, he has always felt the need of such a lamp as the **Wallace Portable Collapsible Lamp**

It's so handy. Stands, hangs, clamps or sticks any place—

at any angle, and when not in use folds up into a compact ball. Made in Brass, Bronze or Nickel; and prorseasonable in price.

Nine out of ten among your customers will buy the Wallace at sight, and every sale will mean a nice profit for you.

There is no easier way to make some extra money. Write today for our proposition.

Wallace Novelty Co.

19-25 E. 24th St.



NEW YORK

Lightning Rods

Reduce the fire hazard from lightning. We guarantee our **STAR SECTION GALVANIZED IRON LIGHTNING RODS** as 100% efficient.

Are your buildings rodded, or are they unprotected?

Star Section Galvanized Iron Lightning Rods

have stood a test of time that no other rods can boast. They are unequalled for practical application, durability, appearance and safety.

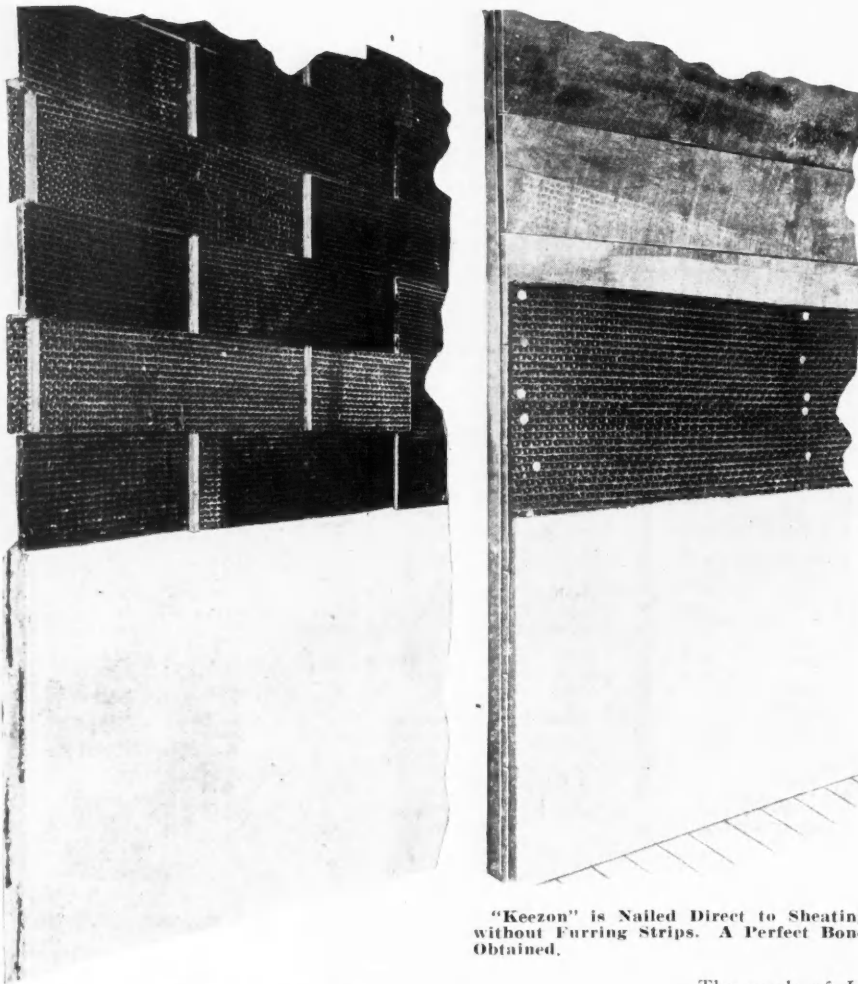
It is your work to install them, and we will make it profitable for you. Write today for our proposition.

Reyburn, Hunter & Co.

412-432 No. Sangamon St.,

CHICAGO





Two-Inch Solid Plaster Partition Wall Formed of "Keezon" Strips Interlaced Around 3/4-Inch Steel Channels.

"Keezon" is Nailed Direct to Sheathing without Furring Strips. A Perfect Bond Obtained.

this lath for wall construction. The depth of the cells furnishes a strong key even when the lath is placed directly on sheathing. The lath is held on the walls by long wire staples that reach across the width of one strip (6 3/4 inches).

The first illustration shows the back view of "Keezon" lath to which plaster has been applied. It shows the many

keys that are obtained and the saving made in the amount of plaster. The makers say that very good results are obtained by covering the lath only to a depth of 1/4 inch.

In testing this construction, they allowed 2 inches of water to soak thru a ceiling made with this lath. The key was so strong that the plaster did not fall anywhere.

Another illustration shows "Keezon" lath applied directly to sheathing without using furring strips.

The third illustration shows the lath in a special use for solid plaster partition walls that are made two or more inches thick. The strips of lath are woven back and forth around 3/4-inch channel irons.

The flexibility of the lath also makes it valuable for curved surfaces and, as it is easily cut, it is very useful for all kinds of irregular work.

The Cellular Lath Company, St. Louis, Mo., are the makers of "Keezon." Our readers that wish to keep posted on the new things in the building field can secure further details from this concern.



Branch Managers' Convention Great Success

The week of January 25 to 28 was a notable one for the Trussed Concrete Steel Company, as it marked the first annual convention of the branch managers held at their main plant at Youngstown, Ohio. Men gathered from every section of the country to co-operate in forming improved methods

(Continued to page 164.)

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BLACK, GREEN, PURPLE, RED

Booklet, Samples and Prices on Application

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

ASK THE MAN WHO KNOWS ROOFING



Well Sir, my advice as to the best kind of covering is **CON-SER-TEX**

Your Opportunity
TO MAKE EXTRA PROFITS THIS SPRING

Use roofing material that gives service and satisfaction, that costs less than most others, is easy and inexpensive to lay, and that makes a neat, durable surface.

On repair jobs or new buildings
 your estimates will be much lower, your profits bigger if you use

CON-SER-TEX

It is a canvas roofing chemically treated to protect the fibre from mildew, and the detrimental action of the oil in paint. It's water-proof—weather-proof—wear-proof.

Investigate—samples showing widths, weights, prices and complete details sent upon request.

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Best to be had and made in
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SHELDON'S SLATE

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ECONOMICAL — ARTISTIC — FIREPROOF
 Outlast the building. First cost, only cost. The only roof you can afford to consider for a permanent investment. Artificial substitutes bring endless expense for upkeep. Post a postal and get posted.

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If you ever write, or expect to write, specifications for shingles. see that your office is supplied with these generous working samples of

HUDSON ASPHALT SHINGLES

Both in red and in green. Your examination will tell you more about them than our talk. You can put them to your own tests, and the information you gain is sure to be to your advantage.

Write for them now—use the coupon if it helps—and we'll send the samples as pictured by return parcel post. Get the matter off your mind and the information into your office by writing now.

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 Room 453, 9 Church Street, New York City

Gentlemen:—Please send full-size working samples of red and green Hudson Shingles to

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which would render greatest service to their clients. Not only every section of the country was represented, but representatives came from far distant countries, including Japan, Hawaii, South America and Porto Rico. Fully one hundred men were in attendance.

The general program of the convention included business sessions every morning and afternoon. Mr. Julius Kahn, President, gave the opening address, followed by an inter-



Trussed Concrete Steel Co. Branch Managers' Banquet at Youngstown, Ohio.

esting talk and discussion on "Shop Practice" by T. H. Kane, Manager of Works. The noon recess was devoted to a thorough inspection of the manufacturing operations with a competent corps of guides to explain all the details.

The subject of "Steel Sash" was ably handled by P. M. Louwse, Manager of the Sash Department. Many interesting points dealing with the manufacturers of the various types

of sash were brought out, as well as information on Stock Sash, Semi-Stock Sash and To-Order Sash. The branch managers entered into the discussion vigorously and told of their experiences in various parts of the country.

On the subject of "Reinforced Concrete" many interesting points in regard to Design, Systems of Construction and Local Requirements were brought out. R. D. Snodgrass, Chief Engineer, talked on "Engineering Practice," and B. J. Sigmund, Philadelphia Manager, on "The Commercial Value of Engineering Service"; Hermann Fougner, New York Manager, on "Experiences with Reinforced Concrete."

The subject of Hy-Rib and Metal Lath brought out interesting papers and discussion. Among these were "Metal Lath," by J. Earle Heber, former Los Angeles Manager; "My Method with Distributors," by Louis Baum, Kansas City Manager; "Concrete Pavements" with Armor Plates for protecting the joints, and "Kahn Mesh Reinforcement" occupied one of the morning sessions under the leadership of John Bowditch, Manager of the Highway Department. O. W. Chaffee, Manager of the Credit Department, spoke on "Credits and Collections."

The business sessions were so active at all times that it was found entirely impracticable to cover the entire program which had been planned, so that a number of important discussions had to be postponed until another session. The Convention closed on Friday afternoon with a talk on general subjects by Gustave Kahn, General Manager of Sales.

THE "New-Way" Series "F" Engine Cuts Construction Costs

Because of

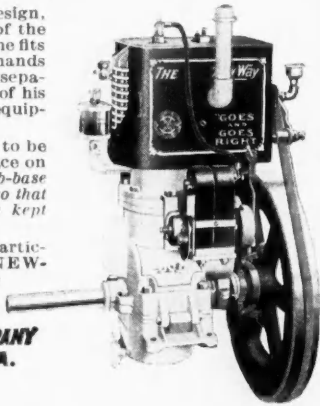
- 1. Light Weight.** Engines can be moved quickly and economically from one job to another. The 6 H. P. engine complete, ready to mount on any machine, weighs 325 pounds. Other 6 H. P. engines weigh from 800 to 1500 pounds.
- 2. High Class Ignition System.** Series "F" Engines furnished only with gear driven, high tension magnetos. No batteries—no complicated wiring—no spark coil.
- 3. High Grade Carburetion.** Engines are throttled governed and are fitted with float feed automobile carburetor, which insures perfect carburetion under all loads and conditions. Responds perfectly to sudden changes in load, giving closest regulation for the most exacting service.

The strong and compact design, light weight and reliability of the "New-Way" Series "F" Engine fits it splendidly to meet the demands of the contractor (either as a separate power unit or as a part of his mixer, hoist, pump or other equipment).

Its compact design allows it to be mounted in the smallest space on any machine, and without sub-base its center of gravity is low, so that weight of the entire outfit is kept down.

Contractors—write for full particulars about all sizes of the "NEW-WAY" Series "F"—ask for Catalog 11.

THE "New-Way" MOTOR COMPANY
LANSING, MICHIGAN, U.S.A.
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Profit for YOU Selling "Onepipe" Heaters

Hammer, saw and screwdriver only tools needed to install this new furnace. Heats whole house effectively and economically. You can find many stove-warmed houses where you can sell an

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Write for Special Proposition and Booklet. Opens up a new field for profits, without affecting your present business. Talking "heating" often gives opening for talking "house repairs".

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