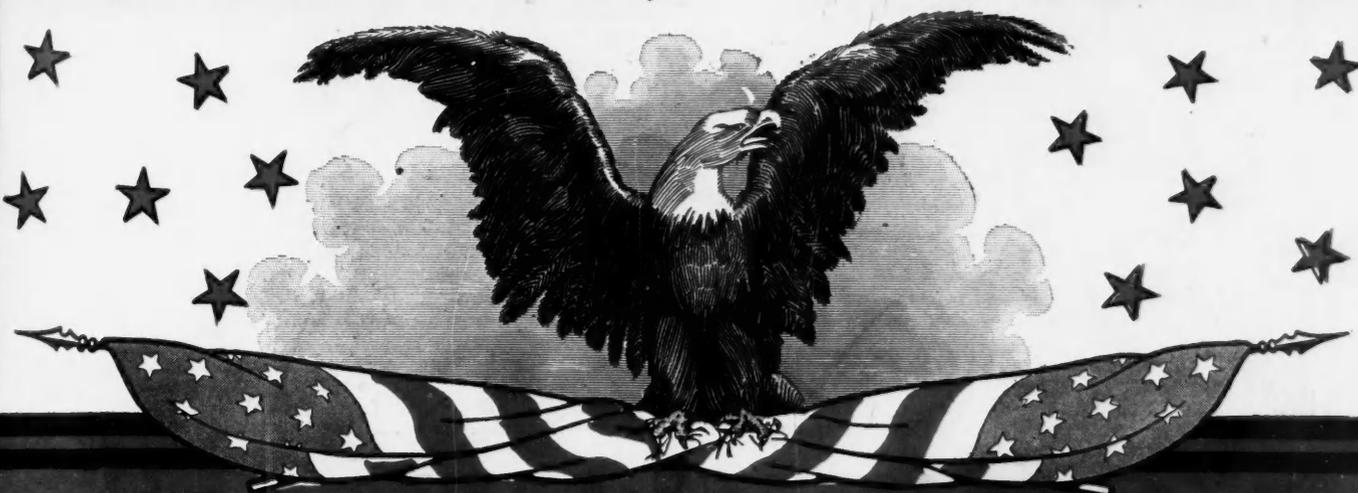


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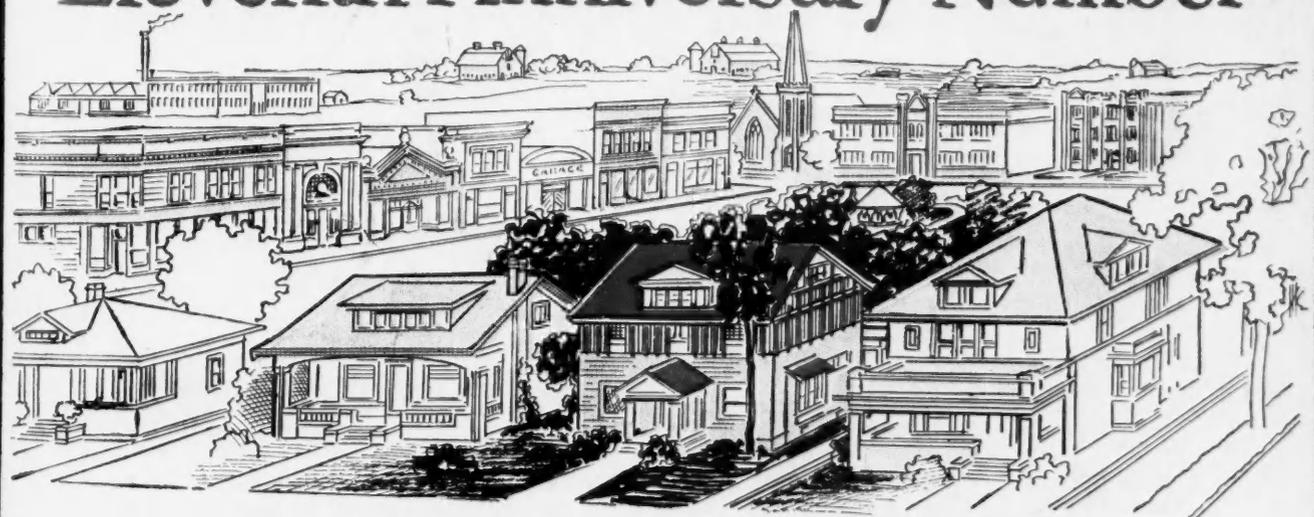
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AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER

Eleventh Anniversary Number



THE GREAT BUILDING FIELD

Suggesting the many types of Buildings erected each year by the 40,000 readers of the "A. C. & B."—Residences, Public Buildings, Business Buildings, Farm Buildings. Consider the immense amount of Materials, Equipment and Supplies necessary EACH YEAR to complete the 350,000 building Contracts handled by Our Great Family of Readers.

Price 20 Cents

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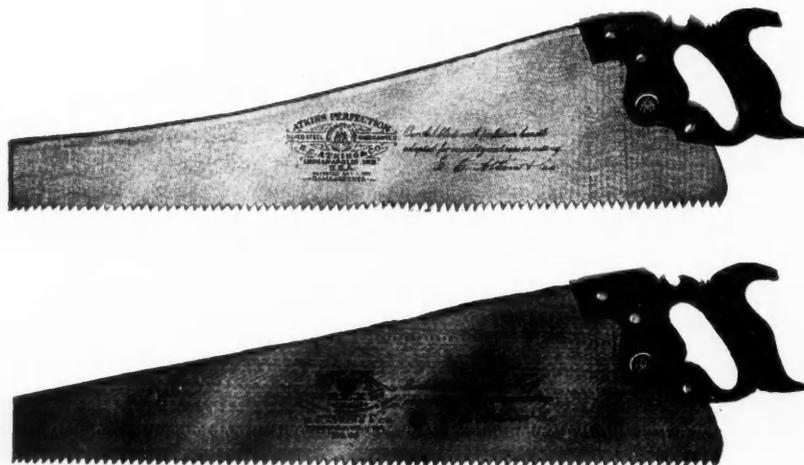
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It's the splendid edge and tension holding qualities of SILVER STEEL and the right hang that makes these Famous Saws so popular. The only saws that give a choice of Handles. Either the old style or Atkins Perfection pattern.

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

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER.

Eleven Years

A GOOD many changes are noticeable in the general building field, looking back over the eleven years that the AMERICAN CARPENTER AND BUILDER has been active. Public taste in building has improved perceptibly; especially in home building there has been wonderful progress. The bungalow spirit in home designing, carrying with it the desire for ornamental exteriors and complete equipment for home convenience, has penetrated into every corner of our land.

Few houses are built today without a basement heating plant, gas, electric or acetylene lighting plant, complete plumbing system, and sanitary sewage disposal. Eleven years ago, this was not true to any such extent as today. It is gratifying to see how effectively AMERICAN CARPENTER AND BUILDER readers are spreading abroad these better building ideas.

And at the same time our readers have been working for the interests of their customers, they have not overlooked the improving of their own operating methods. With the ever-increasing cost of skilled labor, building contractors have had to pay more attention to efficient business methods for handling their work. Definite methods of estimating and accurate cost records kept on every job, have eliminated much of the guess work from the builder's life. More and more is gasoline power being used on the job for doing better and more cheaply, what formerly was done by hand. Practically every builder today has a more or less complete equipment of power saw rig, concrete and mortar mixer, hoist, variety woodworker, etc. Motor trucks of both large and small capacity are much in use, and lately one sees many automobile trailers attached to a runabout or touring car and paying their way hauling building materials.

Good construction and complete modern equipment, accurately figured and put up by the most efficient contracting methods, is the end toward which we are working, and it is gratifying to see what progress eleven years have brought forth.

High Endorsement for Farm Building Number

WE have had so many compliments paid us on our February issue, that our head might well be turned, did not common sense hold it so firmly in place. Our readers, the practical barn-builders and architects out on the job, have liked the issue—and that's what means most to us. It is naturally pleasing, however, to know that some who are in a position to be expert judges of publishing work, think so highly of the February AMERICAN CARPENTER AND BUILDER. Note this from the Editor of "The Country Gentleman," the Curtis publication, Philadelphia.

"We have a letter from Mr. Stanley G. Hudson, Durban, Africa, who is interested in publications devoted to farm buildings as he has extensive farm lands in Zululand. We are writing him that your magazine for February contains the most complete descriptions of a set of farm buildings that we have yet seen. You will be doing both him and us a favor, if you will send him a specimen copy of this issue."

The Editor of "The Field—Illustrated," the millionaire farmers' magazine of New York City, writes as follows:

"I was fortunate enough to run across the February issue of the American Carpenter and Builder on the news-stand, and wish to congratulate you on this splendid Farm Building Number. It is undoubtedly the best publication of its kind that I have ever seen."

We try not to get cocky over such as this; nevertheless it is a satisfaction to know that honest and aggressive work wins out.

Next Month Prize Winning Designs

DON'T miss the May issue. Our big Prize Competition for Structures Planned and Built by Our Readers, closes April 5th; and the prize winning designs will be published in the May issue.

As complete announcement of this Competition was made last month, we will not repeat it here; but simply remind all of those interested to mail their entries at least by April 5th, and to watch for the outcome in the May issue. Very cordially yours,

Editor AMERICAN CARPENTER AND BUILDER.

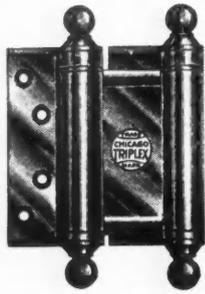
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TRADE
CHICAGO
MARK

SPRING HINGES A SUGGESTION

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



Chicago "Triplex" Spring Butts

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

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

Chicago Spring Butt Company,

CHICAGO

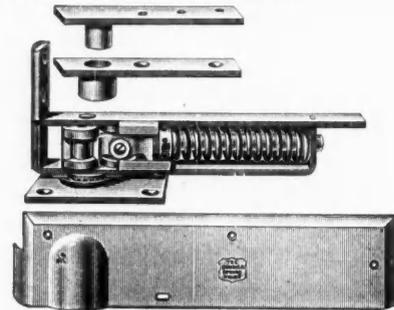


NEW YORK

BOMMER

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

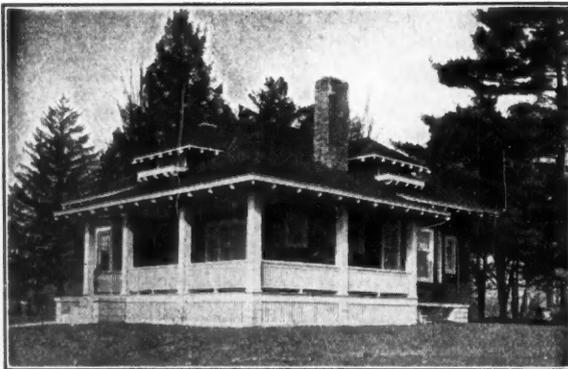
Every moving part of this hinge can be oiled from a single hole on outside of side-plate.



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

Your Hardware Merchant Can Supply Them

Bommer Bros., Manufacturers Brooklyn, N.Y.



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

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

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

CABOT'S QUILT

A scientific heat insulator and sound-deadener that makes houses warmer in winter and cooler in summer and deadens sound in floors and partitions. Not a mere felt or paper, but non-conducting mat that is about thirty times warmer than common papers.

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BOSTON, MASS.
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Saw Set



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

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A Self-Acting Barn Door Fastener Adjustable to All Conditions—



THE D.A.D.

Retails for 35 cents

Sag, shrink and swell. The stoutest, most compact, most durable and most convenient latch on the market today at any price. Can be put on in 10 minutes.

Free Trial for Contractors and Builders

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The D. A. D. Latch Co., Manchester, Iowa

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Circulation Audited and Verified February 24, 1915

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

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

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

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

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The publishers of the American Carpenter and Builder will not knowingly accept advertising from any individual, firm or corporation that is misleading in any way. They also reserve the right to edit advertising copy and to change or eliminate any statements that reflect or cast discredit upon any other building products.
The American Carpenter and Builder Company will use every legitimate means to safeguard the interests of its readers and its advertisers. It will use every effort to protect them from concerns whose business methods are open to question. Where the slightest doubt exists write the publishers for complete information. It may save money, time and worry.
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VOL. XXI APRIL, 1916. No. 1

Use More Plate Glass

THE consumption of plate glass in the general building field can be doubled thru proper educational publicity and the co-operation of builders and glass makers. The majority of architects and builders consider plate glass a luxury, when as a matter of fact it is surprisingly inexpensive as compared with ordinary glass; moreover, nothing dresses up a residence so much as plate glass windows. Nothing else should ever be used even for modest, inexpensive homes.

With a little additional effort of the right sort, the general building public could be brought to realize this situation, and if the builder or architect in every case will recommend plate glass, the great majority of building owners will not object to paying the slight extra cost.

A good example of this was furnished recently in our own Architectural Department—a client was having plans prepared for an eight-room residence. At the advice of our chief draftsman, plate glass windows were specified for the first floor and common glass on the second floor. After the building was finished

the client reported that he was sorry that he had not used plate glass all over the house, as the second floor common glass windows showed up so poorly in comparison with the plate glass on the first floor. The thing that made him maddest, too, he said, was that for only \$17.00 more he could have had plate glass in every window.

Another important outlet for plate glass that is not at all generally appreciated, is for office partitions. At the present price of plate glass as compared with wood paneling, a glass partition is really the cheaper. Of course it is much better, since it does not cut off the light, is sound-proof, and extremely classy in appearance.

The "day lighting" idea is gaining ground rapidly in all classes of buildings—residences and apartments as well as factory buildings and offices. Full glazed doors are coming into use where there used to be solid doors, and glazed doors are used where formerly a cased opening was considered sufficient. All this glazing should be done with plate glass. It costs very little more and looks so much better.



Mr. Hoggson.

plans and specifications seemed clear enough in the beginning, but when it came to interpreting them there was the same diversity of opinion and the same confusion that exists today when a building operation is begun in the ordinary method, with a responsibility divided by many antagonistic interests.

When the Ark dropped anchor and moored off Mount Ararat, the sons of Noah, Shem, Ham and Japheth, journeyed down the Euphrates in search of a good building site. They chose a likely looking plot on the plains of Shinar, upon which to found a city of prodigious extent, and they planned a citadel or tower of uncommon height, a skyscraper that would in fact not only scrape the sky, but pierce into very Paradise itself.

As a building operation, the Tower of Babel was a failure. If the true secret were known it would evidently show that the cost of operation exceeded the amount of the appropriation. At any rate we know that the undertaking was contrary to the design of the Infinite Wisdom and was defeated by

The Tower of Babel

By Noble Foster Hoggson

Vice-President Hoggson Brothers, Contracting Designers

THE Tower of Babel was the first building operation undertaken by man. That the enterprise was a failure is common gossip. Not that the builders aimed too high—they hoped to reach Heaven, you remember—but because of a misunderstanding. The

a miraculous confusion of tongues. The Almighty effected a separation of the three tribes by confounding their common language. Then, of course, they could not understand each other, "and they left off to build the city and were scattered abroad on the face of the earth."

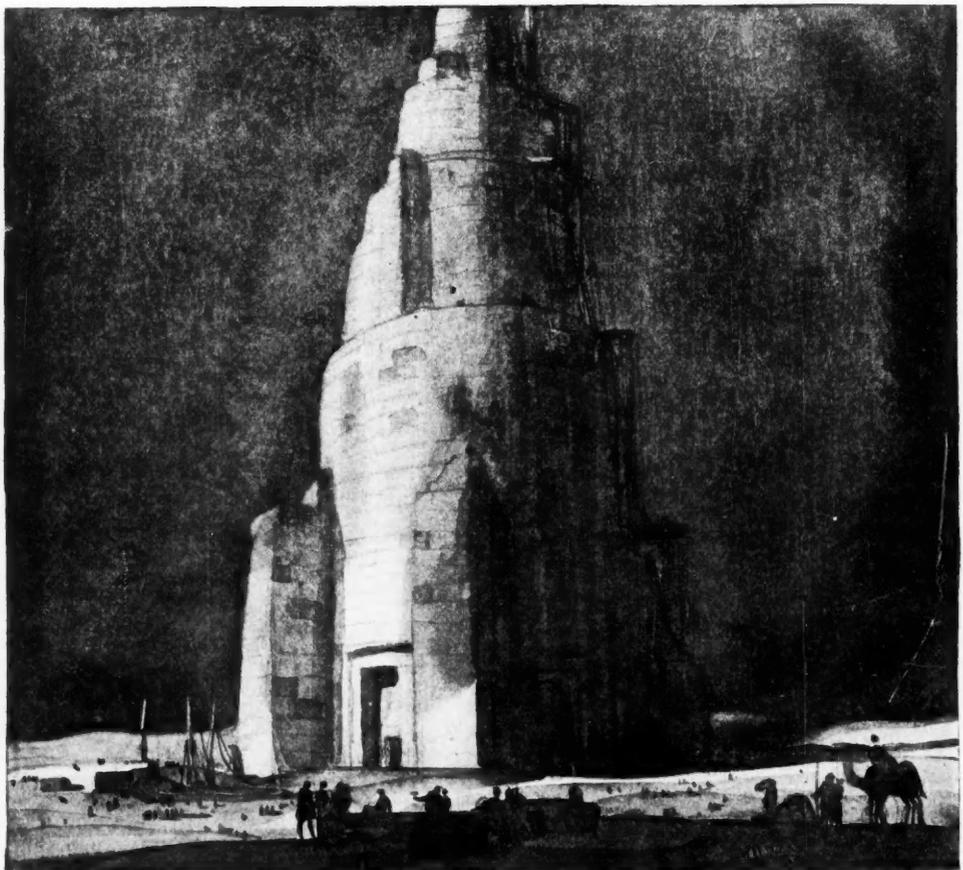
It is not exactly clear whether this initial labor friction should be termed the first strike, called by a walking delegate, or whether it was not in fact a "lock out." In either event it was effective, and definitely tied up the erection of the Tower. The structure was progressing satisfactorily in every way as long as the interested parties worked together in harmony, and spoke a common language. But the moment the confusion of tongues took place among the builders, nothing further could be done. All was confusion and misunderstanding. It was impossible to go on, so the work was abandoned.

The common mode of building today very much resembles the Tower-of-Babel manner of procedure. The confusion of ideas, lack of sympathetic understanding and mutual interest, and the division of

responsibility work toward disaster. Not perhaps in the sense of initial and utter failure—the impossibility of going ahead

THIS article sets forth in a most graphic, readable way, a principle for which we have long contended in the "American Carpenter and Builder"—that is, the superior benefits of having the entire building operation under one control from start to finish.

—Editor.

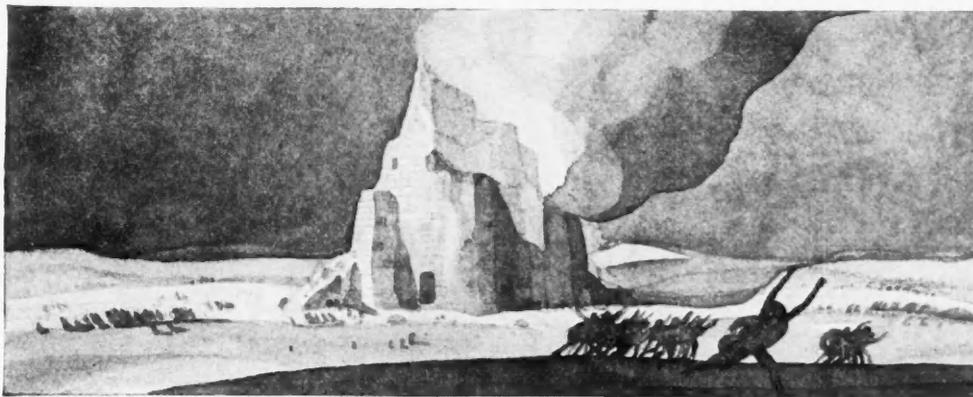


The Tower of Babel was a Failure Because the Tribes Could Not Work in Harmony.

with the work at all—but *ultimate* failure in that such structures, reared by workers who do not “speak the same language” are foredoomed to failure.

The bricks used for building in those early days were marked with inscriptions giving the names and titles and achievements of the founders and designers of the various structures.

Some of the inscriptions related to chronology, grammar, astronomy and history—“a perfect encyclopedia of the science of that people.” Today, the buildings we rear should bear the impress of the character of the future occupant, the character of the designer and the builder; and embody in detail and spirit the knowledge of the different sciences just as surely as tho this knowledge were inscribed on each brick and stone



The First Skyscraper, by Which the Builders Planned to Reach the Gates of Heaven.

which goes into the building.

A modern building should combine strength, beauty, harmony, simplicity, convenience, permanence and revenue. It is only under a form of contract which places upon one concern the responsibility for the design, construction, decoration and equipment of a building that the owner can be assured of a satisfactory and harmonious outcome of his building.

Leclaire, Ill., Model Co-Operative Town

By Herbert C. Crocker

MUCH has been written about N. O. Nelson, St. Louis millionaire philanthropist and manufacturer of plumbing supplies; but the public has never been taken thru his “model city” at Leclaire, Ill., and to the homes of his workmen. His pretty little city of nearly 1000 inhabitants was founded twenty-five years ago to carry out his co-operative ideas, and named Leclaire after a successful French co-operator.

The company has sixteen factories and branches. Some 300 employes at the Leclaire plants own upward of \$200,000 of the 6 per cent dividend paying stock of the company. All of this stock has been given them as additional wages during the past ten years. The dividend ranges from 10 to 30 per cent a year on the amount of wages earned.

Leclaire adjoins Edwardsville, Ill., one of the oldest cities in the state. There is no city organization in Leclaire, no police and no boss. Yet the residents have water, gas, sewerage, granitoid sidewalks, oiled roads, and electric light system, fire protection, telephone service, a public hall, a free kindergarten a lake and a park, a large campus, a bowling alley, free delivery of mail twice a day and interurban service.

L. D. Lawnin, vice-president of the company, said he had never known of a Leclaire couple to be divorced and recalled but one arrest during the quarter century. Truly the place is a “model city.”

Eight out of every ten of the homes in Leclaire are owned by the residents; and they are partners in the business and other property.

“In 1886 I started sharing profits with employes,” said Mr. Nelson. Four years later Leclaire was

founded. In 1905 the customers were also taken into the partnership. The employes and customers now own about one-half of the capital of the company.”

In 1890 Leclaire was a 125-acre wheat field. When the plants were founded, twenty-five homes were erected. The future city was platted. The company planted trees along the driveways and the residents fell into line to improve their places. From the beginning there seemed to be a spirit among residents to have a prettier lawn than the others.

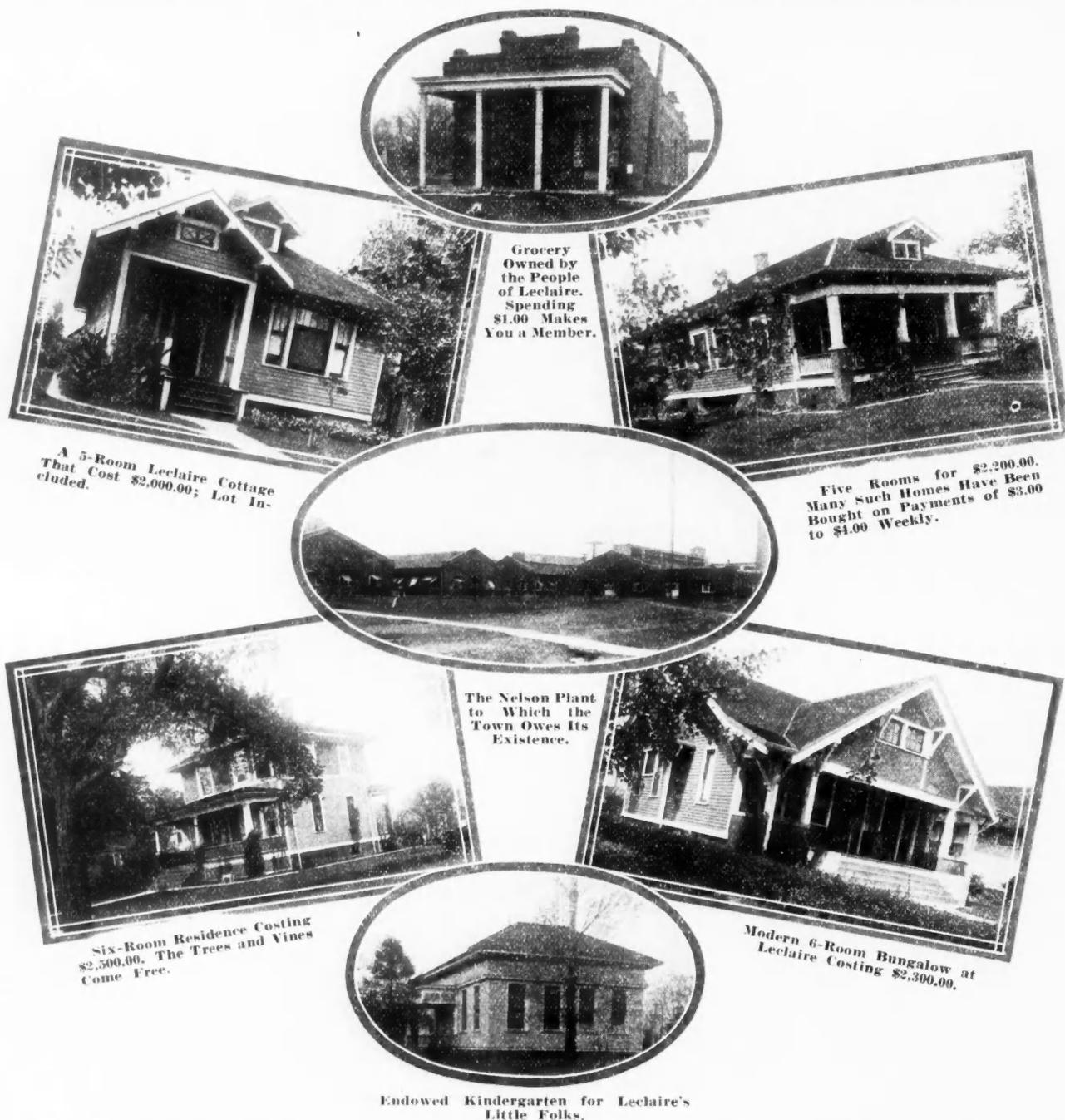
Rapid growing trees were set. As the city grew the company did a great deal of planting flower beds about the shops and the residence portion, causing a civic pride among residents not found in many other places.

The inhabitants, of whom a number are not employed in the shops, are free to incorporate at any time but since the company attends to needed public work, there are no duties for city officials and policemen. There are no local taxes to be collected and with the employes being a part of the company they seem to be perfectly satisfied with the present plan.

The key to the absence of police and crime is that everybody has a congenial job, a sufficient income, a home of his own and an interest in the factory in which he works.

The death rate in Leclaire has been small. Only two infants have died since the city was founded. There are no signs of race suicide, and children are healthy and well behaved. Within easy walking distance of all homes Mr. Nelson maintains a kindergarten which he has endowed.

It is for children between 4 and 6 years old. Upon



A 5-Room Leclair Cottage That Cost \$2,000.00; Lot Included.

Grocery Owned by the People of Leclair. Spending \$1.00 Makes You a Member.

Five Rooms for \$2,200.00. Many Such Homes Have Been Bought on Payments of \$3.00 to \$4.00 Weekly.

The Nelson Plant to Which the Town Owes Its Existence.

Six-Room Residence Costing \$2,500.00. The Trees and Vines Come Free.

Modern 6-Room Bungalow at Leclair Costing \$2,300.00.

Endowed Kindergarten for Leclair's Little Folks.

reaching school age they are well prepared to enter the grade schools of Edwardsville.

There are no paupers or idlers in the "model city," no jail, poor house or charity organizations, no "factory district," sign boards, unsightly buildings or objects.

It is claimed that proportionately Leclair has more well kept streets than any city in the world. The claim is also made for its granitoid sidewalks and homes owned by residents. To see a vacant house in Leclair, is rare.

The employes and residents have a co-operative grocery store doing a business of \$50,000 annually and refunding to members in cash 8 to 10 per cent of the money they spend there during the year. Dividends are paid quarterly. The spending of \$1 makes the customer a member.

The company has a realty company of its own and its object is to assist those wishing to own a home. Lots are sold on easy payments. The company even provides money to persons wishing to build long before the lot is entirely paid for. The interest rate averages 3 percent. There are numerous instances where homes have been purchased on payments of \$3 to \$4 weekly.



New Officers for National Association

At the annual convention of the National Association of Builders' Exchanges, held in Baltimore, February 22-24, the following were elected officers for 1917:

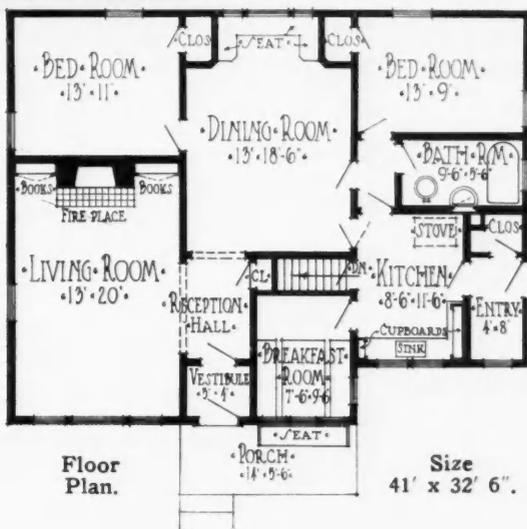
President—John Trainor, Baltimore, Md.
 First Vice-President—H. K. Cochran, Pittsburgh, Pa.
 Second Vice-President—Henry Otis, Detroit, Mich.
 Treasurer—Geo. C. Schroeder, Grand Rapids, Mich.
 Secretary—I. H. Scates, Baltimore, Md.



Unusual Shingled Bungalow

A typical bungalow of striking and unusual beauty is shown in the accompanying drawings. A most pleasing and distinctive contrast is provided by the dark stained shingles, that cover the sides and the roof of the bungalow, and the pure white trim. This beautiful little bungalow with its unusually attractive exterior is large enough so as to provide a very comfortable and cozy home.

Anyone who likes bungalow construction would certainly take a fancy to this home. The broad, flat roof, extending over the front porch, is an architectural feature that is distinctive enough to appeal



Floor Plan.

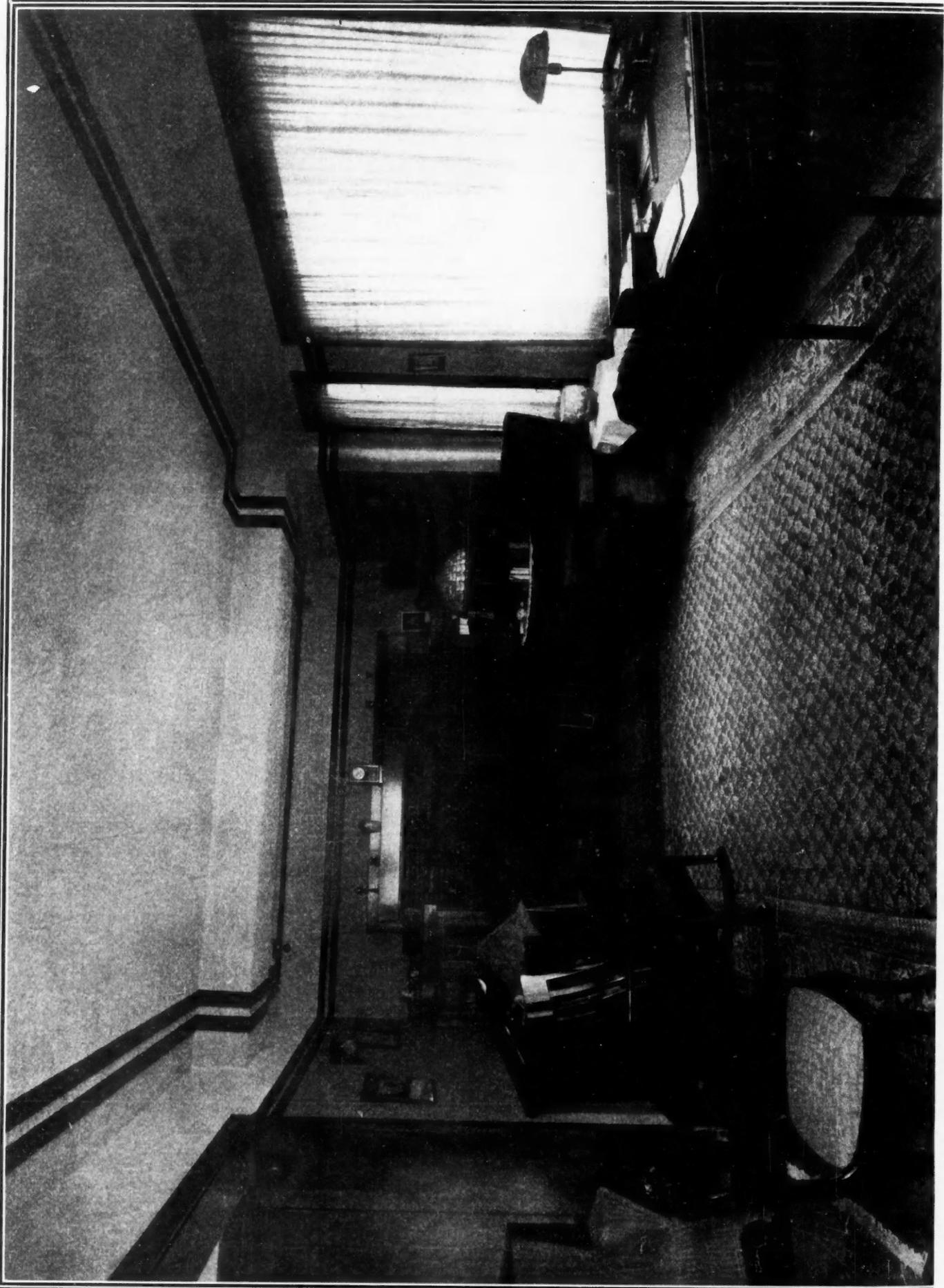
Size 41' x 32' 6".

to all discriminating home builders. The picture tells of its simple beauty much more effectively than words can.

An examination of the floor plan shows a room arrangement that is as attractive and unusual as the exterior. A particular feature is perhaps the cozy breakfast room. A table with two seats to match will fill this alcove up and make it one of the pleasantest and most used parts of the house. The large and beautiful living room extends back along one side of the house. The size makes it very desirable as it is 13 by 20 feet. The dining room is also large. The kitchen is carefully arranged and is placed in one corner of the plan.



Five-room shingle sided bungalow. Size, 41 feet by 32 feet 6 inches. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$5.00 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. 6767.



A Modern, Straight Line Living Room. The Construction of the Brick Fireplace at the End of the Room Is One of the Most Attractive Features. The Location of This Fireplace Makes the Room Seem Longer Than It Is and the Broad Window on the Side Insures Plenty of Light.

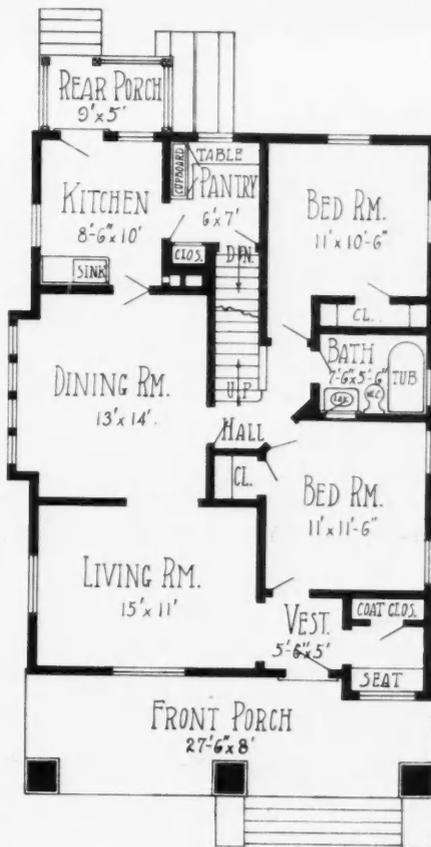
Cozy Cottage of Five Rooms

Here is shown a most attractive little cottage, listed as Design No. 6764. Its broad, straight, and simple lines are particularly pleasant and inviting and will attract the attention of any passer-by. The design is dignified and distinctive because of the simple construction, the broad porch, which extends across the front of the house, and the wide overhanging eaves. Anyone would be proud to own this little home with its distinctive appearance of good taste.

There is something particularly inviting about a porch that is set back under the main roof of a house. It has the built-in appearance just like the various little built-in seats in many houses that are so popular with many people. Such a porch does not look as tho it were added as an afterthought but was considered as an important part of the plan.

The various rooms in this design are arranged for the maximum amount of comfort and convenience. At the same time the arrangement makes it possible to have artistic and attractive rooms.

The entrance is into a small vestibule that opens into the attractive living room. On the opposite side of the vestibule is a cozy little alcove. A broad seat is placed under the window and



Floor Plan, Size 27' 6" x 37'.

across from this is a closet for wraps. This little seat makes a pleasant and secluded cozy corner.

The living room is a fairly large room of pleasing design and arrangement. It can be tastefully decorated with some well chosen furniture to make a room that will be a delight to everyone. It is attractively lighted by a wide window on the front and another wide window on the side. Connection to both the dining room and the vestibule is by means of a wide cased opening.

Cheerful brightness is a keynote of the dining room arrangement. This is accomplished largely by the broad bay window on the side. This bay window contains four sash or casements. Either of these styles may be used here, depending on the individual tastes of the owner.

Useless walking around in the kitchen is eliminated by the compact design so that all the space possible is put to some use. The large kitchen looks nice but is anything but efficient and causes more work than is necessary. Small, compact, well designed arrangements are much more popular and useful.

Two bedrooms with a bath between occupy the opposite side of the house.

The two rooms in the dormers on the second floor can be finished off to make two more bedrooms if desired.



Dignified and cozy five-room cottage. Size, 27 feet 6 inches by 37 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$5.00 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. 6764.

Room Seem Longer Than It Is and the Broad Window on the Side Insures Plenty of Light.



Seven-room artistic bungalow. Size, 24 feet by 36 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. 6794.

Story-and-a-Half Bungalow of Seven Rooms

A particular feature of the house shown here as Design No. 6794 is a

porch that fits in well with the general arrangement of this specially attractive house. This house expresses comfort and hospitality to a large degree—a feature that is expressed particularly by the porch. A broad porch such as this with a low roof in the form of an arch is one

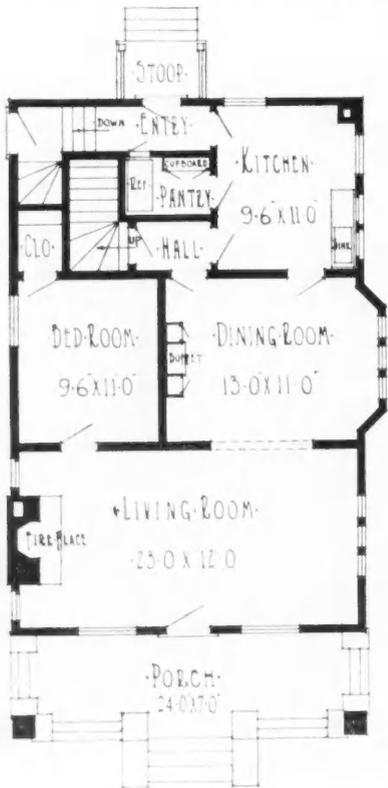
of the most inviting features that can be included in a house design. The porch pillars are finished in stucco, which provides a pleasant contrast with the dark finish and the white trim.

The typical bungalow lines are not sacrificed in any way in making this home of the story-and-a-half type. The low flat dormer breaks up the roof expanse and gives a decorative touch and at the same time furnishes light to one of the rooms on the second floor.

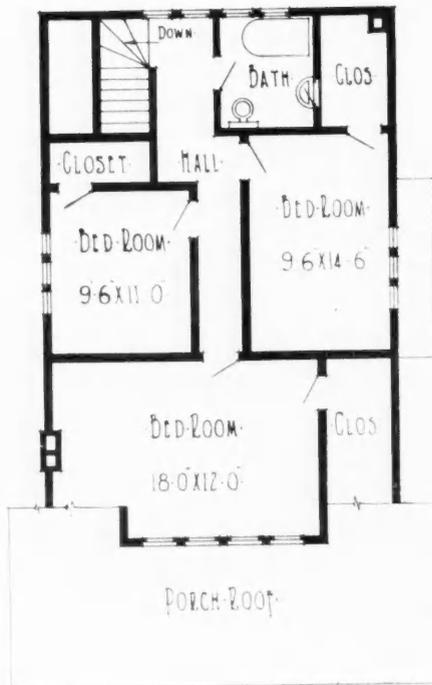
The size of the living room represents a feature that is almost universally well liked by all home builders. Everyone likes one large room with a fireplace where the family can meet. The living room extends across the entire front of the house and is 23 feet by 12 feet. The fireplace in the end gives the impression of even more length to this room. The entrance to this room is directly from the porch, which is a typical arrangement of bungalow design.

A bedroom, the dining room and the kitchen are provided for on this floor, while on the second floor there are three bedrooms and a bathroom.

The dining room is an attractive feature of this beautiful home. It is made bright and cheerful by the three windows in the bay on the side. The built-in buffet is a valuable addition to this room and presents an attractive appearance.



First Floor.



Second Floor.

Arrangement of Bungalow, Size 24' x 36'.

Eight-Room Colonial House

This Colonial house represents a typical example of that type of design. There are very few architectural frills and extravagances, but the design tends more toward the simple, dignified arrangement that is all house. It does not make its appeal thru unusual and striking features, but owes its popularity to the fact that it expresses the utmost in a roomy, pleasant home—a nice, comfortable place to live.

The lattice work for vines to climb and the broad flower boxes show the tendency toward beautifying Colonial homes by means of flowers and shrubs, rather than by the use of various architectural devices.

The broad porch, with its white pillars, expresses the idea of this design. It carries the impression of quiet comfort, which is in keeping with the exterior appearance. A white color such as this house has is also the most appropriate for a Colonial design.

The entrance from the front porch is directly into a large and attractively arranged living room. The stairs to the second floor open into one corner of the

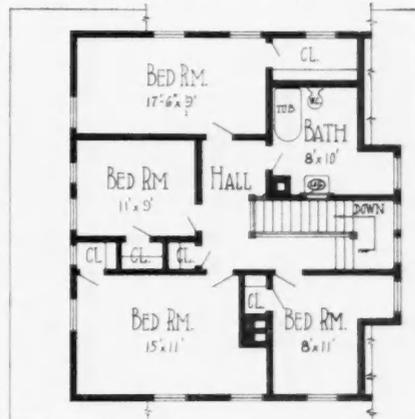
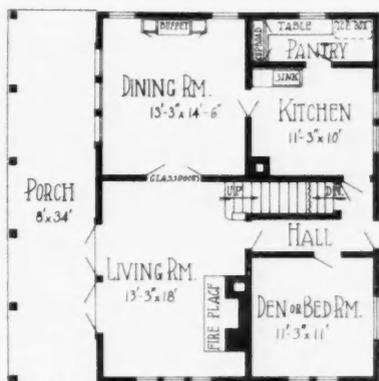
room. Cheerful brightness is assured by the three wide windows at the end of the room and also by the glass panels that can be placed in the two double doors that open to the porch. The fireplace is another attractive feature of this room.

The opposite front corner of the house is occupied by the dining room, which is unusually well lighted by windows on two sides. This room is connected to the living room by double

glass doors which can be opened to give a large, unobstructed space across the front of the house.

Four bedrooms are provided in the second floor plan and also a bathroom. All the bedrooms are provided with at least two windows to provide plenty of light and ventilation.

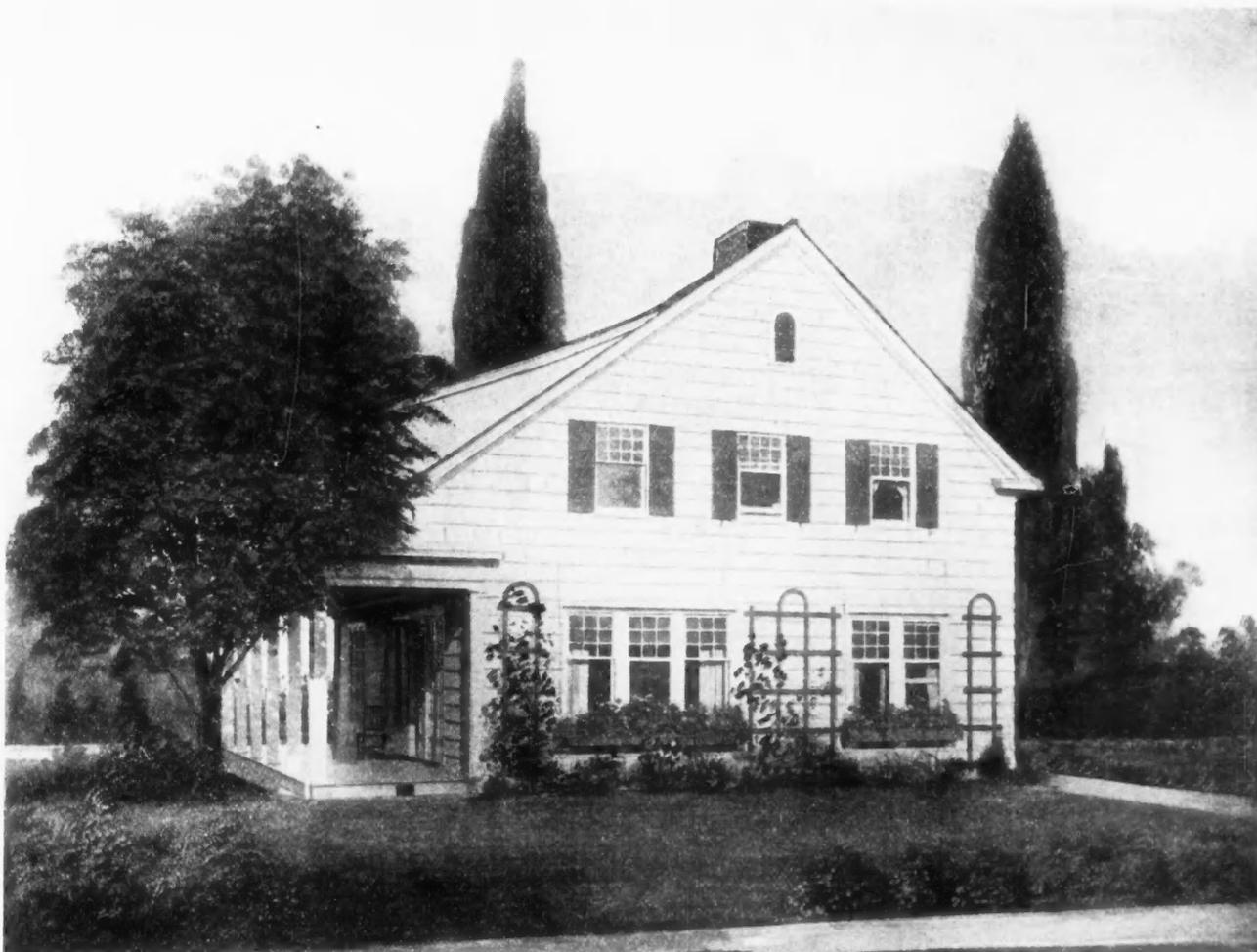
The entire arrangement shows a house that is particularly suited for the family and one that will appeal to many people that are considering a home.



First Floor.

Second Floor.

Arrangement of House, Size 26' x 34'.



Comfortable Colonial family house. Size, 26 feet by 34 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. 6771.



Model Farmhouse of large size. Size, 34 by 44 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. 6737.

Modern Roomy Farmhouse of Attractive Appearance

Comfortable, substantial appearance is a particular feature of the large farmhouse that is shown here.

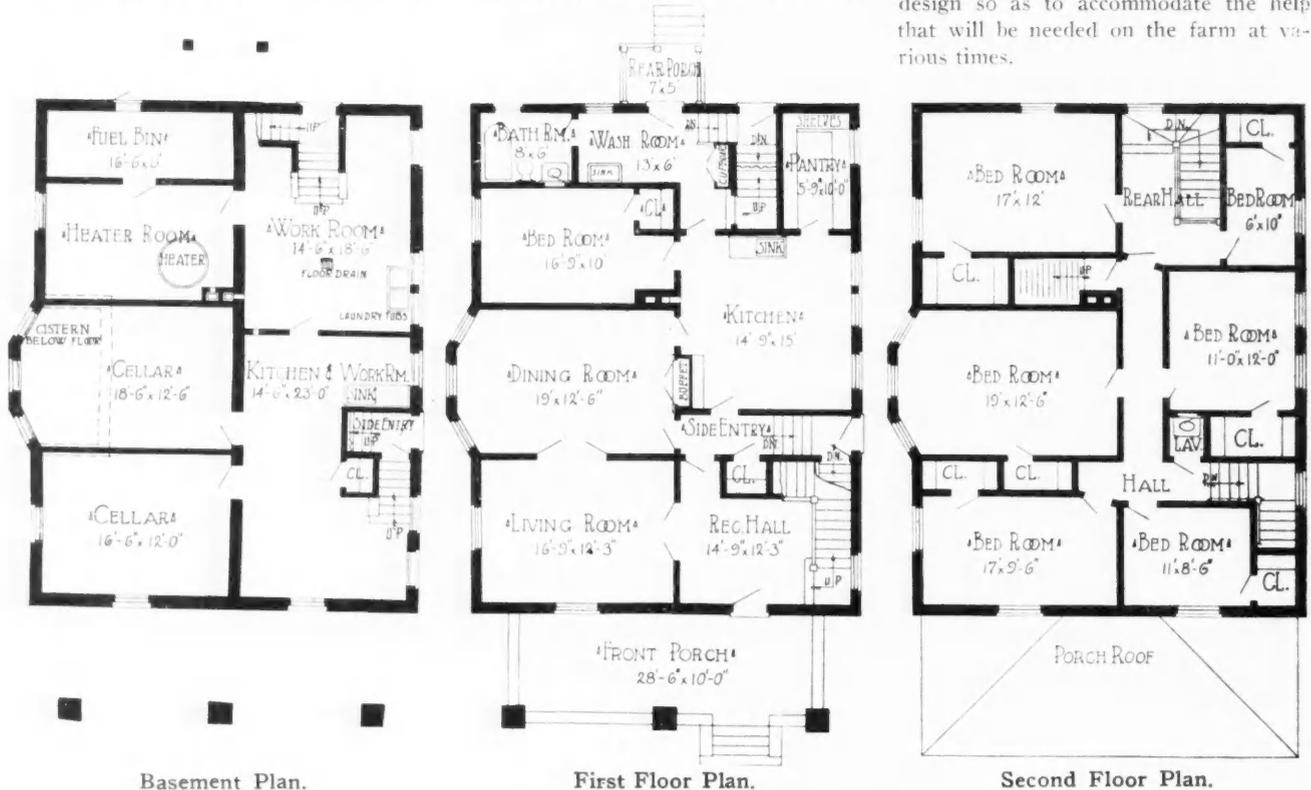
The basement gives an idea of a

model arrangement so that all the basement will be of use. The front cellar is separated far enough from the heating plant so that vegetables and other perishable materials can be stored in it

On the first floor, in addition to the

regular rooms that are usually provided, there is a washroom and a bathroom that are entered directly from the rear porch. This keeps considerable dirt out of the kitchen.

Seven bedrooms are provided in this design so as to accommodate the help that will be needed on the farm at various times.



Basement Plan.

First Floor Plan.

Second Floor Plan.

Arrangement of Farm House, Size 34' x 44'.

Homey Little Bungalow of Five Rooms

The bungalow comes nearer to meeting the average person's idea of home than any other type of modern building. One of the reasons is that there is no wasted space in the bungalow. Every nook and corner is utilized and is in use all the time. This reason has perhaps more effect in creating the impression of

This bungalow is built far enough above the ground so that a basement can be provided with the necessary windows and without too much excavation. The porch also aids materially in getting this same effect of being close to the ground. It is very broad and is built under a separate gable from the house. The broad, flat roof and the heavy porch pillars give it a cozy, inviting appearance.

opens into it.

In the kitchen is the inside entrance to the basement, which also has an outside entrance placed alongside the back porch. A well arranged and handy pantry is built off the kitchen.

The bedrooms are placed one at the front of the house and one at the back with the bathroom between. This is one of the best ways to arrange this.



Well arranged bungalow of five rooms. Size, 28 feet by 39 feet 6 inches. 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. 6758.

coziness than any other. It is almost impossible to get the cozy idea in a house that is designed so that there is considerable space wasted. In such a house the coziness is sacrificed for some other effect that is wanted. It is possible to get many other effects in the house such as grandeur, elegance, etc., but this does not impress the average person as much in the design of a home.

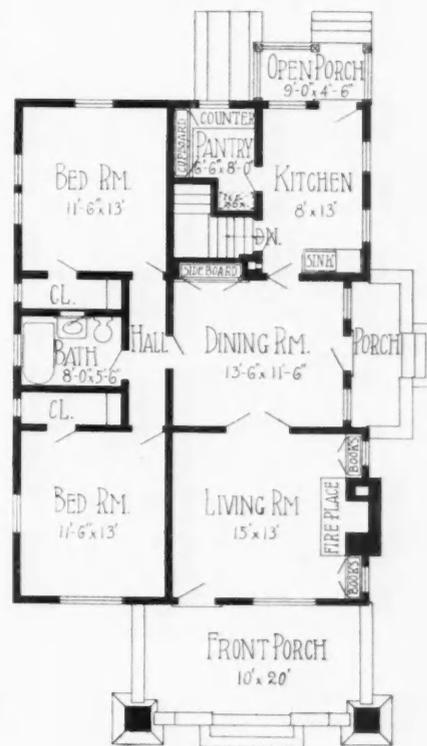
The little bungalow shown here has that homelike, cozy appearance that typifies the average person's idea of a real home. All the structural features of the bungalow combine to give this impression. The roof is very low and is made with a flat pitch. The eaves have a wide overhang which is one of the most inviting features of a bungalow. The wide eaves and the low pitch of the roof have another effect also in bungalow construction.

The bungalow at its best is built very close to the ground. In cold climates such a result cannot be obtained because of the necessity of having a basement that is adequate to hold a heating plant. The same low-built effect is obtained by building the bungalow with wide eaves and with a flat pitched roof.

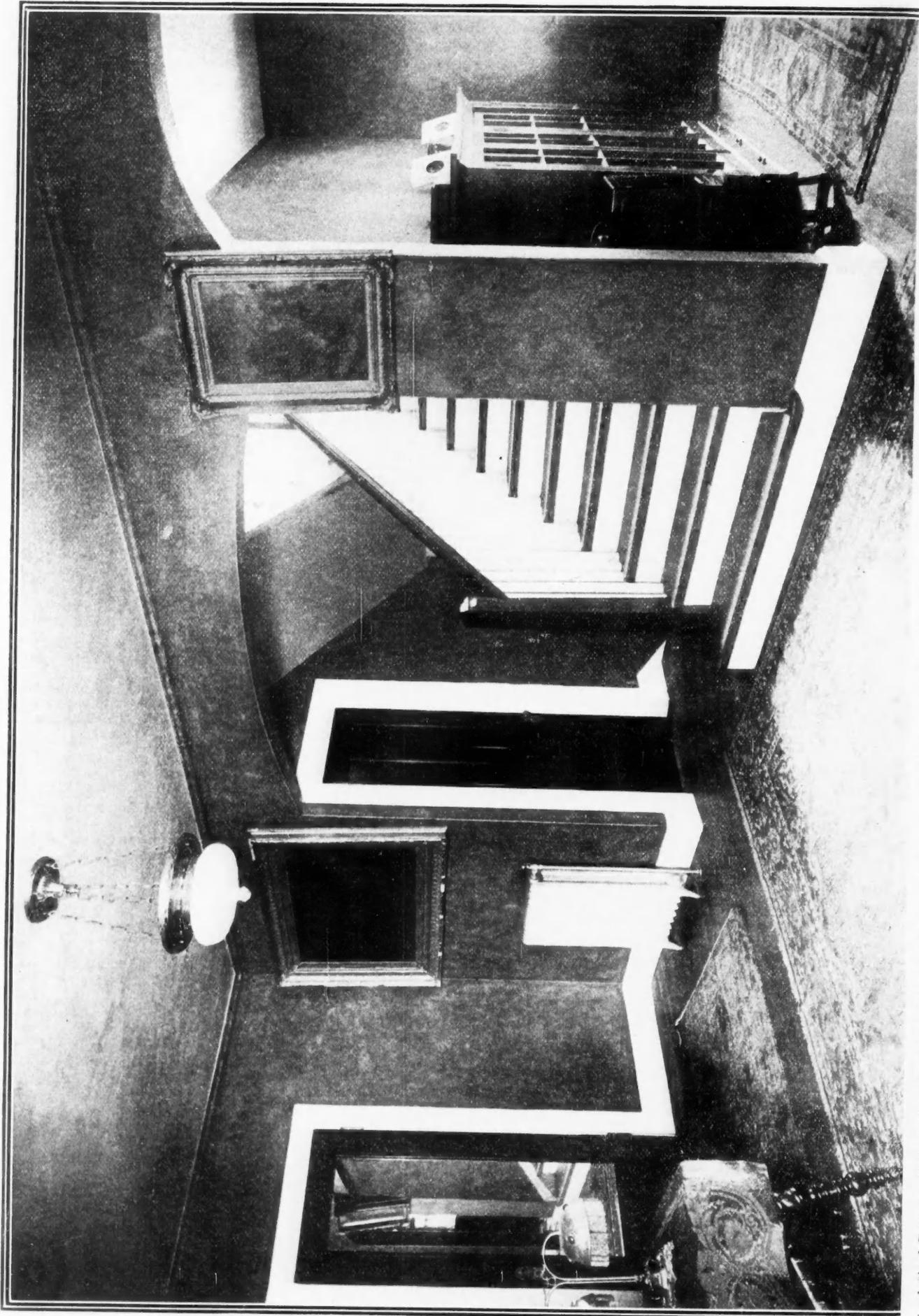
The floor plan calls for five rooms that are arranged in a convenient style. On one side of the house is the living room, dining room, and kitchen, and on the other is the bathroom and two bedrooms.

The main entrance to the house is thru a door at one corner of the living room. This room is of good size, being 15 by 13 feet. A big fireplace occupies almost one side of the room. It is almost necessary to have a big fireplace in a bungalow as no house of this type would seem to be complete without one. It is generally placed in the living room, tho it may be in the dining room or sometimes in a small den built off the living room. On either side of the fireplace in this design is a narrow bookcase with a window over each one. There is also a wide window facing out on to the front porch. Plenty of wall space is provided so that some carefully chosen furniture can be obtained to fit in with the general scheme of this room.

In back of the living room, and connected to it by double swinging doors, is the dining room. This room has a convenient built-in sideboard and there is also a side entrance to the house that



Floor Plan, Size 28 ft. by 39 ft. 6 in.



Good Sized Entrance Hall of Pleasant Design. The Combination of Mahogany and White Enamel for the Woodwork Is Well Handled. The Doors Are Mahogany, Standing Trim White; the Stair Treads, Hand Rail and Newel, Mahogany, the Risers and Spindles White. The Cased Openings with Their Flat Arches Are Very Good.

Five-Room House with Unusual Roof Construction

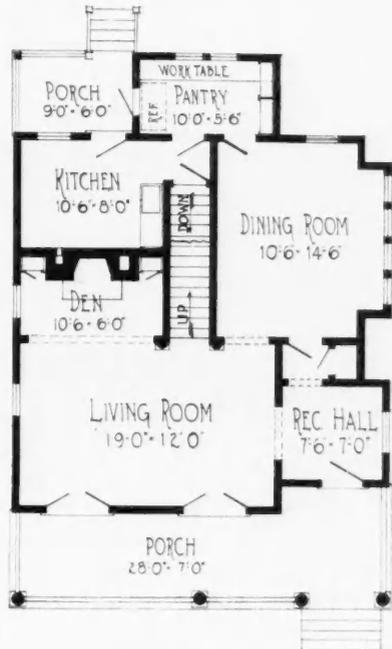
An unusually distinctive house is shown here as Design No. 6793. Five large and well arranged rooms are included in the two floor plans. The most unusual feature of the exterior is the method of constructing the roof, with its long, steep surface facing the front. This broad expanse of roof is attractively broken up by the very large dormer that accommodates an entire room. A pleasant balcony is built out in front of the dormer and will provide a beautiful outdoor room in the warm weather.

The walls are finished in a rather rustic style that harmonizes well with the general design of this home. Rough drop siding is used for covering the walls on the first floor, and above that are shingles. Both are stained dark and all the trim is in white, which makes a pleasing combination.

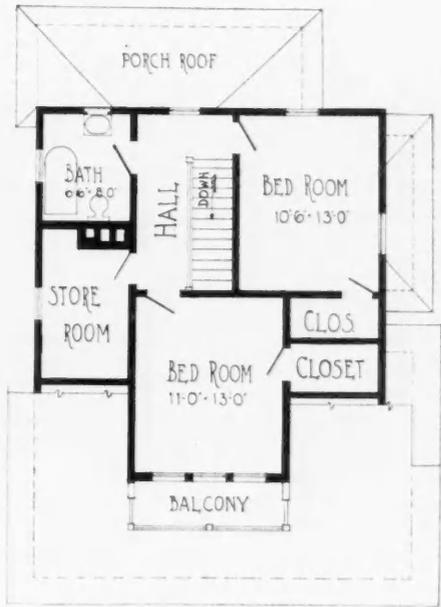
For an attractive and distinctive arrangement for the living part of a house we recommend a study of the living room with the small den adjoining in this floor plan. The living room is quite large and extends across the entire front.

The dining room and kitchen are conveniently arranged with a serving partry between.

Two bedrooms, a bath, and a store room are called for in the second floor plan.



First Floor Plan.



Second Floor Plan.

Arrangement of House, Size 26 by 28 Feet.



Distinctive rustic house with five rooms. Size, 26 feet by 28 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$8.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6893.



Noon Hour Talks by the Boss Carpenter

Talk No. 45. Beam Design

New Series No. 2

THE BOSS TELLS ABOUT METHOD OF FINDING DEFLECTION OF A BEAM WITH A UNIFORMLY DISTRIBUTED LOAD AND WITH A COMBINED LOAD

“IN our last talk,” said the Boss, “we found the size of a timber beam needed to carry a given floor load when that load was distributed uniformly along the length of the beam. Our calculations for size were based entirely on the strength of the beam in bending, and did not consider the amount of deflection or sag in the beam. You can see that a beam might be of sufficient strength to hold up a given load, and still be unsuited for use in a building on account of its lack of stiffness. This is especially true where a plastered ceiling is to be supported by the under side of a set of floor beams. If the beams deflect too much when the floor load is in place, there is danger of the plastering cracking and falling. A common rule in design is to limit the deflection to $\frac{1}{30}$ of an inch per foot of length of beam, or to $\frac{1}{360}$ of the length of the span between supports. This deflection, as in the case of strength, will vary with the kind of timber used.

“The formula to be used in finding the deflection which will occur in a beam of a given size when subjected to a given load which is uniformly distributed

is as follows:

$$D = \frac{5}{384} \frac{W L^3}{E I} \dots \dots \dots (2a)$$

where D is the maximum deflection in the center of the beam, in inches; W is the total uniformly distributed load on the beam, in pounds; L is the length of the beam, in inches; E is a quantity called the ‘modulus of elasticity,’ which is different for different kinds of timber and is expressed in pounds per square inch; and I is the moment of inertia of the cross-section as described in Talk No. 44.

“Values of E for different kinds of timber are given in Table II.

Table II. Moduli of Elasticity

Pine, Long-leaf Yellow	1,500,000 lbs. sq. in.
Oak, White	1,500,000 lbs. sq. in.
Pine, Short-leaf Yellow	1,200,000 lbs. sq. in.
Fir, Douglas	1,400,000 lbs. sq. in.
Spruce	1,200,000 lbs. sq. in.
Hemlock	900,000 lbs. sq. in.

“To show the use of this formula, we will apply it to one of the beams which we figured in Talk No. 44

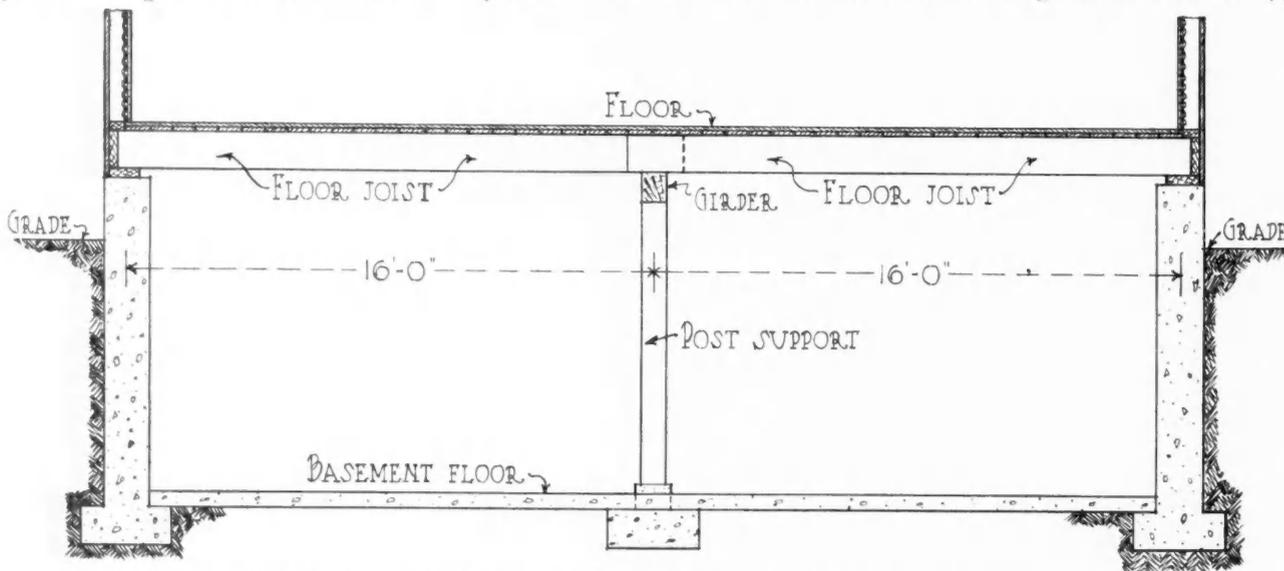


Fig. 2A. Beam with Uniformly Distributed Load, Ends of Beam Freely Supported.

You will remember that the total uniformly distributed load on one of the 2 by 10-inch long-leaf yellow pine beams in our floor was 1,064 pounds, and that the beams were 16 feet long, as shown in Fig. 2a.

"Placing these values in formula (2a), using $E = 1,500,000$ pounds per square inch for long-leaf yellow pine and $I = \frac{1}{12} \times b \times d \times d \times d$, we will have the following equation:

$$\text{Max. deflec.} = \frac{5 \times 1,064 \times 16 \times 12 \times 16 \times 12 \times 16 \times 12}{384 \times 1,500,000 \times \frac{1}{12} \times 2 \times 10 \times 10 \times 10} = .39 \text{ inch.}$$

"To test this value of the deflection to see whether it is suitable for use or not, we will find the value of $\frac{1}{360}$ of 16×12 inches. Since this latter value is about .53 inch, we see that a deflection of .39 inch is within the allowable limits.

"If our solution for the maximum deflection of the beam in Talk No. 44 had been over .53 inch, it would have been advisable either to use a wider or deeper beam, or to make the distance between the centers of beams or joists less in order to reduce the value of the total uniformly distributed load W ."

At this point, one of the men asked the Boss to show the method of calculation followed when there is a single load concentrated at the middle of a beam, as referred to briefly in the last talk.

"We will suppose," said the Boss, "that there is a single heavy load at the center of the beam shown in Fig. 2b. This might be due to a post, a machine, a pile of heavy merchandise, or anything which will cause a load to be concentrated in a small space. In Talk No. 44, we said that the value of M to be used

$$\text{for such a case in the beam formula } \frac{p I}{e} = M \text{ is } \frac{1}{4} P l,$$

where P is the single central load in pounds, and l is the length of the beam in inches between the supports.

"First, we will find the depth of a long-leaf yellow pine beam 4 inches wide and 16 feet long to hold a single load of 800 pounds, and then we will find the deflection due to that load. Later, we will combine a single load and a uniformly distributed load, and find the size of beam needed for the combination.

"Filling in the formula $\frac{p I}{e} = M$, we have—

$$\frac{7,000}{6} \times \frac{1}{12} \times 4 \times d \times d \times d}{\frac{d}{2}} = \frac{1}{4} \times 800 \times 16 \times 12$$

Solving, we find that one d will cancel, leaving $d \times d = 50$ (about).

"The problem now is to find a number which, when multiplied by itself, will equal 50. This number will be $7\frac{1}{10}$. The commercial size of lumber which will meet this requirement will be a 4 by 8-inch beam.

The real size of a 4 by 8-inch beam when surfaced on all four sides is about $3\frac{1}{2}$ by $7\frac{1}{2}$ inches.

"To find the maximum deflection in this beam, we use the formula—

$$D = \frac{1 P F^3}{48 E I} \dots \dots \dots (2b)$$

The letters in this formula mean the same as explained in (2a), with the exception that P is used in the place of W .

"Filling in (2b), we have—

$$\text{Max. deflection} = \frac{1 \times 800 \times 16 \times 12 \times 16 \times 12 \times 16 \times 12}{48 \times 1,500,000 \times \frac{1}{12} \times 4 \times 8 \times 8 \times 8} = .46 \text{ inch.}$$

Testing this value as we did in the case above, we see that it is less than $\frac{1}{360}$ of the span.

"To find the depth of a beam of a given length and thickness of material which is to carry a uniformly distributed load and a single central load at the same

time, we would use the general beam formula — = $\frac{p I}{e}$

M , putting the proper value for M into the formula. The value of M for such a combination would be the sum of the two values for M if each method of loading was taken separately.

"To test this method by a problem, we will suppose that the material is short-leaf yellow pine, and that the beam is to be 14 feet long. If there is a uniformly distributed load of 2,000 pounds on the beam in addition to a single central load of 500 pounds, we would first assume a width of beam of, say, 6 inches, and find the depth by the beam formula. The value of M for the uniformly distributed load would be $\frac{1}{8} \times 2,000 \times 14 \times 12$, while that for the single central load would be $\frac{1}{4} \times 500 \times 14 \times 12$. The value of p from the table in Talk No. 44 is 6,000 pounds per square inch for the breaking strength. If a factor of safety of 6 is used in the calculation, the value of p

to be used in the beam formula will be $\frac{6,000}{6} =$

1,000 pounds per square inch.

"Filling in the formula, we have—

$$\frac{6,000}{6} \times \frac{1}{12} \times 6 \times d \times d \times d}{\frac{d}{2}} = \frac{1}{8} \times 2,000 \times 14 \times 12 + \frac{1}{4} \times 500 \times 14 \times 12$$

$$1,000 \frac{d \times d}{2} = 42,000 + 21,000$$

$$d \times d = 63$$

"This calculation shows that the theoretical value of d would be about 8 inches, thereby making the timber a 6 by 8-inch piece if the material is rough and runs near full size. If the material is surfaced, a 6 by 10-inch beam would give better security.

"To find the maximum deflection in this beam, a similar adding of separate deflections would be followed. Each deflection would be found by the formulas for deflection which we used in the earlier part of this talk. The value of E for short-leaf yellow pine is seen from the table to be 1,200,000 pounds per square inch.

The value of the deflection due to the uniformly

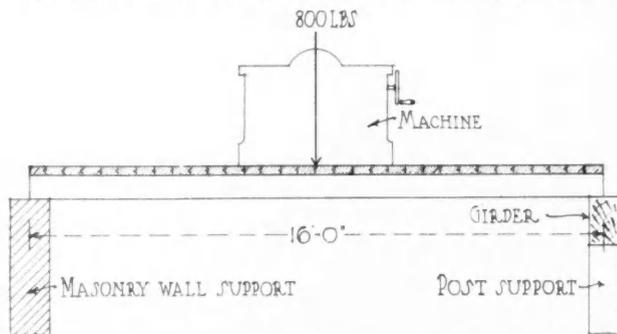


Fig. 2B. Freely Supported Beam with a Concentrated Load at Center of Beam.

distributed load is found by filling in the formula

$$\frac{5}{384} \frac{W L^3}{E I}, \text{ and numerically is equal to the following:}$$

$$D = \frac{5 \times 2,000 \times 14 \times 12 \times 14 \times 12 \times 14 \times 12}{384 \times 1,200,000 \times \frac{1}{12} \times 6 \times 8 \times 8 \times 8} = .4 \text{ inch.}$$

If a depth of 10 inches had been used instead of 8 inches in the above equation, the value of D from the calculation is about $\frac{2}{10}$ of an inch instead of $\frac{4}{10}$.

"The value of the deflection due to the single central load is found by filling in the formula $\frac{1}{48} \frac{P L^3}{E I}$. This formula filled in is as follows:

$$D = \frac{1 \times 500 \times 14 \times 12 \times 14 \times 12 \times 14 \times 12}{48 \times 1,200,000 \times \frac{1}{12} \times 6 \times 8 \times 8 \times 8} = .16 \text{ inch.}$$

"This same formula solved for a 10-inch depth instead of the 8-inch depth used in the equation above, will give a value of D equal to $\frac{8}{100}$ of an inch instead of $\frac{16}{100}$.

"The total deflection, if a 6 by 8-inch beam is used, will be $.40 + .16 = .56$ inch, while, if a 6 by 10-inch beam is used, the total deflection will be $.20 + .08 = .28$ inch.

"Applying the rule that the deflection should not be greater than $\frac{1}{360}$ of the span, the limiting value would be $\frac{1}{360} \times 14 \times 12 = .47$ inch. Thus, it is seen that the 6 by 10-inch beam is the better beam to use if a stiff floor is desired.

"In our next talk, we will take up a third point in beam design and investigate shearing stresses."

Astonishing Progress at Wentworth Institute

NEW ENGLAND TRADE SCHOOL ENLARGES TO ACCOMMODATE 2,400 PUPILS

MUCH in the way of raising the standards of workmen in the various branches of the building trades is being accomplished at Wentworth Institute, an endowed trade school for young men, which was established in Boston, Mass., in the fall of 1911. The unique principles of co-ordination of the practical and theoretical phases of the instruction, coupled with a most exacting care in the selection of the individual young men for the several courses, has, in an exceedingly short period, sent the appeal of the

institute to all sections of the United States and to several foreign countries.

Especially rapid strides have been made in the departments of carpentry and building and the allied woodworking and construction trades. In fact, the demands in these departments have led to the development of plans for expansions in a new unit to the group of model fireproof structures that the school occupies in the section of Boston universally recognized as the seat of learning of the New England



Class in Pattern Making at Wentworth Institute.

states. This new addition, now well under construction, will be dedicated in June, giving the school facilities for a maximum of 2,400 pupils. The plant represents an expenditure of more than \$1,250,000 and its equipment is on a scale met only by the large technical colleges.

In the fall of 1915, the second year of a new course in architectural construction was given for the first time. The importance of the training it is designed to give is readily seen by those actively engaged in the building trades, in that modern, fireproof steel construction has developed a large field for men with especial equipment of a sound, practical character. This course gives the pupil a chance to act as superintendent, foreman and tradesman, developing a quick perception of the needs of any job, and an equally rapid solution which may be convenient and inexpensive.

Lectures, compiled by Walter C. Voss, head of the department of architectural construction, cover building and finishing woods, brickwork, concrete, cements, heating, ventilating, specifications and city building laws. Full-sized models and building sections are developed by the students, giving them intimate knowledge of the limitations and possibilities of each type of material in general use today.

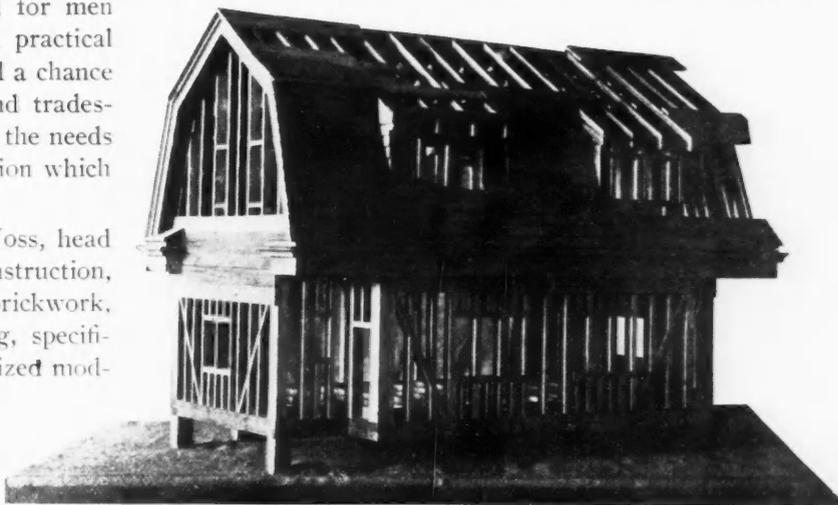
Possibly what has contributed most toward the success of this course is the due consideration given to the natural aptitudes of the applicants, who must exhibit a reasonable likelihood of being a complete success in a trade before being admitted to any class. This assures earnest, competent workmen. Then, too, the young men are accepted at an age when they are certain, on finishing their one or two-year courses, to enter their trade with sufficient maturity, intelligence and ambition as to rise rapidly to positions of responsibility and leadership.

Wentworth Institute has graduated a total of 1307 young men since it first opened its doors, 438 receiving certificates for completing courses last June. A total of 2119 applications were received this year, of which 1340 were accepted, showing what care is used in selection of pupils. A year ago 1697 applications were received, out of which number but 1167 were accepted.

In the day classes there are now enrolled pupils from twenty-four states in the Union, as well as from British Columbia, Nova Scotia, Ontario, Brazil, Hawaii and Japan. The evening classes this year are furnishing training to many young men, as well as those who have been engaged in the trades for some years, who are adding to their equipment in order to take advantage of the demand for workmen who can accept the responsible and well-paid positions created by the millions of dollars worth of war orders now being filled

in the United States. This is particularly true in the metal trades courses.

In all the courses, shop work and study are closely connected. In the public schools quite generally the pupil who is studying manual training leaves a brief period spent in the shops to take up the study of Latin or Greek, or some study of the type that has no actual bearing on his shop work. At Wentworth the plan of each pupil's program is worked out on the half-and-half principle; that is, each day and during every day of the course he is required to spend one-half

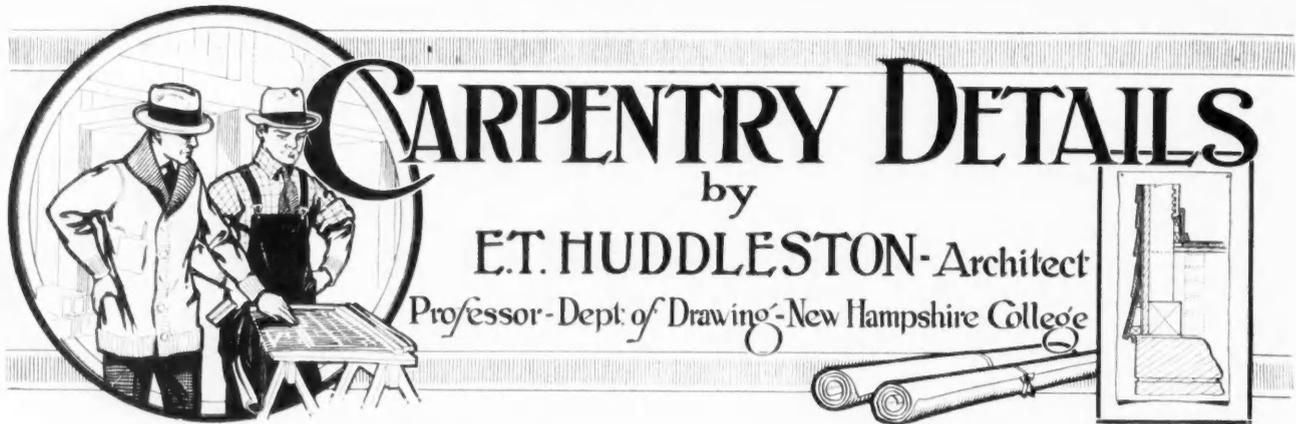


Model Frame Dwelling House Built by Students at Wentworth Institute to Develop Details.

of his time in the shop and the other half at studies directly related to the work he is performing in the shops. In all courses, the utmost importance is placed on individual instruction. Each pupil advances just as fast as his intelligence and aptitude allows him, regardless of what the other pupils in his class may be doing. Much work of an original character is performed, the cut-and-dried exercises being entirely eliminated wherever practicable.

Being an endowed school, established under the will of Arioeh Wentworth, a wealthy marble merchant of Boston, who gave \$3,500,000 for the purpose of founding a school to give instruction in the various mechanical arts, the tuition fee charged is nominal, in no way representing the cost of furnishing the instruction. In the day courses, the fee of \$6 a term, with two terms in a school year. The evening fee is \$6 for the entire year of two terms.

The new wing will contain about 45,000 square feet of floor area and will contain additional class rooms, drawing rooms, extensive laboratories for the courses in building materials and reinforced concrete, and two large shops for carpentry and architectural construction. A feature of the construction will be a section of the wing extending two stories in height. This will enable full-sized building sections to be erected at a normal height. There will be also a number of rooms for the development of new courses. This addition will be opened for instruction in September, 1916.



Four Sills for a Frame House

THE FIRST OF A SERIES OF SIX ARTICLES WITH DETAIL DRAWINGS

THE sill is that part of a house that ties the superstructure to the foundation. Upon it rests the floors and walls and thus the responsibility of keeping the house firmly anchored to the ground. How well it serves its purpose depends largely upon the manner in which it is designed and its relation to the masonry underneath.

In Fig. 1 is a type of sill found in many of the old houses, built at a time when wood was plentiful and close at hand. It shows the sill made of a 6 by 6-inch timber with the floor joists notched out and resting on top. The studs are spiked to the side of each joist with the ends bearing directly upon and toenailed into the sill.

In Fig. 2 is shown practically the same construction except that the sill is made up of two 2-by-8's spiked together. This form not only saves wood, but keeps all the framing timbers to a 2-inch thickness, and is quite as good as the former method.

In Fig. 3 is shown a type of box-sill, built of 2-inch timbers, which has several advantages over the other two methods. In both Figs. 1 and 2 the studs bear directly upon the sill while in Fig. 3 the joists rest upon the sill as before but are held in place by a 2-inch plank (X) spiked to their ends. The whole is then covered by the rough floor boards. Flush with the outer face of this plank is laid a 2-by-4, spiked to the joists. This acts as a plate upon which the studs are erected.

This method permits of two things. As timber shrinks in width and not in length, in Figs. 1 and 2 the floor will settle as the joists shrink out, but the base board will remain stationary as it is nailed to the studding. The shrinkage is very often so great that a crack is opened between the base board and the floor all about the room. When that occurs the only thing left to do is to put down a shoemould as in Fig. 1 which not only covers the crack, but tends to aid in keeping dust and dirt out of a place difficult to reach with a broom. In Fig. 3, however, the studding being placed on top of the joists settles with them so that the above difficulty is overcome. Also, an 18-foot stud,

which is the economical length to buy, will give greater story heights by the method of Fig. 3 than in either 1 or 2, as is evident by a study of the details.

In Fig. 4 is shown a type of sill becoming widely used by architects as it embodies all the good features of sound building construction. In the previous figures the foundation is shown to be of stone which calls for a heavy sill well bedded in mortar. Where the foundation is of concrete, anchor bolts are set and to them is bolted the single 2 by 8-inch plate which forms the sill. The joists are notched half way over this sill-plate, which leaves room for the 2 by 8-inch header (Y) and for the studs which are notched over it. Note that the studs are cut $\frac{1}{2}$ -inch short of the depth of the header (Y) so that they bear only upon the header and not upon the sill-plate. This permits of their being securely spiked thru the header into the joists and of an equal settlement with the floor as the joists shrink.

The other details of wall coverings, finish and moulds merely show different ways of handling different materials and any one may be applied to all the different forms of sill construction.

—DURHAM, New Hampshire.



The Draftsman

TO be a good draftsman you will need to have some of the knowledge of a civil engineer, a mechanical engineer, an architect, an artist, three or four kinds of mechanic, an all-around handy man, a surveyor, an expert in chemistry and physics, a general handy man to be blamed for mistakes (of other people). And then you must have several degrees as professor in mathematics and be willing to work for wages which are small (or smaller).

While drafting is not a very satisfactory employment in itself, it may be a stepping stone to other work, and is always a necessity to a great many lines of work, which cannot exist without it. No well educated man can do without some knowledge of this work, but will be greatly helped by such knowledge.

JOHN UPTON, La Fargeville, N. Y.

MISCELLANEOUS BUILDING PLANS

A Modern Business Block

SIXTH OF A SERIES OF MISCELLANEOUS PUBLIC AND COMMERCIAL BUILDINGS—A DESIGN FOR THE PRINCIPAL CORNER OF ANY WIDE AWAKE SMALL CITY

CITY construction is not confined by any means to the large cities. The sort of building construction that has made good in Chicago and New York is just as good for the business men of growing towns of from five thousand people up. Bank and store building designs that are a good investment

where the building site figures around \$10,000 a front foot, are just as business-getting and just as good an investment, perhaps better, for the main corner of a lively, small city street, valued at perhaps one-twentieth as much.

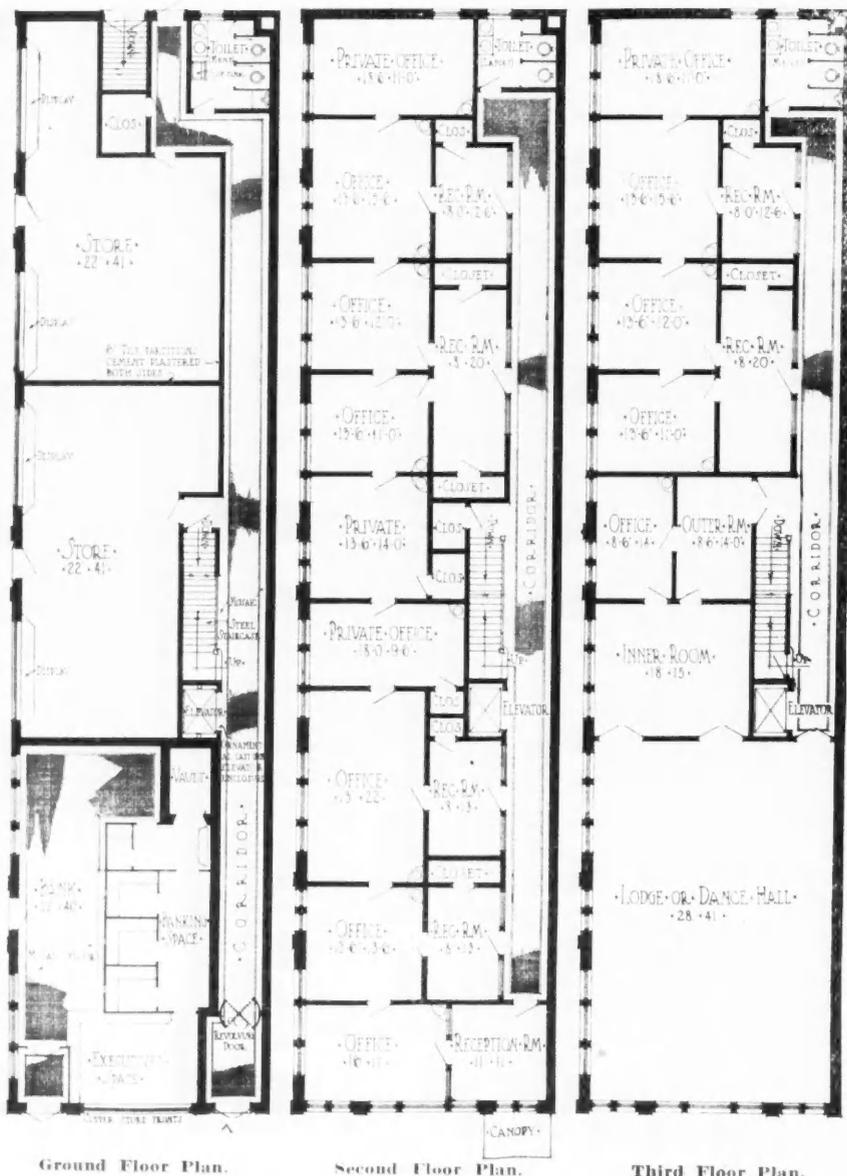
We have prepared the accompanying three-story business block design to work out some of these modern ideas. We offer it here for the suggestions it may contain for architects and builders called upon to handle such buildings.

The exterior is strikingly designed with prominent vertical elements to emphasize the height of the building. A very large percentage of window area is provided, making the building attractive in outward appearance, and well-lighted within. The exterior is built of pressed brick, trimmed with terra cotta.

The building occupies a corner site 30 by 125 feet. On the first floor are a bank and two large stores. On the second floor are offices well laid out in suites for dentists, lawyers, insurance, etc.

On the third floor there is a good sized lodge room or dance hall at the front, with additional offices occupying the remainder of the space.

A building of this sort should be of fireproof construction; of bolted steel frame, floors of terra cotta arch or concrete reinforced slab construction, partitions gypsum tile or terra cotta. Fire protection is usually least considered where it is needed most; namely, in the smaller cities and towns where fire



Ground Floor Plan. Second Floor Plan. Third Floor Plan.
Suggested Layout for Small Three-Story Business Block, Size 30 by 125 Feet, as Illustrated on Page Opposite.

fighting facilities are apt to be inadequate. We would recommend that a building of this kind be provided with a roof water tank of proper size connected with sprinkler system to completely protect every part of the building. With the overhead springler the fire is put out automatically just as soon as it starts.



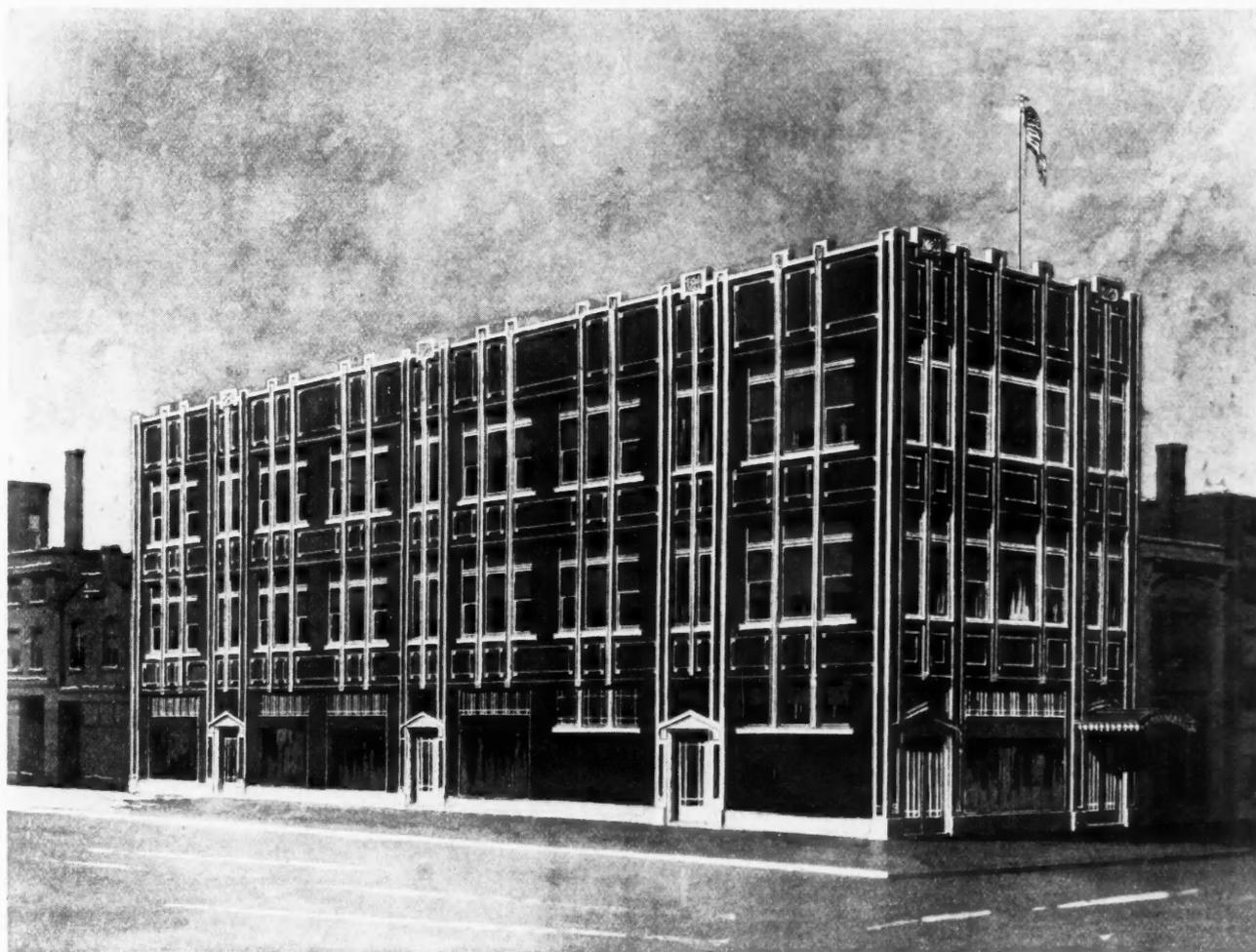
Book Larnin'

WE are apt to close up our books when we leave school and not open them again to look for help in our daily work, tho they may contain information that would be of value.

mind is almost a warrant against the inferior excitement of passions and vices.

The man who is trying to do something worth while often needs reliable information concerning his work. Not having experience, he looks to those who can help him, but often the only way to get this help when wanted is from some good book, and if one has the books and the habit of consulting them, the rest is easy.

We may well invest a part of our leisure in useful reading. Progressive men in all lines are reaching out for new ideas and a few good books relating to your work will help you.



Suggestion for Modern Business Block Suitable for Any Growing City or Suburb. The Strong Vertical Elements of the Design Exaggerate the Height of the Building, Making it Seem Larger and Taller than it Really Is. Provision is Made on the Main Floor for a Bank and Two Wide Stores. On the Second and Third Floor Are Well Lighted Offices and at the Front on the Third Floor a Lodge or Dance Hall.

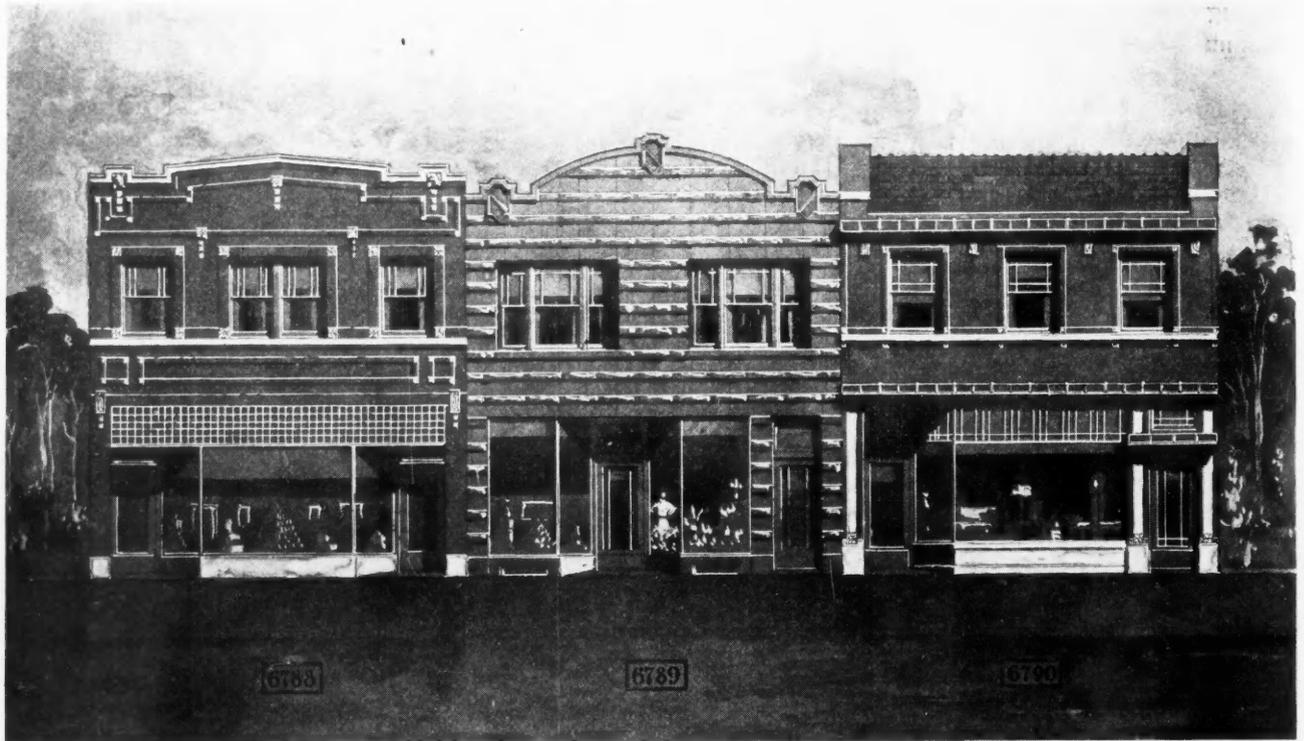
There are those who tell us that practical experience is better than book knowledge. This is true in a sense, but there are new problems to be met and one cannot depend on his experience.

Beecher said, "Books are the windows of the soul, thru which it looks out. A home without books is like a room without windows." No man has a right to bring up his children without surrounding them with books, if he has the means to buy them. It is a wrong to the family. Children learn to read by having books. The love of knowledge in a young

Reading is the great open path to progress. The things which one person may see and learn by experience are so few that the only way to really advance is to learn of the thoughts and doing of others; and this can only be by reading.

Any reading of good books is profitable, but to get a clear understanding of any subject it is necessary to spend some time on it and have a definite purpose in view.

JOHN UPTON, La Fargeville, N. Y.



Three Store Buildings with Living Rooms Above. The Different Styles in the Construction and Finish of the Front Shows the Possibilities of this Type of Construction. The Windows Also Show the Possibilities of Different Designs for Display Purposes.

Three 2-Story Store Buildings

The accompanying illustrations show three popular styles of store building arranged together on a street front. Each has living apartments above, two of them being five-room flats, the other a six-room.

Each of these buildings occupies a 25 foot lot, and they range in depth from 49 feet 6 inches to 56 feet, not including rear porches.

The store fronts are of the most modern type, with practically 100 per cent glass for the display front itself, and surrounding elements composed of pressed brick with terra cotta trim. Steel ceilings are specified for the store rooms.

No suggestions are made particularly as to kind of store to be put in any of the store spaces. Store space can generally be fitted up for any business by the addition of special fixtures that are suitable for that business.

The detail sheet shows some suggestions for standard fixtures for two different types of stores. One suggestion shows the section and elevation of shelves for a shoe store with a ladder mounted on rollers so as to make all the shelves accessible. The other shows a table with drawers under it and shelves above that is particularly suited to a drug store.

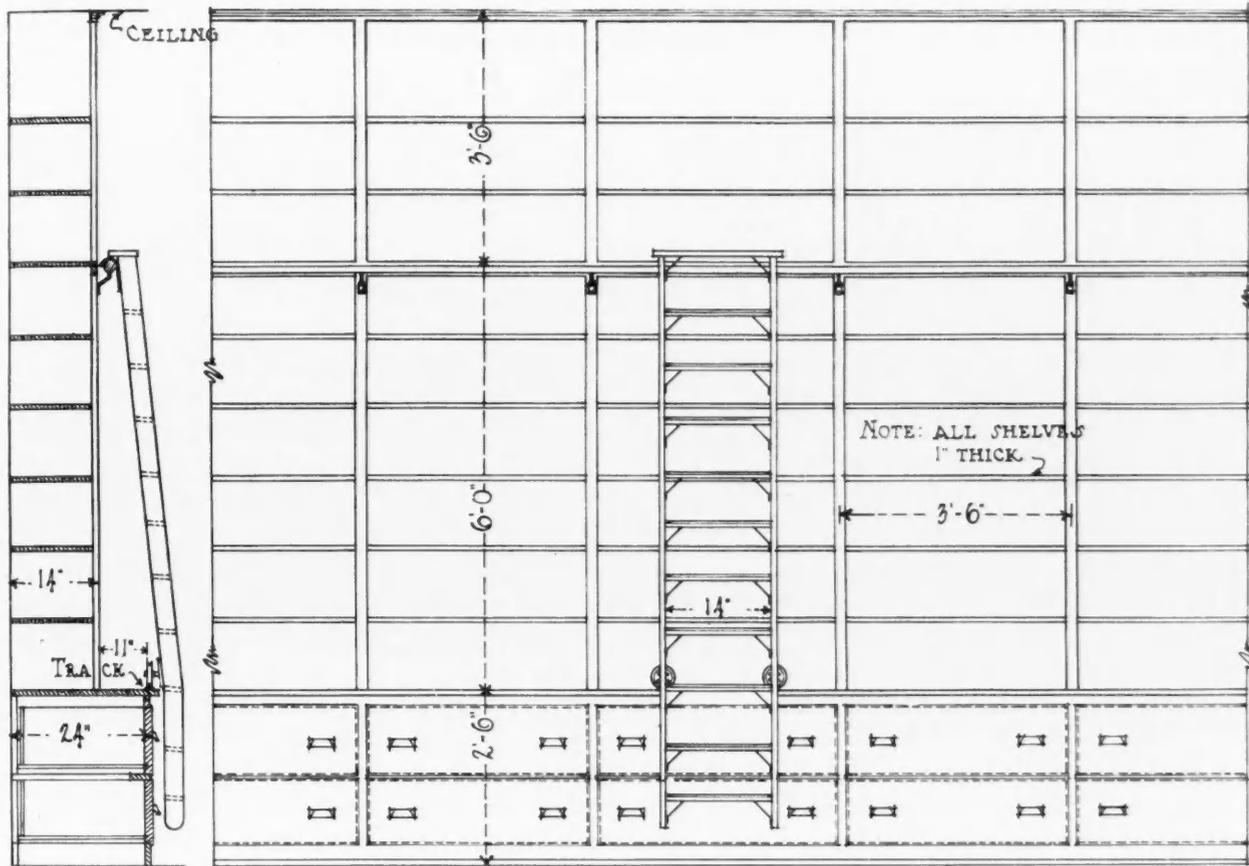


Floor Plans of Design No. 6788.

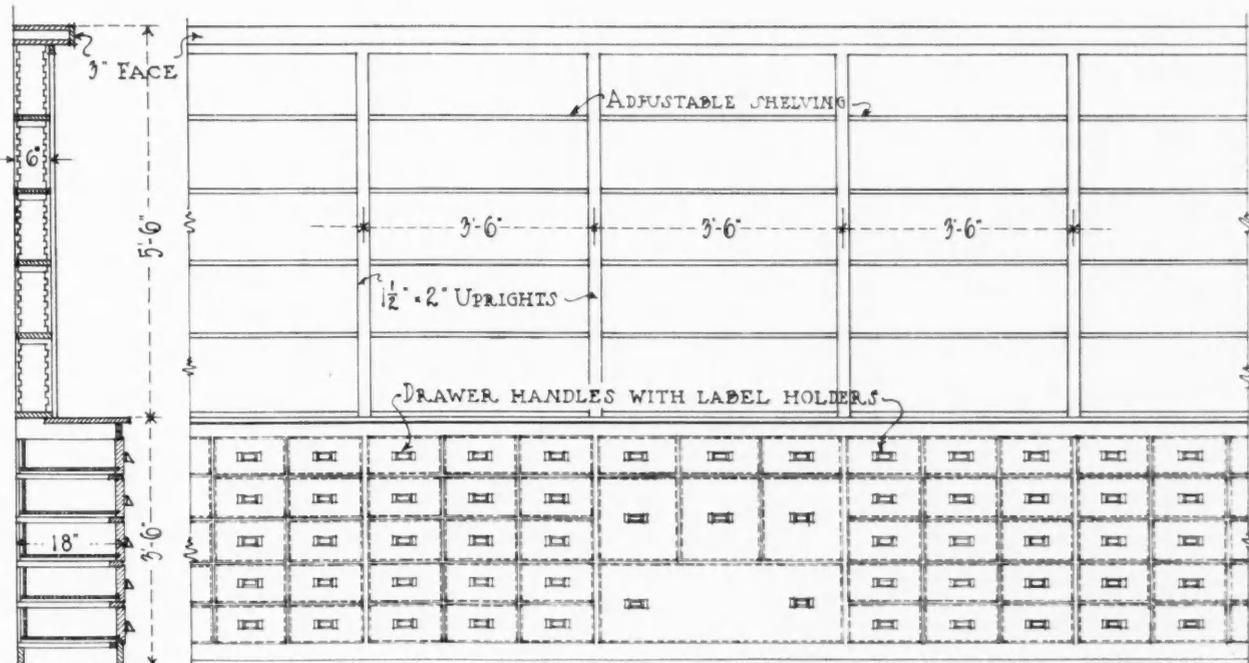
Floor Plans of Design No. 6789.

Floor Plans of Design No. 6790.

General Floor Arrangements of Three Store Buildings Shown Above and Also Arrangement of Rooms in Apartment Above Each Store.



SECTION AND ELEVATION OF SHOE STORE SHELVING.
 SCALE: $\frac{3}{8}$ INCH EQUALS ONE FOOT.



SECTION AND ELEVATION OF DRUG STORE FIXTURES.
 SCALE: $\frac{3}{8}$ INCH EQUALS ONE FOOT.

Details of Shelves and Fixtures Suitable for Shoe Stores and Drug Stores. The Ladder Construction for Handling the Shoe Store Shelving is a Feature. The Drug Store Design is a Standard Design Such as Might be Found in a Well Arranged Drug Store.



Five One-Story Store Buildings of Attractive Design. For Reference to the Floor Plans they Are Numbered from Left to Right as Follows: Nos. 6784, 6785, 6786, 6787. The Stores Show Different Designs in Terra Cotta and Brick Combined with Various Styles of Glass Fronts to Suit Many Individual Ideas.

Five 1-Story Stores

"Show me a new business street that's on the boom, or an old business street that is being rejuvenated, and I will show you a lot of attractive one-story stores. They get the business, help the whole tone of the street, and are the best sort of an investment."

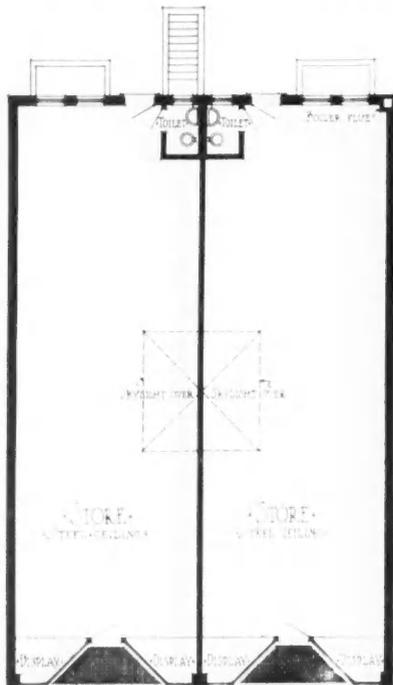
The accompanying illustrations show a street of this sort. Five store rooms, three of them on 25 foot lots, and one other a double store, occupying 40-foot frontage.

Notice the variety of display window arrangements, also notice the uses of skylights and ventilators. They are fine for lighting and ventilating the middle of long store rooms. They save their cost every year to the storekeeper.

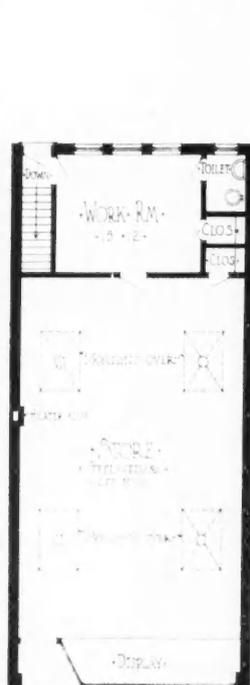
Our readers who are called upon to handle store building work, will find many good ideas in these little designs. They are absolutely up-to-date.

The details show suggestions that will be of value to the builder in constructing the interior of store buildings. The many small things that are kept in a hardware store are handled in the best way by small drawers as shown in the detail. These are made accessible by the ladder mounted with rollers on the floor and fastened to an overhead track. The handles can be arranged so as to hold card labels showing the contents of each drawer.

Broad, wide shelves present the most economical arrangement in dry goods stores. Small spindles separate the different parts.



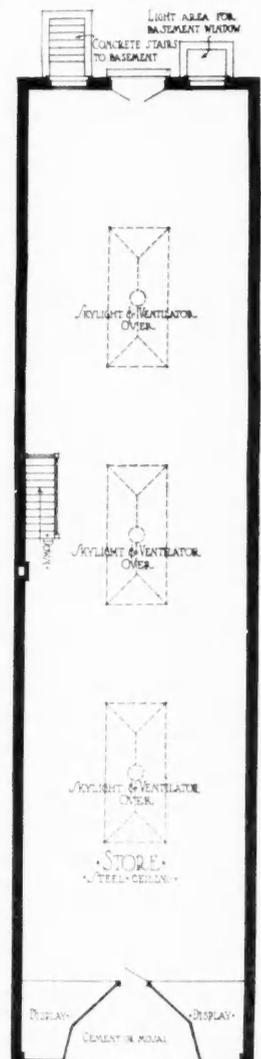
Floor Plan of Design No. 6784.



Floor Plan of Design No. 6785

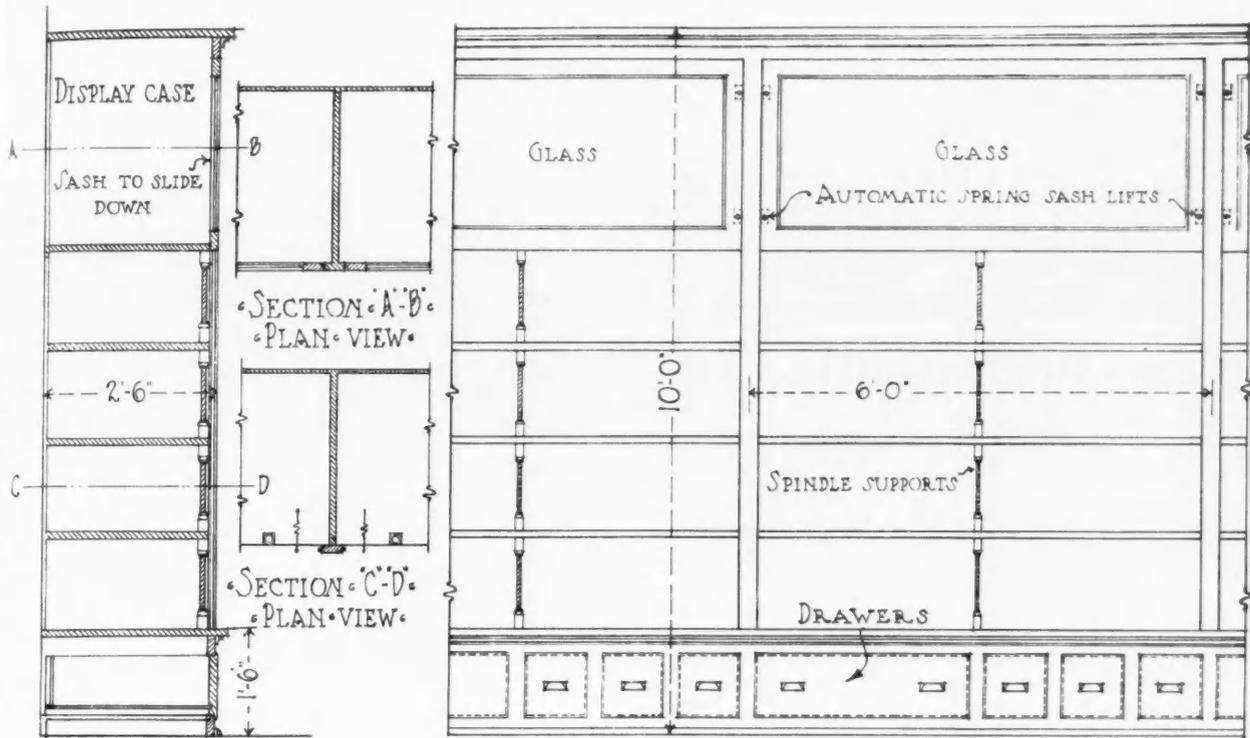


Floor Plan of Design No. 6786.

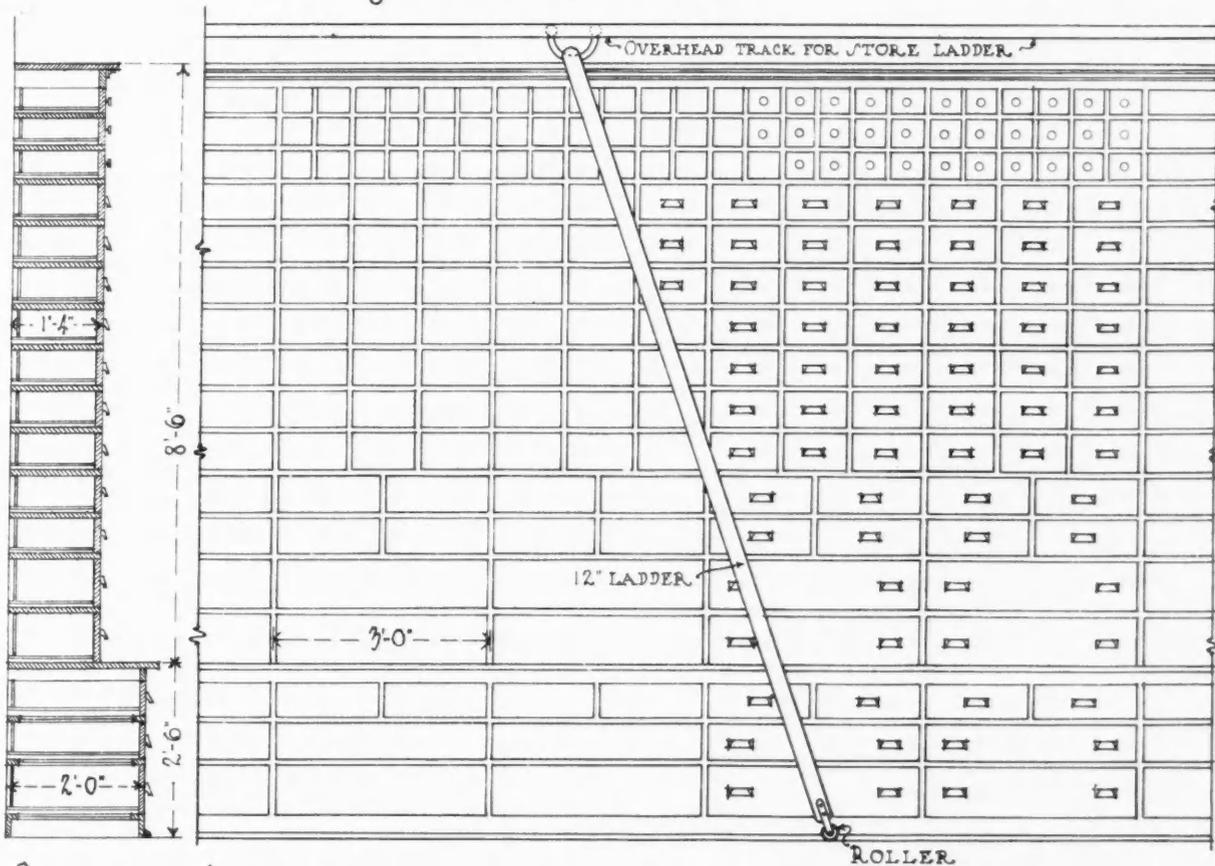


Floor Plan of Design No. 6787.

General Arrangement of Floors of the Five One-Story Store Buildings Shown Above.

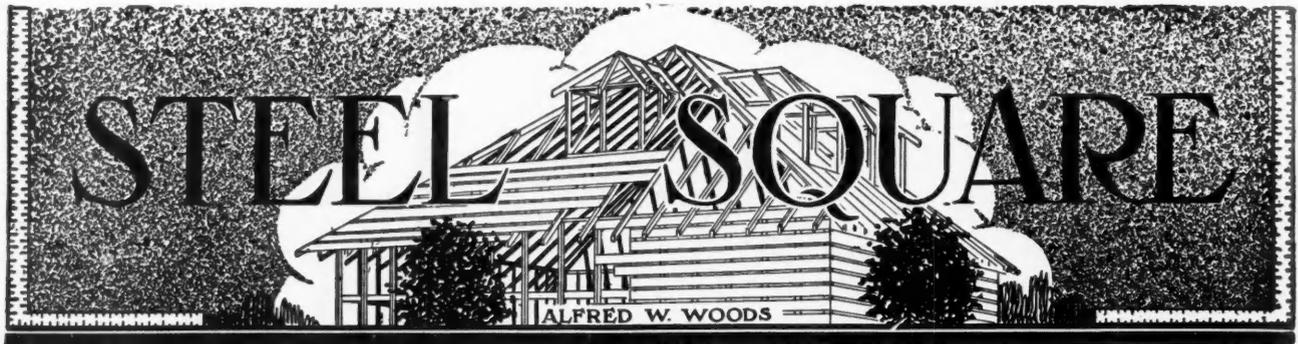


SECTION & ELEVATION OF DRY GOODS STORE FIXTURES.
 SCALE $\frac{3}{8}$ INCH EQUALS ONE FOOT.



SECTION & ELEVATION OF HARDWARE STORE FIXTURES.
 SCALE $\frac{3}{8}$ INCH EQUALS ONE FOOT.

Shelf and Fixture Arrangements for a Modern Dry Goods Store and a Hardware Store. The Small Labeled Drawers are the Most Useful for a Hardware Store. The Broad Shelves for the Dry Goods do not Need to be Marked as the Material Can be Easily Seen.



Possibilities of the Steel Square

THE ELEVENTH ANNIVERSARY; ILLUSTRATING A GENERAL METHOD FOR THE FRAMING OF A ROOF FOR AN ELEVEN-SIDED BUILDING BY MEANS OF A PASTEBOARD MODEL.

By A. W. Woods

A GAIN, at the eleventh hour, we are reminded, as we take up the pen, that another anniversary is on and we cannot pass it by without giving it due notice.

Eleven years has come and gone since the AMERICAN CARPENTER AND BUILDER started on its mission for good, March, 1905. We have tried to keep our part of it in giving the readers a square deal and how well we have succeeded, we leave it to them that have tried to follow us thru these eleven years. Those that have, are certainly entitled to something—and so we present them an Emblem in commemoration of the occasion, as shown in Fig. 1.

As in previous years we will take for our subject something pertaining to the member of the anniversary which in this case is Eleven.

And so, we will take the framing of a roof for an eleven-sided building with equal sides and with 11-inch rise to the foot: in doing this, we are going to use plain, every-day terms so as to simplify the subject as much as possible.

We are fully aware that this particular problem will

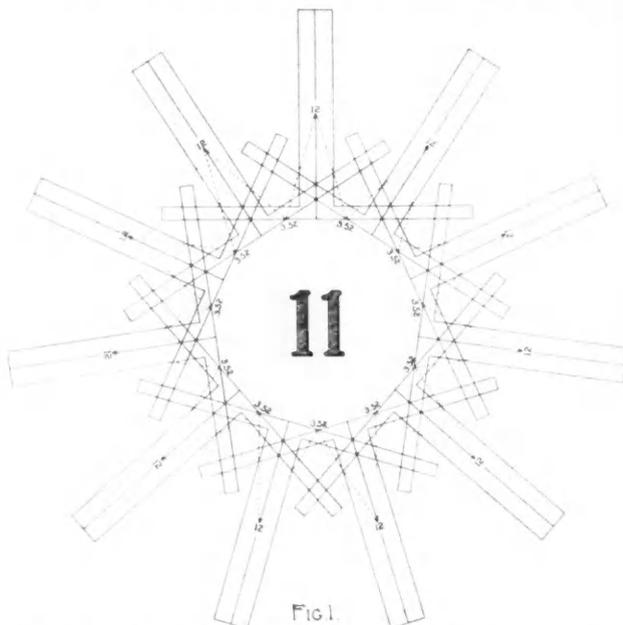


Fig. 1. A Badge for the Faithful Followers for a Square Deal.

be classed among the things nonsensical, as it will never come up in actual practice; but that is not the question. The principles used here apply to any number of sides the building may have.

In Fig. 2 is shown the starting point; the laying of the foundation in connection with the steel square.

The first thing is to ascertain the angle that forms the plan, and this is done in a mathematical way by dividing a semi-circle (180 degrees) into the number of parts as there are sides contained in the building. In this example there being eleven, $180 \div 11 = 16\frac{4}{11}$, which means an angle of $16\frac{4}{11}$ degrees between the runs of the common rafter and hip and represents that for one-half of one of the respective sides of the building.

The figures shown on the square represent the angle of the plan and furnish the foundation upon which to build. With-

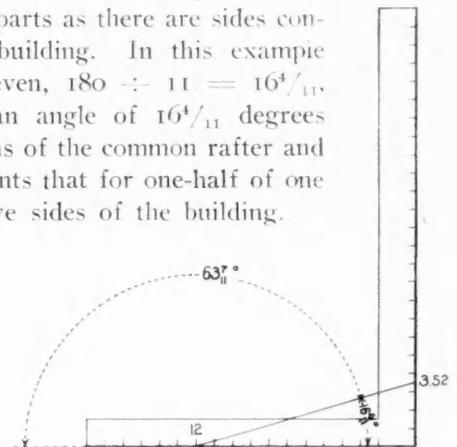


Fig. 2. Diagram Showing the Required Angle of Plan.

out going further into figures, and what may be accomplished by them in connection with the steel square, we will lay out a model, as shown in Fig. 3.

And by making three right-angle folds on the run lines and edge of the common rafter (center line) so that the lines shown on the pattern will show on the outside, we will have a perfect model or solid of one-half of one of the respective sides. Or in other words, twenty-two such solids placed together would form the whole roof in miniature, as it would appear in the full size roof and the pieces or solids that form it are nothing more than is represented in the little blocks that may be picked up on any job after the framing of the rafters.

In other words, they are the telltale of what has gone before, and therefore contain the proportional

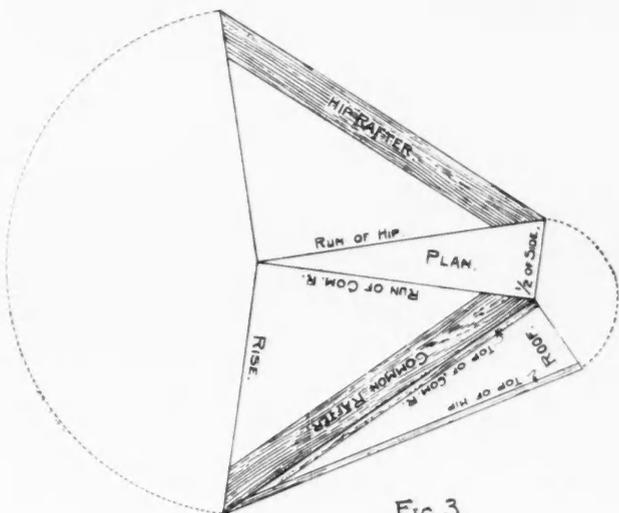


FIG. 3.

Fig. 3. Diagram Showing How to Lay Out Model for the Framing of the Roof.

parts to take on the square to obtain all of the cuts and bevels contained in the roof. For that matter, the block or solid could be applied direct to the timber and by its manipulation, all of the cuts can be laid off from it alone, even to the finding the length of the rafters provided the length of the run of the common rafter on the model is full scale for a one-foot run, just the same as 12 is used on the square and other parts in proportion.

There is no more simple way in showing up or illustrating roof framing than here shown by this model. Volumes of descriptive matter could do no more in simplifying the subject.

To those that still fail to grasp it in its entirety, we would suggest that they take a piece of pasteboard and lay off the diagram, as here shown, with 12 inches for the run of the common rafter and 11 inches for its rise and $3\frac{1}{2}$ inches (full) for one-half of the side and then with a sharp knife, trim to the outer lines and cut about one-half way thru the pasteboard on the lines before mentioned and fold as described, until all edges come together, and paste a strip over the joining; then apply the steel square to the different angles and see how it complies with the cuts, etc., for the rafters as shown on the face of the model.



A Sensible One-Car Garage

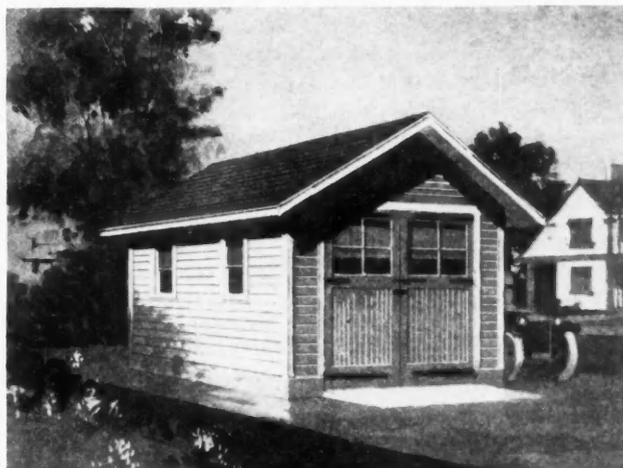
We have designed this little building to come as near as possible to what the great majority of car owners living outside the fire limits in cities want to build out in the back yard. It is neat in appearance, snug, well built, but moderate in cost.

One of the things of first importance for any garage is to have a good concrete floor with concrete approach. For this design excavate a trench 18 inches deep along the four sides of the 12 by 20 foot rectangle. In these deposit concrete to make 6-inch footings. Have the enclosed area leveled and well tamped down for sub-grade for the concrete floor slab. The concrete foot-

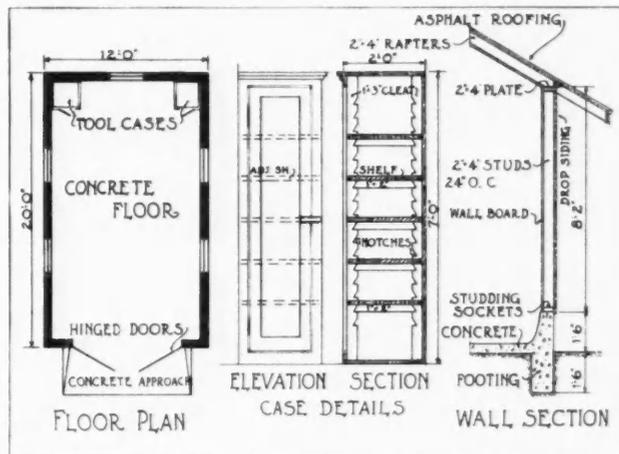
ings are carried up 18 inches above grade and the floor rounded up to it at the edges to form practically a continuous floor and wall slab when thoroly hardened. Iron studding sockets are imbedded along the top of the foundation wall to receive 2 by 4 studs eight feet long set 24 inches on centers.

The garage is finished outside with drop siding and inside with wall board.

The hanging of garage doors is important. Such doors are large and heavy and if they do not work well are a continual nuisance and source of danger. There are several thoroly good ways of hanging garage doors, including various forms of overhead track for sliding doors, combinations of sliding and hinged doors, and simple hinged. The doors illustrated are hinged



Simple Frame Garage Listed as Design No. G160. The Floor and Foundation Are of Concrete.



Details of Garage G160, Showing Floor Plan and Method of Constructing Walls and Tool Cases.

with extra long wrought iron garage door hinges. A special hold-back is also provided to keep the doors from slamming shut while one is passing thru with the machine. This is an important protection that costs very little.

This garage is extra well lighted. Plans call for two corner cupboards which can be used as tool cases or clothes lockers.

"A Cheap Man Can Easily Get Cheap Approval. High Class Endorsement Comes High. Set Your Own Price"

—THE MAN FROM THE LUMBER YARD

The sky is the only limit we place on a man's attainment. Our every effort is for the highest standards. We appreciate the interest of the wife of our Ohio friend. While we do not publish the "A. C. & B." especially for Sunday reading, yet we admit some other might not be as good.
—EDITOR.

THERE is a man over in Ohio that got some of my "saw dust" in his eye. This Buckeye wrote me under date of Feb. 7, 1916, in part as follows:

"About a year ago I read one of your letters, how a man was helped by his wife. I made the mistake of showing that letter to my wife. She was so much interested in the magazine that she has me bring it home every month. At dinner yesterday I told her something that I read about the Cement Show in your February letter. She made me go down to the shop and get it for her. She spent the afternoon in reading it. She was especially interested in the new bungalow residence plans. She enjoyed your pictures of the Egyptians building the pyramid with modern concreting machinery and the dagoes using power paving mixers to build a road in 311 B. C. She read the Saw Dust part of your letter out loud to me and when she got to that part about LEARNING more and EARNING more, she told me to go to it. Now, what I want to know is how to do it."

The Specialty Education

I at once answered his letter, as I thought would do him most good, and am quoting from his letter merely to show the desire that is with every ambitious man to make progress. The only individual I have no patience with is the man that is entirely satisfied. That man is rapidly on the way to the place where he thinks he is right most of the time and the rest of the time he knows he is excusable.

Merely being on the subscription list of a building paper is not going to give to this man a specialty education any more than having a prescription in his pocket is going to cure the pain in his stomach, or his name on the church register, pass him thru the pearly gates.



"That Bag o' Wheat Is Heaver'en Me. Why Can't I Lift Myself Over."

The time was when a great many men of ability felt that they could get along all right without specific specialty information. They felt they had it within themselves to lift up, the same as the boy did in the old

school reader who could not understand why he could not lift himself over the fence by his bootstraps.

Do You Shy at the Subscription List?

We do not hear nearly as many funny stories as formerly about the way that contractors, builders and those who are ambitious to be such, shy at subscribing to building publications.

I have known of people shying at a subscription blank as badly as an old spavin horse would shy at a steam roller.

It does not require much logic to convince any man worth while of the fact that a magazine specializing on the work in which he is interested, is his best friend. The Editor tells me he has hundreds of letters on file from subscribers who state that just one idea se-



"Whoa, You Fool; Don't You Know That's Your Best Friend?"

cured out of one issue has made more than enough money to pay for a ten years' subscription. You might as well try to keep a hungry man away from his dinner as an ambitious man from reading such a publication from cover to cover.

The Busy Man

The more valuable a man's time is, the more hungry he is to pick up good ideas that will help him in his work. Of course we fellows who are known as "pen pushers" think our part of the magazine is the best; but I know that the man who does not study the advertising pages of the AMERICAN CARPENTER AND BUILDER gets only half the worth of his money.

I had occasion some time ago to visit a furniture factory over in Michigan. The owner spoke with a great deal of pride of a machine he had just made to do a certain work. Under my promise of secrecy, he showed it to me. When we returned to his office I found a six months old copy of a magazine that specializes on furniture machinery and showed him an advertisement of a machine that did all his machine did

and then some. The price of this machine was less than one-third of the cost of the home-made machine.

This man had been too busy to look over the advertising pages.

Card System vs Scrap Book

I have seen a great many methods of keeping in touch with the good things in a favorite magazine. One Boss Carpenter I know, is a "fan" on the "strength of materials." He has a scrap book in which is placed clippings of every article he has ever read on the subject, and they are legion.

A builder in an Iowa city has every house design we have shown for the last eighteen months, carefully clipped, trimmed and pasted on card boards of uniform size. When he has a prospective customer he has him to look over all the designs of houses of about the type he is interested in. By the process of elimination the builder soon learns the ideas of his customer, thereby aiding in suiting him the better.

I am watching with a great deal of interest the carrying out of a CARD SYSTEM plan which I suggested to a young contractor. I had noticed that every filing system or scrap book helped to make a man narrow because the man clipped and filed only such things as he felt an interest in. The Boss Carpenter mentioned above has need of information on many other things besides strength of materials. This young contractor has a self-binding cover in which is placed his copies of the "A. C. & B." for every six months. As he goes thru each copy, he marks on the ads and reading matter a notation indicating under what card heading it is to be indexed. His wife enters on the

Chemical Closets
Introduction & Sale - Nov. 15, p. 60
as a Side Line - " p. 120
Farmhouse designed
for Chem. Clo. - Feb. 16, p. 87

3 by 5-Inch Index Card Which Is Easily Kept Up and Is a Great Help in Keeping Track of What Is Published on Any Subject.

index card the date and page where the specific information can be had.

He has a card for each different subject. If he wants information on concrete machinery, he can at once locate it by referring to that card, etc., etc. I have had one of his cards reproduced for the benefit of such readers as want to utilize this idea.

Is Money Alone Your Aim?

Don't let anyone get into his mind that money is all that there is to be earned.

I appreciate money, clean money, as much as anyone; but money is not always a plus quantity. If it

belongs to a MAN it is a plus quantity. If it belongs to a MANIKIN it is minus.

A Clean Record Essential

It is absolutely essential that a man keep a clean record if he is going to be anything of a success.

Some time since I saw a little jingle which has kept running thru my mind. I believe it is well worth printing in the "A. C. & B.," especially if it is to be read on Sunday:

"Four things a man must learn to do
 If he would keep his records true:
 To think without confusion clearly
 To love his fellow man sincerely.
 To act from honest motives purely
 To trust in God and heaven securely."

Take that as a tape and see how you measure up.



The Elephant Did Not Know It Was Free. Fear and Inertia Keep Many a Man Chained When He Is in Reality Free.

Money vs Happiness

I want my Buckeye friend to earn more in money if he knows how to use it right. His final wage is not money. Life's pay is happiness and it is not easy to find out what happiness is. Most of us work for what we think other people think is happiness. Yet each one may know if he will take the collective experience of mankind.

Did you ever consider that we are much better off than if we had what we want. I believe that most of us want money, not so much for the money itself, as for the good we can do with it.

Your Associations

Did you ever notice the different effect the meeting of different people has on you? One man depresses you, another cheers and encourages. Some people are merely nice, but would not do you any good if you associated with them for a century. In my time I have been with some men for only a few minutes and gotten a thought that has been of tremendous value. The same benefit or lack of benefit is to be had from the magazines you read. It is better to have ONE live magazine and get the good out of it than several that are of no help.

I was held up in a southern Illinois town of 8000 people last February by the high water, and met several fine fellows in the building line. One of them showed me, with a great deal of pride, a miniature bungalow on wheels he had made to house his portable power woodworker; said it was a great ad for his home-building work and a business getter, beside

being a practical covering for his machine.

I asked him if it was an original idea. He reached into his desk and took out the August, 1914, issue of the "A. C. & B.," saying, "I got the idea where I get most of my new things."

This man was different from the elephant I saw in a zoo in one of our eastern cities. For ten years it had been chained "to one spot." Under a change of management the shackles were taken off. But Mr. Elephant did not move. Its food was placed just out of reach, but it would not take a step. It still felt that it was chained. Fear and inertia keep many a man from advancement. Fortunate is the man who has a job, who has the right vision of that job, and works at the job in a whole-hearted way.

Success Saw Dust

*It is easier to die than to live, to flunk than to dig.
Be strict as you can with yourself and as lenient
as you can with other people.*

*Doing a little every day accomplishes a great deal
in a year.*

Why not profit by the success of others.

Use what you have to get what you want.

Be cheerful or at least act the part.

The thing you WANT to do, you can do.

*It is a wise man who takes time to locate his weak
spots.*

You don't win worth while prizes in a lottery.

*Religiously avoid neglecting your friends, studiously
neglect your enemies.*

*You want to win in the game. Are you willing to
pay the price?*

A quitter never gets anywhere.

No task is hopeless. It only seems so.

The man who is afraid of work is never a winner.

*With all your developing, develop endurance, the
staying quality counts.*

The man who would progress must not only be adept in old ways, but he must keep up to the minute by being a student of the best obtainable magazine that specializes on the work in which he is interested.

A wise man is careful of what he feeds his horse. He should be more careful of the food he pours into his "think tank." Each issue of his magazine should bring new, specific information that is usable. It should help him to be that biggest thing on earth, a real MAN. It should be his big brother to whom he can go

for information and advice. It should be such a magazine that he is glad to have his boy read.

Verily such a gem is worth the parting with your shirt or cutting out the Durham. Sincerely yours for service.

THE MAN FROM THE LUMBER YARD.

What About This Ready-Cut House Business?

CAREFUL INVESTIGATION FINDS IT CONDEMNED BY CARPENTERS AND BUILDERS—MOST SATISFACTORY RESULTS COME FROM MUTUAL CO-OPERATION BETWEEN EXPERT BUILDERS AND LOCAL LUMBERMEN.

1. *Is the skilled carpenter with his hand saw doomed to go—banished off the job?*

2. *Is home building to be given over to amateurs and to bunglers?*

THESE questions are occasioned by the present ready-cut house situation. The first has been raised by numerous concerns offering for sale complete bills of lumber "cut to fit" for any house; they have advanced this first contention, advertising that to erect *their* houses skilled labor is not necessary. Their nation-wide advertising is encouraging the general public to believe that material costs should be the only charge against a building, while labor costs should be practically nothing, since, as they say—homeseekers can nail *their* materials together themselves, everything being cut exactly to fit!

It is with considerable regret that the AMERICAN CARPENTER AND BUILDER has observed the use of this line of sales talk indulged in by the prominent ready-cut concerns in their national advertising.

We favor everything that encourages building. We believe in advertising building construction to the general public in language that they can understand. *But* we can not see how any lasting good can come from this policy of advocating cheap, shoddy, *amateur made* construction.

And so we raise this second question, in answer to the first—Is American home building to be given over to amateurs and to bunglers?

We do not think so.

We have looked into this ready-cut house business carefully. There is an element of truth in it; there is a plausibility that seems to appeal to the uninitiated and, because of their lack of experience in building, easily convinces them; there is aggressive campaigning for the homebuilding idea. But, nevertheless, it is our judgment that this mail-order ready-cut house proposition will do more harm than good in the building field; and for this reason we can not endorse it.

We believe it to be hurtful to the interests of those two great groups of men on whom the success of the building industry always has and always will depend—namely the skillful experienced builders and the building material dealers. We believe that these two, working in close harmony and using modern methods of advertising salesmanship, and gasoline power methods on the job, can build better, more efficiently, and at less expense than the ready-cut people. Certainly their houses when done will be more of a standing advertisement for home building to encourage others to go and do likewise. Wormanlike construction using good local materials will win out every time.

Power on the Job Nullifies Their Best Argument

We note that a great point is made by the ready-cut concerns of the fact that gasoline power is cheaper and more efficient than man power when it comes to sawing rafters, joints, bridging, weather boarding, etc.

Of course it is. Builders adopted the gas engine some years ago. And thousands of power saw rigs and combination woodworkers are now busy out on the job—each presided over by a practical power carpenter who is right in touch with all the needs of that particular job. That's where the sawing should be done, right on the job where the hundred and one varying requirements of timber construction can be known and provided for.

A great many builders are today equipped with power equipment—concrete mixers, hoists, saw rigs, and variety woodworkers. They are handling their jobs in the most efficient way, and it stands to reason that there is more efficiency in having such power equipment right on the job or at least in the shop or lumber yard near by, where all the changing needs of each contract are quickly known, than in having the pieces processed five hundred miles away and by those who know nothing of local conditions.

We Line Up with the Local Builder

The AMERICAN CARPENTER AND BUILDER is concerned first, last, and all the time with the promotion of building construction. We have never taken sides in any controversy between one trade or branch of the industry with any other; but have campaigned consistently for harmony and co-operation and for the lasting good of the whole building business—which can only come about thru good work and the lasting satisfaction that comes from good work well done by those who know.

We have maintained a strickly impartial altitude with respect to such matters of possible controversy as religion, politics, unionism, and the mail-order lumber business, nevertheless we believe that the following letter, received recently along with several others of the same sort, calls for a frank statement of our conclusions in regard to this ready-cut house business

Worcester, Mass.

Editor American Carpenter and Builder:

As I was reading in the February 13 issue of "The National Sunday Magazine" an article on ready-cut houses, the thought dawned on me that I had been a subscriber of "the world's greatest building paper" for almost a year, and I had never seen a descriptive article or any other article devoted to the problem of ready-cut houses.

I would like to receive a little light on the subject, as you see it, through the columns of your paper. C. W. M.

Investigation Among Builders

In order to learn how our readers view this ready-cut house proposition, we mailed out a letter of inquiry last fall to some five hundred representative carpenters and builders in Mid-West territory.

The replies left no doubt as to the judgment of prac-

tical builders concerning the ready-cuts. We will quote from several of these letters—those representative of the great majority; withholding the builders' names, however, since these letters were written us in confidence.

Home Trade Booster for 25 Years

Eureka, Kansas.

There never has been a ready-cut house built in this community. I have lived here 30 years. There have been a few that have talked about it, but never did it. These concerns advertise, but they cannot produce the goods any cheaper than we can do the same work for here, and then they are not here to look after the job afterward.

I find here in my business as contractor, there are little things that come up after the jobs are finished that need looking after. Will a contractor feel like taking care of a piece of work when they have worked against him? The trouble is right here. They send out a big picture that looks good to the average man, but when the figure is complete, they cannot save anything.

Now, in regard to inexperienced labor putting them together. That is another thing against the contractor. It is just as reasonable to expect an inexperienced man to draw a set of plans.

I have been fighting this for 25 years. Have figured from the Pacific Coast to Chicago, and always have bought cheaper at home.

Lumber Dealer Has Standing Offer to Duplicate Material at One-Third Less

Anamosa, Iowa.

We have had only two ready-cut houses put up in this locality, and either one could have been purchased right here at our local yards of much better material for at least 20 per cent less money.

The Hawkeye Lumber Company, of Cedar Rapids, Iowa, has a standing offer to furnish 30 per cent better lumber, erect and finish any one of the houses from their designs for 30 per cent less money, with local carpenters at 55 cents per hour. So you will see by this that there is little use for the ready-cut house in this part of the state.

You ask, "Do the ready-cut houses give satisfaction to their owners?" From what I see and hear, I think they certainly do; but the ones that own them do not know enough about a house to know whether it is well built or not. The only way to get a cheap house is to build it of the best material by the best mechanics you can hire.

Workmanship Counts in Building

Altoona, Iowa.

The ready-cut house has never gained any prominence in this part of the country or any place I've been; neither do I think it ever will. Few buildings have I ever built where there were not many changes desired and made by the owner before completion.

As to the amateur putting the ready-cut house up, he is no more fit to do so than to build outright, as workmanship counts for a great deal in any line of business or building. Men's ideas, or whims if you please, are so varied as to how houses should be built or braced, boxed outside or with patent lath above, boxed diagonal or straight, and hundreds of other whims that to my mind it is not at all practical.

To my mind, carpenters and contractors of ability will always do their own cutting and building on the job except perhaps frames and millwork, such as brackets and other items. In the city the ready-cut house may gain some proportions, but in the country it never will.

Can Beat Their Prices

Angola, Ind.

In regard to the ready-cut house business here, will say that there is not much of it. As to its being any cheaper, I have figured on several jobs where the parties used the house design pictures furnished by these concerns, and had their prices, and I have never yet lost a job of furnishing material against them. As to amateurs doing the work, there is nothing to that, as it takes a skilled man on the job just as much as any other, and the time wasted in sorting the stuff over will do the work in the first place and much more satisfactorily.

As far as the material is concerned, the grades are as good as claimed for, but there is usually a shortage if you put in as much as there should be. As to the contractors, there is not much damage done, as they have the work to do any way. If the contractor has the confidence of the people as he should have, he can easily show up enough weak places to win the contract any way.

Variations in Frame Construction Make Advance Cutting Unsatisfactory

Connersville, Ind.

In regard to the ready-cut house, it does not appeal to me at all.

In the first place as a carpenter with 30 years' experience I find it hard enough to get the job done when I do my own cutting. I have seen only two or three jobs of ready-cut houses, and I have never seen one with material enough to complete a job. If a firm cut the same house day after day, they might possibly get the thing down to perfection, but if there is any one firm that can take a plan and cut a house complete that will go together when delivered, I would like to see the job.

You are aware of the fact that a large percentage of the people will readily buy a gold brick; and if I should decide to buy a ready-cut house and expect it to be complete and fit, and make a first-class job, I would at once line up with the gold brick crowd.

Not Satisfied With Price, Quality or Cutting

Ackley, Iowa.

We have one ready-cut house in our city built last year. Now, I do not think much of the lumber they used.

Cut to fit? I should say not! The rafters were all cut wrong; bay rafters missing; rafters on main building 2 ft. centers and 32-inch lath for same; rafters over porch spaced 39-in. centers. Flooring for porch and first and second story was No. 2 flat grain yellow pine, and was so poor that one-third of same was waste, which meant to go to the local yard and get balance. Shingles ran short, and we had to get three thousand from the local yard. There was no flashing; no tin shingles; no gutter; about half enough paint; not enough nails; cellar and outside steps too short—that is not enough treads and risers. Inside base was fir, 5½ in. wide; casings 3¼ inches wide, of fir; all stools ¾ inches thick; no thresholds for outside doors; no paper under siding, and the siding is to be put on and all frames and corner boards put over the siding. Think what a job that would make! There were no double studs around any of the openings, siding of any length was all the way from 4 to 12 pieces, tied in one bundle to make 14 or 16 ft. lengths.

Do not think that any one can erect a house of the ready-cut system, for if you are no twell rehearsed on blue prints, you better leave it alone; besides, it takes longer to find the right pieces than it takes to cut same. There is nothing to the ready-cut house but cheap lumber which should not go into the house.

I do not believe any carpenter favors the ready-cut houses, and I am sure the local yard much less. I have built one, and that is enough.

Up to Lumbermen to Co-Operate With the Builders

Mapleton, Kans.

Your letter received. I will try and answer it the best I can, and will number your questions and answers.

No. 1. It doesn't seem reasonable that the average man can build his own home, and is not at all practical; it takes a pretty fair carpenter to put the pieces together where they belong.

No. 2. The ready-cut houses in this locality are very scarce, and I don't think there is any saving to speak of.

No. 3. The ready-cut houses are fairly well built if put together by a carpenter.

No. 4. They give reasonable satisfaction.

No. 5. The lumber is usually fairly good.

No. 6. If put out by a reliable concern, there is usually only a small shortage.

No. 7. The ready-cut buildings in this locality are framed, that is the frame is all cut to exact length; also window and door casings, colonades, sliding doors, etc., are cut and fitted. The siding, porch ceiling, and base board or wainscoting is not cut to exact length, nor is the cornice.

No. 8. There is considerable time lost by the carpenter in finding all the pieces, and lots if an amateur; probably about the same as it would take a carpenter to cut his piece.

No. 9. The carpenters don't seem to worry much about the ready-cut house proposition. I think there is a small saving in labor if the lumber is properly cut. The framing is appreciated by most carpenters, as it saves considerable heavy sawing. Probably no benefit to the carpenter, contractor or lumber dealer.

No. 10. The ready-cut house business hasn't reached any large proportions here as yet, and if it reaches any it will be the fault of the local lumber dealer, as the demand here is generally for better building material. I think just as good and more satisfactory houses can be built if the local lumberman will furnish good material and the carpenter do good work.

Talks Them Out of the Notion

Brownsville, Ind.

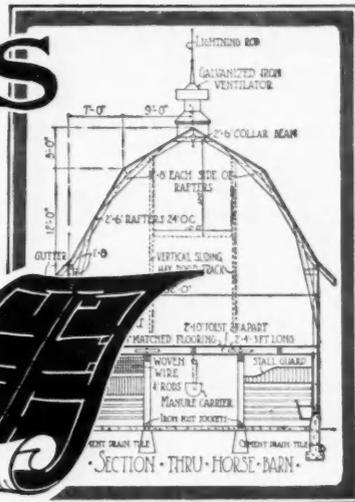
In regard to your letter, will say that we have never put up one of those houses, but have had lots of trouble to talk some of our customers from trying this sort of a proposition. I don't believe that a man can handle one of them and do it in a way to save money.

Conclusions

In our judgment the ready-cut house concerns are wrong in representing to the general public that skilled labor is a needless luxury in the building of a dwelling house. In other respects, too, their position is faulty—what they might save in buying in large quantities is eaten up by their excessive advertising and sales expense. They have to advertise to *all* with the hope of catching the few who are thinking of building. The local lumberman and the builder are not put to any such expense since they know or can easily find out exactly who is likely to build and can center all their sales effort on such genuine prospects. The saving in labor is nil, because builders are themselves employing power saw rigs to do their heavy cutting. As to freight charges, these have to be paid any way you figure it; with the advantage on the side of the local lumber dealer, since he buys his stock in carload lots and so gets the very lowest rate.

FARM BUILDINGS

Arranged For Convenience -



Farm Scale House

A scale house to shelter a 6,000-pound platform scale is shown in the accompanying drawings. It is long enough to cover a 16-foot scale platform and wide enough to contain the scale beam inside of the building, with room to stand between the beam box and the outside wall.

The foundation is of concrete with a thin concrete floor in the bottom of the pit. This is a great advantage in keeping out water, which sometimes finds its way into the scale pit, especially in the spring of the year.

The construction above the foundation is of light wood frame and clapboards with considerable shingled roof. There are no doors at the ends of the building, so the gable ends of the roof are extended as a protection against rain and

to prevent spreading, as there are no other crossies. Studding are cut 11 feet long, which gives about 16 feet between the scale platform and the collar beams.

On farms where considerable grain and hay and live stock are bought and sold, large platform scales become very important. Removable sides and ends are fitted to the platform so that different kinds of live stock may be weighed.

Farmers who have a good many head of live stock to feed for the market like to weigh stock occasionally to check up on the gain in weight.

Scales are becoming quite common on large farms. It is better and more convenient to have a special scale house and to have it connected with proper corrals for the convenient handling of live stock.

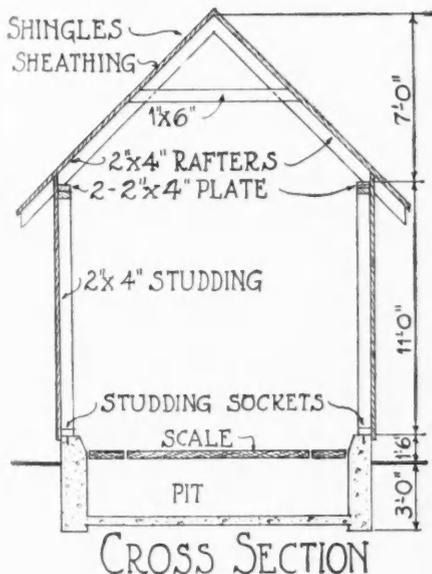
Concrete Basement Dairy Barn

Design A299 on the next two pages shows the perspective floor plan and details of a concrete dairy stable and storage barn 36 feet in width by 74 feet in length.

This dairy stable and storage barn contains all of the so-called modern improvements that have been worked out to help dairymen to produce large quantities of clean, sanitary milk at a profit.

The whole lower story is built of concrete from 3½ feet below grade to a height of 9 feet above the stable floor. The ground for the foundation is first tile drained to make sure that no water can accumulate around the building any time of the year.

The way in which the concrete walls are built will depend on the kind of ma-



Dimensioned construction view of scale house.

snow. The opening is the full size of the building at both ends, so that a large load of hay or straw may be driven in without interference.

The collar beams are placed rather low on the rafters to tie the roof firmly



Farm scale house costs little to erect and protects platform scale for long service.



Concrete basement dairy barn of very popular, substantial design, to stable 30 cows. We can furnish complete set of blue printed working plans and typewritten specifications for only \$10.00 per set. When ordering ask for Design No. A299.

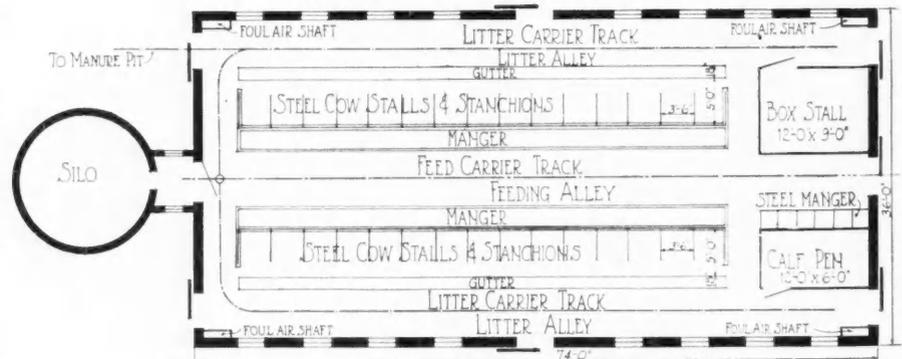
terial that may be secured to the best advantage. Usually trenches are dug for the foundation walls, which widen out at the bottom for the footings. On ordinary soils 18 inches in width makes a good footing for a wall of this kind.

Above grade it is necessary to have both inside and outside forms. Besides being thoroly well braced it is better to have these forms wired together at intervals to prevent spreading.

At the proper height the door frames and window frames are inserted into the forms. If the forms are made the exact thickness of the wall they are easily placed.

A thoro ventilating system is provided by means of intake pipes and foul air shafts. The intakes are regulated to supply sufficient fresh air and the outlet flues are large enough to carry off impurities so there is a constant change of air going on continually night and day.

To ensure the proper working of a ventilating system the stable is made practically air tight, so that all the air entering or leaving passes thru the ventilators.



Basement floor plan of 74' x 36' dairy barn, No. A299.

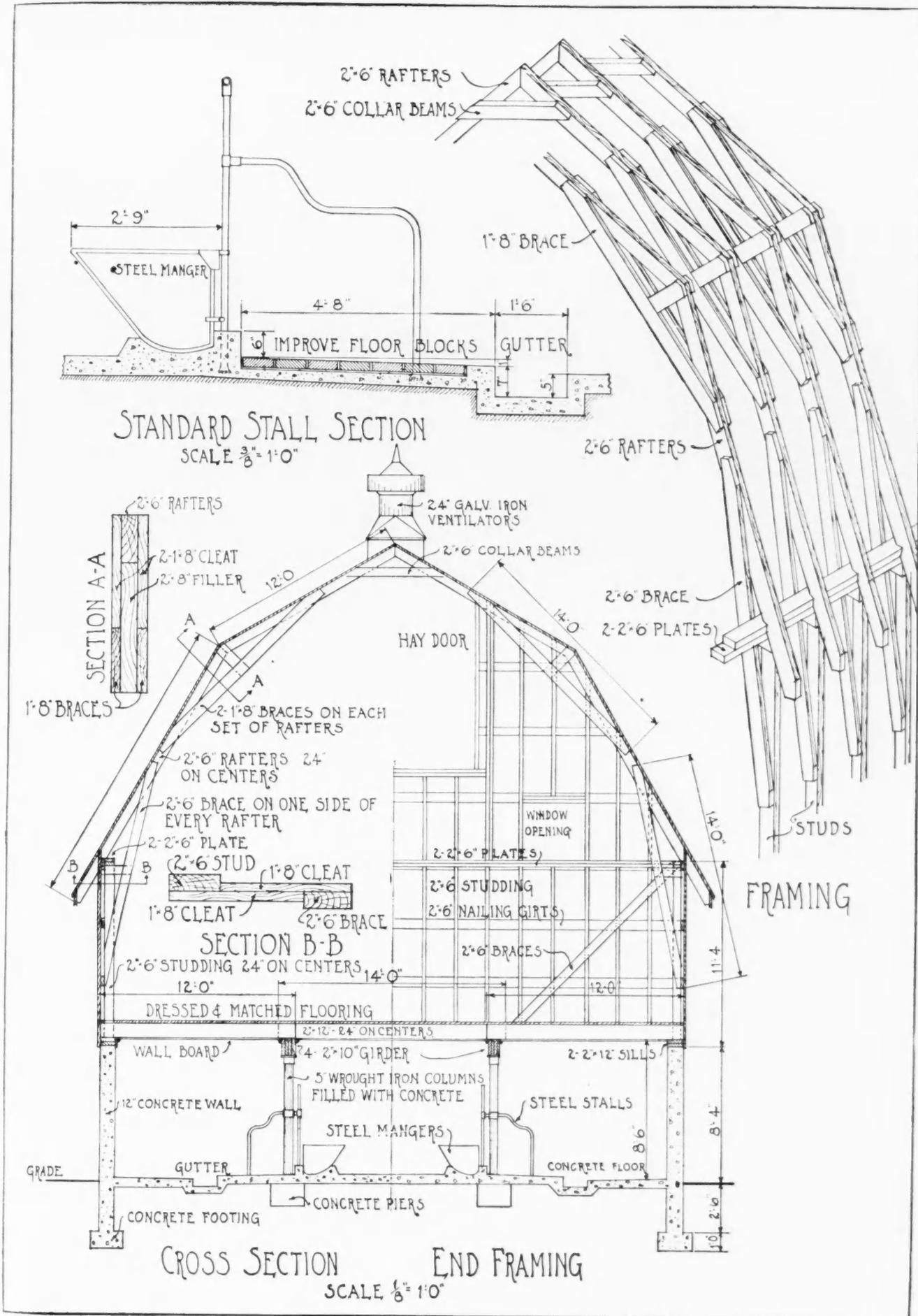
The ceiling over the cows is just as carefully made and finished as the side walls. Also the floor is constructed in the most approved manner.

The center feed alley, mangers, standing floor, gutter and alleys at the rear of the cows are all made solid together in one big floor of concrete finished with a rich cement surface.

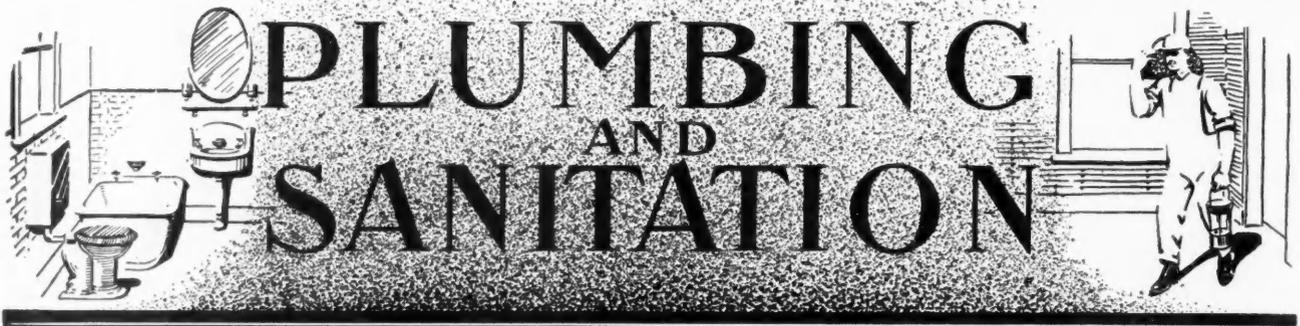
The stable is served with a feed carrier which runs from the silo thru the

alley to dump feed into both mangers, box stall and calf pen. The same overhead track extends thru the alleys behind the cows for the manure carrier, which dumps directly into the spreader at the manure pit.

The storage barn is built of plank frame construction in the usual way with hay fork and carrier track suspended from the short collar beams close up under the peak.



Details of Plank Frame Gambrel Construction in which Every Rafter is a Truss, Leaving Hay Mow Entirely Clear. Half of Cross Section View Shows End Framing. Design No. A299 Illustrated on Opposite Page.



What Constitutes Good Plumbing in Your Home?

IN TWO CHAPTERS—CHAPTER ONE

By C. F. Herington

Sanitary Engineer

THIS is a question that is raised by almost everyone at some time or other in the life, and especially at a time when one desires to install some of the modern conveniences in his home. It is a question that can be answered in a number of ways, and the purpose of this article is not to tell you how you can install your own plumbing and make a sanitary job of it, but, on the contrary, to give you such information that you will be able to see that the plumber gives you the best job he is capable of for the amount of money which you give him for that purpose, for I do not believe that any man, however handy he may be with tools, can do as good a job of plumbing as a licensed plumber can, nor should he attempt to do so.

However, there is no doubt that any one who con-

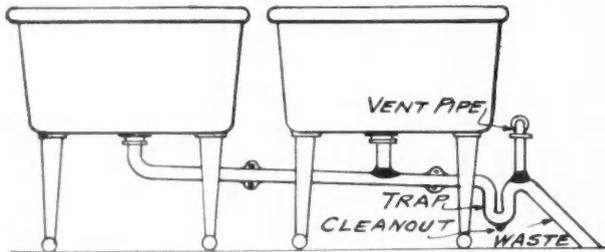


Fig. 1. Laundry Tubs, Showing Ordinary Trap. The Vent Pipe Prevents Gases from Escaping Into the House.

templates installing plumbing on his premises can effect an appreciable saving both of patience and money by learning for himself some of the fundamental rules about plumbing.

Perhaps you have noticed under a sink a piece of pipe bent to resemble a letter "S" laid on its side. This is what is known as a "trap." Every fixture, and by that is meant the sink, the wash trays, the bath tub, water closet and lavatory, should have a trap placed directly below the outlet of the fixture. This is demanded by all the laws of health and by practically every city as a plumbing ordinance. The reason for this trap is that all of the waste matter from the fixtures passes thru this trap on the way to the sewer, and in the bottom of the trap there is always a small quantity of water which absorbs the gases and odors which come from the pipes and sewers and prevents

these gases and odors from coming back into the rooms, which would cause headaches, sickness and other ills. So, primarily, the first importance of good plumbing requires that every fixture shall be trapped.

Traps are usually vented, that is, the crown or top of a trap, as shown in Fig. 1, is connected to a small pipe, which runs to the outside air. This is done so that whenever a large quantity of water or waste matter is discharged thru a trap, or if another fixture nearby is suddenly emptied, the suction caused in the pipes by the sudden rush of water prevents the trap from siphoning or running dry, in which case there would be no prevention from the gases passing back from another trap into the house. However, there are traps which can be purchased which do not require the extra expense of back-venting with an air line. These traps are called non-siphon or anti-siphon traps, and are built in such a way that it is impossible for them to be entirely emptied of water, but the expense of installation is almost the same in either case.

The second important item is to see that every trap has a cleanout that is accessible and that they are used. For if every trap was cleaned out periodically by the user, there would be considerably less plumbing bills to pay, for any plumber will tell you that a stuffed up trap or one that is uncleaned is the seat of 80 per cent of the plumbing troubles in every house; but no one

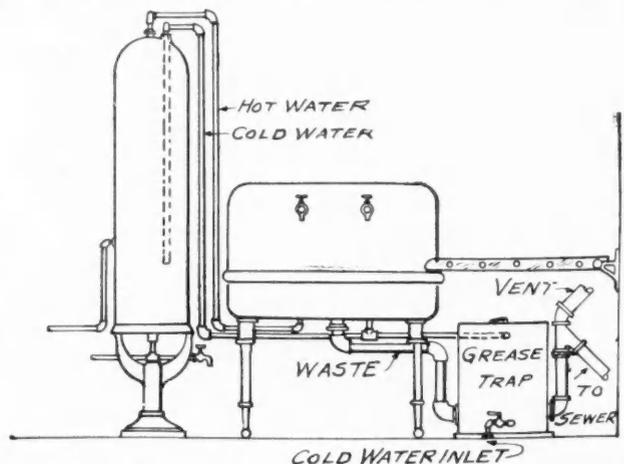


Fig. 2. Grease Trap for Kitchen Sink. The Cold Water Pipe Cools the Grease so It Can be Removed.

seems to take the trouble of cleaning their traps because it is an unpleasant job and will, instead, wait until the traps are stopped up, then call for the plumber and wonder why the bills are large, when they are caused by their own negligence.

Grease Trap for Kitchen Sink

One of the most important traps in the house, but one that is seldom installed on account of the small additional cost, is the grease trap for the kitchen sink. This consists of a receptacle placed under the sink as shown in Fig. 2, which receives all of the waste matter from the sink and passes it thru this trap, which is surrounded by a water cooled chamber, cooling the greasy water and forming a solid cake of grease, which can be easily removed from the trap by taking off the cover. The trap is cooled by connecting the cold water pipe in such a manner that all water drawn thru the faucets must first pass thru this cooling chamber without coming in contact in any way with the grease chamber. This trap can also be placed outside and buried in the ground, having a vent pipe taken from it and carried up above the roof, this vent pipe will then act like a chimney and draw all odors from the trap and discharge them above the roof. In this kind of trap no water is used to cool the trap, as the ground acts as the cooling medium. This grease trap is more important than many people think, for there is nothing that will clog up a pipe quicker than grease from a kitchen sink, and especially is this true in country plumbing, where there is no public sewer and a sewage disposal system is used.

Refrigerator Waste

This is also one of the important items of good plumbing that bears a very close relation to the health of the family. We are all familiar with the nuisance of placing a pan under the refrigerator to catch the dripping water from the melted ice, how often it is forgotten and runs over, spilling the contents on the floor. This can be easily avoided by placing a drip pan or safe, as it is called, under the refrigerator as shown in Fig. 3, and connecting this safe to a pipe having a trap, and discharging this pipe into an open sink, which has a faucet connected to it and a vented trap. DO NOT by any means connect this waste pipe to any of the waste or soil lines of the other fixtures, so there will be positively no opportunity for any odors or gases from the soil lines going back into the ice box. This is very important and does not at all times receive the care and attention that it should. See that this waste pipe is regularly and often cleaned out with boiling water, as all ice is not pure; and there are particles of dirt and other matter that are often left in the pipe. The trap under the safe need not be vented, it is only an additional guard to prevent odors from passing back into the refrigerator.

Water-Back in Ranges

DO NOT use an iron water-back in your coal range, if you wish to save yourself annoyance and trouble,

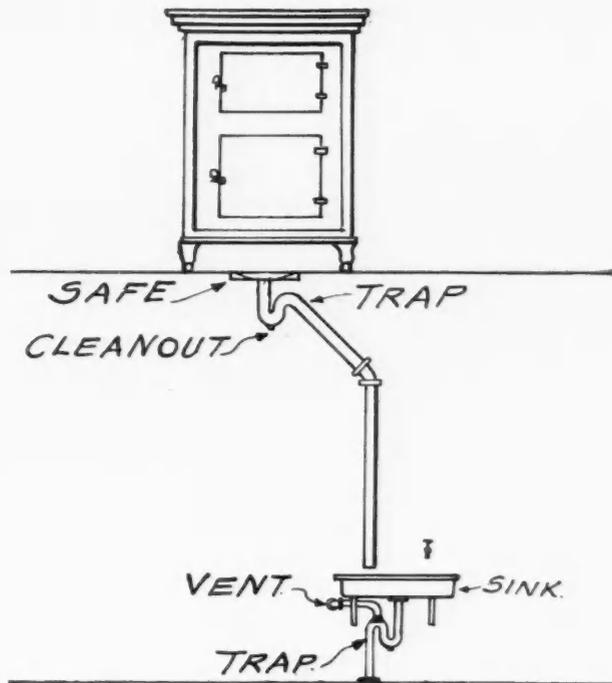


Fig. 3. Method of Constructing Waste Pipe for Refrigerator. The Pipe Should be Cleaned Regularly with Boiling Water.

but use instead either a copper or brass water-back. The cost will be greater, but it will be an economy in the end. For the rust from the water-back is sure to collect in the bottom of the range boiler, if it is an iron one, making it necessary to have a very hot fire on wash days, which will agitate the particles of rust so that they will find their way to the wash trays and will ruin more of your best linens than would pay the difference in cost of a brass water-back twice over.

This article will be concluded in The May American Carpenter and Builder.



Uncle Sam Cuts Cost of Blue-Print Chemical

Announcement has just been made by the U. S. Department of Agriculture of the new method for producing the chemical coating material for blue-print paper. The technical name of this is potassium-ferri-cyanide or red prussiate of potash. Before the beginning of the war, this chemical could be obtained for 55 cents a pound. It now sells at about \$6.00 a pound, and is very hard to get even at that price. This new method developed by the Agricultural Department chemists reduces the cost under present market conditions to about \$2.80 a pound, and in normal times to about 35 cents a pound.

The apparatus is simple as is also the manufacturing process.

The present high price of blue-print paper is considerable of a hardship on architectural and engineering departments. No doubt many will want to look into this new method of production. The Office of Information, U. S. Dept. of Agriculture, Washington, D. C., will supply full particulars.



Another Shingle Roof Argument

"Why are children so much worse than they used to be?"
 "I attribute it to improved ideas of building."
 "How so?"
 "Shingles are scarce, and you can't spank a boy with tin roof."—Life.

Concrete Porch Adds \$1000 To Selling Value

WOOSTER, OHIO. BUILDER'S SHOW HOW REMODELING WITH CONCRETE BLOCKS CAN BE DONE—ACTUAL COST NOT ONE-HALF THE INCREASE VALUE

EVERY town has its old style brick houses that look as much like this old Wooster residence, as twin brothers. They are substantially built—comfortable; but lack style, according to modern notions. They are worth fixing over, and they need it.

The Wooster Concrete Stone Company, who manufacture cement products and also do a general contracting business in and around Wooster, Ohio, recently had such a proposition put up to them, and they worked it out in very commendable style. The two photographs show the houses "before and after taking."

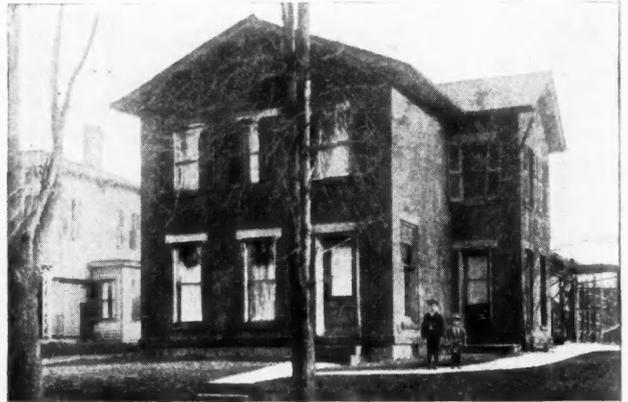
The main feature added was a concrete block porch laid up of broken ashlar cast stone. This porch is 31 feet long across the front of the house, and extends back around the corner at right angles, a distance of 23 feet. Special care was taken to lay these blocks in an harmonious, attractive design; no more carefully, however, than such high-grade building material as good concrete block deserves. The builder explains that all of this work was carefully drafted out in the office beforehand, the position of every block being shown, and was then laid under the builder's personal superintendence.

The porch walls are laid up of blocks 4 inches thick, smooth faced on the inside, and rock faced on the exterior. One part Portland cement and two parts screened lake sand was the mixture used. To get the desired color, the cement was a mixture of one part grey to three parts pure white cement.

The close resemblance of these blocks to natural stone is due to the fact that they were cast in molds,

using a special composition face plate actually modeled from broken ashlar stone. In this way the characteristics of broken ashlar are reproduced, even to the minutest details.

The columns and capitals are of concrete of the same mixture as the blocks. The porch floor is reinforced concrete slab. Besides the front porch, a sec-



Old Style Brick House Before Porch and Other Improvements Were Added.

ond-story sleeping porch was added to the house, supported on four concrete posts.

The total cost to the owner of this remodeling, was \$570.00, divided as follows:

Concrete work, complete, including excavation, \$410.00.
Carpenter work, lumber and tin roof complete, \$160.00.

It has been estimated by a very well informed, disinterested real estate dealer, that this expenditure added at least \$1,000 to the selling value of the place.



Formerly Unattractive House Improved in Value and Appearance by Concrete Block Porch Built Around Two Sides of Structure. The Total Cost of Remodeling Was Only \$570.00.

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

Moving Brick Buildings

CHAPTER FOUR—NOTHING DANGEROUS OR HARD ABOUT IT IF THESE METHODS ARE FOLLOWED

IN this article I will explain the methods and proper way to handle brick work. I will unfold a few secrets of the trade. So many people think it is wonderful how a house-moving contractor can move big, heavy brick buildings.

Handling brick work is not hard—it requires careful consideration of weights—and to take your time and not rush things too much. And at all times to get a good, firm footing for the jacks or tracking.

Raising

We must raise a building before putting the rollers under for removing to new site. Fig. 1 shows brick building being raised. Note that the cross-sills and running sills are all placed and the jacks are under the running sills. This is an important point, for you cannot handle brick work successfully unless you put a platform or foundation of timbers under it and raise from the running sills.

The first thing we do in starting a job is to take some blue chalk and mark the points where the cross-sills will be placed and at the ends of the running sills. Holes are then cut in the foundation—the cross sills lanced in. Then the running sills are run in from



Fig. 1. Raising Brick Building.



Fig. 2. Moving Brick Building.

either end. Jacks are placed under the running sills at intervals of 3 to 5 feet, depending upon the weight of building. A tension is placed on the jacks. You then go to the different points, like the center of cross sills, and place shingles between partition or joist and cross sill, so that the cross sill will be sprung and prevent the house from settling. Under doorways and windows less strain is placed, or, rather, weight. In Fig. 3 you will note the shimming I have placed between the cross sill and building.

Building Track

We now place our track and start it part way out

in front. The runway or track of 4-by-6's is now leveled up, the shoes for rollers placed underneath and then the rollers. Now we have raised the building just enough to allow a little clearance to get the rollers and shoes in.

Keying Up

Now here is a point that is necessary in good brick moving. Do not let the building down on to the rollers, but key up between the shoes and the rollers.



Fig. 3. Moving and Lowering Building 15 Feet.

I use oak wedges and generally soak them in a barrel of water and then drive them in with a sledge. In this way you will get even strain all around; no chance of racking building as would be the case if we lowered the different points to the shoes.

Tracking and Shoes

In Fig. 2 you will note style of tracking and the series of shoes. The shoes are made of 4-by-12-by-6 or 8-foot hard maple tapered at each end. In Fig. 2 I am turning the house and the rollers are being "cut" or turned a little. I always keep a lot of rollers under each shoe and use short 6 or 8-foot shoes, so that a broken roller can always be quickly extracted before causing trouble.

In pivoting a building or turning where only a certain amount of room can be taken such as trees, buildings or some other obstacle in the way, I then set a flag out at the center point or what we might call the pivot of the radii. We then sight all of our rollers to this point and the rollers on either side will travel with the draft and not bind or crowd. In particular places I take this center point where the flag is located and with the outer and inner shoes as radii describe a circle and drive pins or stakes on this circumference. The men then build their cribbing and tracking along this line or route using the stakes as guides and the center of the track. This does away with guess work, cuts out unnecessary work of building the track 2 or 3 feet out of line and then having to build over.

Stepping Down

By stepping down, we mean in house-moving terms,

move in a straight horizontal line and then lower building then move in a straight line again. This is only necessary in going down a grade or up grade. Never try to roll a house either up or down grade even tho it is very slight. Fig. 3 illustrates this stepping process. This building was raised and moved 50 feet sideways off of a bluff, 20 feet of cribbing being required. I then lowered the building 12 feet and placed it on the new foundation.

Fig. 4 gives a good view of the cribs and jacks and the spacing of same under the building.

Brick buildings of very large proportions can be moved without damage as well as these small ones. I have started out with these first and later on I will tell you in another article about heavier work.

Any moving contractor can handle brick work if he places a foundation of timbers under building, builds a true, firm track and raises the building evenly. I always use 3 by 24-inch crib jacks and build broad, firm cribs out of 6-by-6-inch and 3 or 4-foot blocks. When the jacks are tight all around the building, I station a man at certain jacks; he has a number and a marked territory to wind in. There may be two or three in the cellar. I then blow a whistle and each man winds the jacks in his station one-quarter turn. I wait until they have all finished, or think they have. A signal is then blown. If no one responds that his station is not complete, I blow two blasts on the whistle and the jacks are then wound up again.

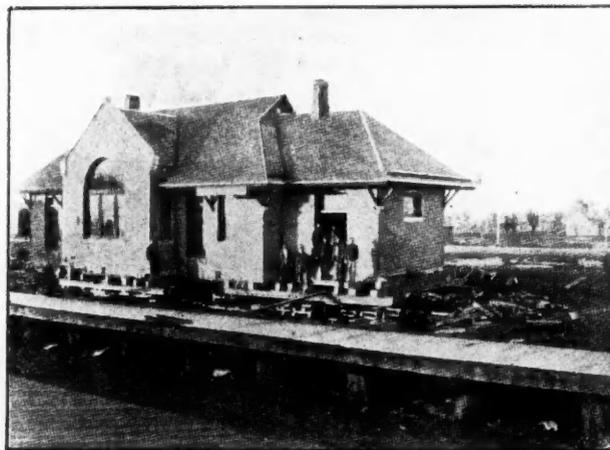


Fig. 4. Raising Depot.

This is only used on large buildings like Fig. 1 or larger. On small buildings you can always see your men. As a parting remark, get a broad foundation for jacks, use plenty of rollers, put in a foundation of timbers, take your time and you can handle brick work.

Editor's Note—Mr. La Plant will be glad to answer questions and give personal advice direct by mail to any of our readers. Be sure and state your problem definitely—give floor plan and size of building—distance to be moved—brick or frame—type of ground—level or uneven. Questions and answers of general interest will also be published in this department. Address him care of Editor.

CORRESPONDENCE



Questions Answered and Ideas Exchanged.

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

A Record-Breaker Barn

To the Editor: New Middletown, Ohio.
Having been a subscriber for your paper for four or five years, and not seeing anything in print in your magazine from this part of the state, I thought I would send you a photo of a barn I built on the Mrs. Ezra Burkey Farm in Springfield, Ohio.

This is one of the largest barns in Eastern Ohio or Western Pennsylvania. It was a record-breaker in several ways, being framed and raised in the equivalent of one man's work for 49 days. This barn was built several years ago, and we have never been able to equal this record. The raising of this barn was another noticeable feature. With the lower story raised, we began work at 7 o'clock, and at 3 o'clock the barn was raised and we were ready to have the photo taken. Altho there are 57 men, women and children on the photo, there were only about 25 men actually engaged in the raising. Curiosity prompted a good many to come. There were no mistakes in this frame, and was what we call in building parlance, a perfect frame.

I have been in the contracting business for about 20 years, and have put up scores of buildings like the above, some larger and some smaller. I am at present engaged on a barn 50 by 112 feet for Watson Brothers, Youngstown, Ohio, who are breeders and dealers in Holstein cattle. The timbers in this barn are the following sizes: Sills, 6 by 10; lower story

posts, 8 by 8; cross-caps, 10 by 10; joists, 3 by 8; main posts, 8 by 8; purlin posts, 8 by 8; purlin back brace, 5 by 5; nail girts, 3 by 5; beams, 9 by 9; end beams swelled to 14 or 16 in center; door parts, 6 by 10; plates, 8 by 10; 4-foot run braces, 4 by 4.

Yours for better building.

F. B. HALLER,
Carpenter and General Contractor.



Greetings from a Self-Reliant Builder

To the Editor: Benchland, Mont.
I received my book, "Framing," a few days ago, and am very much pleased with it. I take a great deal of interest in all the sections of the AMERICAN CARPENTER AND BUILDER. I have been reading the winter work letters closely. I have a small shop where I spend my time during most of the bad weather, but this winter it has been awful cold, and I have not done much. I have at times wanted to write and ask questions concerning the trade, but it takes so long to get an answer that I tried to work them out for myself, and I find it a good thing to do, as it gives you more confidence in yourself, and you are more able to overcome difficulties as you meet them.

This is practically a new country, and most of my work is among the farmers. I am away from home during all the good weather, and I have more trouble getting out of work than getting it.

J. A. CLAYTON.



Large Barn Frame Completely Raised at Springfield, Ohio, in Eight Hours by Twenty-five Men Under the Direction of F. B. Haller.

A Faithful Tool

To the Editor: Fountain Green, Utah.
 Here is a picture of myself with my old faithful hand saw, which I bought in May, 1894. All my saws are Disston make. You will not recognize this saw as a Disston No. 2, as I filed the back down to a skewback about 10 or 11 years ago. You will note that this saw is worn almost to the handle, but I am still using it, and it is a favorite tool with me.



Mr. J. E. Sorenson with His 22-Year-Old Saw.

I am also sending you a photo of a bungalow which I planned for Mayor J. L. Nielson of Fountain Green, Utah. I had charge of the building work, Mr. Walter Nielson doing the mason work. This beautiful little home has five rooms and bath on first floor. There is no pantry, but I built in a large convenient kitchen cabinet with refrigerator compartment in it which gets its cold air from basement. There are three bedrooms on the second floor. Basement has a laundry room, vegetable room and a kitchen cellar.

I have a few other buildings which I have planned that I expect to have photographed as soon as the weather will permit, and if you care for them, I will send them in. The snow here is two and three feet deep. The reason I am squint-eyed is that the snow was so bright it was almost blinding.



Bungalow Built for Mayor J. L. Nielson of Fountain Green, Utah, by J. E. Sorenson.

I enjoy reading the AMERICAN CARPENTER AND BUILDER very much, but as I am not a very able writer, I have never entered the correspondence crew.
 J. E. SORENSON.



Profitable Winter Work

To the Editor: Reading, Pa.
 Tell the editor of the "Winter Work Department" that I read ads for indoor sport. Get me?

JAMES C. NORTON,
 Gen. Contractor.

The Blacklidge Rafter Tables

To the Editor: Dooley, Mont.
 On Page 53 of the January, 1916, AMERICAN CARPENTER AND BUILDER, I notice an article by H. J. Blacklidge, "A Table on Cutting Jack Rafters," which states that he will be glad to send table to anyone who cares for it. Would you

please get this table for me?
 J. J. VOSSEN.

Answer—I am enclosing the Jack Rafter Table, which I offered in the January issue. Also a table of Common Rafter Lengths. This might be useful up to, say, 20 feet (where I have made the dotted line), or possibly more than that.

If you publish only part of it, I would greatly appreciate it if you would return the copy—I'd hate like sin to have to figure that business out any more! It is enough to drive a man to Napa. Figuring always was my bugbear.

The February number just reached me a couple of days ago. I've only glanced thru it, but it is surely a stem winder! May your luck stay with you.
 H. J. BLACKLIDGE.

Table of Jack Rafters

Distance Apart	¼ Pitch	½ Pitch	¾ Pitch	1 Pitch
24"	2' 2.8"	2' 4.8"	2' 9.9"	3' 4.0"
26"	2' 5.0"	2' 7.2"	3' 0.7"	3' 7.3"
28"	2' 7.4"	2' 9.6"	3' 3.5"	3' 10.6"
30"	2' 9.5"	3' 0.0"	3' 6.4"	4' 2.0"
32"	2' 11.7"	3' 2.4"	3' 9.2"	4' 5.3"
34"	3' 2.0"	3' 4.8"	4' 0.0"	4' 8.6"
36"	3' 4.2"	3' 7.2"	4' 2.9"	5' 0.0"

Explanation of above Table. Suppose the rafters are spaced 2 feet 4 inches apart, third pitch. Look in first column for 2-feet 4—or 28 inches. Follow this line across to third pitch and you have 2 feet 9.6 inches. If quarter pitch, it would be 2 feet 7.4 inches. This is the length in feet, inches and tenths, of THE FIRST JACK. At third pitch your next jack would be 2 feet 9.6 inches plus the same, or 5 feet 7.2 inches. For the third, add 2 feet 9.6 inches to this, or 8 feet 4.8 inches, and so on up to any number you wish to cut. This is your length at the CENTER of the back of the jack.

I believe the following table of rafter lengths is self-explanatory:

Lengths of Rafters, Common and Hip

Width of Bldg.	Common		Hip		Common		Hip	
	¼ Pitch	½ Pitch	¼ Pitch	½ Pitch	¼ Pitch	½ Pitch	¼ Pitch	½ Pitch
2'	1' 1.4"	1' 5.9"	1' 2.4"	1' 6.7"	1' 4.9"	1' 8.7"	1' 8"	1' 11.3"
3'	1' 8.1"	2' 2.9"	1' 9.6"	2' 4.1"	2' 1.4"	2' 7.1"	2' 6"	2' 10.9"
4'	2' 2.8"	2' 11.9"	2' 4.8"	3' 1.5"	2' 9.9"	3' 5.5"	3' 4"	3' 10.6"
5'	2' 9.5"	3' 8.8"	3' 0.0"	3' 10.9"	3' 6.4"	4' 3.9"	4' 2"	4' 10.3"
6'	3' 4.2"	4' 5.8"	3' 7.2"	4' 8.2"	4' 2.8"	5' 2.3"	5' 0"	5' 9.9"
7'	3' 10.9"	5' 2.9"	4' 2.4"	5' 5.6"	4' 11.3"	6' 0.7"	5' 10"	6' 9.6"
8'	4' 5.6"	5' 11.9"	4' 9.6"	6' 3.0"	5' 7.8"	6' 11.1"	6' 8"	7' 9.2"
9'	5' 0.3"	6' 8.9"	5' 4.8"	7' 0.4"	6' 4.3"	7' 9.5"	7' 6"	8' 8.9"
10'	5' 7.0"	7' 6.0"	6' 0.1"	7' 9.8"	7' 0.8"	8' 7.9"	8' 4"	9' 8.6"
11'	6' 1.7"	8' 2.9"	6' 7.3"	8' 7.1"	7' 9.2"	9' 6.2"	9' 2"	10' 8.2"
12'	6' 8.4"	9' 0.0"	7' 2.5"	9' 4.5"	8' 5.8"	10' 4.7"	10' 0"	11' 7.9"
13'	7' 3.2"	9' 9.0"	7' 9.7"	10' 1.8"	9' 2.2"	11' 3.0"	10' 10"	12' 7.5"
14'	7' 9.9"	10' 6.0"	8' 4.9"	10' 11.3"	9' 10.7"	12' 1.4"	11' 8"	13' 7.2"
15'	8' 4.6"	11' 3.0"	9' 0.1"	11' 8.6"	10' 7.2"	12' 11.8"	12' 6"	14' 6.8"
16'	8' 11.3"	12' 0.0"	9' 7.3"	12' 6.0"	11' 3.7"	13' 10.2"	13' 4"	15' 6.5"
17'	9' 6.0"	12' 9.0"	10' 2.5"	13' 3.3"	12' 0.1"	14' 8.6"	14' 2"	16' 6.2"
18'	10' 0.7"	13' 6.0"	10' 9.7"	14' 0.8"	12' 8.7"	15' 7.0"	15' 0"	17' 5.9"
19'	10' 7.4"	14' 3.0"	11' 4.9"	14' 10.1"	13' 5.0"	16' 5.4"	15' 10"	18' 5.5"
20'	11' 2.1"	15' 0.0"	12' 0.2"	15' 7.6"	14' 1.6"	17' 3.8"	16' 8"	19' 5.2"
21'	11' 8.8"	15' 9.0"	12' 7.4"	16' 4.9"	14' 10.0"	.....	.....	.....
22'	12' 3.5"	16' 6.0"	13' 2.6"	17' 2.3"	15' 6.4"	.....	.....	.....
23'	12' 10.2"	17' 3.0"	13' 9.8"	17' 11.6"	16' 3.0"	.....	.....	.....
24'	13' 4.9"	18' 0.0"	14' 5.0"	18' 9.1"	16' 11.2"	.....	.....	.....
25'	13' 11.6"	18' 9.0"	15' 0.2"	19' 6.5"	17' 8.0"	.....	.....	.....
26'	14' 6.3"	19' 6.0"	15' 7.4"	20' 3.8"	18' 4.4"	.....	.....	.....
27'	15' 0.9"	20' 3.0"	16' 2.6"	21' 1.2"	.....	.....	.....	.....
28'	15' 7.6"	21' 0.0"	16' 9.8"	21' 10.6"	.....	.....	.....	.....
29'	16' 2.5"	21' 9.0"	17' 5.0"	22' 8.0"	.....	.....	.....	.....
30'	16' 9.2"	22' 6.0"	18' 0.4"	23' 5.4"	.....	.....	.....	.....
31'	17' 3.9"	23' 3.0"	18' 7.6"	24' 2.7"	.....	.....	.....	.....
32'	17' 10.6"	24' 0.0"	19' 2.8"	25' 0.1"	.....	.....	.....	.....
33'	18' 5.3"	24' 9.0"	19' 10.0"	25' 9.5"	.....	.....	.....	.....
34'	19' 0.0"	25' 6.0"	20' 5.2"	26' 6.9"	.....	.....	.....	.....
35'	19' 6.7"	26' 3.0"	.....	.....	.....	.....	.....	.....
36'	20' 1.4"	27' 0.0"	.....	.....	.....	.....	.....	.....
37'	20' 8.1"	27' 9.0"	.....	.....	.....	.....	.....	.....
38'	21' 2.9"	28' 6.0"	.....	.....	.....	.....	.....	.....
39'	21' 9.6"	29' 3.0"	.....	.....	.....	.....	.....	.....
40'	22' 4.3"	30' 0.0"	.....	.....	.....	.....	.....	.....
41'	22' 11.0"	30' 9.0"	.....	.....	.....	.....	.....	.....
42'	23' 5.7"	31' 6.0"	.....	.....	.....	.....	.....	.....
43'	24' 0.4"	32' 3.0"	.....	.....	.....	.....	.....	.....
44'	24' 7.1"	33' 0.0"	.....	.....	.....	.....	.....	.....
45'	25' 1.8"	33' 9.0"	.....	.....	.....	.....	.....	.....
46'	25' 8.5"	34' 6.0"	.....	.....	.....	.....	.....	.....
47'	26' 3.2"	35' 3.0"	.....	.....	.....	.....	.....	.....
48'	26' 9.9"	36' 0.0"	.....	.....	.....	.....	.....	.....
49'	27' 4.6"	36' 9.0"	.....	.....	.....	.....	.....	.....
50'	27' 11.4"	37' 6.0"	.....	.....	.....	.....	.....	.....

A Classy Suggestion

To the Editor: San Diego, Calif.
 As for your request for suggestions for the improvement of the magazine, would like to make this one. I have found it helpful to have a filing cabinet in which I keep photographs or high grade prints mounted on card board. Why can you not print a colored supplement or a good print in black and white without reading matter on the back, as some of the other magazines do? I also think more pictures of good interiors would be helpful.

EDWARD H. WIER.

Answer—We have considered this proposition seriously and may have something in the near future to offer along this line.

EDITOR.

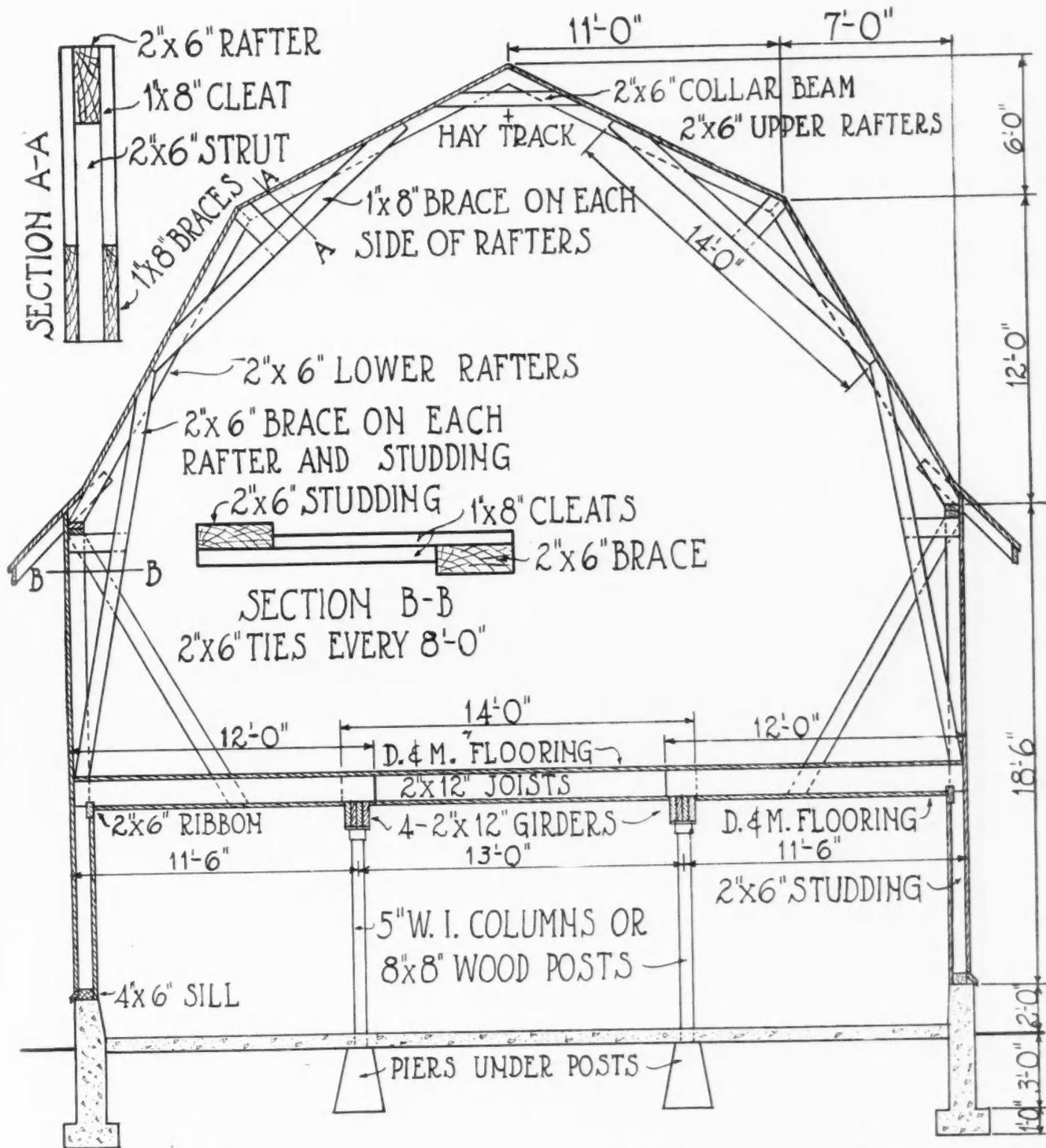
Roof Truss for 36-Foot Barn

Ottawa, Ill.

To the Editor:

Plank barns are new things around here, so I have drawn an outline of a barn as I understand the construction. Would it be heavy enough for a barn 36 feet wide, or would it be advisable to use another form of truss? What size plank should I use in this barn, 36 feet wide, using 18-foot studding? In the drawing on this sheet I intended to have 18-foot studding 2 by 6, 2 by 6 rafters, two 2 by 6's for plates, 4 by 6's for sills, 2 by 10's for joists, and two 2 by 12's for girders, with 4 by 6 supports placed 9 feet apart. The joists would be 16 feet long between wall and girder.

Would you advise tying with a 2 by 6 at a point just below the plate to the floor joists, say at an angle of 45 deg.? The



Detail Showing Recommended Sizes for Various Members in Plank Frame Barn That Is 36 Feet Wide.

braces on the rafters are to be 1 by 8's.

W. M. N. WILLIAMS.

Answer—If you will cover the joints of the intersecting rafters with 1 by 8-inch cleats on each side, it will strengthen this point very much (see detail at section A-A). The 1 by 8-inch braces on each side of the rafters are heavy enough for a barn of ordinary construction, if it is not exposed too much to high wind.

For a barn with 18-foot studding, we would advise using 2 by 6-inch timbers instead of 1 by 8-inch for the lower brace.

If the barn is exposed to high winds, we would advise tying with a 2 by 6-inch at the point just below the floor joists, spaced 8 feet on centers.

In regard to the floor joists, 2 by 10-inch are not heavy enough for a span of 16 feet with the amount of hay storage that you have to carry. We would recommend using 2 by 12-inch joists and spacing the posts 11 feet 6 inches from the outside wall. This would make the span more evenly spaced.

EDITOR.



Home Building in Minnesota

To the Editor:

Milaca, Minn.

Am enclosing kodak view of a cottage, one of the two that I am completing for Mr. C. C. Eberhardt, of Milaca, Minn. This house has 12 foot studding, full basement, six rooms, bath and three fine closets; the other is a bungalow with 8 foot studding, full basement, five rooms, bath and



House Built by James Love for C. C. Eberhardt of Milaca, Minn.

three closets. Both are finished in fir with maple floors and are equipped with heating plants.

Am a regular subscriber to the "A. C. & B." as are four of my men, and we all consider it the right-hand magazine.

With hopes for a most prosperous and busy year to the Editor and all of the Bro. Chips.

JAMES LOVE.



Good Points for a House Mover

To the Editor:

Dexter, Mo.

Would you mind if I gave you my version of how House Movers are made?

There are two classes of men that move houses—one a carpenter who is getting less and less work on account of poor work or failure to live up to his contracts, and who is often plain drunk or drinking. In some community where there is no one moving houses and some one has a house that must be moved or wrecked at considerable loss, he gives the drinking carpenter the job and likely has to buy or stand good for some rope, tackle block, two or three jacks, and some timbers. The weather being favorable and having a good fast

crew, he finds when the final settlement comes that he has made some little money, so he proceeds to celebrate. The next job likely finds the balance on the wrong side of the ledger, so he proceeds to drown his loss in drink; but rarely buys a tool unless compelled to. That kind of a man will likely tell you there is nothing to house moving, and for him that is right.

And now the other kind. Some very busy contracting carpenter comes across a contract that includes the moving of a building away so that a new one may be built on the same ground, or the moving of it back that he may build an addition in front; or from the shape of the building it must be turned around. He finds in looking around for some one to do the moving that there is no one in the community to whom he would feel safe in trusting with this part of the job, so he concludes to get some timbers and tools and move it himself. Then if he gets sufficient tools and timbers, likely he will find that the moving job netted him more money for the time he was at it than any other part of the job, and he resolves that the next job with moving in it, he will bid on it with a little more confidence.

Let me say here and now, if that man buys his tools with a view to future jobs, the chances are he will be a success. What I mean is, for instance, in buying jacks, he should buy enough so it will not be necessary to be continually blocking and carrying jacks around the building. If you have few jacks you will soon pay for more and still not have them in the additional time it takes to do a job.

The next in importance is a good capstan, as you must have power, and you will find that the capstan is a very convenient machine. Tackle blocks are all right, and I would not think of doing without them; but I do not use them as much as I did when I commenced moving houses. Most every successful house mover has found that the money spent for tools was money well spent, and the longer you move houses the more you will spend for tools; and it pays and pays well. Paste this in your hat.

One other thing, do not hesitate to observe any one you see moving houses, and if he does something a better way than you have been doing it, change your way at once. I have often thought that if house movers would exchange methods on the following subjects, they might derive some benefit from it.

1. Things to be considered in estimating the cost of moving a building or machinery.
2. How should this job be timbered?
3. How should I set my rollers to turn this building that way? (Trucks are much simpler if you have them. I use both.)
4. Kinks. I can give you one that will explain better what I mean than I can tell you. If you will take a board 1 by 6 in. by 2 ft. and nail it on the end of a 2 by 6 in. 8 ft. long, and stick the 2 by 6 down the brick flue, letting the 1 by 6 board rest on top of the flue, you will find that the flue is not likely to tumble off in moving and it will be seldom that bricks fall off. This kink was given to me by a photographer standing on the street watching me moving a house.

I have had my little say, and it is your next, brother house mover.

J. F. STONE.



What Wood for Flour Bin?

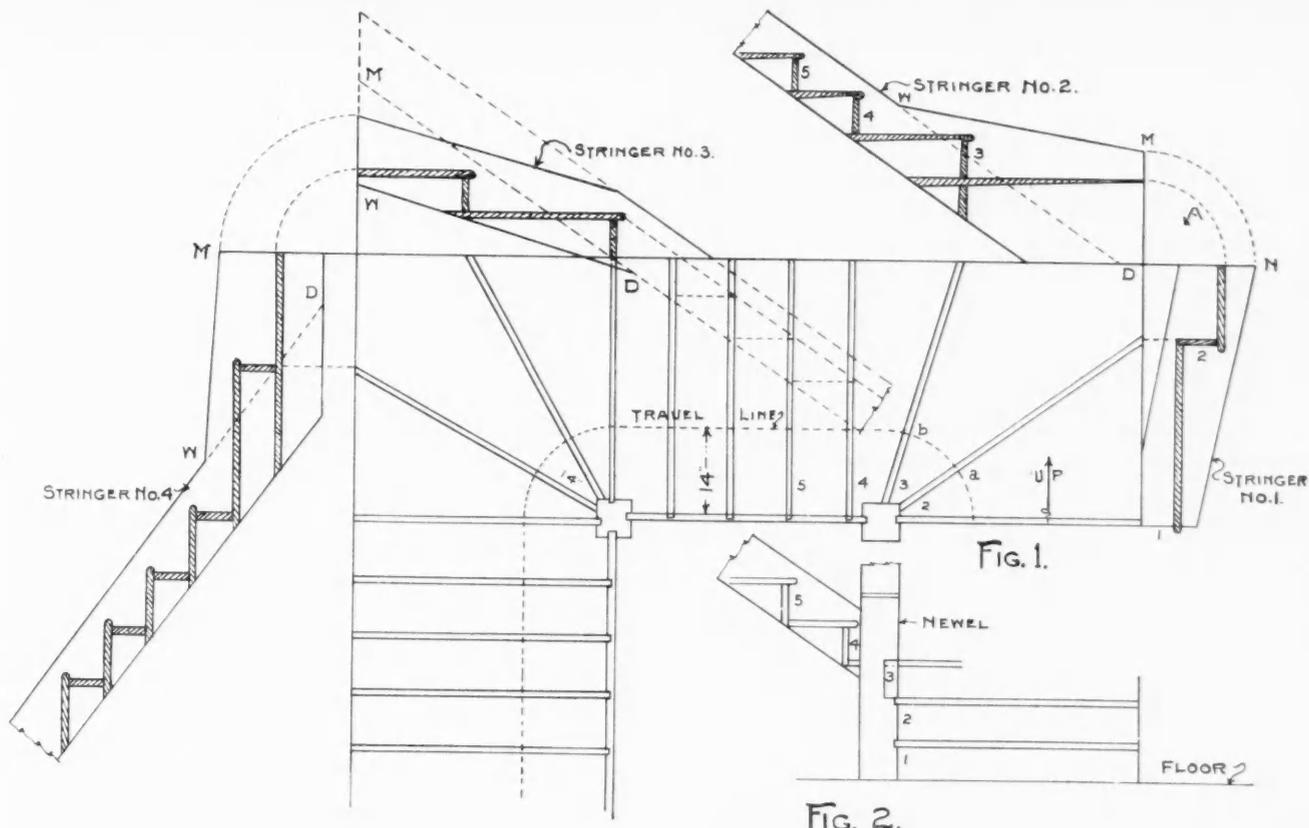
To the Editor:

Freeport, Me.

I have a pantry to build for a party and he wishes a flour bin, the design for which I took from "Details of Building Construction" (the best design I could find), and what I wish to know is whether it is advisable to build the bin of white pine. My advice was to build of good hardwood. Won't white pine make the flour taste?

J. B. SYDLEMAN.

Answer—No. We believe white pine will make a satisfactory job. For hardwood use maple or birch. EDITOR.



Sketch Which Will Help in Planning Stair Winders.

Stairs with Winders

To the Editor: London, Ont., Can.
 Would like a little information on stair winders, the details of treads and risers at newel post or turning angle of stairs with one, two and three winders. F. CORBETT.

Answer—In the accompanying sketches you will find all you need to enable you to plan winders and lay out the stringers for them, providing you are familiar with the construction of a straight flight.

In the plan part of Fig. 1 is shown three winders at the starting and three at the return angle of the two flights.

To draw the plan of the winders at the starting, place riser 4 at a distance of 5 inches from the center of the newel post and riser 1 as shown, aligning with the center.

Draw the quadrant curve at a distance of 14 inches from the center, trisect it in points a and b and thru these points from the center of the newel, draw the winders, as shown.

This operation gives the form of the winders, but as they extend to the grooves in the stringers, it will be necessary to add one-half an inch to the length and for the nosing 1 1/8 inch to the width.

That the method of laying out the stringers may be better understood, I have placed each one right above its plan. Stringer No. 1 contains the first winder and the part of the second, reaching to the corner D. The remaining part is shown on stringer No. 2 fixed at exactly the same height from the floor as shown by the arc A.

The arc from N to M shows equal height to the two stringers above point D so that they coincide when in position. The line from M to W is drawn above the nosing of winder 3 equal the distance from the nosing of the flyers to the edge of the stringer. The space shown from this line to the edge W-D of the stringer indicates the piece that is to be glued upon it to make it wide enough to contain the winders.

Similar piece is shown upon stringer No. 4; and upon stringer No. 3 it is shown glued to the bottom edge.

The elevation sketch Fig. 2 indicates the method to find the length of the newel from the floor line a distance above the stringer that should, in case of a turned newel being used, be left square to receive the steps and stringer.

MORRIS WILLIAMS.

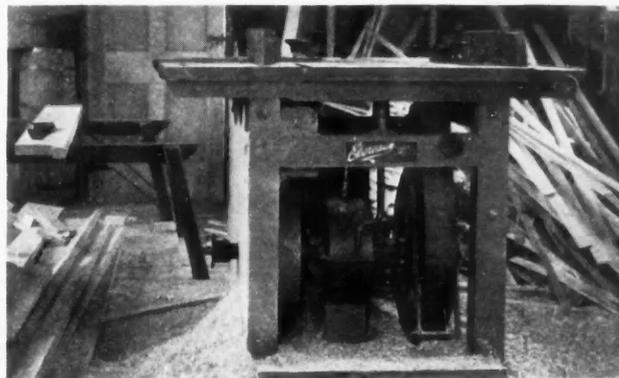


Good Building Methods in Iowa

To the Editor: Glidden, Iowa.
 I am glad that you took the trouble to notify me that my time was up on your valuable paper. I do not want to miss a copy, as I get a great number of up-to-date helps and ideas from its pages.

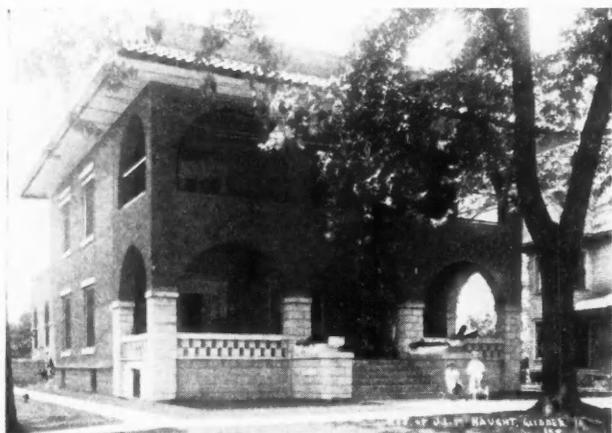
I am one of your number that has a portable woodworker that is always on the job. They are a great success.

I am glad to know that you are interested in power wood-



Portable Saw Rig Which Is of Great Value to Sid Ramey in Building.

working machinery. I had been eyeing them for several years, but did not invest in one until the spring of 1914. As I had the McNaught house and four other fine houses to put up for one season's work, I turned to the power wood-worker; and with it, together with good carpenter help, I



Fine Modern Home Built by Sid Ramey for J. I. McNaught at Glidden, Ohio.

succeeded in getting all five families in their homes by the first of 1915. It is a wonder in making window and door frames and screen frames; as the men on the job say, "we find more uses for it on every job." I have found it to live up to its name in two seasons' work, and would not think of going to a job of any size without it. Yes, I take it out on the job, for just a turn of the crank and it's off.

The photo I am sending was taken in one corner of my

shop, and does not show things as well as it should. The amount of frames did not get in the picture as it should, as I was getting out some 25 frames for a large two-story farm house. Also, I will say that you will always find me on the side with the men for "Bigger and Better Building" or any movement to improve our building business, and the "American Carpenter and Builder" is an "Ever-ready" reference and help for the busy carpenter, and is full of good, useful ideas.

Am sending a post card of one of five fine homes that fell to my lot to build last year, and which I thought might look good enough to be in the "American Carpenter and Builder." It was built for J. I. McNaught, of Glidden, Iowa, and is modern in every way. The plans were drawn by the owner and myself. Yours for better and bigger business,

SID RAMEY.



Home-Made Power Rig

To the Editor:

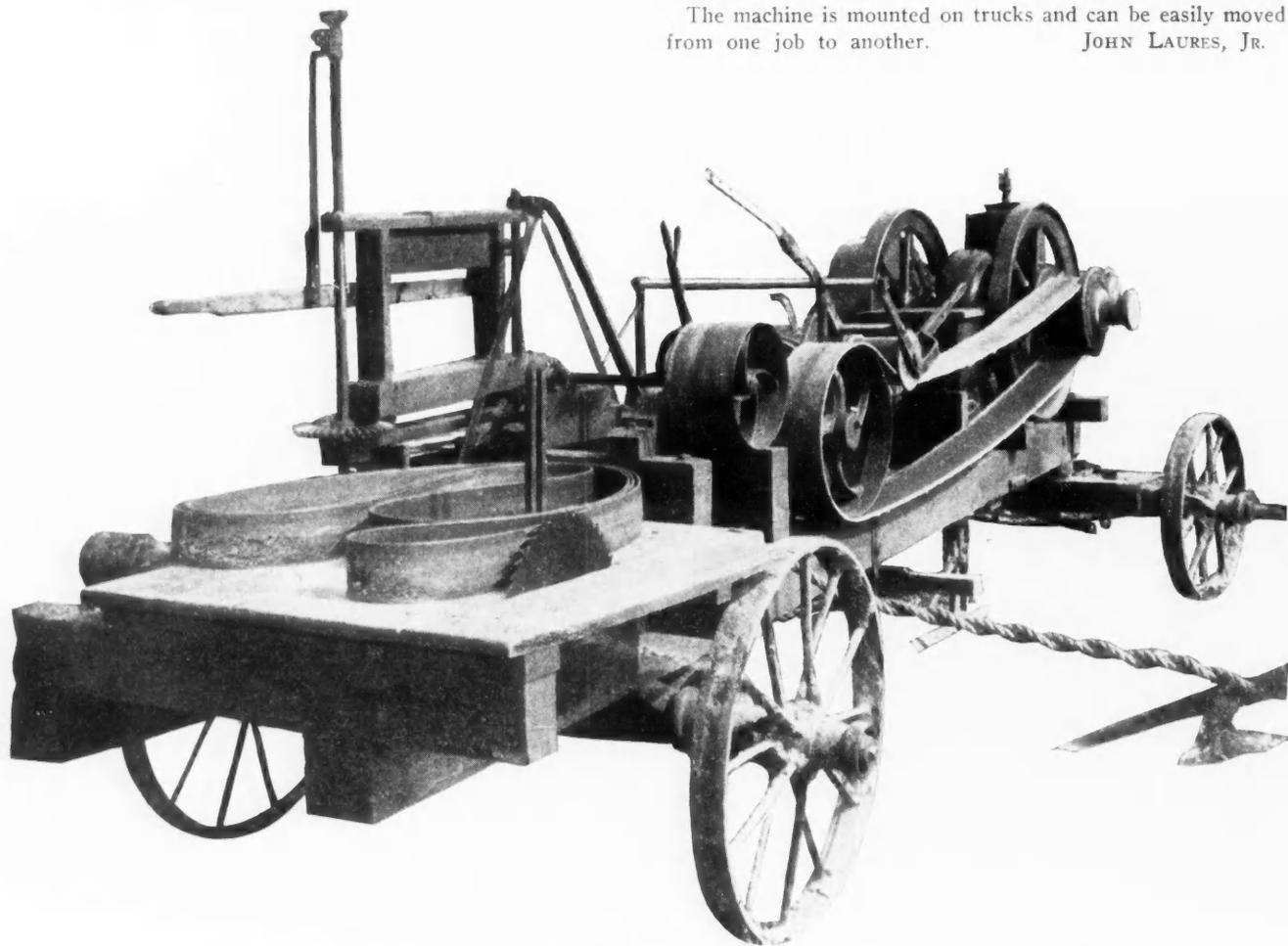
Fredonia, Wis.

Here is the picture of my home-made power rig that I promised to send to you. Some of the work that it has done is shown in the August issue of the AMERICAN CARPENTER AND BUILDER. The barn shown at that time was raised with the power furnished by this machine. This barn was 40 feet wide and 70 feet long, and was made with a timber frame.

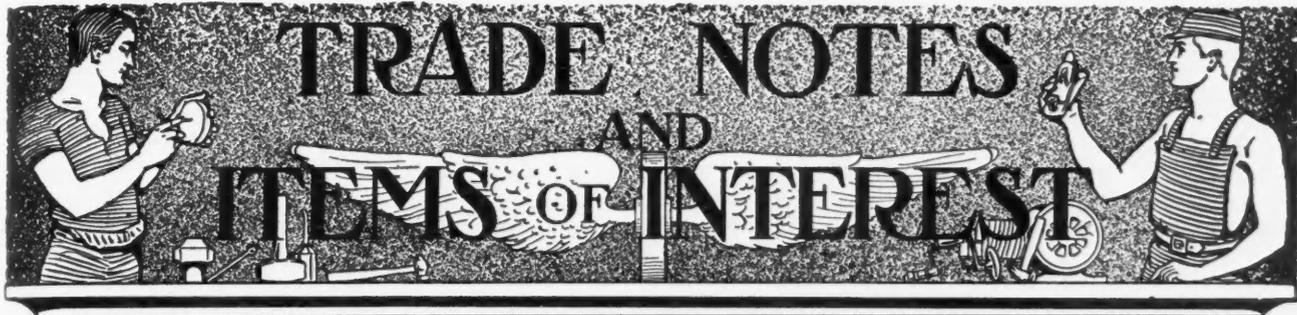
The machine has several other attachments in addition to the hoist which is used in raising the barn. The saw is shown clearly in the photograph. In back of the belt which has been placed on the saw table is a boring attachment, which is controlled by the handle shown. The power is furnished by a gasoline engine at the far end of the machine. The view is of the right side of the machine and shows the belt by which the power is transmitted to the various attachments.

The machine is mounted on trucks and can be easily moved from one job to another.

JOHN LAURES, JR.



Home-Made Boring Machine and Saw Rig with Hoist and Engine, Showing Right Side.



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

Quality Doors

The appearance of an entrance to a house or the appearance of any room is affected very largely by the doors that are used. A high grade, distinctive door dresses up a room as much as the furniture does, and the same care should be taken in picking out a door as in choosing furniture.

The high quality of Morgan doors is known to nearly everyone. For years this company have stood for quality in doors so that now the word "Morgan" means the best material, workmanship, and finish that are possible. All kinds and varieties of finish can be had, as dealers carry many different designs in stock so that they can be secured with the least possible delay. The illustrations show some of the different styles and finishes that can be obtained.

The many buildings that are completely furnished each year with Morgan doors is another proof of the satisfactory service of these doors. One of the illustrations shows a group of houses at Norfolk, Va., that have been furnished with Morgan doors thruout.

The booklets that the Morgan Company put out are more than mere catalogs. They show many interior views

and show what a large part the doors play in improving the appearance. These views are very valuable in that they give many ideas on interior decorating and finish of all kinds



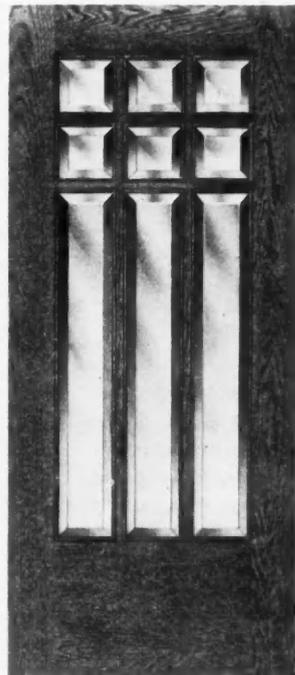
Residence—Norfolk, Va. Morgan Doors Thruout.



Style M-60, Veneer, Rotary Cut; Panel, 3-Ply Veneered; Core, Morgan Laminated; Sticking, Solid Core and Bead.



Style Craftsman "B," Veneer, Rotary Cut; Panels, 3-Ply Veneered; Core, Morgan Laminated; Sticking, Square; Glazing, Genuine Polished Bevel Plate.



Style M-76, Veneer, ¼-in. Rotary Cut; Core, Morgan Laminated; Sticking, Plain Finish Mould or Bevel Wood Bars; Glazing, Genuine Polished Bevel Plate.

in addition to the doors. Builders and architects should have copies of their booklets. "The "Door Beautiful" and "Morgan Millwork Handbook." These can be secured by addressing the Morgan Sash & Door Company, Dept. A-23, Chicago, Ill.



"Alpha Aids"

One of the most interesting and instructive booklets dealing with the use of cement is published at intervals by the Alpha Portland Cement Company under the name "Alpha Aids." It contains much that is of value to the user of Portland cement.

This concern particularly have many valuable aids for the building material dealers. Posters, handbooks, building plans, etc., will be furnished to men who are handling cement. Their helps promote the use of concrete and give information that will cause it to be used in the best way to make it entirely satisfactory.

Their bulletin "Alpha Aids" and any of their other literature will be sent to any of our readers on request. The spring building is starting now and much of this material will be of value to all our readers. A card addressed to this company at Easton, Pa., will bring the information that is required.

❖
The Sanitor Closet

A specially attractive proposition is being offered to our readers for handling Sanitor Inside Toilet Closets. In handling the large amount of building that will be done during the spring and summer months, every wide-awake contractor, builder, or architect will have many opportunities to install these closets.

The Sanitor line is most complete and varied so that a style can be readily found that will fit the conditions. These closets are made in styles and with equipment that is suitable for installations under all conditions varying from the small home to the public school.

With the awakening of this country to the necessity for proper sanitary conditions, the chemical closet is becoming more common in all districts that lack a sewerage system.

Any of our readers that are interested in the special proposition that is being offered can secure full particulars by writing The West Disinfecting Co., Sanitor Closet Dept., 12 East 42nd St., New York City.

❖
Special Offer to Contractors

The new catalog of the Galesburg Sheet Metal Works is now ready for distribution among our readers. As the warmer weather comes along the demand for ventilators, skylights, etc., will increase, and the information contained in their catalog will be of value to the builder, contractor, and architect.

Skylights of all kinds for all classes of buildings are shown in different sizes to suit the work for which they are intended.



Barn Equipped with Galesburg Cupola.

The "Gale" cupolas are made in both the round and the square style, and the kind can be chosen that fits in with the general plan of the building.

Copies of this catalog can be secured by writing to the Galesburg Sheet Metal Works, Galesburg, Ill.

❖
Safety Device for Saw Rigs

A great many of our readers are using portable saw tables which they are able to take about with them from job to job.

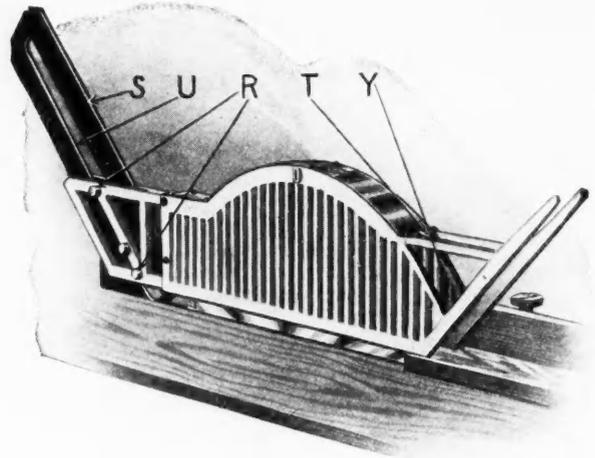
Especially since almost all of the states have passed some kind of a Workmen's Compensation law, it is very essential that every possible safeguard be used on these and any other dangerous conditions which may arise.

The accompanying illustration shows a saw guard that has passed the approval of the Underwriters' Laboratories. This is especially adapted for these portable tables, or on any saw, whether rip or cross-cut, where the table does not tilt.

This guard does not interfere with the operator. His work goes on just the same as if the guard were not in place.

A bronze dog on the right-hand side makes a kick-back impossible. The manufacturers draw attention to the fact

(Trade Notes Department Continued to Page 88)



Substantially Built Safety Guard for Saw Table.

that the label of the Underwriters' Laboratories is the only official approval given any guard. They also state that because of the differential allowed by the insurance companies, a guard that does not bear a label is expensive at any price.

Any reader interested in this or any other safety devices can secure full information on request to the Editor.

❖
Burning the Garbage

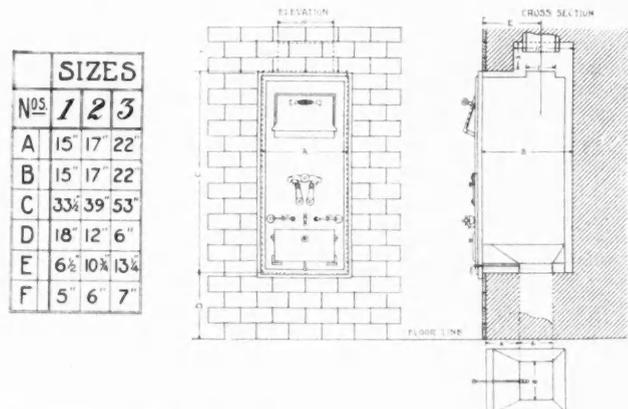
The only satisfactory way to dispose of garbage is to burn it. The ordinary method of leaving it in barrels or boxes until the garbage man gets around to take it away is anything but satisfactory or sanitary.

The accompanying illustration shows the "Incinerite" as put on the market by E. C. Stearns & Co. This device was formerly handled by the National Incinerator Company, but has been made by the E. C. Sterns Company for the last few years, and they are now marketing the product also.

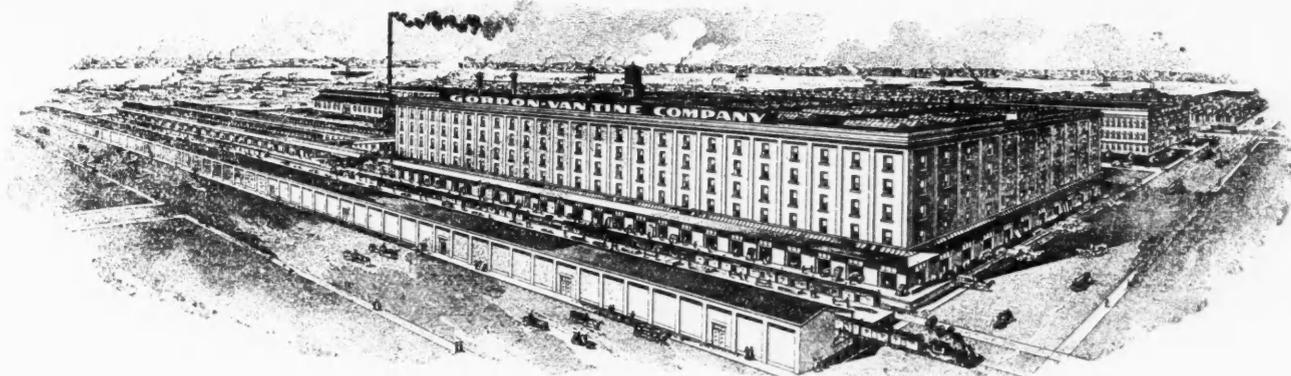
The "Incinerite" does away with all the troubles and unsanitary conditions caused by garbage, as the garbage is destroyed before it has a chance to decompose and become a menace. It operates with ordinary illuminating gas.

It is preferably placed in the kitchen near the range, where it is used as a receptacle for waste. Its tight construction makes it sanitary and odorless as a receptacle, and when it is connected to the chimney flue and the gas supply it is all ready for use. The makers say that all the rubbish is completely destroyed and only a handful of sterilized ash is left.

E. C. Sterns & Co., 500 Oneida St., Syracuse, N. Y., also handle a complete line of builders' hardware of all kinds in addition to the "Incinerite." Copies of their catalog can be obtained on request. Garbage incinerators are becoming very popular and builders should be familiar with their construction and use.



The Built in the Wall Type of "Incinerite."



Gordon-Van Tine Co.'s Building Material Plant

At Davenport and Vast Lumber Yards at St. Louis

Our business with Carpenters and Contractors throughout the Nation is growing with giant strides. They have come to realize the tremendous advantages offered by the Gordon-Van Tine Company's wonderful Millwork and Building Material Plant in Davenport, where everything used in a building, from shingle nails to the finest interior wood-work, can be secured in double-quick time at a fraction of retail prices.

They have learned that our immense Lumber Yards in St. Louis can "fill the bill" in less time and for less money than retail lumber yards with their limited stocks and heavy running expenses.

We ship building material into practically every community in the United States. We have an enormous output. Our small profit comes on the big volume—the total business. The man who orders a single window or door gets exactly the same low price as the man who orders in car-loads.

We have reduced the manufacturing cost and the handling cost to an absolute minimum. We have applied the principles of scientific management to this vast Building Material enter-

prise. The goods are loaded direct from platform to cars without a penny of drayage. In addition to all these facilities we have a Special Service Bureau for the benefit of Carpenters and Contractors. Expert lumbermen, practical carpenters, experienced contractors, and a staff of Architects make this department of great practical benefit to all who require such service. We invite Carpenters and Contractors wherever possible to visit our plant. We want you to inspect our facilities, to meet our men, to study our methods of business.

But whether you come to Davenport or not, you will receive the absolute best that we have in materials, prices and service.

Millwork, Lumber and Roofing

25 to 50 Per Cent Below Average Retail Prices

These are not "paper" savings but in actual dollars and cents. The most thorough investigation, the most rigid comparison, will prove these statements correct.

Quality, Prices and Service

Insure Saving and Satisfaction

All Gordon-Van Tine Millwork, Lumber and other Building Material is of the highest guaranteed quality. The prices speak for themselves. The service is yours for the asking. We have "made good" for thousands and thousands of Contractors and Carpenters in all parts of the country. A test order is all we ask. Every item listed and described in our Catalog is ready for immediate shipment. Hundreds of items in fancy doors and windows, special stair work, porch work, and interior finish which cannot be duplicated by local planing mills inside of two or three weeks are *ready for quick delivery*.

Send for Big, New, Color-Illustrated Building Material Catalog

The splendid Catalog contains over 5,000 bargain offers in high-grade Building Material, and is a veritable Encyclopedia of Building Information for contractors and carpenters.

The new 1916 editions of our two house plan books are now out. One is on Standard Homes—material in the standard way; the other is on Ready-Cut Houses—material cut to fit. Over 300 plans in all. Every one practical—all built many times. Costs definitely known and guaranteed to keep within our figures. Free on request. Valuable books to aggressive builders. Send for them.

GORDON-VAN TINE COMPANY
811 Federal Street Davenport, Iowa

Carpenters' and Contractors' Service Bureau

We maintain for the benefit of customers a highly efficient Service Bureau. The various departments of this Bureau is as follows:

Estimating Department

Furnishes quick, accurate estimates. Get our estimate on your next house bill.

Plan Department

We employ a staff of high-class architects. We work from your rough draft or description of proposed building—charge less than your local architect.

Advisory Service

Our experienced men will be glad to assist in solving any knotty problems that present themselves in connection with your work. Please feel free to use this service.

MODERN STORE FRONTS

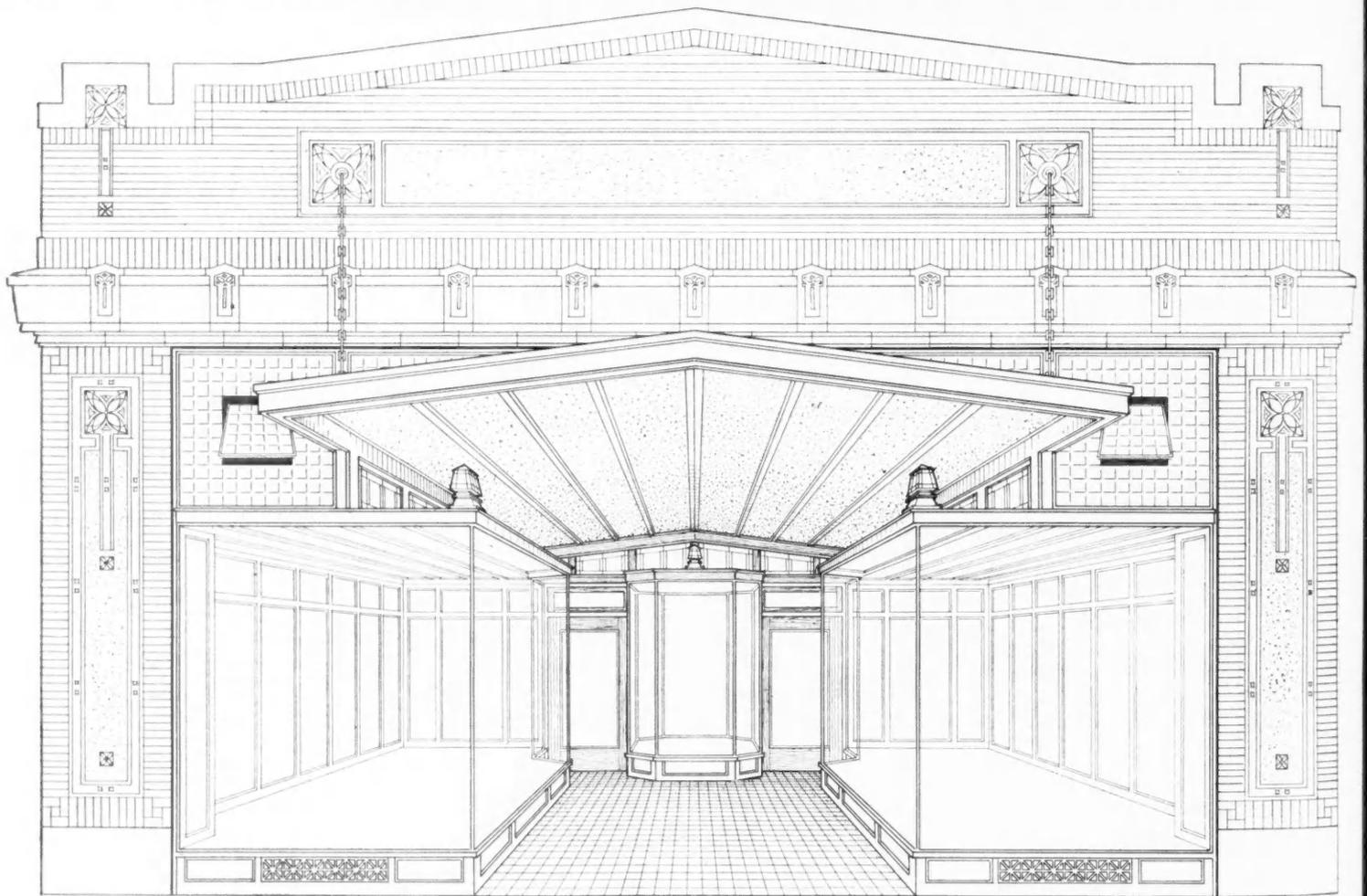
Their Design and Construction

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




IN 17 PARTS, PART 3. (SEE FEB. AND MARCH ISSUES FOR OTHER DETAILS)

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



TYPE N^o 30

TYPICAL ELEVATION OF LADIES READY TO WEAR STORE.

COPYRIGHTED BY
KAWNEER MFG. CO.

THIS treatment of a Ladies' Ready-to-Wear Store is a very good example of the possibility of designing a front absolutely different without being freakish.

It provides for two doors with a spacious entrance without the sacrifice of any display space in the two large windows. The special octagon case is to be trimmed so as to display the merchandise in both the vestibule and store proper.

The attractiveness of this front is insured by the unique ceiling, which combines the effect of a panelled ceiling with that of a marquise.

The art glass panels and lamps are of subdued colors to

harmonize with the balance of the work. The 4 by 4-in. red and black vitrified tile are laid with white joints, making a floor which completes a striking and harmonious whole.

The Kawneer Manufacturing Company 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 some of the various members which constitute KAWNEER STORE FRONTS. Readers are asked to cut these out, as they will prove to be a valuable reference asset to them in the future.

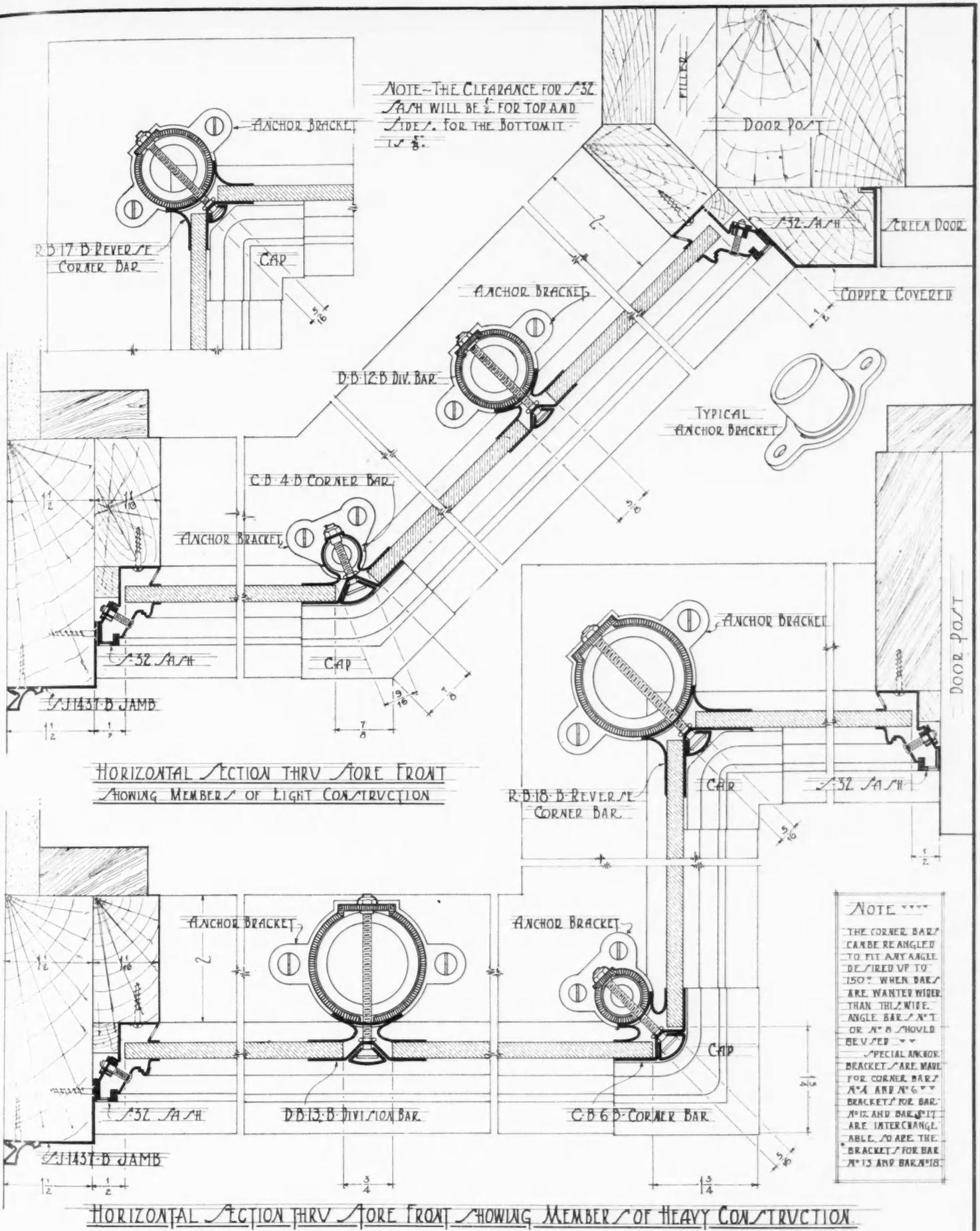


PLATE No. 3

KAWNEER MFG. CO. — NILES, MICH.

MANUFACTURERS OF KAWNEER PATENTED STORE FRONT CONSTRUCTION.

Kawneer STORE FRONTS

**Architect:**

"Here is that job showing the new gray finishes that I've brought you over to see. It gives you an exact idea of the beautiful finishes that can be given to the woodwork of your new home."

Owner:

"My, but they're fine—the best I've ever seen! How did you get them?"

Architect:

"Easily answered. The Bridgeport people put out the real Grays. I specified a coat of **Bridgeport Standard Acid Stain**, two coats of **WonderLac**, and the result is just what you see here—certainly they're the slickest, clearest grays I ever laid eyes on."

Owner:

"I happen to have some knowledge of good finishing and I must say that I've never before seen what I called a good gray. They're all more or less of a greenish cast. How did you overcome that on this job?"

Architect:

"You get a greenish cast when shellac and wax are used as a finish. There's just enough yellow in shellac to kill the delicate gray tint; but you see **WonderLac** is colorless, so it retains that beautiful gray tone which the stain gives to the wood."

Bridgeport Standard Gray Acid Stains are **real** grays. They give the most beautiful gray effects you ever saw.

But be sure to see that **WonderLac** is used over our acid stain—because **WonderLac**, being colorless, does not change the tint of the stains like shellac.

These new types of finishes are playing such an important part in attractive decorative effects that no architect, building contractor or home owner who desires his woodwork finished in the most artistic and practical manner can afford to neglect being fully posted about them.

We are ready to furnish sample panels and complete information.

The Bridgeport Wood Finishing Co.

NEW MILFORD, CONN.

Architectural Service Departments:

New York 6 East 39th St. Chicago 78 W. Lake St. Boston 8 Portland St. Philadelphia 12th and Sansom Sts.



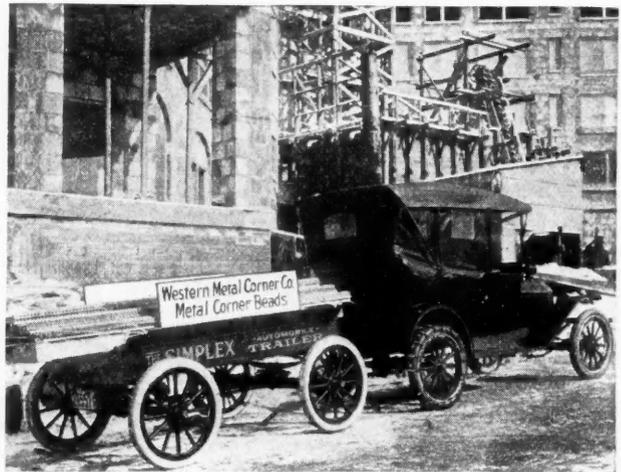
The Trailer That Tracks

The greatest feature of the Simplex automobile trailer is the patented short turn construction that makes the wheel track perfectly with the back wheels of the car. This device makes it possible to forget that a trailer is fastened to the car as anything that the back wheels will clear the trailer will clear.

Both axles are pivoted and the short-turn construction under the car turns both axles so that the wheels attached to them advance in the tracks of the wheels ahead. This allows the driver of the truck or the automobile to drive around corners close to curbs or other objects and the trailer will not cut in and cause trouble.

The trailer can be attached or detached from an automobile in thirty seconds and practically adds a $\frac{3}{4}$ -ton truck to the contractor's equipment at a small cost. The makers say that with 1,800 pounds in the trailer gasoline consumption is only increased about 10 per cent, which is almost negligible considering the size of the load being carried.

The Simplex trailer is built of the best materials and has ball bearing hubs built on the same order as the front wheels



The Simplex Trailer Handling Building Material.

of a Ford car. This type of construction makes a light draft so that it is possible to pull three or four times as much weight in trailers as can be loaded on the truck or automobile body.

The Simplex Short-Turn Trailer Company, Anderson, Ind., will be glad to give further details of their short-turn construction, and other features of their trailer, to our readers. A card will bring this information.



Valuable Service

Successful estimating, and the accompanying problems of financing and contract making, are many times a source of trouble and difficulty with building contractors. Advice on how to obtain new work, how to enlarge your business, and how to handle the many difficult problems that come up nearly every day, should be of great benefit to many builders and contractors. Personal advice on questions of this kind is given by an expert, John W. Patton, 68 W. 82nd St., New York City, N. Y. Full information can be obtained on request.



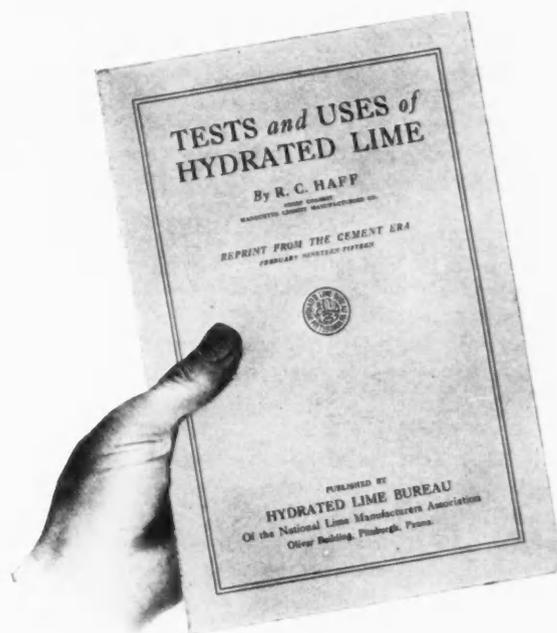
Spray Pumps for Spraying, Painting and Disinfecting

F. E. Myers & Bro., Ashland, Ohio, are distributing a new catalog of their spray pumps; the extensive variety of which machines shows that this concern is probably the largest manufacturer of this class of equipment.

(Continued to page 90.)

Making Better Concrete *with* **HYDRATED LIME**

A SMALL percentage of Hydrated lime in your concrete will give you the following results: Make it flow better and tamp easier; prevents the sand and stone separating from the cement; eliminates "stone pockets"; makes concrete dense and watertight.



Uniform, Dense, Watertight Concrete is Good Concrete

HYDRATED LIME

Exercises a mechanical influence over the concrete and helps to produce these results.

Try adding about 10 lbs. to each bag of cement on your next job and notice the results. You will want to use it in all your concrete.

Mix the cement, Hydrated

Lime, sand and stone in the same manner as usual.

An eight quart pail holds approximately 10 pounds of Hydrated Lime. One pailful to each bag of cement.

Clip the corner coupon and mail to us and we will send you the pamphlet shown in the illustration. It contains the facts.

**Hydrated Lime Bureau
of the National Lime
Manufacturers' Ass'n**

1610 Arrott Building
Pittsburgh, Pennsylvania

HYDRATED LIME BUREAU,
1610 Arrott Building, Pittsburgh, Pa.
Please send me your pamphlet, "Tests and Uses of Hydrated Lime." Also Pamphlet "F" on waterproofing.

Name.....

Address.....

City and State.....

The types vary from small tanks as carried on the back to apparatus driven by gasoline engines to be mounted on trucks and handled by horses. This type of apparatus is used for spraying trees and plants of all kinds and also for painting and whitewashing.

The spray pump presents one of the best ways of applying whitewash as the high pressure fills all the crevices and uneven parts of the surface and covers the entire surface uniformly.

Myers pumps, nozzles, and accessories are the result of years of experience and experiment and can be depended upon to do the work for which they are intended.

The booklet contains much valuable information on the subject of spraying including the time of year recommended for various plants and the composition of the spraying mixture that should be used.

Copies of this booklet can be obtained from F. E. Myers & Bro., Ashland, Ohio. Prompt service is assured by addressing Dept. C.



Mottled Asphalt Shingles

Many and varied effects have been obtained with the surfacing material of asphalt shingles and one of the newest is shown in the samples that are being sent out by the Asphalt Ready Roofing Company showing their new "Mottled Asphalt Shingle."

They have formerly made a red and green shingle and by a combination of the two surfacing materials have secured a new and striking design. The shingles are made as before, except that the crushed slate that is used for surfacing is a combination of red and green. Some of the shingles are more red than green and some are more green than red. The combination gives the roof covered with them an unusual mottled effect that is very attractive. The slate, of course, gives a permanent color, so that no painting is required. A

sample to show the appearance of their new mottled shingle will be sent on request.

The Asphalt Ready Roofing Co., Room 453, 9 Church St., New York City, will still manufacture their "Hudson" shingles in red and green in addition to the new feature of their line. Their Hudson brand asphalt felts have been very successful as insulating material for preserving a uniform temperature in buildings and thus cutting down the coal bills.

If our readers will write to this concern, full descriptions will be sent of their various products, including the new "Mottled" shingle.



"Beaver Progress"

The above is the name of a bulletin issued periodically by the Beaver Board Companies, Buffalo, N. Y., and gives much valuable material on Beaver Board uses and methods of manufacturing. It is issued, as they say, "Whenever we have something important to say."

In one of their recent issues is an article that contains much information for the man who is interested in the wallboard business. The title of this article is, "What Do You Know About Wallboard?" It takes up the remarkable growth of the wallboard industry with its early struggles, as all new industries have, and the success as they see it in the demand for Beaver Board for many different purposes. The article contains a very interesting description of the process of making Beaver Board, together with materials that go into the making of the board.

There is also a description of a bungalow that was finished in a unique way. The Beaver Board was nailed on outside the studding and siding was placed over this. Dressed studding was used and on the inside this was stained a grass green. The board between the studs was painted a rich cream color which gave a paneled effect to the walls. The combination formed a very attractive interior.



Kno-Burn

Expanded Metal Lath

Is Fireproof, Permanent and Pliable for "Movie" Theatres

The contractors for this theatre laid all the plaster over Kno-Burn Expanded Metal Lath—1800 yards of it. They got an interior construction that complied with the strictest fire resisting requirements and at the same time could be shaped to follow the distinctive interior designs

of the architects without trouble or excessive expense in labor.

Plaster laid over "Kno-Burn" is always insurance to you of a permanent job because the mesh of "Kno-Burn" grips the plaster unfailingly and forever and because metal lath lasts.

Send for booklet No. 33 for full details about all the types of lath in the North Western line.

North Western Expanded Metal Company
903 Old Colony Building, Chicago, Ill.

Manufactures all Types of Expanded Metal



Be A Bungalow King



The Bungalow Man Gets the Business

because bungalows attract attention to themselves and to the builder. Favorable comment about the snappy, comfortable homes you build reflects to your credit and gets you talked about. You'll be mentioned again and again.

It is
Your Skill
and

RITE-GRADE Red Cedar Shingles

Combine attractiveness and durability—with the added assurance that there will be no need of repainting every three or four years.

Use Good Nails

Good shingles deserve to be fastened with nails that are made from lasting material. Don't blame the shingles if they slide off the roof because the nails have rusted through. Old-fashioned pure iron nails would last fifty or a hundred years and remain strong and serviceable. The nearer the nails which you employ approach the old-time standards, the more satisfactory will be the service given by your buildings.

RED CEDAR SHINGLES are made better today than twenty-five years ago. The present day huge output has demanded more scientific machinery, better and keener methods in every sense, truly assuring the Red Cedar Shingle its due as "Nature's Imperishable Covering." And to make doubly sure, the Shingle Branch of the West Coast Lumbermen's Association, consisting of forty mills manufacturing three billion shingles per year, has established an Inspection Bureau for the purpose of positively maintaining perfect grades. All shingles inspected and O. K.'d by them are identified by a registered trade mark, which enables you to have absolute confidence in the RITE-GRADE brand. The RITE-GRADE brand means NO SAP; it means selection, inspected thickness, inspected size, inspected grain, in a word it means a PERFECT SHINGLE AS SOLD—true to specification.



The Big Four Building Library—Free

BUNGALOW BOOK: Twelve of the prettiest Bungalows ever designed to help you plan a home, costing from \$1,000 to \$2,500.

DISTINCTIVE HOMES BOOK: Twelve beautiful and distinctive American Homes, very practical, costing from \$2,500 to \$4,500.

SHINGLE BRANCH, 1022 WHITE BLDG., Seattle, Wash.

Please send me books as marked in squares. I enclose 2c stamp for each book to defray postage.

Name

Address

West Coast Lumbermen's Association, Seattle, Wash.

FARM BUILDINGS: Some valuable new things by practical barn architects never published before, with detailed working plans.

THE BOYS BUILDER: Ideas for Building Dog Houses, Pigeon Coops, Bird Houses. A bundle of shingles, a hammer and nails will keep the boy busy.



Residence of Mrs. G.P. Barton
C.P. Driscoll, Architect, Pasadena, Cal.

Every year of service makes J-M Transite Asbestos Shingles Better

The exposure to sun, rain and frost that warps, cracks and rots ordinary wooden shingles actually *toughens* J-M Transite Asbestos Shingles. Their Asbestos Fibre and Portland Cement composition grows more weather-resistant with every year of service.

J-M Transite Asbestos Shingles are absolutely fireproof, practically indestructible.

Furnished in beautifully soft colors—Indian Red, Mottled Brown and Gray. The gray shingles may be stained any color to harmonize with desired color schemes. J-M Transite Asbestos Shingles of $\frac{1}{4}$ -inch thickness are supplied with rough edges. The rough edges relieve the monotony of ordinary smooth-edge shingles and present a most artistic appearance.

They are made in several shapes and sizes, lending themselves to easy application by a number of approved methods.

J-M Transite Asbestos Shingles are Examined, Approved and Labeled by the Underwriters' Laboratories, Inc., under the direction of the National Board of Fire Underwriters. Laid American method, they are given class "B" rating; laid French method they secure class "C" rating.

H. W. JOHNS-MANVILLE CO.

Atlanta	Denver	Memphis	Philadelphia
Baltimore	Detroit	Milwaukee	Pittsburgh
Boston	Galveston	Minneapolis	Portland
Buffalo	Indianapolis	Newark	St. Louis
Chicago	Kansas City	New Orleans	Salt Lake City
Cincinnati	Los Angeles	New York	San Francisco
Cleveland	Louisville	Omaha	Seattle
Columbus			Toledo

THE CANADIAN H. W. JOHNS-MANVILLE CO.
LIMITED.

Toronto	Montreal	Winnipeg	Vancouver
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The Possibilities of Fences

Very often the builder is consulted on many different subjects besides the actual building operations by the home-builder or the prospective home builder. For instance, the grading of a lot is often included in a building contract and the owner will probably consult the builder as to the best arrangement of the lot, such as the placing of the house, the ornamenting of the grounds, etc.

The subject of fences is one on which the builder can give the owner of property much good advice. The right kind of fence dresses up the lot in good style, as can be seen in the accompanying illustration. A very handsome and attractive house may be unsatisfactory if the grounds are not finished up to harmonize with the general scheme, and the builder can help considerably in making the work entirely satisfactory by suggestions as to the lot arrangement, the kinds of fences, and other general items.

Ornamental wire fencing and gates offer many different designs so that various effects can be obtained to harmonize with the different arrangements made. This type of fence also has the advantage of allowing the sunshine to penetrate



This Globe Fence Adds to the Beauty of This Yard.

it so that shrubs and flowers can be grown around it. In back yard fences, the open construction discourages the throwing of waste material along the fence, and its clean-cut construction inspires property owners to keep their back yards in good condition.

The Globe Fence Company, 20 22nd St., North Chicago, Ill., have a most complete line of wire fencing of all kinds. They will gladly give suggestions as to the best types to use under different conditions. A card addressed to them will bring full particulars.



Maze Company Selling Pure Zinc as well as Zinc Coated Nails

In our February issue we stated that, on account of the high price of zinc due to the war, the W. H. Maze Co., Peru, Ill., were making only zinc coated nails and had stopped making the pure zinc nails.

We are now informed that these manufacturers are in a position to supply the pure zinc nails from stock when wanted. In fact, it is said now that the W. H. Maze Company are the only concern in the United States carrying pure zinc nails in stock for immediate shipment.

The price is rather high, but many architects are specifying them and builders recommend them.

The zinc-coated nail is the best substitute to be had for

(Continued to page 94.)



Asphalt Shingles Saved This House

A toy balloon set fire to the old style roof of the house to the left. Burning sparks, falling on the roofs of the adjoining houses, set fire to each in turn until **four homes were destroyed**—the same old story that accounts for millions in fire losses.

Fire Chief Says Asphalt Shingles Stop Fires

City of Birmingham, Ala.
Office of

Chief of the Fire Department
S. A. Middleton, Chief.

WALDO BROS., 45-49 Batterymarch St.,
Boston, Mass.

Gentlemen:—

Replying to your favor of the 21st inst. relative to fire on North 34th St., in this city, beg to advise that the fire originated on the house adjoining the big house shown in the photograph, and was caused by a toy balloon falling on the shingle roof with the result that this house was almost totally destroyed and three adjoining houses were badly damaged.

The fact that the big house was covered with Asphalt Shingles is all that saved it from serious damage, as the side of the house was badly scorched and burned by the intense heat.

I consider that the Asphalt Shingle renders a building reasonably safe from flying sparks, and that there is very little danger of a fire communicating to a house covered with these shingles.

I would be glad if all the residences in this city were covered with Asphalt Shingles, as more than fifty per cent of the fires originate by sparks on shingle roofs, and the number of fires would be materially reduced and the danger of fires spreading would be reduced to the minimum.

Yours truly,

(Signed) S. A. MIDDLETON,
Chief Fire Dept.

The house on the right is covered with Asphalt Shingles. Its roof was showered with burning brands and sparks. But all burned out harmlessly because Asphalt Shingles are highly fire-resistant. Read the frank letter of the Fire Chief about this roofing.

Asphalt Shingles

"Destined to Roof the Nation's Homes"

will protect the homes you build in the same way.

Safeguard Your Customers With Asphalt Shingles

You are safeguarding your customers when you recommend Asphalt Shingles. You are giving their lives and property better protection from fire and you are protecting their pocket-books from a steady toll of repair expenses. Asphalt Shingles are fire-resistant, and they **stay young**, which saves upkeep costs.

Their use insures a higher standard of building material **without** greater expense, for they cost practically the same as common-place roofing.

With this fire-resistance and moderate price

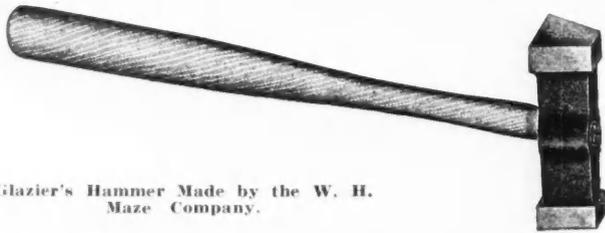


you will find also a beauty that makes Asphalt Shingles decidedly better for a home than any other roofing. Many colors to choose from, each a never-fading shade, and a soft-coloring that blends with any other building materials you use.

There is a greater satisfaction **for you** in Asphalt Shingles. Even size, few to the square, easy to handle—these mean labor charges saved, which puts you on a better footing to get more business.

Send for books of roofing suggestions, *"The Roof Distinctive"* and *"Fire Protection."*

Asphalt Shingle Publicity Bureau
855 Marquette Building, CHICAGO



Glazier's Hammer Made by the W. H. Maze Company.

pure zinc shingle nails at the present time. They are made in 3d, 3½d, and 4d sizes, in both the wire and cut styles, and have a 10 per cent covering of pure zinc applied by the hot dip process.

This concern is also one of the largest manufacturers of glaziers' points. They make the well known "Zinc City" brand in both zinc coated and solid zinc points. They make a large part of the points used in this country and also ship to foreign countries.

The illustration shows a glazier's hammer which this concern make that is particularly designed for driving points of all kinds. The makers say that this tool, in connection with their points, which are made with clean-cut square driving edges, will reduce the hazard of glass breaking to a minimum.

Details as to prices can be secured from the W. H. Maze Company, Peru, Ill. A card addressed to them will bring much valuable information for the modern builder.



Defiance Automobile Trailer

The value of a trailer depends on several different things, and one of these is the body design. Another is the ease of traction, as the amount that can be carried over the average road will depend on how easily the trailer can be handled. The body should be of a kind that is particularly suited to

the work that the truck or automobile owner wants to do.

The illustration shows the remarkably light draft of the Defiance Automobile trailer. This trailer is in use at the Parcels Post department of the Defiance, Ohio, post office. When shown in the illustration, the trailer was carrying 350 pounds of mail, and there was 125 pounds on the front of the motorcycle. No trouble was experienced in handling this load, which it is reported was pulled up a 45 per cent grade.

This is quite a tribute to the quality of the trailer, and the construction must be very carefully done to provide so little friction.

In the circular of the Defiance Carriage Company are shown several of the many varieties of bodies with which their trailers can be furnished, and the list is extensive enough so that a body can be secured for any purpose.

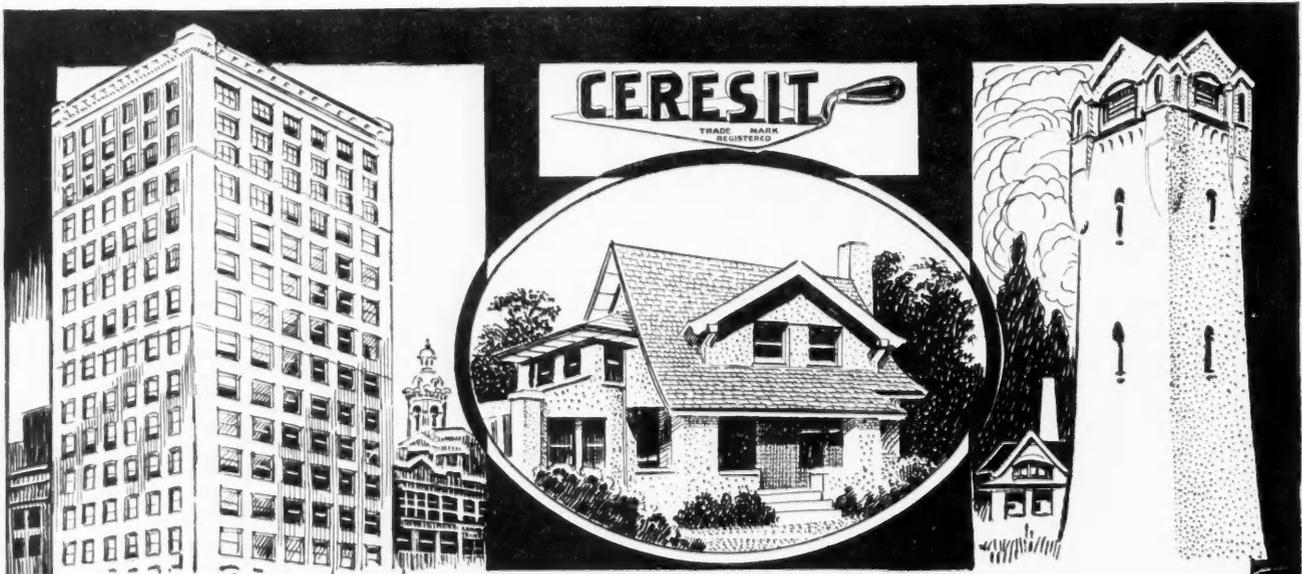
This concern have special attaching or drawing irons on which they have patents. They make both a two and a four-



Defiance Automobile Trailer Handling Parcels Post Behind Motorcycle.

wheel trailer, but make a specialty of their two-wheel trailer.

Our readers that are interested in this proposition can secure full information by writing to the Defiance Carriage Company, Defiance, Ohio.



For All Concrete, Cement and Stucco Work

You will always find CERESIT Waterproofing Compound to be the one UNFAILING water-proofer for new or old basements, stucco walls, silos, tanks, water towers, engine or boiler pits, conduits, etc.

Be a Waterproofing Contractor. Take advantage of our co-operative service—it will mean MORE business for you. Get copies of our monthly "Waterproofer"—just the thing to send to your prospective clients. Also get our free "Movie" slides and run them in your local theatre—sure business getters. Write for our proposition today.

CERESIT WATERPROOFING COMPANY, 910 Westminster Building, CHICAGO

Branches: New York, Philadelphia, Boston, Atlanta



Architect Milton Dyer, of Cleveland, Ohio

ROOFED WITH AMBLER ASBESTOS "CENTURY" SHINGLES

When a Good Contractor and a Wise Owner Get Together

There you are likely to find Ambler Asbestos "Century" Shingles. And the reason is simple. The owner naturally wants a roof that is permanent, attractive and low in cost of upkeep. The contractor is interested in the same things, though for a different reason. The owner demands value; the contractor desires to supply it in order to maintain his reputation in the community. They both seek shingles that will wear longer than the building; that require no paint or repairs; that can be depended upon.

Ambler Asbestos "Century" Shingles

Can you supply these shingles? There is a growing demand for them. Whether the work is on houses, school houses, churches, garages or any other structure you will be fair to yourself and the

dealer likewise if you use Ambler Asbestos "Century" Shingles.

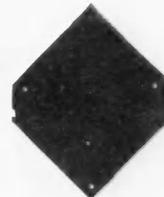
If you have no samples we will send some together with information and prices. A line from you will bring them.



KEASBEY & MATTISON CO., Factors

Dept. B1, Ambler, Pa.

Branch Offices in Principal Cities of the United States



This New Asphalt Shingle
SAVES
 50% to 75% in Labor
 35% in Freight
 38% in Nails

HERE is the greatest shingle sensation of a decade! An absolutely new, patented asphalt shingle that is simply revolutionizing the roofing industry.



It's the shape of this Flex-A-Tile Diamond Point Slab that gives it its distinctive features. It's the unique diamond point design that makes it possible to lay a roof faster and with less bother—that makes it possible to lessen the cost of nails by 38% and the cost of freight by 35%.

FLEX-A-TILE
Diamond Point
Slab

FLEX-A-TILE Quality

Made identically by the same processes of manufacture that we have always used in making Flex-A-Tiles; we make these Diamond Point Slabs in standard weight and two colors, green and red.

Four Shingles in One

Every time you lay a Flex-A-Tile Diamond Point Slab you lay practically **four** shingles at one operation. It takes only 112 Diamond Point Slabs to cover 100 square feet of roof. No time is lost in chalk-lining—Diamond Point Slabs automatically space and gauge themselves.

Get Full Details Now

Agency territory for the Diamond Point Slab is now being allotted. Write for details today. Every one in any way interested in building ought to be thoroughly acquainted with this new shingle. We'll gladly send prices, sample and literature on request.

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

THE HEPPE'S COMPANY

1010D Kilbourne Avenue, Chicago, Ill.

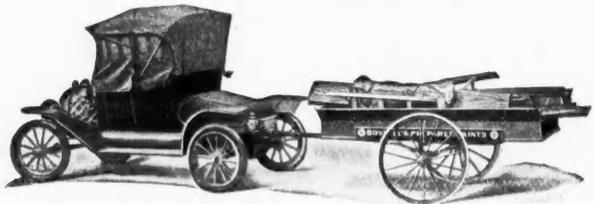
Doubling Your Hauling Capacity

The auto trailer is a most economical improvement for any contractor or builder that has a passenger car or a truck. With the truck the trailer adds another body at a small additional cost and makes it possible to handle considerably more material than before at no increased cost.

The trailer can be fastened behind the passenger car and will provide the room necessary to take tools and materials to the job without scratching up the body of the car or filling it with dirt.

Two of the features of the trailer shown here are the adjustable draw bar and the "All-Way" coupling. The draw bar permits the trailer body to ride level, regardless of the height of the auto frame. This coupling can be adjusted to fit any height of frame.

The "All-Way" coupling is really a universal joint that takes care of every possible motion between the car and the



The Miles Auto Trailer is Famous for Its Light Draft.

trailer. In turning corners, and in going over rough roads, this joint takes up all the shocks and even the severe twists that may occur in the connection. One pin connects the trailer to the car and it can be taken out instantly and the trailer detached if desired.

Various models can be had to fit the particular conditions for which they are intended. The bodies and frames are made in different sizes and styles to fit the various purposes for which they are intended. Tires are either steel or solid rubber.

A complete list of trailers as made by the Miles Manufacturing Company, 309 Franklin St., Jackson, Mich., together with prices, can be secured from the concern. In the extensive list there is sure to be one that will fit each man's conditions.



"The Story of the Stratton Level"

The above is the title of a booklet that is sent out by the Goodell-Pratt Company describing the start of the Stratton level and giving its history from Civil war times up to the present day. The story is written in a very interesting way and the methods and care used in the manufacture show why the Stratton level is so well thought of today by men who use good tools. Copies of this will be sent on request or will be furnished to the dealer for distribution.

This booklet is one of the many that deal with their 1700 "Good Tools." Our readers can get descriptions of any of their tools either from their dealers or from the Goodell-Pratt Company, Greenfield, Mass. "Mr. Punch" automatic drill is one of the well known tools included in their line.



All Kinds of Hoists for the Contractor

Every contractor should have a hoist in his equipment. Any man that is using men to carry material will find that the addition of a hoist will make it possible for him to cut his costs enough on one fair sized job to pay for the hoisting equipment. The contractor who is equipped with a reliable hoisting outfit will be able to consistently underbid his competitors who do not have such equipment.

In building silos or in operating material elevators and derricks, the hoisting engine is almost a necessity. A hoist as connected to a derrick is shown in the accompanying illustration.

(Continued to page 98.)

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.

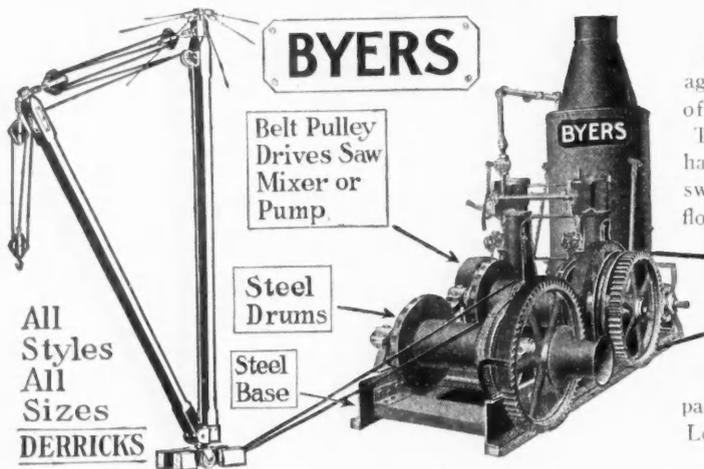
659 Peoples Gas Bldg., Chicago, Ill.
Hennen Bldg., New Orleans, La.



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.





Byers' Steam Hoist Connected to Derrick.

tion. Both this derrick and the hoisting engine are products of the John F. Byers Machine Co., 220 Sycamore St., Ravenna, Ohio.

This concern have a most complete line of hoists, material elevators, derricks, etc. They are an old established concern, and their product is well known for its reliability and durability. They make either double or single cage material elevators and their hoists are of all sizes and models and are equipped for either steam or electricity. They make derricks in all styles and sizes to fit the many different contracting needs.

Complete particulars can be secured by any of our readers by writing to this concern at the above address. They will be very glad to furnish all the information that is desired in regard to hoists, derricks, or material elevators.

A Long-Handled Floor Sander

Here is another labor-saving tool for carpenters, which again brings out the exclamation, "Why wasn't it thought of before?—it is so reasonable and so simple."

The Imperial Floor Sander—as it is called—is a long-handled tool, weighing 12 pounds, just heavy enough to swing smoothly back and forth across a room, sanding the floor thoroly, with the operator standing in one position.

Don't break your back any longer getting down to sand floors. Do it the easy way, either with an electric sander or with this long-handled sanding tool.

The sanding shoe is provided, front and rear, with felt bumpers, so that there is no danger of marring the baseboard. A simple arrangement permits sandpaper sheets to be changed easily.

Look into this proposition. Write the Imperial Pump and



cover 12 feet of floor without moving your feet

An Imperial Simplifies Floor Sanding and Lessens the Labor.

Tool Company, 2442 W. 12th St., Chicago, for complete information, or turn to their announcement on another page of this issue, where a photograph of the tool is illustrated.

The Overbalancing Argument

CORROSION THEORIES



ACTUAL SERVICE TESTS



for *Keystone Copper Steel Sheets* and *Terne Plates* is the fact that this material lasts longest in actual service—because *actual service* has proved it.

APOLLO-KEYSTONE Galvanized Sheets are the highest quality and most rust-resistant galvanized sheets on the market to-day. Unequaled for all forms of exposed sheet metal work.

KEYSTONE COPPER STEEL Roofing Tin is carefully manufactured in every detail, accurately resquared and uniformly coated. Look for the stamp "Keystone Copper Steel" on each plate in addition to brand and weight of coating.

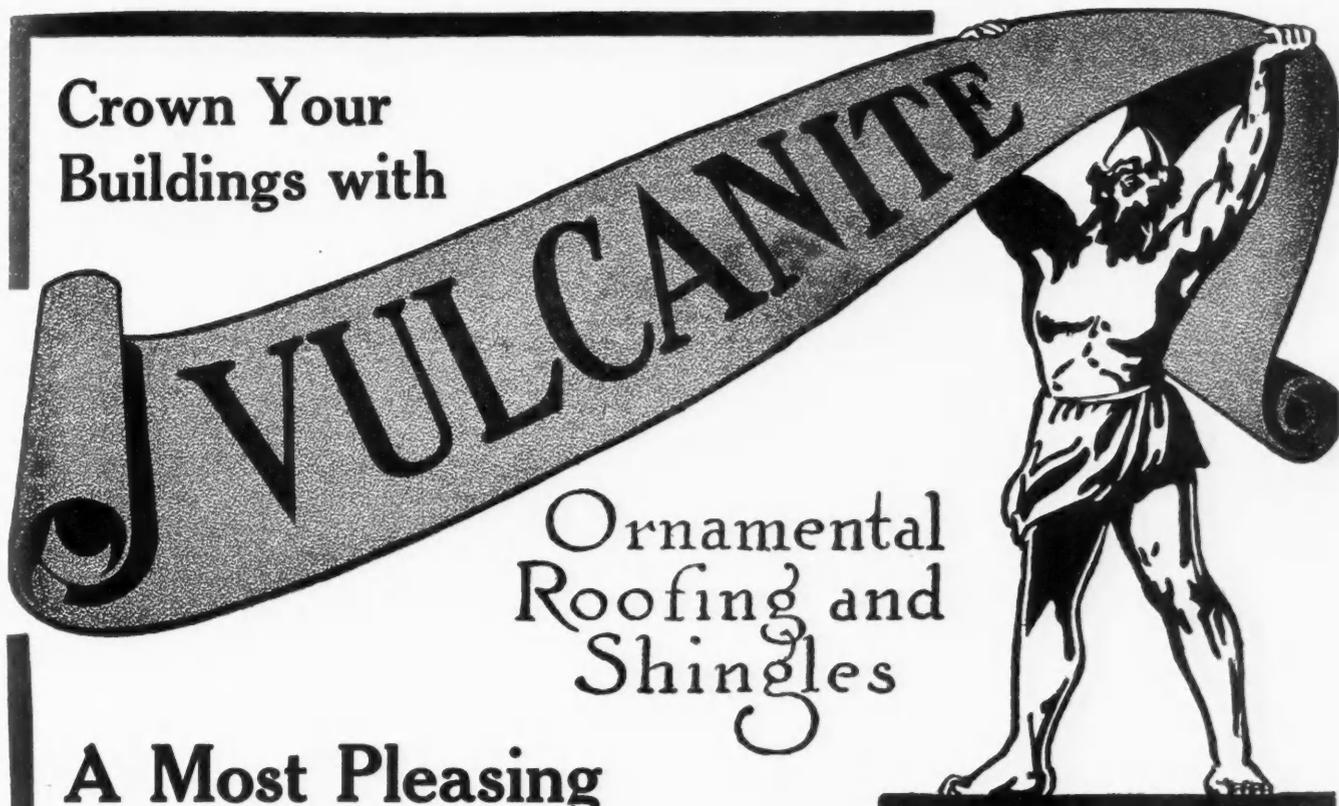
American Sheet and Tin Plate Company

GENERAL OFFICES: Frick Building, PITTSBURGH, PA.

DISTRICT SALES OFFICES:

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

Crown Your
Buildings with



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.

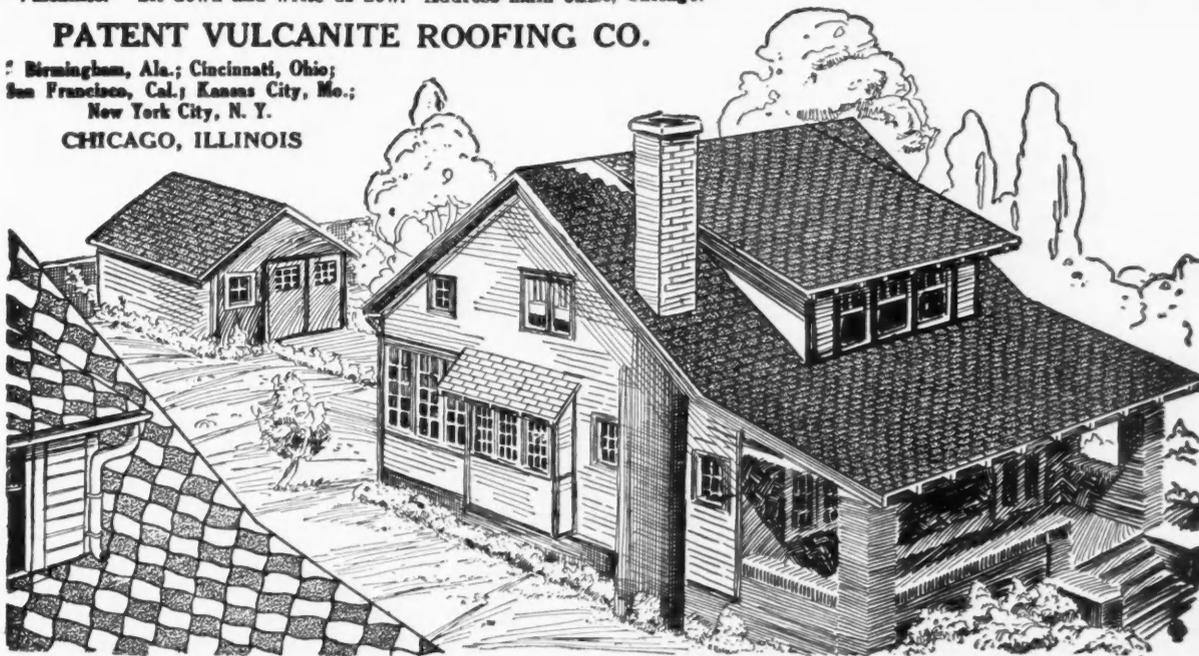
Vulcanite Roofings are an unflinching weather-proof and fire-resisting material. Twenty years' service is a reasonable expectancy. Vulcanite comes in rolls and shingles in several patterns that can be worked into a large variety of truly artistic effects.

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.

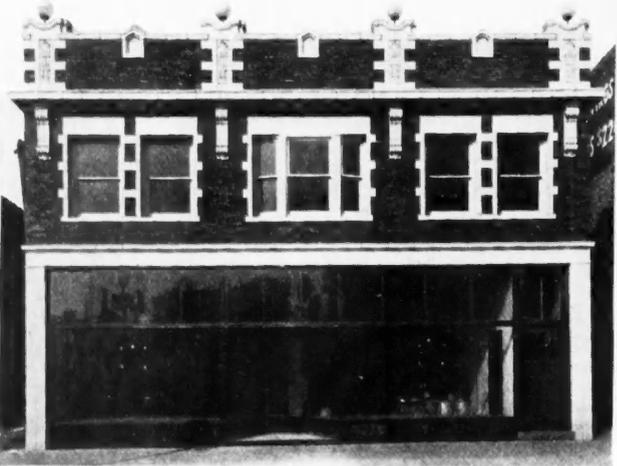
PATENT VULCANITE ROOFING CO.

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

CHICAGO, ILLINOIS



MIDLAND

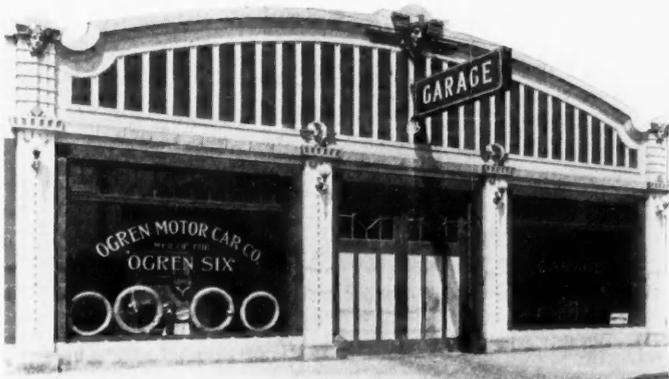


Business-winning store fronts, self-renting apartment buildings, attractive structures of every description are assured thru the use of Midland terra cotta —these photos prove it.



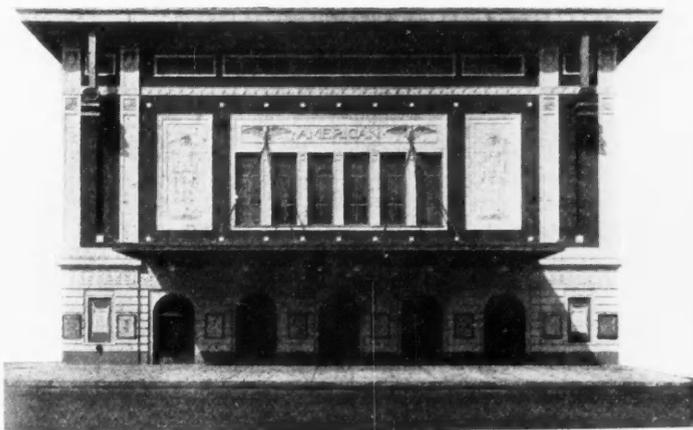
WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

TERRA COTTA



MIDLAND
TERRA COTTA
COMPANY

1515 LUMBER EXCHANGE
CHICAGO



Go fishing this Spring for New Business



CARPENTER-contractors all over the country realize that now is the time to go fishing for business and that

UTILITY BOARD

is the bait that brings home the long "string" of business.

It's mighty easy to sell the average prospect on **UTILITY BOARD** because the all-wood stock of **UTILITY BOARD** makes it the only asphalt pasted board on the market made of pure wood fibres. You have something to talk about when you can show a prospect **UTILITY BOARD** and tell him how very handsome effects can be secured at so little cost.

Spring is here. Jobs will soon be blooming. The time to prepare for Spring remodeling and new work is now. Write us today for samples. We will gladly send them to you without cost.

THE HEPPES COMPANY

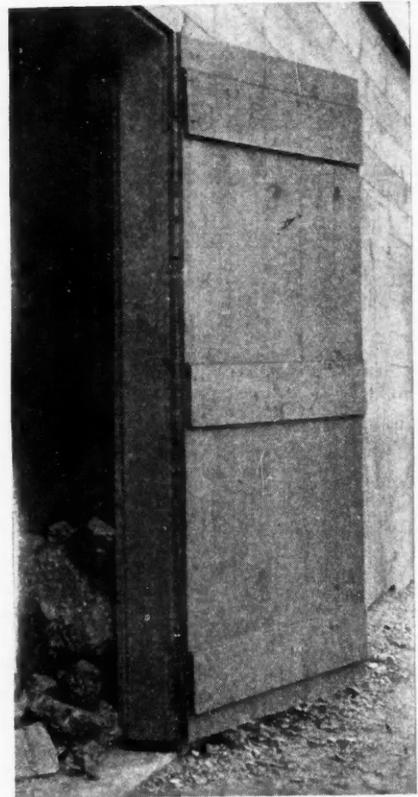
Flex-a-Tile Diamond Point Slabs
No-Tar Asphalt Paint Rubbertex Roll Roofing
Other Guaranteed Heppes Products

4503D Fillmore Street, Chicago, Illinois

How Ross Studding Sockets are Used in Coalsheds

With the coming of the "concrete for permanence" idea, many coal dealers realized that concrete was the material for floors in either commercial or private coalsheds. Soon Ross Studding Sockets were suggested as the logical way to fasten studding to concrete floors in such buildings. The strong, solid irons appealed to careful builders and today contractors are using these post supports instead of the old wooden sill and toenailing method, wherever concrete floors are used.

This iron-and-concrete construction is just another step forward in the attempt to build buildings that will last. Ross Studding Sockets are simply tapped into the concrete, and contractors were quick to realize the simplicity and practical qualities of this way of building.



The Studding in This Coalshed Are Fastened with Ross Studding Sockets.

G. M. Ross & Co., 1424 Broad St., Grinnell, Iowa, will mail you their illustrated folders about coal-shed building, as well as their new catalog, free on request.



Metal Trim for all Purposes

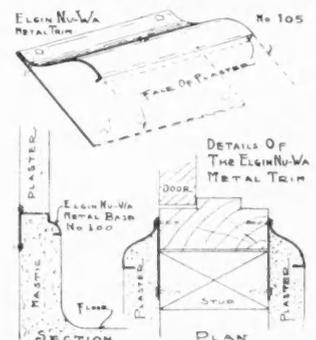
The appearance of the walls of a house will depend largely on the way the trim is handled. Also putting up the trim is sometimes a hard task, but it can be simplified to a large extent by the use of the metal trim made by the Elgin Nu-Way Metal Trim Company.

They make both a metal trim and a base cap that is very easily applied. It is not necessary to wait until the plaster has dried to put up this material, but it can be put on and the plastering done after.

The edges are turned into the plaster so that the trim will never become loose. The makers say that this trim and base cap are noted for staying put. The details shows the trim and base cap as applied to the wall.

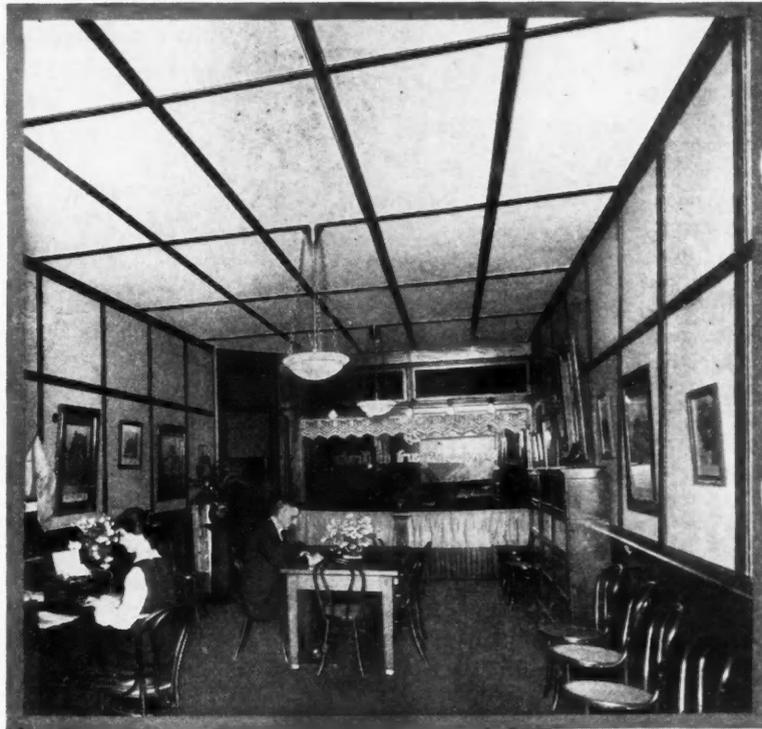
The Elgin Nu-Way Metal Trim Co., Excelsior Springs, Mo., have a catalog containing several valuable architectural

details which they will be glad to send to any of our readers on request. This also contains descriptions of their metal trim with instructions as to the method of placing it in position.



Construction and Detail of the Elgin Nu-Way Metal Trim and Base Cap.

Fiberlic *For Walls and Ceilings*



What Do You Know About Wall Board?

DO YOU know which has the greatest elasticity, tension or sheer strength? Which reflects heat? Or which is odorless, vermin-proof, fire-resisting, etc.?

When you specify FIBERLIC Wall Board for any of its manifold uses, you can be sure that it is way ahead of ordinary wall boards in all these qualities.

All FIBERLIC tests place it in a class by itself, because it is the only chemically treated, *long-fibered* board on the market.

To the wide-awake man practicing the profession of building, we submit FIBERLIC as a material for interior finishing, more economical than lath and plaster and for very many purposes more suitable and practical.

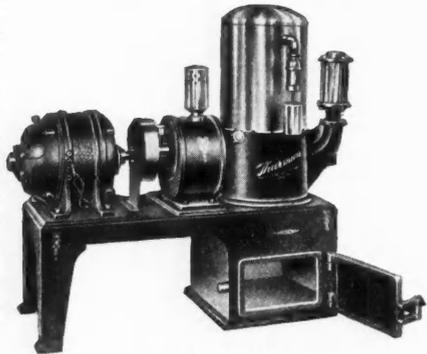
Samples and full technical information on request. Also ask about the special FIBERLIC paints that come in 24 different colors and shades.

THE FIBERLIC COMPANY, CAMDEN, N. J.

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

Thurman No. 2 Stationary Vacuum Cleaners for Bungalows, Residences and Small Apartment Buildings

This type of machine is made up to 1 Hp. The illustration refers to the latest model Thurman Number 2 Stationary Vacuum Cleaner for residences, bungalows, apartments and small buildings of all kinds. It is placed in the basement and a 1½ to 2-inch pipe line, according to the size of the building, is run from the vacuum cleaner in the basement to the upper floor with suitable hose connections. By pushing an electric button on each floor, the vacuum cleaner is started to work, and all the dust, dirt, and germs from carpets, rugs, draperies, furniture, mattresses, bedding, etc., are gathered in the sealed tank of the stationary vacuum cleaner.



Thurman No. 2 Stationary Vacuum Cleaner.

The novel features of this machine are the large dust capacity of the cleaner, its automatic relief valve to regulate the vacuum from any predetermined point, and the quick acting dust door. The slow speed pump and motor are placed outside of the dust separating chamber, which keeps them free from dust, thus enabling the company to give a ten-year written guarantee.

The pump is positive acting rotary type and never exceeds in speed 600 revolutions per minute. Every machine pumps at

least 12 inches of vacuum mercury column. No special foundation is required for this machine. Write for prices giving the size of the building and electric power available, and their booklet, "I Can Make Yours a Dustless Home." Address the Thurman Vacuum Cleaner Co., Dept. N., Eleventh & Monroe Sts., St. Louis, Mo.

Their sixteen years' experience in this line enables them to turn out this excellent type of vacuum cleaner. They make all kinds of vacuum cleaners up to 30 horsepower for every class of service.



"Meco" Engines Instead of Neco

In the March issue mention was made in the advertisement of the Manufacturers Engine Company of the Neco Engine. This, of course, should have been "Meco," which is the correct name of the well known engine that this concern have been making for some time.

This engine is known to our readers as a high grade, dependable engine which is being sold at a remarkably low price for such a high grade product.

The catalog of this concern gives most complete details of the points of the "Meco" engine. A card addressed to them at 1629 Crystal Ave., Kansas City, Mo., will bring a copy.



Magnesium Composition

The publicity given sanitary composition flooring, base, and wainscoting during the past few years is due largely to the fact that it has been adopted by the government for use in many federal buildings and by prominent architects and engineers for use in colleges, schools, churches, hotels, theatres and all classes of public buildings after exhaustive tests and investigation.

(Continued to page 106.)

Here's the Wall Board that MAKES GOOD

At the Panama-Pacific Exposition last year, thousands of feet of ordinary wall board were torn out because they proved unserviceable. At the same time, the extensive Upson Board installations at the San Diego Exposition proved satisfactory in every way—there was not a single complaint.

Upson Board is made good to make good—every time—everywhere. It is as different from ordinary wall boards as oak is from hemlock.

Perhaps your opinion of wall board is based on your experience with soft, punky boards.

You will revise that opinion if you make one practical trial of UPSON PROCESSED BOARD.

Prominent building experts and architects the country over are now specifying Upson Board. There is not one complaint to the million feet used—a statement we'll back by affidavit!

Thousands of carpenters are increasing their business by installing Upson Processed Board. It means plenty of work for them that the plasterers used to get—and a growing reputation that brings new trade constantly.



THE UPSON COMPANY Fibre Board Authorities 13 Upson Point, LOCKPORT, N. Y.



Upson Board means EASY work. This Board looks, feels and works like lumber because it actually is lumber, made synthetically, of long, tough, pure wood fibres into wonderfully strong, hard, stiff, woodlike panels. It cuts clean. Carpenters tell us they can apply one-third more of Upson Board than of any other wall board, in the same time.

Each Upson Panel is SCIENTIFICALLY PROCESSED: Kiln-cured, like interior trim, waterproofed, surface-filled—saving your customers from \$5 to \$15 per 1000 square feet in painting cost.

Upson Processed Board comes in the most complete line—five thicknesses, ten lengths, three widths, including the new great 64-inch panels—a board for every purpose.

You can stake your reputation on Upson Processed Board every time. It is the one DEPENDABLE wall board.

Let us give you ALL the facts and show you how much money there is in Upson Board for you. Let us send you samples for your expert test—they will tell you the story at a glance.

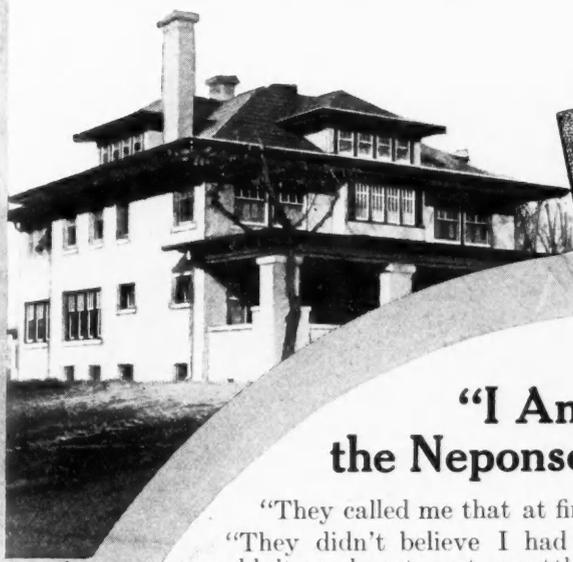
Write today to



LOOK FOR THE BLUE CENTER

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Residence of Mr. C. H. Wilson, Wilton Junction, Iowa.
 B. W. Gartside, Davenport, Architect.
 Neponset Twin Shingles furnished by Wilson Lumber
 and Fuel Co. and applied by W. A. Grunder.



**"I Am
 the Neponset Man"**

"They called me that at first to 'kid' me.
 "They didn't believe I had shingles that
 couldn't crack, rot, rust or rattle loose. They
 doubted my fire-resisting talk.
 "But now my name 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 is 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. Neponset Wall Board,
 Neponset Waterproof Building Paper and Neponset Floor
 Covering are other well-known Neponset products.

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

BIRD & SON
ESTABLISHED 1795
East Walpole, Mass.
 DEPT. C

**Why Not Make Every
 Room Habitable?**

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

Recommend that it be fin-
 ished with

**NEPONSET
 WALL BOARD**
For Walls and Ceilings

There are two finishes,
 waterproof and non-warp-
 ing.

If you do not know Ne-
 ponset Wall Board you can
 not know the possibilities
 that lie in this substitute
 for lath and plaster. Let
 us send you a sample. De-
 tails are given in "Repair-
 ing and Building" but you
 should examine the board
 itself.

Mail your request today

BIRD & SON, Department 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.

COUPON



Name.....

Address.....

COUPON



Your Saw- and-Hatchet Man Can Apply It

Why hire special crews of lathers and plasterers to finish attic rooms? Your own workmen can do a better job, do it quicker, cheaper and in more substantial manner with

CAREY
Ceil-Board
SUPERSEDES PLASTER FOR WALLS AND CEILINGS

The ready-made interior finish that comes to the job in sheets or panels that your lowest priced helper can nail direct to the studs. No muss or dirt, no delay for drying, no sand or lime to ruin floors. Carey Ceil Board is inexpensive in first cost and it requires no after expenses. Can be papered, painted or tinted. Special hardwood natural grain finishes for paneled walls, wainscots, etc.

Write today for samples and prices

THE PHILIP CAREY CO.

General Offices:
1021 Wayne Ave., Lockland, Cincinnati, Ohio
Offices and Warehouses in Principal Cities



Roberds IDEAL Wall Board

Ideal in Cost, Service,
and Appearance

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

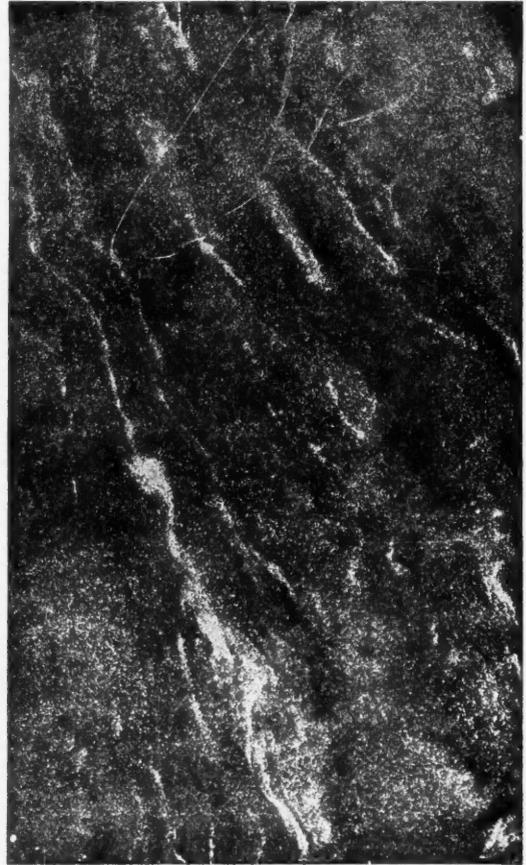
Embodies all the "proof" qualities. Its grained appearance presents the most pleasing effect. Or it can be papered, painted, tinted or paneled to good advantage.

Our catalog is full of helpful suggestions on the use of wall board

THE ROBERDS MFG. CO.
100 Spencer Ave. - - Marion Indiana



The fact that this material may be used over old or new concrete, old or new wood underflooring and finished to smooth, jointless, wearing, germ-proof surface that does not "dust," and that any desired color scheme may be carried out makes Magnesium Composition flooring very popular. The sanitary base is usually formed integral with the flooring, using a cove tool that eliminates square corners.



Photograph of a Slab Made with Magnesium Composition Products.

A slight variation of the mixture used for flooring purposes may be used in the manufacture of wainscoting, slabs, panels, etc., in variegated colors, imitating natural marble. Such slabs are usually set with anchors or held in position by grooves in the base and caps.

The moulds for such work are understood to be very inexpensive and with reasonable care may be used indefinitely. The same is true in the manufacture of souvenir and advertising novelties, such as clocks, paper-weights, ink-stands, desk-trays, hot plates and other very inexpensive and attractive articles, too numerous to mention.

It is understood that the usual contract price per square foot for Sanitary Composition flooring, 1/2 inch thick, varies from 21 to 30 cents, depending on the quantity, location and conditions of the under flooring.

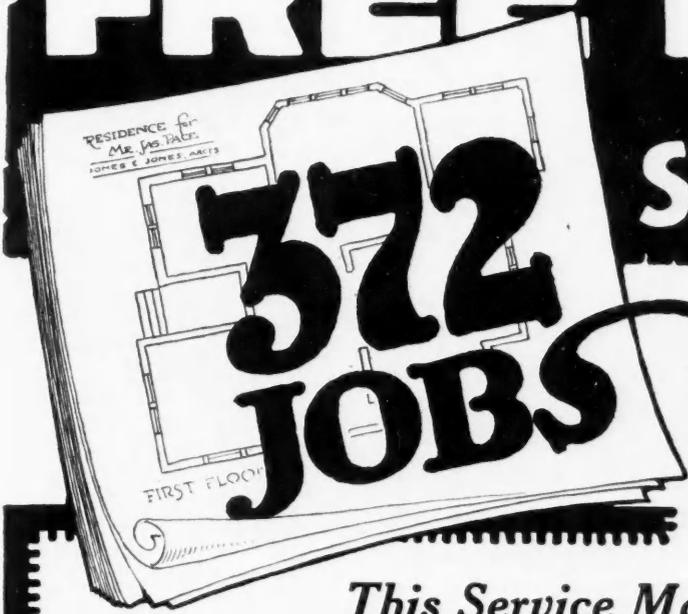
The Town Supply Co., 10th floor Park Building, Cleveland, Ohio, have recently published a book on this subject, entitled "Detailed Formulas and Directions for the Manufacture, Use and Care of Sanitary Composition Products"

that is said to cover the entire composition industry in very complete form. Further particulars can be secured from this company.



Clock Case Made of Magnesium Composition.

FREE Plans and Specifications



were closed last month from plans we made

This Service Makes Money for You

Our free plans and specifications show the beautiful effects possible with the use of Cornell-Wood-Board and just how to obtain them. They will delight the owner whose job you are bidding on and give you a chance to get in a quick, low bid.

Just send us a rough dimension sketch or blue print of any room or rooms. We will draw up complete plans with dimensions, specifications and cost of material. This service is prompt and *absolutely free*. You are placed under *no obligation whatever*.

Cornell-Wood-Board

FOR WALLS, CEILINGS, PARTITIONS

GUARANTEED NOT TO WARP, BUCKLE, CHIP, CRACK OR FALL

Cornell-Wood-Board is a pure wood fibre product. It comes in boards 32 or 48 inches wide and any even foot length up to 12 feet. It is thoroughly sized and surfaced, which protects it against changes in the weather and makes it ready for decoration without further expense.

Makes handsome panel effects; takes paint or kal-somine perfectly. Makes rooms cool in summer, warm in winter.

Nails right to studding or over old walls.

USE THE COUPON

Cornell Wood Products Company

C. O. FRISBIE, President

Insurance Exchange Building, Chicago

**CORNELL WOOD PRODUCTS COMPANY,
INSURANCE EXCHANGE BUILDING,
CHICAGO**

Gentlemen:
Enclosed are blue prints (or sketches) of a job on which I would like to have you furnish, free, without any obligation whatever to me, a set of plans and specifications, bill of material and cost estimate, for the use of Cornell-Wood-Board.

Name.....

Address.....

Protecting and Waterproofing Brick and Cement Walls

The plain color of brick or cement walls may not be satisfactory to the owner and an opportunity is offered to the builder to do this work if he is familiar with the proper materials to use.

Bay State Cement and Brick Coating is designed for this particular purpose and in addition to coloring the walls, it also waterproofs them against the driving rain and snow.

The accompanying illustration shows three houses that have been treated in this way. Their appearance is improved and they are also well protected against the action of the elements. Many artistic and varied effects can be obtained because of the range in colors that are included in Bay State Coating.

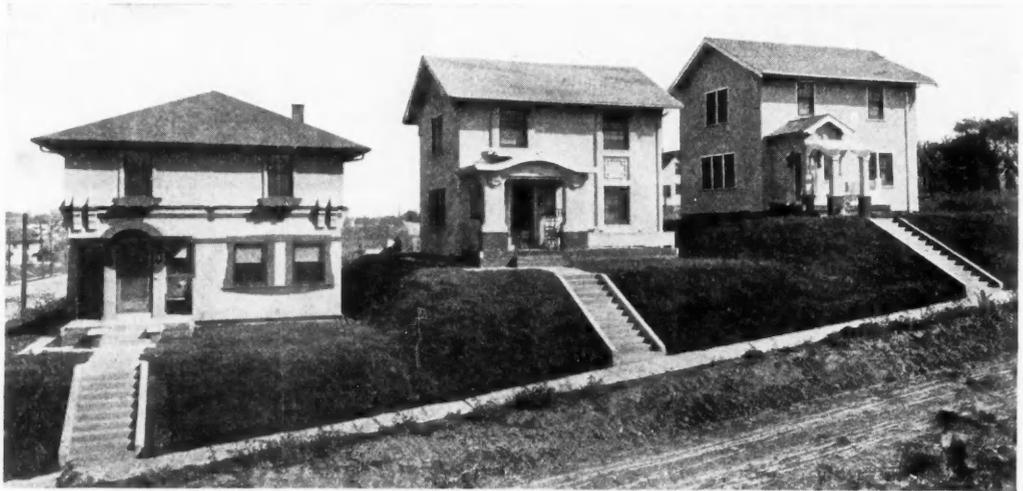
Booklet No. 30 of Wadsworth, Howland & Co., Boston, Mass., contains a color card that gives an idea of the range of tints that can be obtained. Copies will be sent to any of our readers on request.

❖
"NOTHING makes me soar," said the amateur aviator wearily as his 19th engine failed to get the machine off the ground.

New Width of Upson Board

The Upson Company have recently added a new width of wall board to their line which will make their wall board even more adaptable to all purposes. This new improvement is to be a 64-inch board.

The makers say that the long fiber and the lumber-like



Three Well Designed Homes, Coated with No. 235 "Bay State" at 32nd Ave. and Hascall St., Omaha. Drake Realty and Construction Co., Architects and Builders.

hardness and stiffness of Upson board make this new width as easy to handle as the narrower width. The board will lie perfectly flat on the wall, also due to these features.

All criticisms and fancied objections to paneling are met by the new 64-inch width. Openings are seldom more than five feet apart in the average room. A single panel of this

(Continued to Page 110)

STOPS THE LEAKS

Hetzel's Elastic Rubber Roof Cement

will repair and make watertight old, cracked or seamed roofs if applied when cracks or leaks begin to appear.

HAS MANY OTHER USES

Used for laying and bedding slate and tile roofs, setting tile and stone copings, pointing up cap flashings, etc., etc.

Write for prices and descriptive booklet.

ESTATE OF J. G. HETZEL

65 Maine Street Newark, N. J.

TRY THESE NOVEL TESTS YOURSELF

Whittle it

Hard

Bend it

Stiff

Samples for testing sent upon request

Pour Water on it

Waterproof

Paint it

Sized

PLASTERGON WALL BOARD CO., 101 Fillmore Street, Tonawanda, N. Y.

WHERE COMPETITION HURTS

A wise man once said, "Competition is the life of trade."

This is undoubtedly true with competition in *service* or *quality*. However, with competition in *price*, it's another story.

Price competition is the death of trade—not the life of trade.

Selling Beaver Board service is distinctly a different thing from selling wallboard by the bundle. The one thing we have in mind in making and selling Beaver Board is *the finished room*. The Beaver Board we make must satisfy its users—in durability, in appearance and in general service.

Most wallboards are made to *sell* and not to *serve*. They *look* very much like Beaver Board but don't *act* like it. They frequently warp, stretch or show spots and streaks under the paint. They are there with the *price* but not with the *service*. That's where competition hurts.

The buyer is disgusted. "No more Beaver Board for me!" he says.

If he had gotten genuine Beaver Board in the first place he would have been pleased and satisfied. His friends would have been pleased and more Beaver Board business would have resulted. He bought the imitation wallboard on the Beaver Board reputation and it is the Beaver Board reputation that suffers when the substitute fails to satisfy.

That's where competition hurts.

We wouldn't mind having our wallboard competitors help supply the market which Beaver Board and Beaver Board advertising has created if they'd only give Beaver Board results. But they don't.



The BEAVER BOARD COMPANIES
562 Beaver Road - - Buffalo, N. Y.

BRANCHES IN Boston, New York, Philadelphia, Baltimore, Cleveland,
Detroit, Indianapolis, Chicago, Minneapolis, Omaha, Kansas City,
San Francisco, Los Angeles



BEAVER BOARD

All White Pine Core



Is the
Backbone
of Every

Morgan Door

You know White Pine doesn't shrink, swell, warp or decay. No wood makes such an ideal foundation for quality doors.

And so far as we can learn only Morgan Doors have such a foundation.

That's why Morgan Doors don't stick—don't shrink or swell with weather changes—don't need re-hanging, re-trimming, repairing—costly to you and annoying to your customers.

So masterfully joined, so conscientiously built are Morgan Doors that they greatly outlast ordinary doors and the price is practically the same.

An immense range of beautiful veneers and distinctive designs assures satisfactory and appropriate choice.

You can depend on getting any Morgan Doors when wanted. Unexcelled facilities enable us to ship immediately.

May We Send You FREE The Morgan Millwork Handbook

It gives the complete story of Morgan quality, economy and *guaranteed* satisfaction—tells why and how Morgan Doors pay you.

Your name and address on a postal to us, secures you this valuable book.

Please tell us if your dealer doesn't handle Morgan Doors



This Name
Stamped on
Top Rail Pro-
tects You.

Look
for
It!

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; 309 Palmer Building, Detroit; Building Exhibits: Insurance Exchange, Chicago and Soo Line Building, Minneapolis.

size is therefore sufficient to cover each intervening space. If a wall is unbroken by openings, two of the panels will cover the ordinary wall area. Another method is to run the 64-inch board around the room so as to have just one panel strip at the picture moulding height. This would do away with the up and down paneling, and gives the wall the appearance of a plastered wall.

This new width makes it possible to satisfy all personal ideas with regard to the value of paneling. For those who like the paneled effect the narrower widths of Upson Board can be used, and the 64-inch width minimizes paneling to the utmost.

The new width is as carefully made as their other sizes, and is kiln cured, waterproofed, and surface filled, which gives a material that feels, works, and looks like lumber.

This new improvement gives Upson Processed Board a large range of five thicknesses, ten lengths, and three widths—providing a board for every purpose.

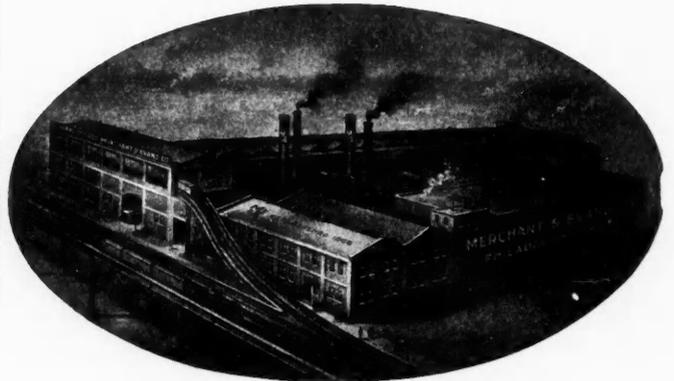
Complete particulars can be secured from the Upson Company, 12 Upson Point, Lockport, New York. Samples will be sent on request.



Celebrate Fiftieth Anniversary

An anniversary is a notable event in the history of any business, but the fiftieth anniversary of an organization like the Merchant & Evans Company should directly interest the metal trade and its allied industries.

In 1866, Clark Merchant, who had distinguished himself in the United States Navy, and retired with the rank of Lieutenant-Commander, established the business in Philadelphia as Merchant & Company, dealing principally in brass, bronze and copper, tin plates, and other metals.



New Plant of the Merchant & Evans Co.

Under his able management, the business expanded wonderfully, making it necessary to open branch offices and warehouses at several important points in the United States, and enlarge the line of metal products. The co-partnership of Merchant & Company was also changed to a corporation, under the style of Merchant & Company, Inc., with Clark Merchant as its president. This style continued until the death of Mr. Merchant, after which Powell Evans assumed control of the business, which is now conducted under the name of Merchant & Evans Company.

Mr. Evans is widely known as one of the best posted men in fire prevention and protection affairs in this country, and is Chairman of the Fire Prevention Committee of the Chamber of Commerce of U. S., the National Hardware Association, and the Fire Prevention Commission of the City of Philadelphia.

To fittingly celebrate its 50th anniversary, and to keep abreast of the growing demands for the products of this company, a large modern office and warehouse has been built

(Continued to page 112)



Photo by Mary H. Northend, Salem, Mass.

TUCKER-RICE PORTICO
at Salem, Massachusetts.
Built in 1807 of White Pine.
Samuel McIntire, Architect.

For over one hundred years this famous portico—considered the best of the many masterpieces of Samuel McIntire, one of the greatest architectural designers America has produced—has stood exposed to the weather. It is today as perfect as the day it was completed, thanks to the enduring qualities of White Pine.

WE need hardly remind carpenters that in exposed mortised doors, in close-fitted mitres, or in delicately moulded, carved and columned porticos White Pine joints hold close—not for a year or a lifetime, but for centuries. For these purposes no other wood has ever been found which gives such lasting service as

WHITE PINE

Despite an impression that it is scarce there is still plenty of "Good Old White Pine," in all grades, and it can be purchased in all markets at reasonable prices, when considering its value as a structural wood.

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.

A FREE MAGAZINE FOR CONTRACTORS

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

*Address, WHITE PINE BUREAU,
1435 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

adjoining its works on Washington Avenue, between 20th and 21st Streets, in Philadelphia, and the company has now completed removal of its general offices and warehouses to this new location.

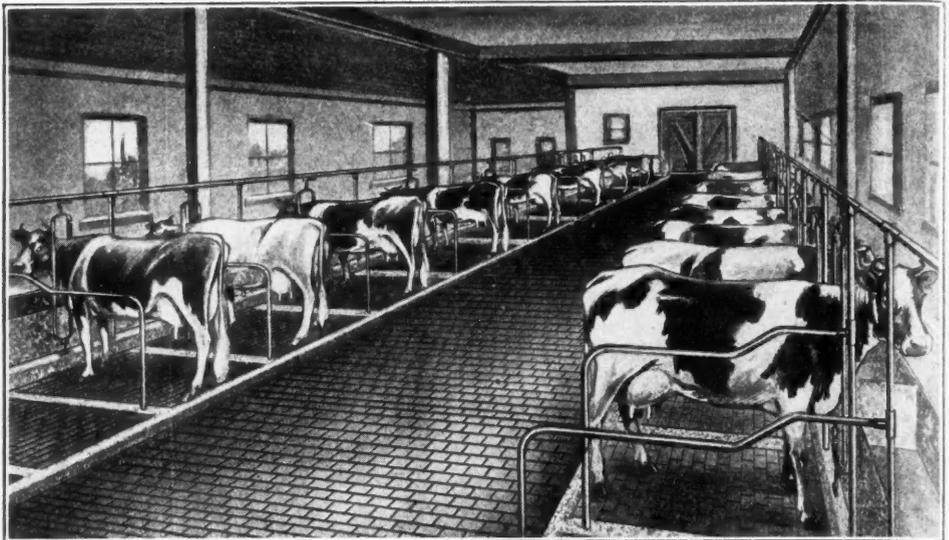
This company now has plants in Philadelphia, Wheeling and Chicago, and offices and warehouses in Philadelphia, New York, Baltimore, Cleveland, Chicago and Kansas City, with a large force of traveling representatives.



The Never-Wear-Out Sanitary Floor

Some mighty fine farm buildings have been put up during the past few years, and many more will be erected this season. Also many old-time barns will be thoroughly remodeled. Our readers who are engaged in farm building work, and who have pride in making their buildings the very best possible, should know about "Linwax" floors. This flooring is made of specially treated wood blocks. In the first place, the wood is specially selected and after being cut into convenient sized blocks for laying, is thoroughly impregnated under high pressure with Linwax. This is a permanent preservative, waterproof and germicide.

The Linwax Block Floor is easy to lay, no sawing, planing or nailing required. The blocks are laid close together on a



Modern Dairy Stable Floor Permanently and Satisfactorily Laid with "Linwax."

suitable foundation. If the supports of the old floor are firm, they may be laid over it whether the old floor was of planks or concrete. The few simple rules for handling this work are supplied in the instruction sheet issued by the manufacturers, the Linwax Manufacturing Company, Indianapolis, Indiana.

Dairymen like the Linwax floor because it is absolutely sanitary, besides being warm and comfortable for the cattle. Valuable dairy stock should not be permitted to lie down on

(Continued to page 114.)

AHNAPEE VENEER & SEATING CO.

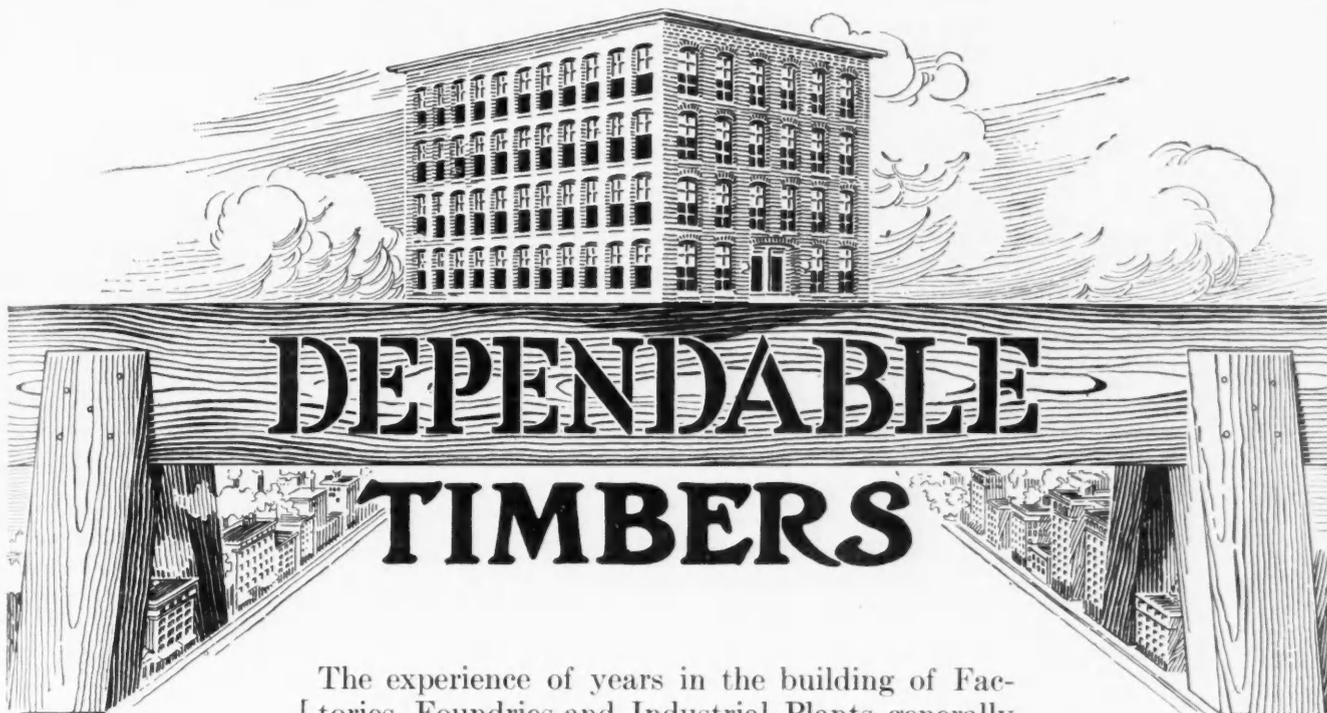
Main Office and Panel Plant: Algoma, Wisconsin
Veneer and Saw Mill: Birchwood, Wisconsin

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



The experience of years in the building of Factories, Foundries and Industrial Plants generally has proved that the slow-burning or mill construction type best serves the requirements of utility, flexibility and economy.

PROVIDED, that the timbers used in such construction are dependable.

The exceptional qualities of cross-breaking strength, crushing strength and resistance to shear make

Southern Yellow Pine

“THE WOOD OF SERVICE”

the wise builder's first choice for timbers used in heavy construction.

The application of the New Density Rule for determining the quality of Southern Yellow Pine Timbers, adopted as standard by the American Society for Testing Materials and the Southern Pine Association, eliminates any element of chance in the **dependability** of this material.

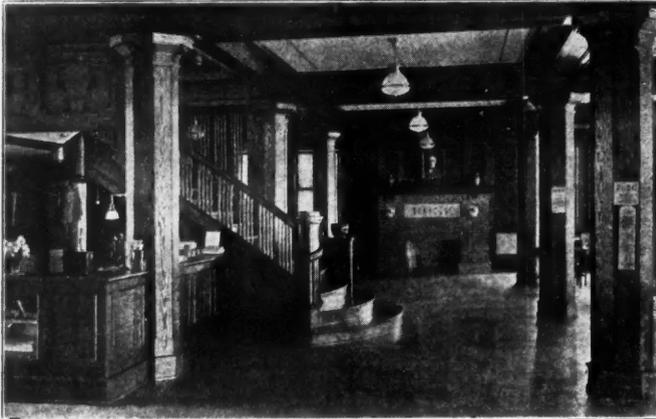
There are available today unlimited supplies of high grade, perfectly manufactured Southern Yellow Pine Timbers of a dependability provable absolutely under the Density Rule.

If you have not yet written for YOUR free copy of the Density Rule, send for it **today**—and for your next industrial plant specify Southern Yellow Pine Timbers graded under this rule.



SOUTHERN PINE ASSOCIATION

676 Interstate Bank Building, New Orleans, L .



Rose Inn, Crossett, 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

cold concrete. This specially waterproofed, disinfected wood block solves the flooring problem for dairy barns, stables, bill pens, piggeries, wash-stands and carriage houses. The cost is reasonable.

For illustrated booklet containing full particulars, address the Linwax Manufacturing Company, Indianapolis, Indiana.



Annual Exhibit of Evening Work at Pratt Institute

Wednesday evening, March 8, was observed as "Visitors' Night" in the School of Science and Technology of Pratt Institute, Brooklyn. All the shops, laboratories and drawing rooms of the school were open to the public, giving an opportunity to all persons interested in industrial education to observe the students at work in the various courses and to inspect the results and methods as well as the equipment and general facilities of the institute for conducting this kind of industrial training.

This school is now giving instruction in its evening courses to more than one thousand men who are regularly employed in various vocations and who use these courses as a means to prepare themselves for more effective service.



Change Made in Detroit Steel Products Company

H. F. Wardwell, formerly Home Office Manager, has been appointed General Sales Manager of the Fenestra Dept. of the Detroit Steel Products Company, effective February 1. He succeeds Mr. P. A. Smith, who recently resigned to enter another line of business.

Mr. Wardwell's previous training admirably fits him for the new duties he has assumed. He is a Cornell University alumnus, having completed the architectural course in that institution. After graduation he accepted a position with Albert Kahn, one of the best known architects in the country, and later joined the United States Gypsum Company.

He joined the Detroit Steel Products Company as an estimator, and speedily became head of that department. During the past few years he acted as special company representative on large building jobs, and has been instrumental in handling some of the biggest window contracts for the company.



H. F. Wardwell, Manager Fenestra Dept. Detroit Steel Products Co.

During the past few months Mr. Wardwell has devoted his time largely to Home Office organization, but his experience in the field and his natural selling ability give him every qualification for guiding the sales division of his company's fast increasing business.



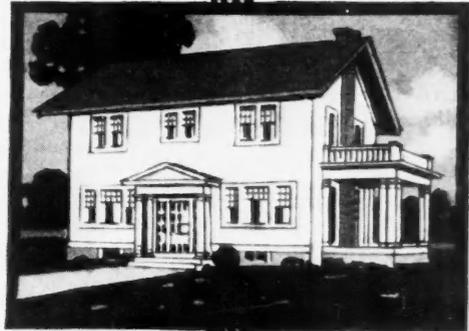
The Corrosion Resistance of Copper Bearing Steel

A very interesting research bulletin is being issued by the American Sheet and Tin Plate Company to show the effect

(Continued to page 116.)



**Service and
Quality
Count in
Woodwork**



WE SAND Curtis Woodwork at the factory, pay attention to other details of quality. We make every effort to keep our promise and give "On-Time Service."

1866
CURTIS
WOODWORK

"The Permanent Furniture for Your Home"

You will find that Curtis service and quality mean more profit for you. It costs you about \$50 for labor to use 75 cents' worth of sandpaper. It costs you money to wait on material.

We can save you these costs—these losses.

There are other points on which Curtis dealers can be of service to you. Will you give us a chance to explain? Send your name on a postal.

**The Curtis Companies,
Service Bureau**

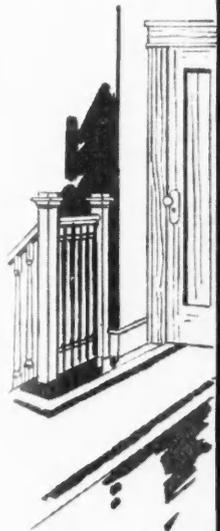
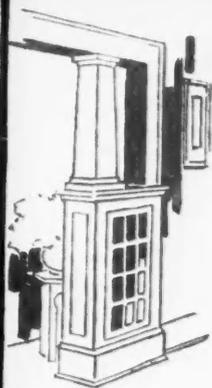
1402-1502 S. Second Street, Clinton, Iowa

Manufacturing and distributing plants at Clinton, Iowa; Sioux City, Iowa; Wausau, Wis.; Minneapolis; Chicago; Oklahoma City, Okla.; Lincoln, Neb.; Detroit

Eastern offices at Pittsburgh and Washington

The Makers of CURTIS Woodwork Guarantee Complete Satisfaction to its Users

"We're Not Satisfied Unless You Are"



in resisting corrosion of copper when added to steel. The tests also included the effect of other materials in the steel such as phosphorous, silicon, aluminum and sulphur. Some of the conclusions reached are given here.

Sheet steel or iron containing copper shows greatly increased corrosion resistance when exposed to atmospheric conditions. The most effective amount of copper to use for this purpose is 0.25 per cent. Smaller amounts of copper, down to 0.04 per cent have considerable influence in lessening corrosion, but the best results are obtained with the amount stated. Higher amounts of copper up to 2 per cent give little or no added benefit.

The sheets were tested in roof panels so as to give as near the same conditions as are actually found as possible. Tests were made at Scottdale and McKeesport in Pennsylvania. The corrosion was found to be almost twice as great at Scottdale in the coke regions as it was at McKeesport in the normal mill district.

The tests show much material that will be of interest to those concerned with metallurgy, also to architects, engineers, and builders and to the man who uses sheet iron in any way. Copies of this booklet can be obtained from the American Sheet and Tin Plate Company, Frick Bldg., Pittsburg, Pa.

The tests were conducted by D. M. Buck and J. O. Handy.



Getting the Thatched Effect with Shingles

Unusual and attractive effects in roofs are very hard to get and people are sometimes disappointed because of the lack of harmony between the roof design and the rest of the house. Many different effects can be obtained with the walls, but the straight lines of the roof are hard to change.

A shingle roof that has a thatched effect has been developed by the Standard Stained Shingle Company, 1028 Oliver



Home of Mr. W. H. Burtner, Jr., Cincinnati, Ohio. Architect, G. C. Burroughs, Cincinnati, Ohio. Thatched "Creo-Dipt" Stained Shingle Roof.

St., N. Tonawanda, N. Y., in connection with their "Creo-Dipt" stained shingles.

These people are sending out a special circular describing this particular method of construction and are including an instruction sheet showing how to lay their shingles to obtain the thatched effect.

Special curved shingles—curved both with and across the grain—are made for use in rounding off the gables and other sharp curves such as valleys, eaves, hips, angles between the roof and the side walls of dormers, etc. All sharp corners and breaks have to be softened down to get the true thatched effect.

The detail sheet is of especial value to the builder or architect and shows clearly the method of laying the shingles

(Continued to page 118.)

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.

Hole for 8d nail

For further information or particulars, write us.

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

Slotted holes for 20d nails

Going to Build? Remodel or Repair?

Save \$5 to \$500 on Every Order for Building Material



For \$1043
We will furnish all material, except masonry, to build this 8-room house. Plans free.



For \$939
We will furnish all material, except masonry, to build this 8-room house. Plans free.



For \$806
We will furnish all material, except masonry, to build this 6-room house. Plans free.



For \$838
We will furnish all material, except masonry, to build this 7-room house. Plans free.



For \$784
We will furnish all material, except masonry, to build this 5-room Bungalow. Plans free.

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.

H. N. Mungus
President



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.

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.

COUPON

Date _____

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

Gentlemen: Please send your FREE Books listed below to

Name _____

Address _____

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



Free Reference Book

on

North Carolina Pine

Send For It

We have prepared a most interesting and practical book on North Carolina Pine.

This book is not only a compendium of information on the wood itself, but a most valuable every-day help in your business.

It tells in a clear, concise manner the characteristics a wood should possess for interior and exterior requirements. Colored photographic reproductions are also shown of the handsome finishes so widely used in modern home interiors, a feature which greatly enhances the value of the book.

Your copy is ready now—a postal request will bring it. It will help you *save* money for your customer and *make* money for yourself. Ask for Book A.

North Carolina Pine Association
Norfolk, Virginia



Detail of Gable "Thatched" with Creo-Dipt Shingles.

in wavy horizontal courses to get the thatched effect. In addition to this the company will be glad to take up the plans of any house on which this construction is contemplated to give advise as to the best colors, methods, radius, etc., to use for the particular house.

All requests for this material will receive prompt attention.



"Timber for Structural Purposes"

The Trade Extension Department of the National Lumber Manufacturers' Association has issued their Engineering Bulletin No. 1 under the above title, as an introductory publication to a series of bulletins that will consider structural timber in its broad application to all wood construction. It is proposed to make this series of bulletins the most complete and reliable body of information on all wood products used in construction, which a score of recognized experts can compile.

Secretary R. S. Kellogg, E. A. Sterling manager of the Trade Extension Department, and the other authorities associated with them in this work, desire to co-operate with and assist architects, engineers, and contractors in every possible way. In announcing these bulletins, they state that in this series:

"The lumber industry is simply making a frank presentation of the merits and limitations of its product, as determined by research and practical experience. The availability and importance of lumber as a building material—the value of the annual output is over a billion dollars—and the assurance of the government foresters that the supply of standing timber is ample for all requirements, make the dissemination of reliable information on timber of mutual value to producers and consumers.

"The lumbermen do not want timber used where it is unsuited, nor lacking in any essentials. They believe that its legitimate use will be furthered by proper selection or treatment in relation to service requirements, and by improved methods of incorporating it into structures. To further meet rigid engineering requirements new grading rules, which more clearly define quality, have been adopted for important species.

"All that is intended is for the engineer to be as fully informed regarding lumber as about any other product, and in a position to select and use it wisely, on the basis of availability, economy, safety, and permanence.

"The co-operation offered consists not only in supplying engineering data, but in the dissemination of current information, and the answering of inquiries. The National Lumber Manufacturers' Association offers its full facilities; in return, it simply asks that the engineers draw freely on these facilities, and offer suggestions as to the character of the information desired and the form in which it can be made most valuable to them."

Many of our readers will want to avail themselves of this service. This department of the National Lumber Manufacturers' Association is located in the Lumbermen's Exchange, Chicago. Write them for a copy of this first Bulletin, and have your name placed on file for future issues.

(Trade Notes Dept. Continued to page 122.)

Rush LUMBER orders market daily advancing

**H-L-F ideas
that ought to be
getting you
more business**

Plan ideas

New fifth edition of H-L-F Plan Book just out. Floor plans, outside views, full description and estimated material cost of 100 good homes. Only 10c.

Free Blue Prints

Look up our March American Carpenter & Builder advertisement, for information on free blue print showing floor plans and just how the building will look.

H-L-F Build-warm construction

Sheets of wall board fit into specially milled studs and form dead-air space. Costs 50% less than back plaster. Write for particulars and price.



Millwork Bargains Barn ideas

New free book of bargains on doors, plate rails, veneer panels, columns, porch rails, medicine cabinets, etc. "How much" including freight is given for each item.

H-L-F Barn Builder's Guide gives good barn information, floor plans, guaranteed costs on barns designed by real farmers. Send four cents.

H-L-F prices still low but must advance soon

GOING UP! Every day the market on lumber is a little higher. The sky seems to be the limit. Some Pacific Coast lumber concerns have quit selling. They are holding present stocks for a big clean-up at the high price. **H-L-F ARE GOING TO GIVE THE LUMBER BUYER THE BENEFIT OF OUR PRESENT BIG STOCKS.** So get your orders in quick and save hundreds of dollars.

WHY IS LUMBER ADVANCING? Because a great building awakening is taking place all over the country. Business is booming, we sincerely believe, because conditions are RIGHT. America really IS prosperous. Building operations are going forward at an unprecedented pace. Big building operations mean big lumber demand, and big lumber demand means increased price.

Get busy quick for a wonderful summer's business

Lumber may never be cheap again

You never had a better chance in your life to close up deals that have been hanging fire. If there ever was a time to build—it's this summer. It is very unlikely that lumber ever will be as cheap again as it has been the past two or three years. With the Panama Canal open to get Western lumber to the hungry Eastern market—with Europe clamoring for lumber the minute the war is over—in addition to the normal demand of the vast Northwest country, Western lumber never will be the drug on the market that it has been for some time past. **While H-L-F prices always will be low, they will be far higher than they are right now—that's sure.**

Hurry along your lumber bills

The very best advice we can give you is **SEND ALONG YOUR LUMBER LISTS OF SCHEDULES** quick and get your order filled **BEFORE THE PRICE GOES UP.** Wait a month and you'll pay a lot more. Maybe 25% more. No telling. **Get after the people who are going to build—and get prices on their lumber requirements quick.**

Hewitt-Lea-Funck Co.

CAPITAL \$1,000,000 Not in any trust or combine
508 Funck Street, Sumner, Wash.

HEWITT-LEA-FUNCK CO.,
508 Funck Street, Sumner, Wash.

- Please send the following—
- Price on materials called for in lumber bill I enclose
 - Blue Print Sketch of proposed building, floor plan and price. I enclose rough sketch of room arrangement
 - Full information on H-L-F Build-warm Construction
 - New H-L-F Prize Plan Book (10 cents)
 - New Millwork Catalog (free)
 - Barn Builder's Guide (4 cents)

Name

Street No. or R. F. D.

Post Office State

Business

TWO SHEETS

Willis Ventilators

Both Square and Round

Wherever fresh air is needed on any type of building, the Willis will do the work in the most efficient manner, in the easiest way and at the lowest price.

VANES

ALL VANES are full bodied animals, not the flat affairs commonly used.

Our New General Catalog No. 7 Now Completed

It is the most complete Architectural Sheet Metal Handbook. If you use Sheet Metal Building Materials, this book is your buying guide to every kind of metal work used in building construction.

It is the most complete reference book you could have in your files. 170 pages chuck full of information and illustrations of particular interest to every progressive Builder. THIS BOOK SHOULD BE IN YOUR FILES. YOU SHOULD PROFIT BY WILLIS QUALITY AND SERVICE.

WRITE TODAY, on your business stationery, for your copy of this big CATALOG, it's ready for you when you send for it.

DO THIS TODAY

Depart

WILLIS MANUFAC

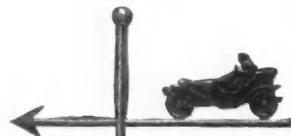
GALESBURG



STYLE No. 100



STYLE No. 178



STYLE No. 175



STYLE No. 264



STYLE No. 183



STYLE No. 105

SHEET METAL

Willis Windows

FIREPROOF

*Tested — Inspected — Approved
by the Underwriters' Laboratories*

The simplest, easiest operating, and best constructed window on the market. Admit light at all times, and are perfectly fireproof. Made in all styles and sizes, or we will gladly assist you in getting up any exclusive design. Get acquainted with them, they are a big talking point in modern fireproof construction.

WILLIS SKYLIGHTS

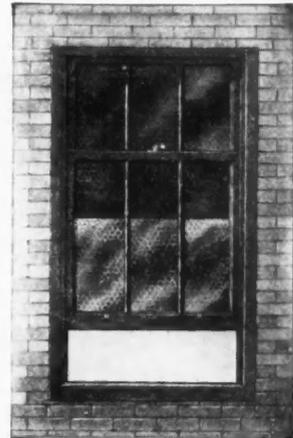
Easy to put up, and put up to stay. Assured the greatest possible light for the space allowed. Guaranteed not to buckle or sag—require no putty or solder—are absolutely waterproof.

You should buy from WILLIS; it is convenient; our large stock saves you ordering from several individual manufacturers, and means immediate shipments. Our central location assures low freight rates to any point in the country.

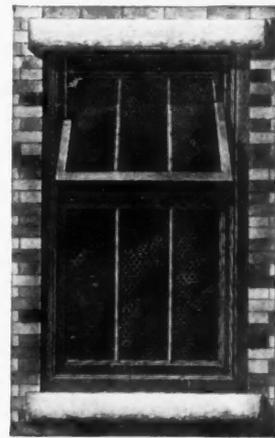
ment "B"

TURING COMPANY

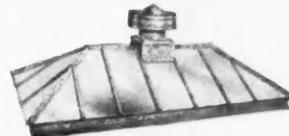
ILLINOIS



STYLE A



STYLE G



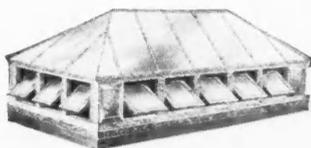
STYLE No. 20S



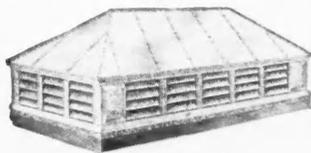
STYLE No. 90S



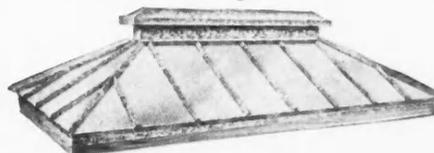
STYLE No. 50S



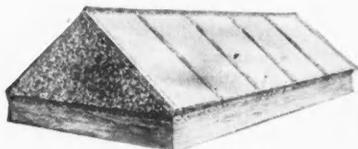
STYLE No. 70S



STYLE No. 80S



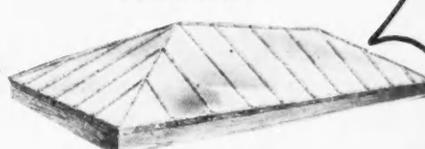
STYLE No. 60S



STYLE No. 40S



STYLE No. 30S



STYLE No. 10S

Actual photograph of Keezon Lath as it looks before any plaster is applied.

Actual photograph of Keezon Lath, showing first coat of plaster. Second coat can be applied without waiting for first coat to dry.

Back view of Keezon Lath after it has been plastered. Note the perfect key.

Side view of Keezon Lath after plastering. A plaster saving of about 25% is made possible by the use of Keezon.

The Greatest Improvement Ever Made in Lath Construction, Places

KEEZON LATH

TRADE MARK

"Made in St. Louis"

in the unique position of combining every advantage of every other lath (wood, composition or metal) and yet, in addition, of being very reasonable in price.

Keezon Lath is fire-resisting and may be specified in slow burning construction. Its cost is reasonable. Keezon Lath can't rust. The use of Keezon assures a saving in material and labor in the finished wall of at least 30%. It is unequalled for stucco work. It can be applied to flat surfaces without furring. It can't warp, buckle, expand or contract.

Keezon cellular construction forms a key to which plaster clings with greater tenacity than it will to any other known form of construction.

In a test made to demonstrate the holding strength of the Keezon key, water to the depth of two inches was poured on top of a Keezon ceiling and allowed to remain for twenty-four hours. At the end of that time most of the water had soaked through the plaster without causing the slightest loosening or sagging.

The largest builders in St. Louis and the best-known plastering contractors use and are highly enthusiastic about Keezon.

Every Architect, Contractor and Builder should know about this really wonderful lath. And so as to make sure that every man who is likely to be interested will know, we are making a

Special Offer to Architects, Contractors and Builders

Write for full particulars regarding this offer and booklet thoroughly setting forth the many Keezon advantages. This proposition will interest you exceedingly. Don't fail to use the coupon.

Cellular Lath Company
417 Wainwright Bldg. St. Louis, Mo.
Factory: 5126 N. 2nd St.

Cellular Lath Company, 417 Wainwright Bldg., St. Louis, Mo.

Please send catalog and special proposition.

My dealer is.....
Name..... Address.....
City..... State.....

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

High Speed 'Z' Twist Bits

The most important thing that a bit must do is to cut. No bit can be a success that will not cut into the wood in good style. The next most important feature of a bit has to do with the handling of the chips that are carried out thru the spiral grooves extending along the length of the bit. The arrangement of the twist must be such that the chips are carried smoothly so that they will not cause clogging in any way.

The method of constructing the twist of the bit shown in the illustration is such that the danger of clogging is practically eliminated, say the makers. The straight cutting edge insures fast and efficient cutting.

To prevent the chips from becoming caught between the wall of the hole and the edges of the bit and thus clogging the hole, a rib is provided on the inner edge of the twist. One end of the chip would probably otherwise strike the wall and would get clogged and thus hold back the chips underneath.

To introduce these new bits, the manufacturers, the Caldwell Auger Bit Company, are selling their product direct to the consumers. They are offering an extra bit with each bit ordered as a further inducement for men to try their product.

The advertisement of the Caldwell Auger Bit Co., Lebanon, N. H., on another page of this issue, will give more particulars of their offer, or a complete price list of their various sizes and offer will be sent on request.



Note Clean Cut Work.

Hetzel's Elastic Rubber Roof Cement

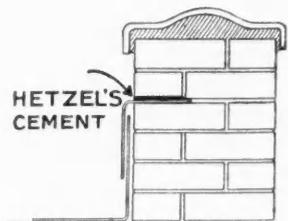
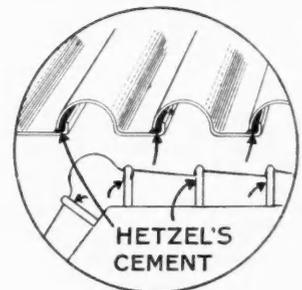
A material for repairing and also setting slate and tile roofs must be elastic to be easily handled and to provide for the expansion and contraction of the parts that are cemented together. The elastic material must not get too soft in hot weather and it must not dry out if it is to be of the greatest value.

Hetzel's Elastic Rubber Roof Cement is designed particularly for this class of work. A circular is issued by the makers of this material showing architect's specifications for various kinds of roof work.

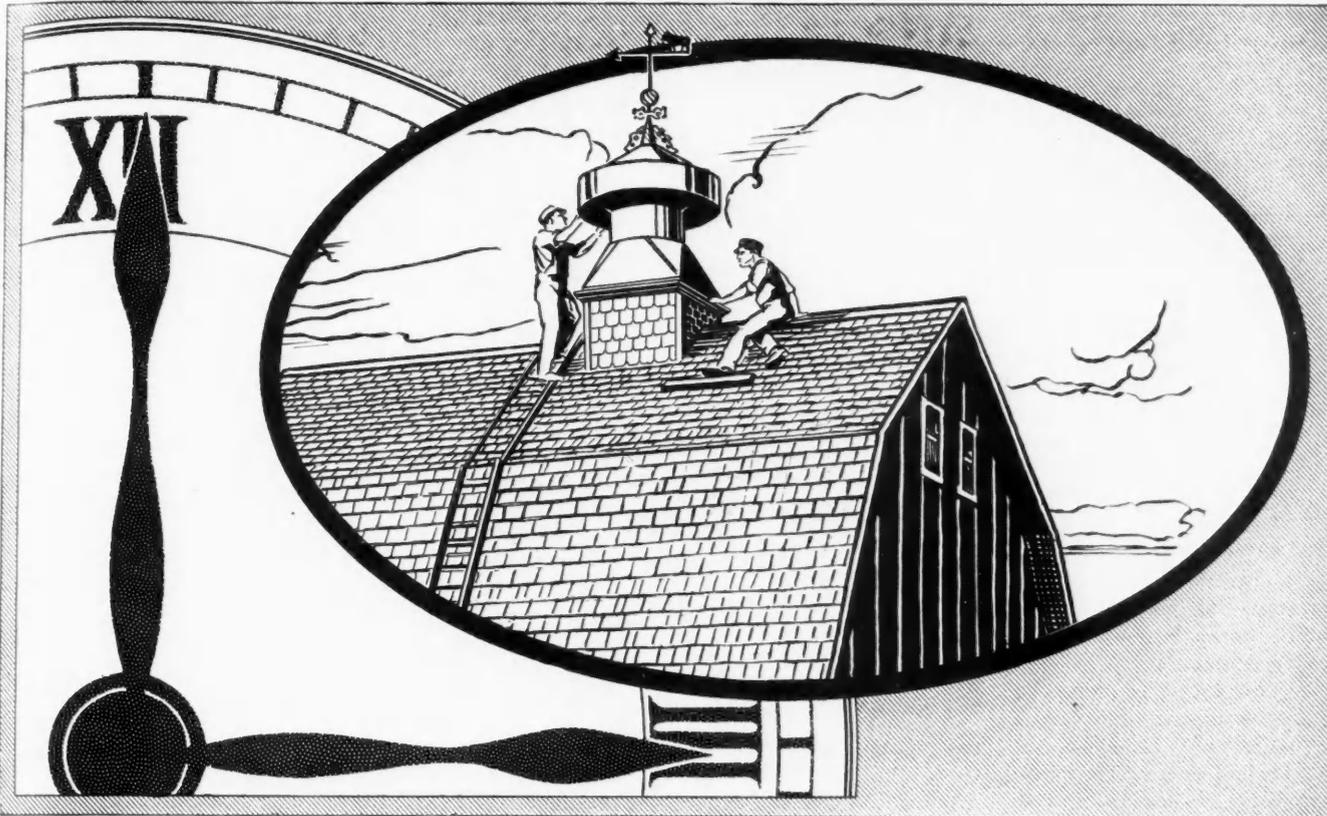
All the nail holes and joints in slate roofs can be sealed with this material and the slates will be held in position even if they break or the nails holding them rust away. It is also very useful in tile roofs, where it will prevent leaking and will also be valuable as an expansion joint.

This material is very useful for repairing all kinds of leaky roofs, as it is easily applied and requires no heating or thinning and will remain elastic indefinitely.

Hetzel's cement is made by the Estate of J. G. Hetzel, 65 Main Street, Newark, N. J.



Where "Hetzel's" Does the Business.



Time Is Money

And it's needless to spend time building cupolas when you can install King Aerators, and give your customer a better job. King Aerators give a barn the finish that attracts attention. They bring credit to you as a builder—add beauty to the building—help to keep it in good condition—and enable you to get more contracts and more money for your work.

KING Aerators

the First Unit of the King System of Ventilation

Your customer can install the King System when you build his barn, or he can add it to his King Aerators at any time later. But no matter when he installs the system you start him right.

Send for these Two Books

and let us show you photographs of fine farm barns and creameries equipped with King Systems and King Aerators. One book is our catalog—sent free. The other is Prof. King's famous book on Ventilation, sent for 10 cents to pay postage and packing.



King Ventilating Co.
1120 Cedar St. Owatonna, Minn.



KING AERATORS
the First Part of the King System of Ventilation

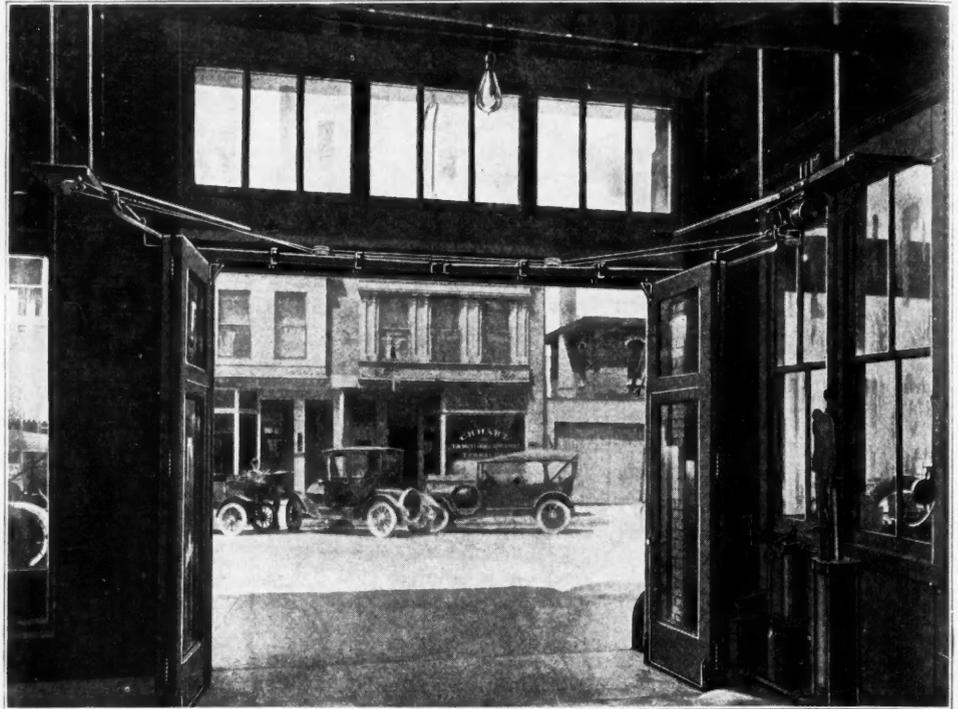
Opening the Garage Door by Electricity

Many garage doors are now being equipped with the folding sliding type of door. This type is well suited to both private and public garages, and has the advantage of being easily handled, of occupying little space, and of remaining rigidly in any position.

The accompanying illustration shows an opening device that has been developed by the Richards-Wilcox Manufacturing Company for use with their folding sliding doors. It is an electric arrangement and is suited to either public or private garages.

To open the doors it is only necessary to push a button, which starts the motor. The motor automatically stops when the doors are fully open. To close the doors another button is pushed and the doors shut quickly and quietly. The motor automatically stops in this case when the doors are fully closed also.

The R-W Stewart Electric Door Opener is a simplified device, made of unbreakable steel parts with the power furnished by a small electric motor. As shown in the illustration,



View Looking Out Thru Public Garage Doors Equipped with the R-W Stewart Electric Door Opener.

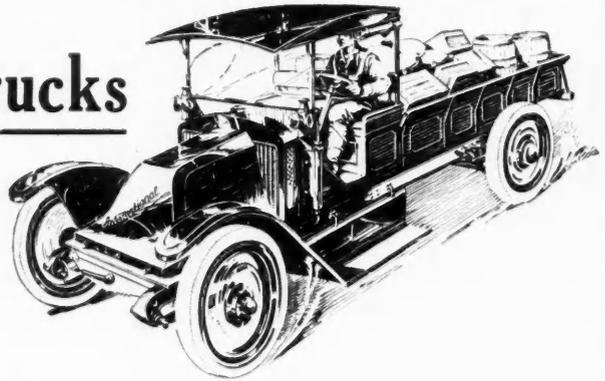
the entire arrangement is installed above the level of the doors and does not take up any valuable space.

This opener is particularly suited to a public garage or a large garage in which the doors are opened frequently.

(Continued to page 126.)

Outstanding Facts About International Motor Trucks

1. Over 13,000 Internationals are now in use—more than of any other motor truck made.
2. International service branch organization is the most complete in the United States.
3. International trucks were awarded the Medal of Honor at the San Francisco Exposition, 1915.
4. In Michigan, the home of the motor truck, the registration shows 324 trucks in use, as compared with 259, the next highest in trucks of all classes.
5. In Chicago, St. Louis, and other big truck using centers, Internationals outnumber all others.
6. Volume of 1915 International sales gained 100% over the 1914 sales.
7. Two new large 6-story additions to the factory at Akron, O., have doubled the capacity.
8. The International Harvester Motor Truck Works is the largest buyer of solid rubber tires in the world.
9. All International models may now be had with either solid or pneumatic tires.
10. International Motor Trucks are sold and used consistently and satisfactorily everywhere, in city and country, on the level and in the hills.



Popular Models—Low Prices

Model M—1000 lbs. capacity	\$ 710
Model E—1500 lbs. capacity	950
Model F—2000 lbs. capacity	1500

All Prices Cash f. o. b. Akron, Ohio.

Write now for Catalogues.

INTERNATIONAL HARVESTER COMPANY OF AMERICA
70 Harvester Building (Incorporated) Chicago U S A



But the word has lost its terror for the builder who paints with

Pyrolin

Fire-resisting Pure Linseed Oil Paints

Watch for our May Advertisement—the Most Important Announcement in the Paint Trade in 100 Years



Pyrolin is of immense importance to the contractor. It not only means the protection of his buildings against fire, but it also means the reinstating of wood as the primary building material.

Only Building Left Saved by PYROLIN

Mr. E. L. Cavanaugh, Clare, Iowa, writes the following letter:

"In 1906 we had our implement building at this place painted with the PYROLIN Fire Proof Paint, which gave satisfactory results so far as appearance, covering capacity and durability are concerned.

"We had no test of its fire-resisting qualities until December 11th, 1911, when almost the entire business portion of the town of Clare was destroyed by a severe conflagration. Our implement building was just eight feet from the nearest building in the direct path of the flames, which beat against the side of our building. The fire was so hot that it did not seem possible it could be saved. The woodwork charred and blackened but the flames did not carry, and the building was saved and the fire was stopped. We are using the building every day."

And his experience is only a repetition of daily tests to which Pyrolin is subjected.

Send for our Booklet. It will explain to you the tests of the U. S. Government; the advantages of Pyrolin as a paint, and the money and peace of mind it will save you as a fire-resistant. Write today for your copy.

PYROLIN PRODUCTS CO. FORT DODGE IOWA

Exclusive Western Agents for
**McCLOSKEY VARNISH CO.'S
SUPERIOR VARNISHES**

The Varnish of satisfaction. Get our prices before buying. Our Water-proof Varnish is the finest in the world.

Pyrolin
Products
Company,
Fort Dodge, Ia.

Gentlemen:
Kindly send me
your Pyrolin catalogs.

Name

Address

The Answer to the Outside,
Painting Problem
ZINOLIN

*Yours for
the Asking*

If Zinolin, the "Wonder Paint," were superior in only one respect to other paints you would certainly owe it to yourself and your clients to be completely informed concerning it.

How much more important is it, then, that you should know fully about

ZINOLIN

the "Arnold-ized" zinc

when it possesses 9 distinct and revolutionary advantages over every other paint on the market? Here they are—

1. Permanently lasting luster.
2. A brilliant white that cannot be equaled.
3. Absolutely non-fading colors.
4. Covers 30% more surface per gal. than white lead.
5. Two coats of white hide jet black.
6. One coat always does the work of two.
7. Gives tougher, more durable coat.
8. Will not crack, peel, chalk or blister.
9. Much easier and quicker to apply.

The Leaflet tells you the whys and wherefores. Send for it today.

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.
Multoproof Varnish—for anything, proof against everything.
Prevento—prevents Concrete and Bricks from crumbling. Absolutely waterproof.

2001 Keystona Building BROOKLYN, N. Y.

The makers, Richards-Wilcox Manufacturing Company, Aurora, Ill., say that the installation is very simple and can be easily finished in six hours.

They will be glad to send descriptive circular telling more fully of the operation and use of this device to any of our readers that are interested.



"Rex Products Roofings and Shingles"

The above is the title of an unusually attractive and complete new catalog that is now being distributed by the Flintkote Manufacturing Company. This is handsomely made up and contains much material that will be of interest to the builder, and the many illustrations show the different classes of work for which each of the products is particularly suited.

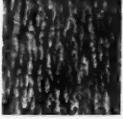
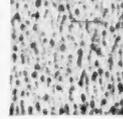
**SAMPLES OF
REX PRODUCTS**

As shown in Catalog Number 20.

These samples are made from our regular goods and they show the actual stock. The samples of shingles are not full size, but show the actual color, thickness and appearance of our shingles. A full size sample of any of our shingles will be sent to you on request.

FLINTKOTE MANUFACTURING COMPANY

BOSTON, MASS. 80 Pearl Street
CHICAGO, ILL. 655 Peoples Gas Bldg.
NEW YORK, N. Y. 85 Beaver Street
NEW ORLEANS, LA. 705 Bienville Bldg.

 <small>These are Samples of REX SHINGLES, Slate Surface.</small>	 <small>These are Samples of REX SLATE SURFACE ROOFING.</small>	 <small>These are Samples of REX RED ROOFING.</small>	 <small>These are Samples of REX BLUE ROOFING.</small>
 <small>Sample of REGULAR PAR-A-REX, Six Coats Red-ink. Shingled in rolls 36 inches wide.</small>	 <small>Sample of SPECIAL PAR-A-REX, Six Coats Red-ink. Shingled in rolls 60 inches wide.</small>	 <small>Sample of RED REX VALLEY and RIDGE STRIP. Each are shingled in rolls 24 inches wide.</small>	 <small>Sample of BLUE-BLACK REX VALLEY and RIDGE STRIP. Each are shingled in rolls 24 inches wide.</small>
 <small>Sample of 2 ply REX FLINT ROOFING. Also made in 1 and 3 ply weights. Rolls are 36 inches wide.</small>	 <small>Sample of 2 ply ZAREN ROOFING. Also made in 1 and 3 ply weights. Rolls are 36 inches wide.</small>	 <small>Sample of 2 ply MIKADO ROOFING. Also made in 1 and 3 ply weights. Rolls are 36 inches wide.</small>	 <small>Sample of REX BLACK WATERPROOF PAPER. Shingled in rolls 36 inches wide containing 500 sq. ft.</small>

Reduced Photo of 10 x 13½ Sample Sheet of "Rex" Roofings.

The range of work shown in the catalog especially by the illustrations is an indication of the scope of their products which are varied enough to include all the different types of building.

One of the most interesting parts of the catalog is a section discussing the value of various types of roofing that are in common use today. This is a fair discussion of all types whether handled by this company or not and is an unusual feature for a catalog. The information contained in this section is very valuable to any builder.

Another part also that will be especially valuable to the builder is devoted to the best methods to follow in laying roofs with all kinds of prepared roofings. This section goes into a detailed explanation of the laying of the various

(Continued to page 128.)

**No more mystery—
No more doubt**

Every can of paint and varnish that we sell you contains our formula. This is your **GUARANTEE**—

DEVOE

FOUNDED 1754

The oldest manufacturing concern in the United States. Continuously in business for 162 years.

F. W. Devoe & C. T. Reynolds Co., New York
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**Varnish
Guarantee**

*Absolute Uniformity
Assured by Our
Guarantee*

This Varnish has been properly aged, and is composed of:

Fossil Gum	9.0%
Pure Linseed Oil and Dryer	45.5%
Pure Turpentine	45.5%
	100.0%

and nothing else

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**Paint
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The paint in this package is full measure, and is composed of:

50% Pure White Lead
(Carbonate of Lead)
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(Oxide of Zinc)

*With the proper amounts of
Pure Linseed Oil
Pure Turpentine Dryer
and nothing else.*

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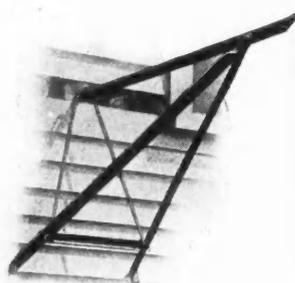
Two Ideal Cincinnati Tractor Paving Mixers at work on Colerain Ave., Cincinnati, Ohio, since May, 1915. These mixers were adopted because of their compact construction and because they prevented the tying up of the trolley service on that busy thoroughfare.

"Rex" products and the many drawings and diagrams show how to handle gutters, valleys, etc., to get the best results.

Descriptions of all the styles of asphalt shingles and prepared roofings, as made by the Flintkote Manufacturing Company, are included in the catalog. These descriptions tell of the construction, appearance, fireproofing qualities, etc., of their products.

With their catalog they are sending out a sheet of samples

showing the actual appearance and character of their products. These samples and the catalog will be sent to any interested builder, carpenter or architect. Address the Flintkote Co., 90 Pearl St., Boston, Mass. The value of this material can perhaps be imagined from the short description that we have been able to give it. However, we urge that our readers write and see for themselves how worth while it is.



Profits and Safety

HOW much would you make if you could do a half day's scaffolding in ten minutes? How much better could you work if you had no fear of danger from a weak scaffold? With "Trouble-Saver" Scaffolds waste of time is eliminated; lumber and nail bills are saved; and safety is assured.

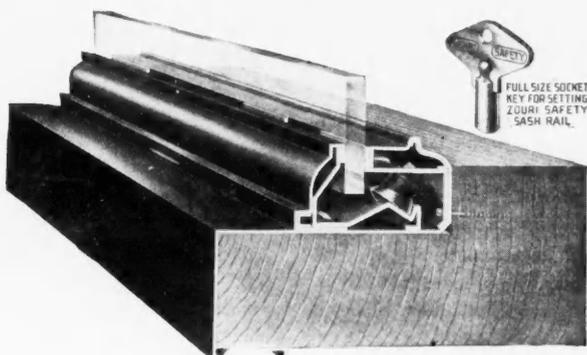
Because there are no nails to drive—no bothering with bolts or screws. The "Trouble-Saver" is simply hooked around the studding. And it stays where it is put without wobbling or tearing loose. The two legs hold it absolutely rigid.

We are offering a 30-day free trial to carpenters, just to prove that "Trouble-Savers" are really an investment.

Write today for our proposition, and see how much you can save.

THE STEEL SCAFFOLDING COMPANY
EVANSVILLE, INDIANA

Who Gets the Blame when an expensive show-window is broken?

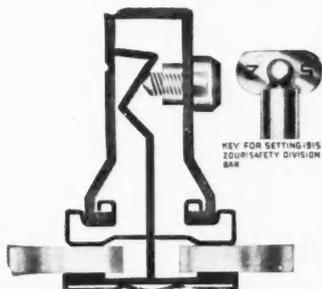


Zouri Safety Self-Supporting Sash No. 120

The architect, of course, for he is supposed to know—everything.

You *can* know all about Zouri safety store fronts. And the deeper you dig into the mechanical features of our construction, the more pleased we will be.

And the more satisfied you will be. Fact is, we are selling a highly modernized piece of window engineering worked out to a fine degree of mechanical perfection, and on the merit of our products alone we rest our case with you.



No. 300 Safety Key-Set Division Bar
Recommended for plate glass over 108 inches high

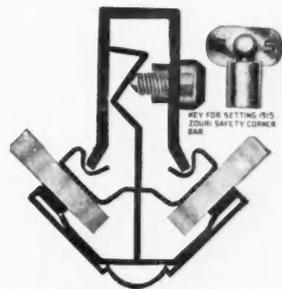
Zouri Safety Self-Supporting Sash No. 120

The Zouri Safety Self-Supporting Sash is ornamental and the safest known setting for plate glass. There are no screws visible. It is free from the dangers of direct screw pressure or a resilient rabbet. Its inner member is rigid and *substantial*.

Through the indirect screw pressure system of installation and the Murnane Self-Adjustable Setting-Block, it is proof against the carelessness of workmen.

Zouri Safety Corner and Division Bars

These Corner and Division Bars are free from direct screw pressure. They are proof against the carelessness of workmen. They can be set only with the small special socket key shown, so that undue pressure cannot be exerted by the tools used in the building line, the power of which is beyond control. These bars are specially constructed so that the edges of the glass cannot come in contact with the metal.



No. 200 Safety Key-Set Corner Bar
Made in angles from 85 to 145 degrees, inclusive

We urge comparison of illustrations of construction and invite comparison of samples. We illustrate Zouri Construction in all our advertising. Comparison will speedily show you why we can't and won't sell Zouri Store Fronts at the price of copper moulding effects. It can't be done, gentlemen, and never will.

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All we need is accurate dimensions; we do the rest, including, when necessary, blue prints to assist in the correct installation of our work. Send for complete Catalog and blue prints of details.

Insist on samples—We'll gladly send them

Zouri Drawn Metals Company

CHICAGO HEIGHTS, ILLINOIS



When Laying Out that Building

leveling up walls or locating foundation piers use an accurate, dependable Level—one with a *quality* reputation back of it.

To play safe and do the work quickly requires an instrument that is *mechanically correct*—that will hold adjustment and is easy to operate. Buy the

DIETZGEN Convertible Architect's Level No. 6013

the level built of selected materials by expert mechanics. A glance at the illustration will show how substantially it is made.

Telescope is 11½ inches long and magnifying power 18 diameters; horizontal circle is 3 inches in diameter and reads by vernier to 5 minutes; parallel plates are large; finish of all parts is well-wearing and attractive.

Send for Catalog "A"

EUGENE DIETZGEN CO.

Manufacturers

Surveying Instruments Measuring Tapes
Drawing Materials

Chicago New York San Francisco New Orleans
Toronto Pittsburgh Philadelphia

Sheet Metal Reference Book for Builders

We are informed that the Willis Manufacturing Co., Galesburg, Ill., have just received their new general catalog No. 7, which is one of the most complete books of its kind. Careful consideration and good hard work have been put into this new catalog to make it complete in every respect and a ready reference book for the builder.

This book covers everything in the way of Sheet Metal Building Materials. Its 170 pages are overflowing with information and illustrations of particular interest to every progressive builder. Their new catalog is 8½ inches by 11 inches (letter size), and can be handily filed for ready reference. It describes and shows Metal Windows, Tin Clad Doors, Shutters and fixtures, all bearing the Underwriters' label. These are products every community can use satisfactorily because they reduce insurance charges and assist in protecting property from fires in adjoining buildings. The small additional cost of fireproof windows and doors over the ordinary give them a value that cannot be estimated in dollars and cents.



Willis Skylight, Style 708.

Skylights and Ventilators are shown and described. The Willis people have received any number of testimonials from all parts of the country; one booster says, "I get all the skylight business because I install the 'Willis,' they always satisfy." The catalog also describes and illustrates ventilators for every purpose, all grades of roofing, and roof finishes. Numerous styles of metal ceilings are shown, also gutters in standard sizes and design, as well as special details. Their large shops with the up-to-date equipment and experienced mechanics enables these people to handle everything in the way of sheet metal products. Special architects' details can be handled to a big advantage.

The Willis products offer every builder an opportunity to branch out in a larger, a growing business. Your community needs and wants sheet metal products. Use your spare moments and let them know you are the man that will take care of them.

The Willis Manufacturing Co. is located on the main lines of two great railroads, their large stocks of material and the determined effort they always make to give prompt shipments are factors that have made many permanent friends from the building profession.

Our readers wishing a copy of this new catalog should write for it now so you will have it in your files where you can make use of it.

A new addition to the office force of the Willis Co. is H. L. Swan, for years secretary of the Rockford Mitre Box Co., Rockford, Ill. Mr. Swan resigned his old position last December and took up his new connections the first of January.



Big Sales at Cement Show

An exhibit which attracted an unusual amount of attention at the recent Chicago Cement Show was made by the Northwestern Steel and Iron Works, of Eau Claire, Wisconsin.

Both concrete machinery and concrete tile forms were shown. The visitors at the booth gave particular attention to the mixers, which made a decided "hit" with the combination of sturdy construction, hardness and low price. It is said that over \$12,000 worth of mixers were sold during the week of the show—a reliable indication of the popularity and sterling value of the "Northwestern" line.

Rust-proof Nails

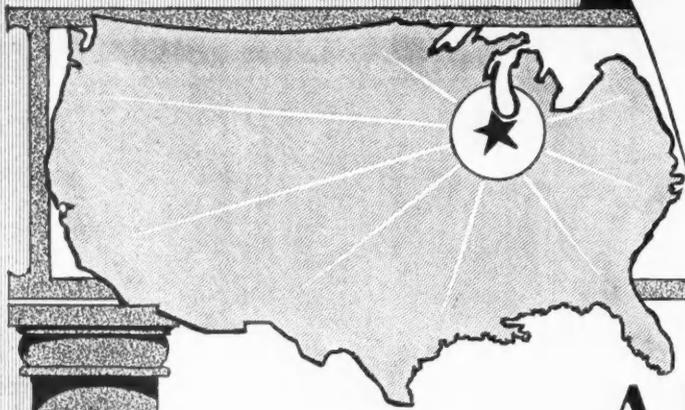


ZINCLAD SHINGLE NAILS

Would be used for every shingling job if your roofs had to be guaranteed, then why not use Zinclad's exclusively and make every roof a guaranteed job. Owners will gladly pay the extra cost, and it's really up to the builder to see that these nails are used. Any size in either Cut or Wire style for Wood, Asphalt or Asbestos Shingles at 10c per pound.

Sent prepaid if your dealer will not furnish them.

W. H. MAZE COMPANY, Peru, Ill.



Look Before You Build

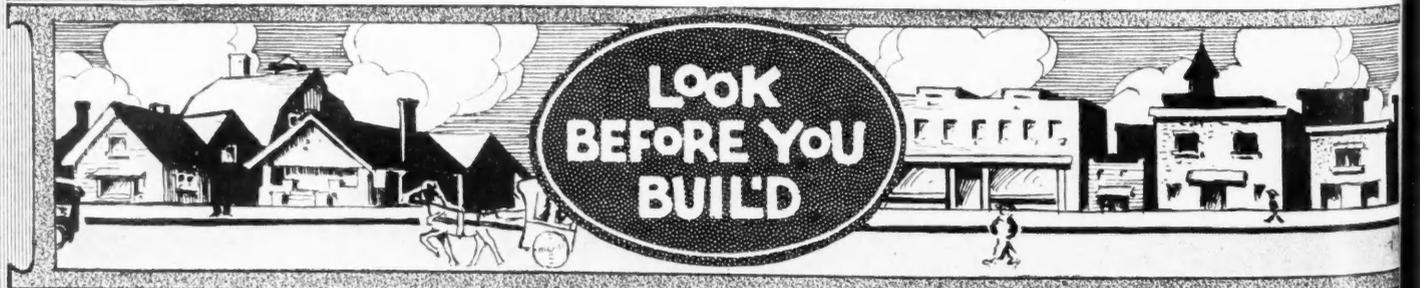
Here, under one roof, is the World's Greatest Building Shopping Center. Here the prospective home builder can see for himself just what his needs require. Here the contractor can get in direct touch with the people from whom he buys, and knowing them personally can better serve his clients and himself. 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

- | | | | |
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Garden City Sand Co.
M. Nocenti Co.
McNulty Brothers.</p> <p>AUTOMATIC BATTERY CHARGING DEVICES.
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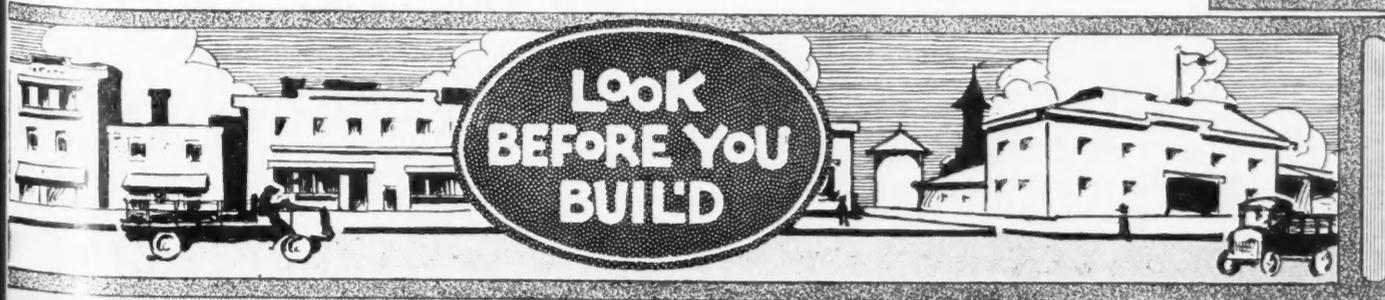
WALL TILE.

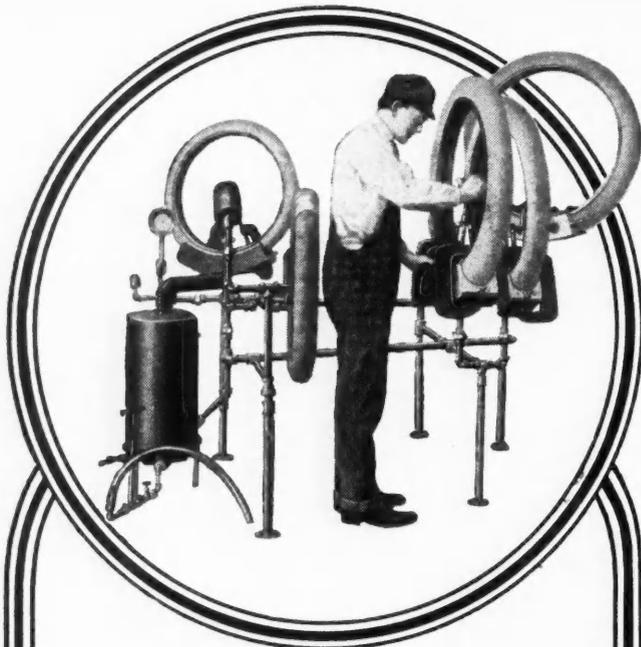
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No previous training, no apprenticeship, is required to enter this business—not even the faintest knowledge of tires. If you have a little mechanical turn of mind, you can quickly become an expert. We teach everything. **You learn in a week.** Handle 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.
660 CAPITOL AVE. INDIANAPOLIS, IND.

FREE CATALOG COUPON

Haywood Tire and Equipment Co.
660 Capitol Ave., Indianapolis, Ind.
Gentlemen:
Please send me your catalog, details and plans for starting ambitious men in the tire repair business.

Name

Address

A New Opportunity for Carpenters and Builders

Builders and carpenters should not fail to read on another page the advertisement of The Todd Sales Company, 122 North Seventh St., St. Louis, Mo. They will cheerfully send full particulars on receipt of a post card. We have facts before us that would warrant quick action on the part of all desiring to benefit by generous profits to be immediately secured right among their regular patrons.

The Buckeye Folding Saw Vise

The average vise is not practical for holding saws when they are being filed because of the short length of the jaws. This makes it necessary to shift the saw as the work progresses which is more or less of a nuisance.

The folding vise shown in the illustrations is as easily carried as an ordinary vise, and in addition it has a 14-inch jaw, so that it is only necessary to shift the saw once in filing. One of the illustrations shows the vise ready to operate and the other shows it folded up so that it will not take up much room in the tool case. It can be attached very easily by means of folding hooks that drive into the bench or by means of a 2-by-4 that can



The Buckeye Plane.



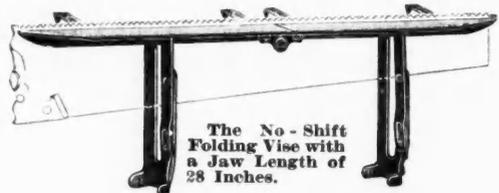
The 14-Inch Saw Vise Folded Up.



The 14-Inch Saw Vise Ready for the Saw.

be set in a window at the desired height. The weight is only 2 pounds.

The Buckeye Saw Vise Company also make a no-shift folding vise that has a jaw length of 28 inches, but that folds to



The No-Shift Folding Vise with a Jaw Length of 28 Inches.

a length of 14 1/4 inches. It weighs four pounds, and being made of steel is very easily carried around.

The Buckeye plane is shown in the other illustration. One of its particular features is its simplicity. The blade is moved in any direction by the single tension screw near the handle.

Particulars of these products can be secured from the Buckeye Saw Vise Co., 2050 West 55th St., Cleveland, Ohio.

Spacing and Chalk-Lining of Shingles Eliminated

Spacing, chalk-lining, and fitting shingles accurately into place is now done automatically with the new style Flex-A-Tile Diamond Point Slab. Except for the first course at the eaves of the roof, no chalk-lines or gauges are required on the entire job.

The shape of the Flex-A-Tile Diamond Point Slab is the reason for this. Each slab is self-spacing and self-gauging, inasmuch as all that is required is that the points of each slab fit into the recess of the course below. The slabs butt right up on each other without any trouble, and inasmuch as prac-

(Continued to page 136.)

Built with NOVO Standardized Power

See the Novo Hoist? It's running loads of concrete to different levels. The mixer at the right is driven by Novo Power. Elsewhere on the job are Novo pumps, air compressors and saw rigs.

One good man can keep all these Novos running 24 hours a day if necessary. When he knows one engine he knows them all.

That's what we mean by Novo Standardized Power.

Novo Power is unfailing and untiring. Compare it to steam. It weighs about one-third as much as a steam plant of equal power. It needs little supervision. It is much cheaper to operate. It costs less. It is equally dependable in summer and winter.

As compared to other gas engines, there is really no argument. Novo has already driven other engines from the contracting field. It operates 80% of concrete mixers. Novo pumps, hoists and compressors are seen on almost every job.

Why? you ask. Simply because Novo stands up to the work and other engines don't.

NOVO

REG. U.S. PAT. OFF.

ENGINES and OUTFITS

NO LAMP
NO FAN
NO FREEZING
TROUBLE

There's a lot to say about this. Why not tell us exactly what are your power problems and give our engineers a chance to tell you what they know?

Send for "Reliable Power," our book on Novo Engines and Outfits

NOVO ENGINE CO.

Clarence E. Bement, Sec. & Gen. Mgr.

446 Willow St.

Lansing, Mich.

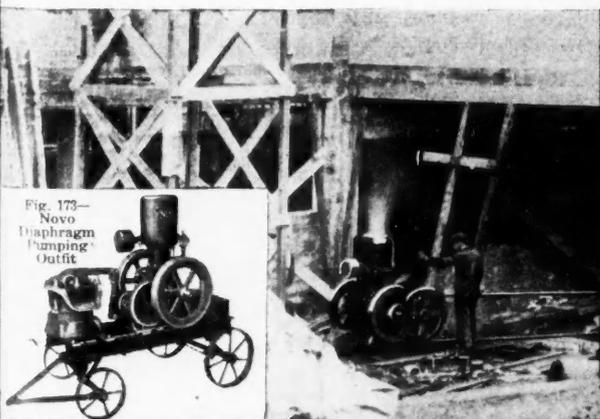
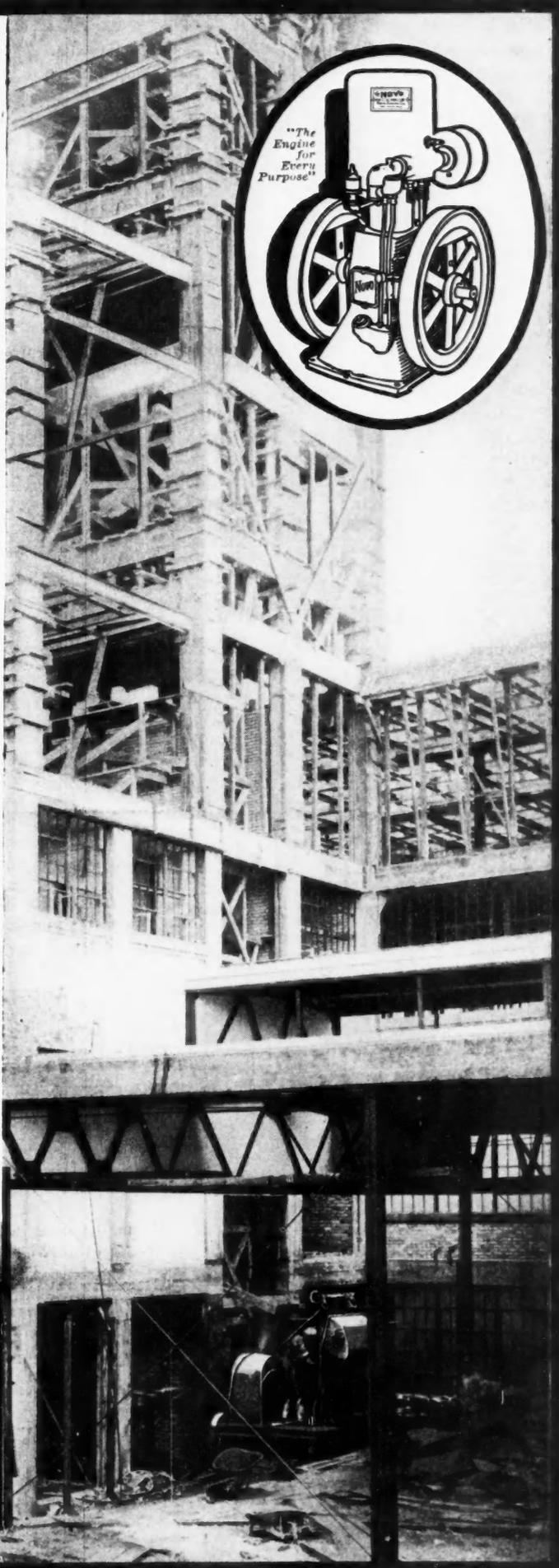


Fig. 173—
Novo
Diaphragm
Pumping
Outfit



tically four shingles are laid at a time, the combined saving in labor is considerable, say 50 per cent.

Only five nails are required for every four shingles when Flex-A-Tile Diamond Point Slabs are used—this means three nails saved on every four shingles—a saving in nails of 38 per cent. No possibility of leaks, because there are no slots or spaces between the shingles for the wind to blow rain or snow thru to cause leaks. The underlap or protection is $4\frac{1}{4}$ inches, identically the same as in standard shingles laid four inches to the weather. They will not blow up or rattle in the wind, because there is 50 per cent less material exposed to resist a strong wind.

Inasmuch as there is also a saving of material amounting to 60 lbs. per square, the Diamond Point Slab cuts freight cost by 35 per cent. This saving in material—due to the space-economizing shape of the Diamond Slab—also means that the weight per square on the roof boards is lessened by 60 pounds.

The Heppes Company, exclusive manufacturers and patentees of the Diamond Point Slab, report a big demand for agency territory. Dealers and contractors who want to make the most of the opportunity to handle the Diamond Point Slab are advised to get in touch with the Heppes Company at once. They are located at Fillmore Street and Kilbourne Avenue, Chicago.



In the Spotlight

The new Lansing paver is making its initial bow to the public. Altho too early to predict the enthusiasm that will greet this newcomer, there is reason to expect a tremendous ovation. It fills an actual need. The size and price of the big cumbersome paving mixer has been prohibitive to the contractor who occasionally puts in a few blocks of street or concrete alley; now comes the Lansing paver, costing one-



New Lansing Paver of Small Size and Compact Construction.

half as much, a third less weight, and with all the earmarks that has distinguished Lansing mixers—quality plus speed, plus service.

The size is just right for the average contractor, plenty big enough for street work, and so compact it can actually be operated in a 6-foot alley. The drum easily

holds, and mixes without slopping, one sack of cement, 3 parts sand and 5 parts stone, in other words a 1:3:5 mix.

It propels itself forward or back at a speed of $1\frac{1}{2}$ miles an hour. The power is amply taken care of, for the 6-horsepower Novo or Ideal engine is regularly used, altho steam power is furnished to all who prefer it.

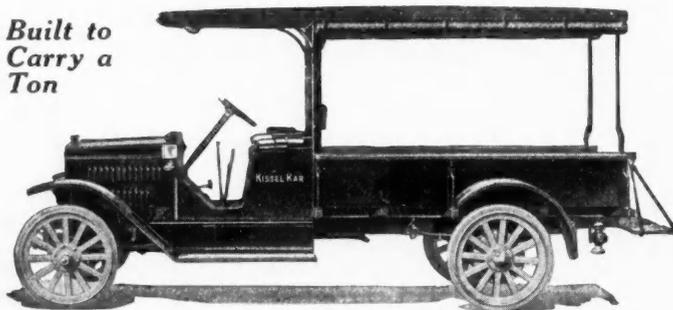
The mixer discharges into a sectional swinging chute and the concrete is run directly into place without further handling other than spreading.

All the levers have been conveniently grouped so that one man attends to loading, discharging and spouting. Samples of this new Lansing light weight paver are now being shown at the Lansing Company's stores and warehouses thruout the various distributing centers. The factory's enormous production makes it possible to promise good deliveries.

By writing the Lansing Company, at Lansing, Mich., prospective buyers of light weight pavers will gladly be directed to the nearest point where one of these pavers can be seen, also an illustrated circular with specifications will be mailed to any interested party.

Builders Who Know

*Built to
Carry a
Ton*



The new KesselKar worm drive "Tonner" at \$1250 appeals to Carpenters and Builders who have made comparisons.

**Chassis Price
\$1250**

This is a quality truck at a "hard pan" price—in fact the best value that the market affords. See it. Send for literature.

KISSELKAR TRUCKS

The most modern motor vehicle—
Kissel-Built throughout.

Five other sizes if this does not suit your requirements.
Chassis prices, \$950 and \$4350.

KISSEL MOTOR CAR CO., 546 Kissel Avenue, Hartford, Wis., U. S. A.

The ultimate result of your work depends on the adaptability and simplicity of the operation of your equipment:—

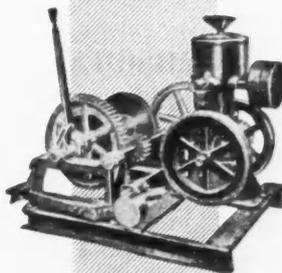
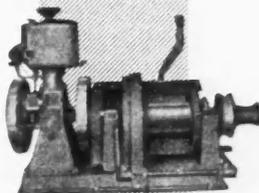
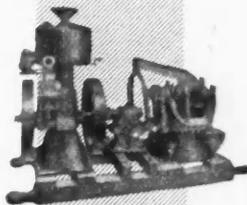


Supreme and conclusive are the successes of **Ideal Power**. Their claims of **constant service** are proven by the verdict of many thousand contractors.

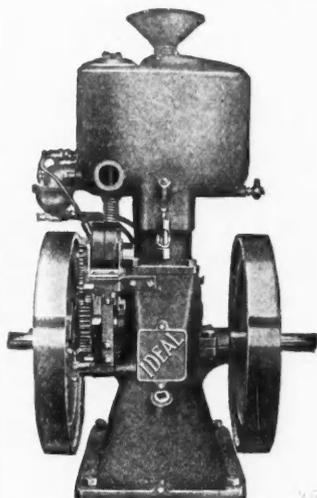
Power users find in **Ideal Power** a durable engine of simplicity, compactness and extremely modern construction and improvements.

Now, more than ever before, have contractors realized the importance of an **enclosed crank case**.

- the quicker action that is assured by **larger valves**.
- the efficiency of a **large oblong cooling hopper** of **frost-proof** construction.
- the use of **self-oiling bearings**, eliminating grease cups.
- all these points of superior construction and more are to be had in



Ideal Engines



- the power plant of the highest efficiency.
- the producers of "constant service."
- the power that is the result and has the backing of the greatest engine builder in the country.

You will certainly profit by equipping with Ideal Power

For speedy work use Ideal equipment:

- Ideal Diaphragm Pumps
- Ideal Tank-Force Pumps
- Ideal Centrifugal Pumps
- Ideal Single Line Hoists
- Ideal Double Drum Hoists
- Ideal Reversing Hoists

If you are in need of service—why not see us? Better send for our book 516

IDEAL ENGINE CO.

R. E. OLDS, Chairman

Formerly The Original Gas Engine Co.

630 Kalamazoo St., E. Lansing, Mich.

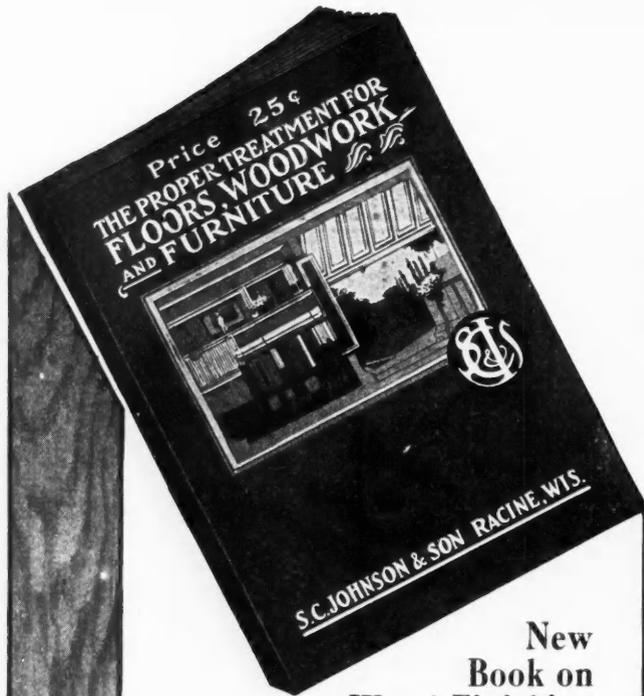
We want this back—Will you send it now?
 Send Engine Booklet 516.

Name

Address

Town

State



New Book on Wood Finishing

EVERY architect, contractor and builder is entitled to one of these new books free for the asking. It is a valuable handbook on interior finishing, beautifully illustrated in nine colors.

It tells how to finish inexpensive soft woods as beautifully as hardwoods and gives complete specifications for finishing woodwork and floors with

Johnson's Wood Dye

These dyes are not pore-filling varnish stains but coloring matter that penetrates deeply into the wood without raising the grain.

Johnson's Prepared Wax

is the most extraordinary polish for interior woodwork and floors. It gives a hard, dry, glass-like surface that does not collect dust.

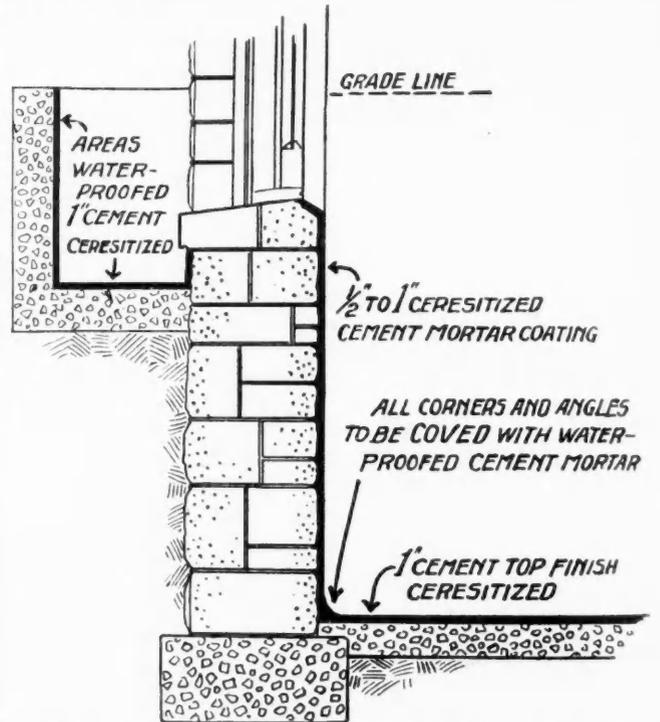
If you are not familiar with Johnson's Wood Dyes and Prepared Wax we shall be glad to send you samples for experimental work or finished wood panels showing the various shades of Johnson's Wood Dye.

"Specifications for Waterproofing"

Information as to the best way of handling the various methods of waterproofing and descriptions of the class of work for which each type is particularly suited should be of considerable interest to any contractor or builder. We receive many letters asking about the value of different types for certain classes of work, which show that this subject is one that is constantly being brought to the attention of the builder.

A most complete list of suggestions and specifications for all classes of waterproofing work is contained in a new booklet that is being issued by the Ceresit Waterproofing Company, entitled "Specifications for Waterproofing." In addition to all this material shown in the booklet, the Ceresit Company are offering to furnish the specifications for any special work if descriptions are sent to them.

The accompanying illustration shows one of the most common of waterproofing problems. Many cellar walls and foundations and also other classes of work begin to leak after they are finished and the waterproofing must be applied in the best way possible without disturbing the walls. The illustration gives a method as recommended by the Ceresit Company, showing the application of a 1/2 to 1-inch Ceresitized cement mortar coating.



Waterproofing Basement and Area Walls with a Ceresitized Cement Mortar Coat.

This is but one of many kinds of waterproofing problems that are treated in this booklet.

The Ceresit Waterproofing Company, 910 Westminster Bldg., Chicago, Ill., will be very glad to send any interested builder a copy of this book. We suggest that all our readers write for a copy, as it will form a valuable reference for their files.



The Smith Mixerette

The illustration on page 40 gives an idea of the Smith Mixerette as equipped in one of the various ways in which this machine is now being furnished to contractors and builders.

A circular is now being issued on the Mixerette that shows the different ways in which this machine can be made up

(Continued to page 140.)

A.C.B.-4

Please send me free and postpaid my copy of your new 25c Instruction Book, "The Proper Treatment for Floors, Woodwork and Furniture."

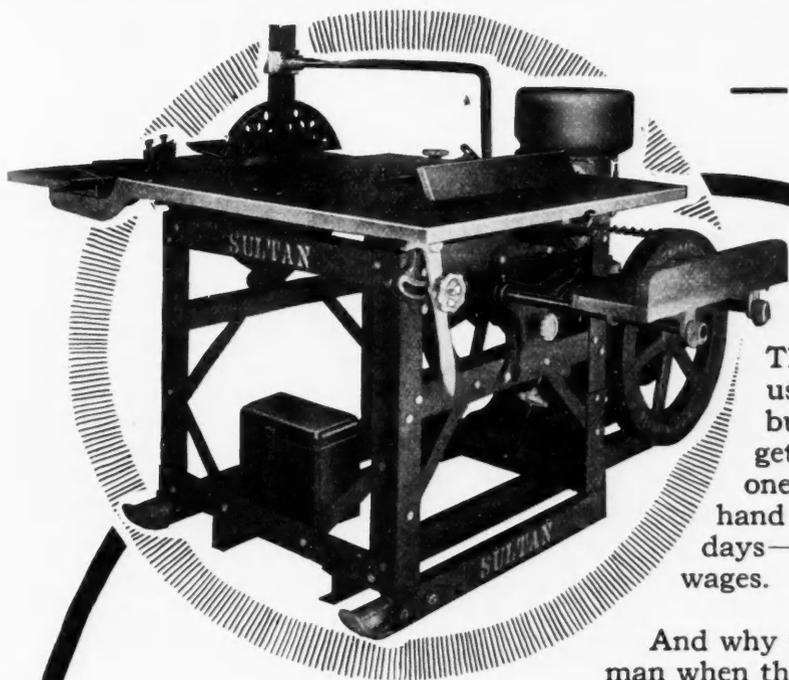
Name _____

Address _____

City and State _____

Fill out this coupon and mail to

S. C. JOHNSON & SON
"The Wood Finishing Authorities"
RACINE WISCONSIN



— The Saw Rig You Have Been Waiting For

The one that took us three years to build; and which 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.

And why pay excessive prices to the mill man when the

SULTAN SAW RIG

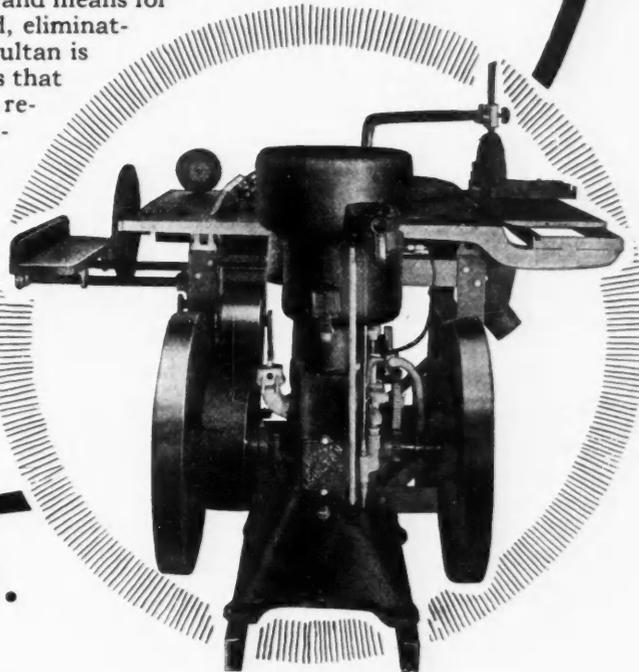
will pay for itself in thirty days? Furthermore, the Sultan will do your work just as you want it, and when you want it.

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.

Write for our new catalog now—it explains in full the special money-making features of the Sultan.

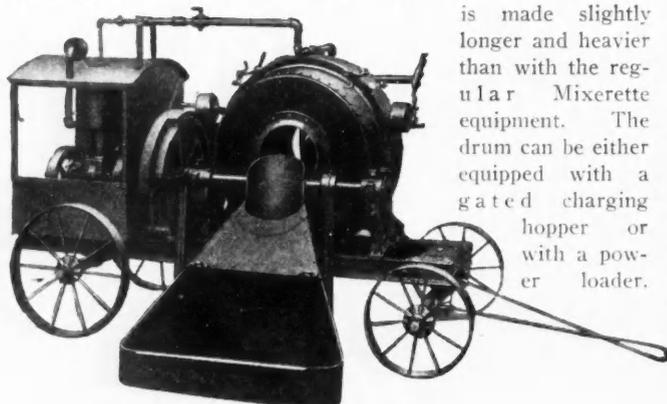


WHITMAN A. CO.

7003 So. Broadway, St. Louis, Mo.

so as to suit the particular work which the contractor expects to do.

One of the most popular styles has a hoist mounted between the engine and the drum. For this particular style the truck



The Smith Mixerette.

All the parts are independent of each other and are controlled by clutches with all the levers for the entire operation bunched at one side of the machine.

This type has been very successful for all building operations where a hoist can be used, and especially for silos. It has been used so much for silo work that it has been called the Smith Silo Rig.

The regular Mixerette can be had with three types of charging equipment: the gated charging hopper, the power loader, and the low charging design with a platform 16 inches high.

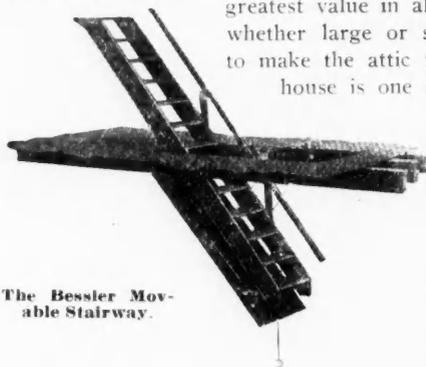
All these styles of Mixerette are described in a well illustrated way in the circular that is being sent out by the T. L. Smith Co., 3123-X Hadley St., Milwaukee, Wis. Copies will be sent to our readers on request.

Advantages of a Movable Stairway

In new houses that are being built, and also in old houses, there is nearly always an opportunity to install a movable stairway. Such a stairway will be of considerable use when it is desired to make the attic more accessible or where room is scarce and the space for a permanent stair is not available.

The Bessler movable stairway consists of a strong, well built flight of stairs that are attached to the end trimmer of an opening in the ceiling of the room or hall where the stair is to be located. By a simple automatic contrivance the stairway slides up on the panel into the opening, where it is out of sight and out of the way. A handsome panel closes the opening in the ceiling after the stairway is raised. It is counterbalanced so that it will work very easily and is easily installed by any one who is handy with tools.

The architect and the builder have many opportunities to put these stairways in and they will be found to be of the greatest value in all kinds of buildings whether large or small. Their ability to make the attic really a part of the house is one of the best features.



The Bessler Movable Stairway.

The Bessler Movable Stairway Company, Akron, Ohio, are sending out circulars with special prices to contractors or architects. These circulars tell the size that the opening

must be cut, and give information on the method of installing the stairs. Any requests will receive prompt attention if addressed to Department 1.

Dead Weight and Live Weight

"Did ye ever stop to figger out why it is that a 150 pound dead man is twicet as heavy to lift as a 150 pound live man?"

"Or why yer kid weighs twicet as much when he goes asleep in yer arms as he did when he was laffin' and kickin' and huggin' ye round the neck?"

"I'll tell you the reason—it's because the dead man or the sleepin' kid don't respond to your lift—they jest sag back; all dead weight.

"It's exactly the same with wheelbarrows. Some are so loose in the joints that they sag back and sway sideways kind-o-squeechy-like—resistin' your pull instid of respondin' to it.

"Gosh! but that makes heavy work for the poor devil between the handles!

"Sterlings are different—they respond—come right up smilin'; kind of joshin' you fer not given them a real 'man-size' load to carry when they're already carrying say 1,000 lbs.

"I'm kinder puzzled to know the why of it and hope some scientific feller will come along some day and explain."

—TIM TRUNDLE

When you meet "Tim" tell him that the easy lifting of

Sterling Barrows

come chiefly from two things: one is the correct balance of its load, and the other is that handles, legs and wheel-mountings are so joined and braced that they're as staunch as if they were one piece of spring steel full of life and rebound.

Send for Catalog No. 19.



Sterling Wheelbarrow
Company

6207 Shenners Ave., West Allis, Wis.

Tests every hour day and night

The chemist is a man of real authority in every ALPHA plant. He cannot be overruled by men zealous for large or economic output.

The hourly system of tests, beginning with the quarry borings, is followed strictly.

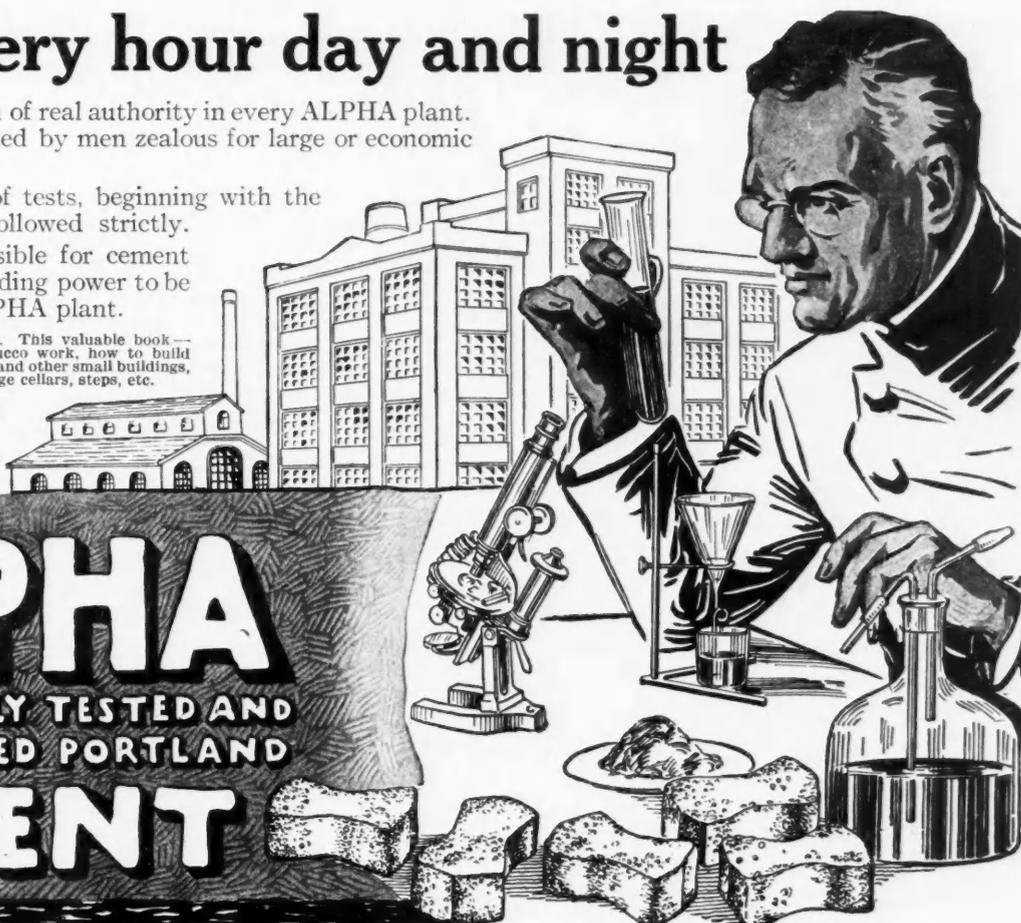
Result: It is impossible for cement that is lacking in binding power to be shipped from an ALPHA plant.

Send for ALPHA book No. 10. This valuable book—illustrated—tells how to do stucco work, how to build concrete barns, silos, ice-houses and other small buildings, foundations, walks, tanks, storage cellars, steps, etc.

ALPHA PORTLAND CEMENT CO.

General Offices: Easton, Pa.

Sales Offices: Boston, New York, Philadelphia, Pittsburgh, Baltimore, Savannah



ALPHA
THE HOURLY TESTED AND
GUARANTEED PORTLAND
CEMENT



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 "A" Our handy, general painting specifications and useful chart of color combinations should be in your catalog file.

F R E E Write nearest branch for Folders "A."

NATIONAL LEAD COMPANY

New York Boston Buffalo St. Louis
Chicago Cincinnati Cleveland San Francisco
(John T. Lewis & Bros. Co., Philadelphia)
(National Lead & Oil Co., Pittsburgh)



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 KUHL

3d Ave. and 65th St.

Brooklyn, N. Y.



CON-SER-TEX is the most economical material to lay on porch roofs, floors, and sleeping balconies. It is the ideal covering for all flat surfaces or wherever the pitch is less than four inches to the foot. CON-SER-TEX is a scientifically treated cotton fabric that will not

Rot, Shrink, Stretch, Curl or Peel

It's easy to lay—clings to the surface, makes a neat, clean, smooth, durable covering. When properly laid it will last as long as the house itself.

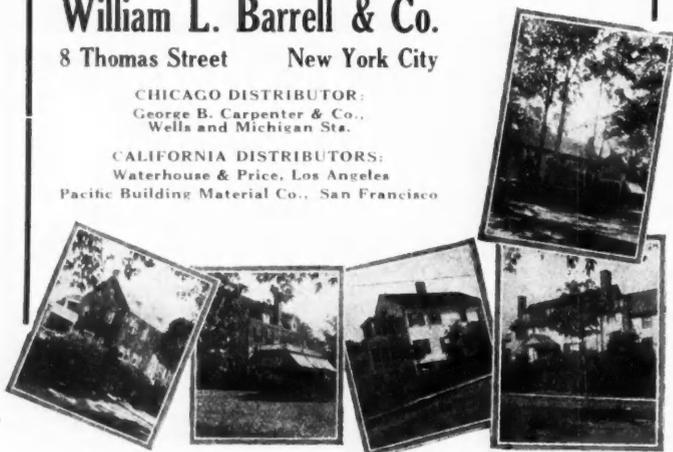
Send for our new illustrated booklet, "Roofing Facts and Figures." It will show you where CON-SER-TEX can be used to advantage—how you can save money by installing it, and will give you some new ideas on lining wood box gutters, covering valleys and hips and making durable, cheap, satisfactory flashings. CON-SER-TEX has rendered satisfaction on thousands of homes in all parts of the country.

William L. Barrell & Co.

8 Thomas Street New York City

CHICAGO DISTRIBUTOR:
George B. Carpenter & Co.,
Wells and Michigan Sts.

CALIFORNIA DISTRIBUTORS:
Waterhouse & Price, Los Angeles
Pacific Building Material Co., San Francisco



Write for these Valuable Books

In order to show the value and usefulness of Red Cedar shingles the West Coast Lumbermen's Association have organized a shingle branch to take care of this publicity work.

They have organized an Inspection Bureau that will maintain perfect grades of red cedar shingles. All their shingles will be marked with the word "Rite-Grade," which will insure the best quality of products. The "Rite-Grade" brand insures selection, inspected thickness, inspected size, inspected grain, and the best quality of shingles possible.

They are also making a specialty of dealers' helps and this, with their advertising, will do much to help in giving red cedar shingles the value that they deserve.

They are distributing the "Big Four" library, which consists of four books dealing with various phases of building. The names of these books are: Bungalow Book, Distinctive Homes Book, Farm Buildings, and The Boy's Builder. These books will be sent to any of our readers that are interested if a 2c stamp is enclosed to defray postage for each book.

These books or any other information that is wanted by any of our readers can be secured from the Shingle Branch, West Coast Lumbermen's Association, 1022 White Bldg., Seattle, Wash. Information of this kind will be of great value to the builder.



The Modern Fireproof Bungalow

In keeping pace with general advancement, the art of home building has, in recent years, advanced in very rapid strides, and the improvements which have been made in both the construction and appointments of building operations, would seem to have reached the pinnacle of perfection.

Notwithstanding this condition, and the seeming futility of efforts to originate new and practical ideas in a field which has received the thought and study of the brightest sheet

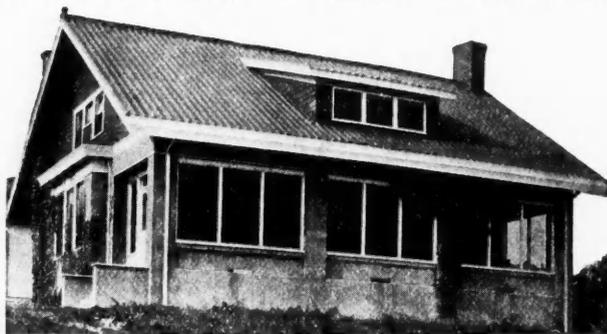


Fig. 1. Modern Fireproof Bungalow.

Roof, Edwards Metal Spanish Tile; Walls, Floors and Partitions, Edwards Keyridge, a Metal Lath and Stud Combined.

metal manufacturers in the world, the Edwards Manufacturing Company has acquired many new and high-grade specialties of exceptional value and recognized merit.

The illustration gives a very excellent idea of a modern fireproof bungalow.

An Edwards metal Spanish tile roof covers the entire roof. The peculiar construction of Edwards metal tile permit its being especially applicable to all classes of roof construction. The method of interlocking forms, the only perfect system of expansion and contraction, so essential in securing an absolutely water tight roof. While in the majority of cases Edwards metal Spanish tiles are applied only to new buildings, they can just as readily be used on old buildings.

Edwards tiles are produced in light, strong metal, an exact reproduction of the old Spanish clay tile and can be furnished at a much less cost than the earthenware tiles. This enables you to enjoy all the beauty, ornament and advantages without danger and disadvantages at a strikingly low cost.

(Continued to page 144.)

BAYONNE

FORESTALLS COMPLAINTS



When the ordinary roof-covering begins to warp and buckle, expand and contract with heat and cold; when metals rust and bulge, when tars blister and crumble—then the owner will ask some pertinent questions of Architect and Builder. And consequent repairs will only make matters worse.

BAYONNE

forestalls all complaints as well as repairs. It is practically indestructible. Laying is cheap and simple—after that it stays flat. Never corrodes. Never leaks.

BAYONNE gives a well finished, neat and attractive appearance to the roofs of verandas, porches, decks, etc. And it is the easiest roofing to keep clean and neat because it can be sluiced with water.

Write for Sample Book "N" giving prices and laying instructions. See Sweet's, page 539.

JOHN BOYLE & COMPANY, Inc.

112-114 Duane St. NEW YORK CITY 70-72 Reade St.
Branch House: 202-204 Market St., St. Louis

"My Carpenter" told me—

"CREO-DIPT" Stained Shingles are the finest and best I have ever seen. If I had known I could get such shingles, I would have put them on my own roof. They will last all of 30 years.

Buffalo, N. Y. J. C. Moss

"CREO=DIPT" STAINED SHINGLES

17 GRADES 16, 18, 24-INCH 30 COLORS

Mean 25% less labor in laying; no wedge shapes, no waste. They are most profitable for you and mean satisfied customers.

Such quality of shingles is not usually found in the open market. Our process creosotes them against dry-rot, worms and weather. Finest earth pigment stains do not fade out in streaks.

Get your lumber dealer to carry three or four standard colors in stock. Write for Book of "CREO-DIPT" Homes and Sample Colors on Wood.

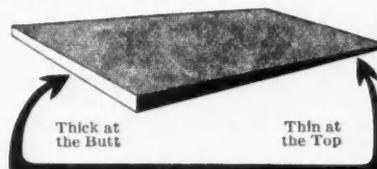
STANDARD STAINED SHINGLE CO.

1028 Oliver St. N. TONAWANDA, N. Y.
FACTORY IN CHICAGO FOR WEST

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

These tiles are manufactured from a special brand of tin plate and are furnished either in painted or "Tightcote" galvanized, size 10 by 14 inches. After the sheets are perfectly

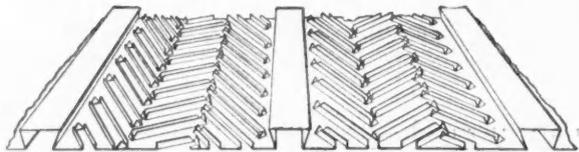


Fig. 2. Edwards Keyridge.
A Superior Reinforcement for Fireproof Floors, Roofs, Walls, Partitions, Siding, Ceiling, etc. Sheets 24 Inches Wide and any Length up to 12 Feet. Made in 24, 26 and 28 Gauge.

sheared and cut to proper sizes, they are fed into powerful presses which stamp out the design, each tile being a perfect counterpart of the other, so that laying them on the roof is but a matter of following straight lines. No soldering is necessary. No special tools required. They can be placed by common labor at a very low cost.

All metal tiles are given a good substantial coating, both sides, of special "Edmanco" paint in an exact imitation of clay tile in color. Tin galvanized tiles are dipped (after stamping) into a bath of metallic zinc, each tile separately adding a second coat of almost 20 pounds to the 100 square feet, thereby giving a very uniform coating and leaving no raw edges exposed to corrode and rust.

The entire roof is covered with Edwards metal Spanish tile, while all of the walls, floors and partitions are reinforced with Edwards Keyridge reinforcement, a metal lath and stud combined. The latter material is especially applicable for fireproof construction about the home, and proves to be very satisfactory for this purpose.

Edwards Keyridge reinforcement has already found a very prominent place among the architects and builders, and is without doubt the best suited to cement stucco finish. With this type of construction, the resident can rest assured that

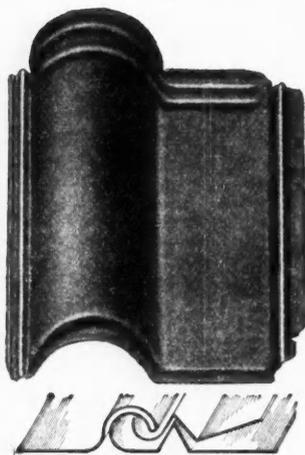


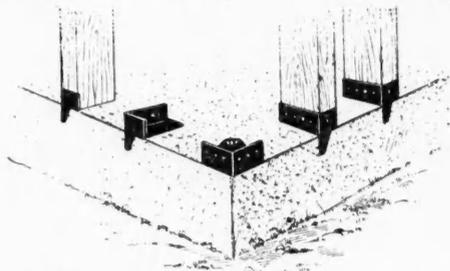
Fig. 3. Edwards Metal Spanish Tile.
Made of Best Quality Terne Plate. Furnished either Painted, or "Tightcote" Galvanized. Size 10 by 14 Inches.

fire will not bother him. No excessive rates of insurance will be thrust upon him, but to the contrary they are reduced to a minimum. Surely this construction is a splendid proposition for the farmer or suburban residents, where fire protection is to be found very limited.

A splendid booklet just issued by the Edwards Manufacturing Company, 401-417 Eggleston Ave., Cincinnati, Ohio, for distribution among interested parties, showing both exterior and interior views of homes covered with Edwards metal shingles, metal Spanish tile, Keyridge material and Edwards metal ceilings and walls. These booklets will be gladly furnished upon request.

Studding Sockets for Concrete Foundations

Now that the spring building is starting, there will be many buildings that will be built with concrete foundations and floors with wooden side walls. The one best way to hold the studding on the foundations is by means of the studding socket. Wooden sills have very short lives when kept in con-



"Best" Studding Sockets in Position in a Concrete Foundation.

tact with concrete, which is always more or less damp on the outside. The studding socket eliminates this part of the construction and also keeps the studs from coming in contact with the concrete.

The "Best" stud socket, as made by the Sterling Foundry Co., 8 Ave. A, Sterling, Illinois, is shown in the accompanying illustration. This is imbedded in the concrete foundation and the studs are then placed in the sockets. A special shape is used for the corner post, and along the walls the ordinary style is used. Both styles are shown in the illustration.

The Sterling Foundry Company make all the various articles in the "Best" line and will be glad to send descriptive catalogs of their products to any of our readers.

SLATE WE HAVE WHAT YOU WANT

*In Roofing Slate, Slate Blackboards
Structural and Plumbers' Slate*

SATISFACTION GUARANTEED IN QUALITY AND PRICE

ASK FOR DELIVERED PRICES

J. K. HOWER, Station, C., Danielsville, Pa.

R. J. KICHELNE, Sales Agent

Indestructible Roofing

GOthic TILE

Cover your buildings with Montross Metal Shingles and save yourself time, money, worry. Economical in price and easily laid. Our booklet, "The Best Roof Under The Sun" will make you a roofing expert. Free on Request.

AGENTS—MAKE MONEY

On our profit sharing inducement to all reliable live wire dealers. Write for information, how our agents are growing rich handling Montross Metal Shingles. Big demand. This is your chance. Don't overlook it. Testimonial letters and affidavits cheerfully given.

MONTROSS METAL ROOFING CO., 102 Erie St., CAMDEN, N. J.

ROOFING SLATE SINCE 1869

Miners, Makers and Shippers of all Styles and Colors of Roofing Slate. Write for Prices.

RISING & NELSON SLATE CO.

Main Office: West Pawlet, Vt.

Branch Offices:
1058 Marbridge Bldg., New York City. 4 Post Office Sq., Boston, Mass.
Office and Yard 2554 W. Harrison St., Chicago, Ill.

ROOF SLATES

STRUCTURAL SLATE BLACKBOARDS

E. J. JOHNSON

38 Park Row New York

Quarry Operator

BLACK, GREEN, PURPLE, RED

Booklet, Samples and Prices on Application

HUDSON ASPHALT SHINGLES

SATISFY the Builder, because they can be laid quickly.
SATISFY the owner, because they make a most attractive fire-resisting roof which has real individuality at moderate cost.



Residence of E. J. Crammer, Esq., Auburn, N. Y., roofed with Hudson Asphalt Shingles

No paint or stain needed. Samples and book "Shingling and Roofing", mailed free on request.



Asphalt Ready Roofing Co.
9 Church St., Dept. 453, New York, N. Y.

UNFADING ROOFING SLATE and Slate Blackboards

Best to be had and made in Slatington — Buy from us

Slatington-Bangor Slate Syndicate, Inc.
Slatington, Penna.



THE ROCK OF AGES CLEFT FOR YOU

RED GREEN PURPLE BLACK SHELDON'S SLATE

THE ROOF FOR AGES ALWAYS NEW

ECONOMICAL — ARTISTIC — FIREPROOF
Outlast the building. First cost, only cost. The only roof you can afford to consider for a permanent investment. Artificial substitutes bring endless expense for upkeep. Post a postal and get posted.
F. C. SHELDON SLATE CO., Granville, N. Y.

The Roof that never Wears Out—

The roof that is absolutely unaffected by fire storms, snow, ice, rust, or any other elements of the weather; that lasts a lifetime without changing its color, and without any repairs; the roof made from

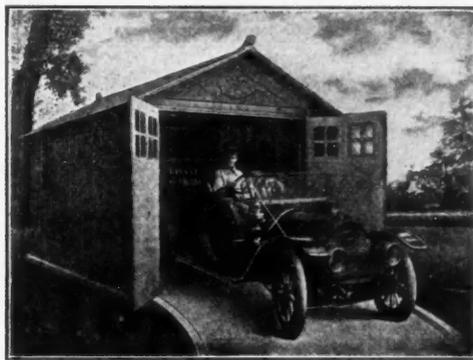
Genuine Franklin Tunnel Roofing Slate

It is the ideal roof under any and all conditions. It harmonizes with any type of architecture; will last as long as the building stands; and its cost per year of service is lower than that of any other roof.

We have made this roofing slate for 64 years — have watched it tested by time, not theory; and have proven to hundreds of builders that it is the most perfect material for roofing that nature and science can furnish. May we prove it to you? We will be glad to send you a copy of our new 1916 catalog.

Slatington Slate Co.
Slatington, Pa.

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



Here's Why
G. & B. PEARL Wire Cloth
Stops Screen Expense

PAINTING—repairing—replacing screen—those are the expenses which make inefficient wire cloth a source of annoyance and money loss. When you screen with genuine G. & B. PEARL you do away with painting, repairing and replacements—simply because PEARL is rust-proof as metal can be made, consequently makes a screen that's practically wear-proof.

G. & B. PEARL represents true screen economy. It out-wears all imitations so far that no other similar appearing wire can be placed in the same class. From points of appearance—sanitation—durability and economy G. & B. PEARL is the one choice of the man who wants permanent protection.

For
 Permanently
 Screening
 Doors, Win-
 dows and
 Porches

GILBERT & BENNETT
PEARL
 WIRE CLOTH

Made in
 Two Weights
 —Regular
 and Extra
 Heavy

The longer G.&B. PEARL is up—the nearer the color of the atmosphere it becomes. It is easy on the eyes—easy on the pocketbook and the one screen whose smooth meshes prevent the lodging of dust and dirt and grime.

The genuine article has two copper wires in the selvage and a Round Tag bearing the name Gilbert

& Bennett attached to the roll. Considering the fact that imitations are so decidedly inferior, real G. & B. PEARL is worth insisting on.

Go and have a talk with the hardware dealer who handles PEARL in your vicinity. Or—if you prefer—write our nearest office for samples and particulars.

The Best Hardware Dealer in Your City Sells "PEARL"

The Gilbert & Bennett Manufacturing Co.

(Established 1818)
 Dept. A, 277 Broadway, New York Dept. A, 38 S. Dearborn St., Chicago
 Georgetown, Conn. Wireton, Ill. Kansas City, Mo.

Sterling Wheelbarrows

A very complete line of barrows for all purposes, concrete carts, etc., are shown in the new catalog of the Sterling Wheelbarrow Company. These people have made a scientific study of the proper balancing and manufacturing of wheelbarrows, which is one of the reasons for the popularity of Sterling wheelbarrows.

The construction of the frame, handles, and tray must be rigid so that there will be no sagging under a heavy load. The locating of the tray should be such that the load on the man at the handles will be cut down as much as possible. Sterlings "respond," says "Tim Trundle," they don't sag back and make the load seem heavier than it really is.

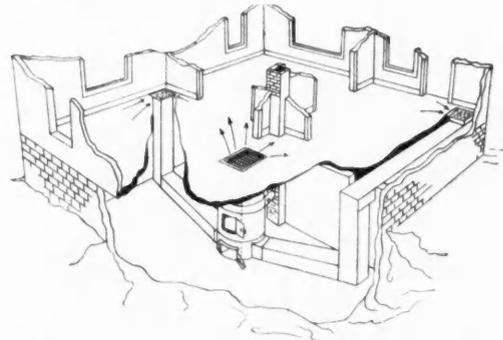
The choice of the right kind of wheelbarrows or carts may make the difference between profit and loss to any contractor. Catalog No. 19 of the Sterling Wheelbarrow Co., 6207 Shenners Ave., West Allis, Wis., will show the contractor and builder many styles of which one will be sure to fit his needs. A copy will be sent on request.



Kalamazoo Pipeless Single Register Furnace Easy to Install

Saving you the problem of planning a heating plant, giving your customer furnace comforts at retail stove cost, besides the saving of worry, and fuel, are a few of the advantages of this popular type of furnace built by the Kalamazoo Stove Company, of Kalamazoo, Mich.

No pipes except the smoke pipe are needed. One big register, in the floor of one of the main rooms, with the furnace directly beneath, delivers the warm air into the rooms where it circulates thruout the house, providing the connect-



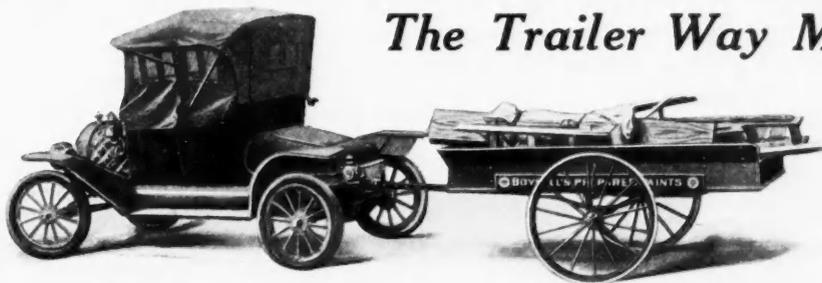
Cut-Away Section of House Showing Operation of Kalamazoo Pipeless Furnace.

ing doors are left open. If desired, cold air returns from the cold sides of the house may be connected back as shown in the accompanying illustration.

Does work of stoves, but in an easier and better way. Saves carrying fuel and ashes thru the house; makes only one fire to attend; saves job of setting up and taking down stoves in spring and fall; always ready for a quick fire on unexpected cold days in late spring and early fall.

The furnace can be easily and quickly installed in any home. Here is an excellent heating plant for the contractor or builder. If you are building a home on a contract recommend this type of furnace and please your customer more. If you are building homes on speculation, you can install this furnace at low cost and get more money for the building. Also make easier sales.

This furnace is but one of the many products manufactured by the Kalamazoo Stove Company. They also make stoves and ranges and gas ranges, and white enameled all metal Kitchen Cabinets and tables. Sold direct from factory at manufacturer's wholesale prices. Special catalogs mailed upon request.



The Trailer Way Makes Cars Pay

Hitch Your Car to a

Jackson Trailer

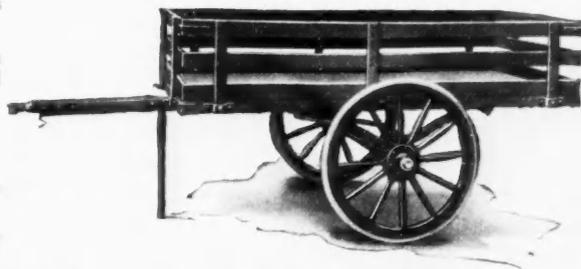
AND CUT YOUR CARTAGE COSTS IN HALF

Short, quick hauls are mighty important to the contractor. When you want material in a hurry, don't fume around, and waste time by waiting on a slow team, or a heavy motor truck.

Save time and money by hitching a Jackson Trailer to your automobile—and get there and back in a jiffy. The Jackson Trailer represents but a small fraction of the money invested in your car, and it increases beyond measure the service you can get out of it. The Trailer soon pays for itself in time—saving and convenience. It gives every advantage of a motor truck, at the same time permitting the original appearance and passenger capacity of your pleasure car.

And the Jackson Trailer takes care of itself on the road. It swings freely from side to side in turning corners; allows an up and down movement when driving over cross-walks, etc.; and allows a twisting movement to take up strains caused by ruts and depressions in the road surface.

Write now for our catalogs, and find how you can handle your emergency cartage problems in the quickest and cheapest way.



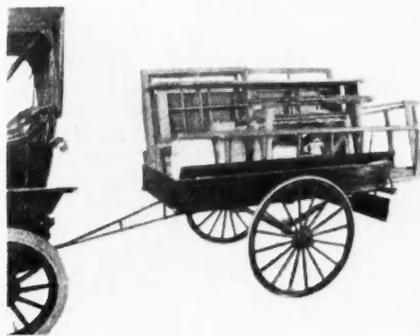
MILES MFG. CO.

309 Franklin St.

Jackson, Mich.

MANUFACTURERS OF

Automobile Trailers and Horse Drawn Vehicles



Our Auto-Trailer has been in use for over two years and they have given good satisfaction. We also build Trailers to your order.

Mr. Contractor: If you do not find the Defiance Auto-Trailer with your dealer, write us for full particulars, prices and terms.

THE DEFIANCE CARRIAGE COMPANY
Roedel Brothers, Props.
DEFIANCE, OHIO
N.B.—

Any Style Hitch you might need for your car.



Rear of Simplex Trailer showing it loaded with tile and building material.

Simplex Short Turn Trailer
"Simplex Follows the Trail"

No matter how short the turn, how bad the road, how heavy the load, "SIMPLEX" follows the trail. Honest construction, positively durable, easy running.

The best and most convenient trailer for conveying building materials, machinery, tools, equipments and supplies of all kinds. "Simplex" is an improvement over all other trailers and we can prove it.

Send for new 1916 literature.

Excellent proposition for dealers—if your territory is still open write or wire for details.

Simplex Short Turn Trailer Co.
1200 Mederian Street Anderson, Ind.

A BRAND NEW SIDE LINE

\$25 to \$50 a Week

For Builders, Carpenters, Repair Men

We want one good man in every town to sell and install a high grade Building Specialty needed in Residences, Flats, Apartment Houses and Hotels everywhere. Installations easily and quickly made. Every customer a permanent booster for you. Sales range from \$4 to \$100 with nearly 100% profit. Big demand. A genuine opportunity for you if you will just drop us a card right now before you forget.

THE TODD SALES COMPANY
122 North Seventh St., St. Louis Mo.

Sykes Acquires Garry Iron & Steel

The Sykes Metal Lath & Roofing Company, Warren, Ohio, announce that they have purchased the metal lath department of the Brier Hill Steel Company of Youngstown, Ohio, which was formerly operated under the name of the Garry Iron & Steel Co., at Niles, Ohio. This addition will make the Sykes Metal Lath & Roofing Company one of the largest manufacturers of metal lath in the world.

They will, for the present, continue to operate the plant of the Garry Works at Niles, in addition to their own plant at Warren, Ohio. They announce that the increased demand for Sykes Expanded Cup Lath "Self-Furring" has compelled them to increase their manufacturing equipment, which led to the acquisition of the Gary plant. As a result, they will be able to give their customers even better service than before as well as the benefit of a more complete line of metal lath.

The Sykes Metal Lath & Roofing Company are now able to furnish the following styles:

"A" grade Cleveland Expanded Metal Lath.

"B" grade Cleveland Expanded Metal Lath.

Garry Metal Lath.

Diamond Mesh Metal Lath.

Sykes Expanded Cup Lath "Self-Furring."

Sykes Trough Sheet Lath.

This concern can also furnish corner bead, wall ties, etc.

❖ "Duro" Shirts by Mail

A full assortment of shirts, Sox, ties, underwear, etc., is offered by Goodell & Co., Room 202, 158 East Thirty-fourth Street, New York City. Their catalog shows many bargains that will be interesting to many of our readers. Write for a copy.

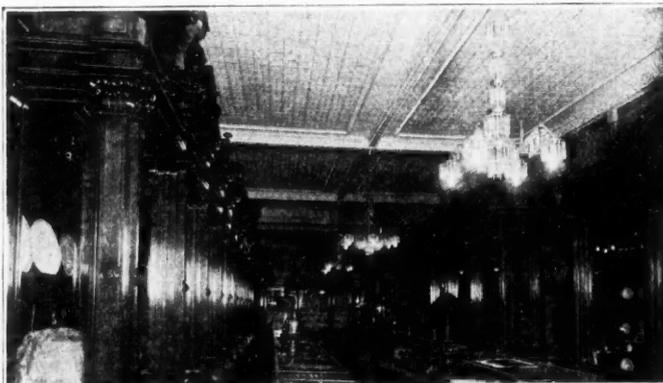
New "Classik" Ceiling Catalog

Berger's new "Classik" catalog No. 21, presenting new effects in stucco and Colonial designs, has just come from the press.

It is artistically printed on heavy coated white enamel stock, bound inside an attractively embossed cover.

Aside from the many beautiful illustrations of unique "Classik" patterns, additional interest is provided by picturing the interiors of theatres, churches, stores, lodges, etc., in which these ceilings have been installed.

This catalog gives much valuable information of a general character relative to the use and application of steel ceilings, as well as pointing out the many special features that characterize the "Classik" line.



A Modern Interior Finished with "Classik" Metal Ceiling.

A copy of this catalog will be sent to any architect, dealer or contractor of standing, upon application to the Berger Manufacturing Co., Canton, Ohio.

YOU Sell this Heater— The Buyer Can Install It

A new profit for contractors. Many houses in your locality can profitably use this new heater and do away with all the trouble, expense and inefficiency of stoves.

You can sell it, for new or old houses, because it is so simple that it requires no furnace expert to install it. Simply a smoke pipe, and a single register under main room, from which the furnace floods the whole house with heat. It has a strong appeal to farmers and owners of cottages and bungalows, because of its efficiency, low cost and ease of installation and operation. Does not heat cellar.



Write at once for Booklet and our Agency Proposition. It will show you an easy way to add good profits to your business, that you would not otherwise get.

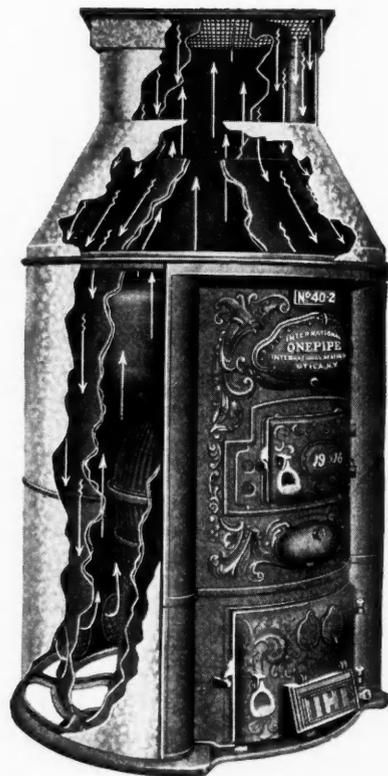
INTERNATIONAL HEATER CO.

Makers of the Largest Line of Heating Apparatus in America

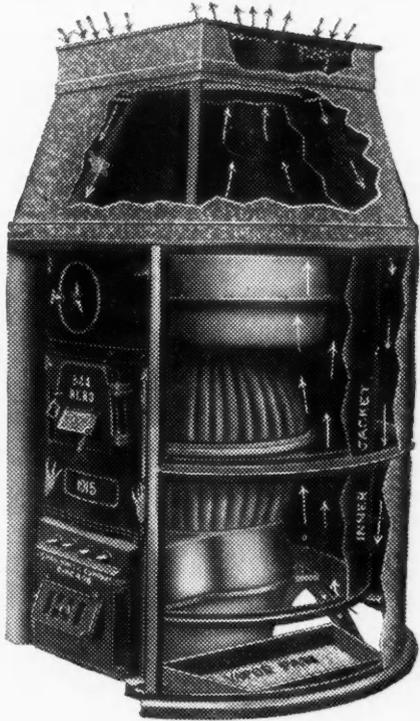
Wren St., UTICA, N. Y.

Heater is advertised in farm press and is guaranteed on 60-day trial basis. Complete directions for installing provided.

INTERNATIONAL "Onepipe" Heater



THE HERO PIPELESS FURNACE



HEAVY CAST IRON

Good for 20 Years

Let us help you with your

Heating and Ventilating

We make a complete line of warm air furnaces and room heaters.

Good commissions paid to Contractors and Builders.

CHAS. SMITH COMPANY

180 N. Dearborn St.

Chicago, Ill.

INVESTIGATE

WOLVERINE FURNACES and the **WOLVERINE SYSTEM** of Heating and Ventilating before you place your order on your next job.

We sell direct to you from our factory and at manufacturers' prices—furnace, registers, cold air faces, and all pipe and fixtures already cut ready to put together. Then we send our own mechanics to install complete if you are in our local territory. If not, we send complete plans and specifications that any good mechanic can follow.

WOLVERINE

furnaces are constructed on scientific principles which makes them durable and economical in fuel. Easy to clean and operate and sold under the most liberal guarantee ever given with heating apparatus. It costs you nothing to get our plans for your building and receive our written proposal.

Write for large 32-page illustrated catalog that describes and shows these furnaces. It is **FREE**, a postal card will fetch it. Ask for catalog No. 63.

MARSHALL FURNACE CO.

2 Dobbins St. Marshall, Mich.



GUARANTEE YOUR CUSTOMERS

To Cut Their Coal Bills $\frac{1}{2}$ to $\frac{2}{3}$

You can guarantee the Williamson New-Feed **UNDERFEED** to cut your customers' coal bills $\frac{1}{2}$ to $\frac{2}{3}$ —and we back you. Build business by recommending

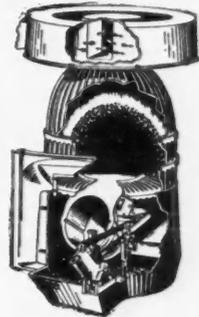
WILLIAMSON NEW-FEED UNDERFEED CUT COAL BILLS $\frac{1}{2}$ to $\frac{2}{3}$ Furnaces and Boilers

Over 35,000 enthusiastic users boost the **UNDERFEED**. Find out how you can guarantee it to save money for your customers.

Write for Full Details NOW

A postal brings you complete details. Don't delay; write today.

THE WILLIAMSON HEATER CO.
236 Fifth Ave., Cincinnati, Ohio



UNDERFEED Furnace

"Best" Stud Socket

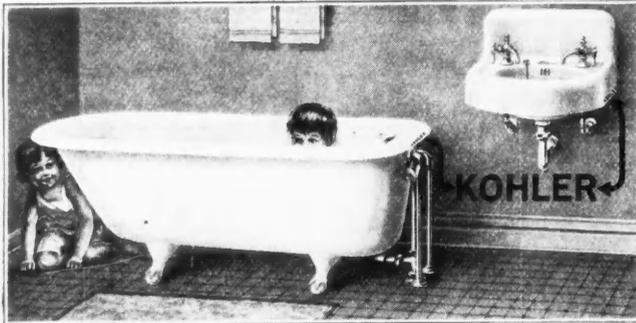
For **SHOPS, GARAGES, BARNs, CRIBS, SHEDS** and other buildings having concrete floors and foundations.

The "BEST" is simple and strong, easily set in the concrete, and studding quickly and securely fastened. **NO ROTTING SILLS** to undermine your building.

Sterling Foundry Co.
8 Avenue A
Sterling, Ill.



Write today for circulars concerning the Best Stud Socket.



"Colonna" Bath, Plate No. K-64
"Bretton" Lavatory, Plate No. K-580

KOHLER

Trade-marked, Enameled
Plumbing Ware
an expression of artistic
beauty

KOHLER BATHTUBS, lavatories
and sinks are modern and hygienic
in design.

THE PERMANENT trade-mark
in the enamel is our guarantee of
the highest quality and *your safe*
guide in selecting plumbing ware.

KOHLER ENAMEL is noted for
its pure whiteness. Houses and
apartments equipped with
KOHLER plumbing fixtures
have added value and attractive-
ness.

THE "VICEROY," our new one-
piece, built-in bathtub, is specially
low-priced due to manufacturing
economies. Its many attractive
features make it widely popular.

WRITE for the "Viceroy Book."

It describes this beautiful built-in
tub, which is made in patterns suit-
able for every installation.

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

International "Onepipe" Heater

The heating engineers who designed the "Onepipe" furnace say that the effective operation of this furnace depends on the insulation that is made between the return chamber and the hot air passage; it is absolutely necessary that the return passage be kept cool or the air will have no tendency to go down thru this passage.

The construction of the International "Onepipe" furnace as shown here is such that the coolness of the return space outside of the hot air passage is assured. The inner casing is made triple so as to provide the maximum amount of insulation. It is made up of galvanized iron, asbestos and tin. The corrugated tin is placed on the inside next to the hot air passage. Next to this is asbestos paper which is well known for its insulating power. The outer layer of the casing is made of galvanized iron which furnishes the strength necessary for the casing.

Another feature of the International is the smooth construction of the casing so that there are no dead corners to cause the waste of the heat. Considerable heat can be wasted on dead corners in heating the air that is contained in them. These corners also have a tendency to warm up the cold air return so that the circulation is interfered with.

The illustration shows the two layers of the inner casing which are separated by the layer of asbestos paper. The tin inner lining helps the asbestos in insulating the cold air passage.

The International Heater Company are offering a special proposition for men who will handle their furnaces. Details can be secured from the company by writing them at Wren Ave., Utica, N. Y.



The International "Onepipe" Heater.



The Answer to the Outside Painting Problem

The value of zinc as a paint pigment has been well known for some time. Only one objection has been made to it, and that was that zinc oxide was too brittle.

The makers of "Zinolin" state that they have overcome this last objection by the use of "Arnoldized Zinc." This is a zinc oxide that has been treated by the Arnold secret process so that the brittleness is removed. The Keystone Varnish Company have the exclusive right to this secret process and say that it does not affect the natural durability of the zinc in the least.

"Zinolin" is pure white in its original state, but it may be made any shade by the use of colors ground in linseed oil. Every tint is durable and will not fade when mixed with this paint. The paint is made by grinding it in linseed oil to a paste like consistency and one gallon of this paint is thinned with two gallons of linseed oil. The makers say that it has a wonderful covering capacity so that it is very seldom necessary to use more than two coats.

The makers of "Zinolin" also make the well known "Keystone" flat-finish wall paint. This paint dries entirely without a gloss and gives the soft effect that is so much sought after for interior finish. It looks like wall paper and yet it can be washed and will retain its uniform color indefinitely.

The Keystone Varnish Company, 2001 Keystone Bldg., Brooklyn, N. Y., have some very attractive booklets and color

(Continued to page 152.)

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KEWANEE

All-Steel Coal Chutes

For the use of the Contractor who wants to give his coal-room windows the best possible protection at the lowest cost.

Built entirely of steel with no cast iron or glass to break or get out of order. Easily installed in any building, old or new, and there is a profit for every one installed.

Write for Our Special Proposition to Contractors

Kewanee Manufacturing Co.
Kewanee, Illinois



MAJESTIC

Coal Chute

Protects the House and Lawn

It prevents the house, lawn, walk, flowers and shrubs from being littered up and ruined with coal dust and stray lumps. It minimizes depreciation on your home. When the chute is not in use for coal, a glass door serves as a window, giving splendid light to the basement.

Locks from the inside and is absolutely burglar proof

It is extra durable, has a heavy steel body—semi-steel door frame and boiler plate hopper. It will last as long as the building. Arrange for one when you build, or can be used in place of cellar window.

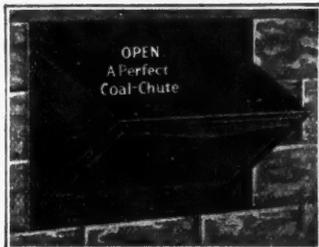
We make the Majestic in all types for houses, hotels, store and office buildings, apartments, etc. See them at hardware and building material dealers.

Architects and Builders Write for Catalog of Majestic Specialties—See Sweet's Catalog

The MAJESTIC CO., 610 Erie St., Huntington, Ind.

Manufacturers of Coal Chutes, Garbage Receivers, Milk and Package Receivers. All Metal Basement Windows, Rubbish Burners, Street and Park Refuse Cans, Metal Plant Boxes, Hose Reels, Pipe and Pipeless Warm Air Furnaces, etc.

The Window Chute



Ready for the Coal Man

For Your Coal Bin

The Window Chute is a selling feature for any Residence or Building.

**THOUSANDS IN USE---
THE VERY BEST**

**If You Build,
Buy, Own**

**Be up to date and
Have the World's
Best**

*Write for
Booklet C*



A Light Basement

HOLLAND FURNACE CO. :: Holland, Mich.

World's Largest Direct Installers of Furnaces.



Canton— Sidewalk Doors

Proof Against Accidents

There are no projections of any kind on which to trip or stumble, and the corrugated surface provides a firm foothold in all kinds of weather.

Canton Sidewalk Doors are made of the highest grade materials and will outlast the walk itself. The frame of the Canton is cast in one solid piece. The top is reinforced diamond plate steel, unequalled for durability, appearance and safety. When open it has stay rods and chains to protect the opening, and when shut it is absolutely burglar-proof.

And the price is attractive. Write for our catalogs of sidewalk doors—'B-17,' coal chutes—'B-4,' gratings, and Builders' Iron Work.

CANTON FOUNDRY & MACHINE CO.
Canton, Ohio

cards describing their products, which they will mail to any of our readers on request. A card to them will bring full information. They have many other paint and varnish products that the up-to-date builder should be familiar with, that are fully described in their literature.



The Kelly Concrete Mixer

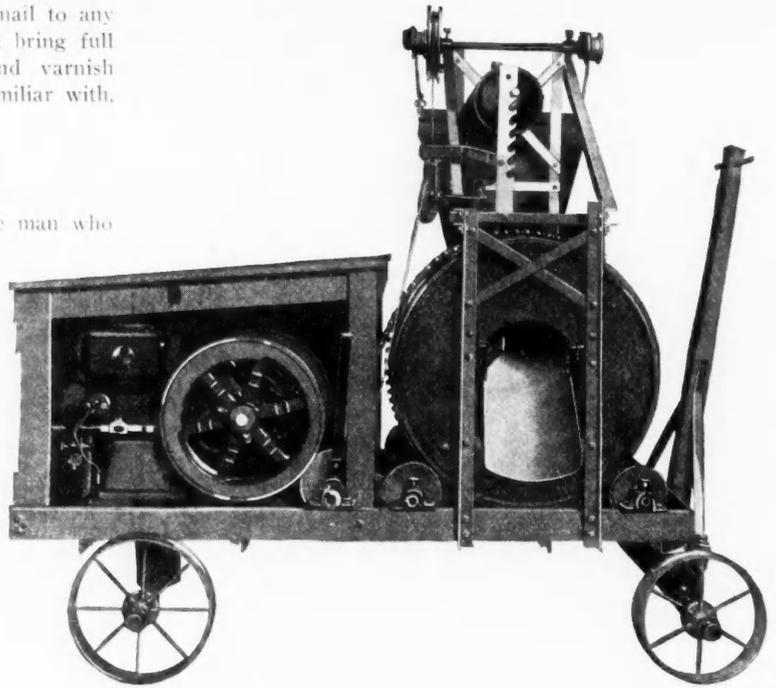
The best test of a mixer is satisfaction for the man who buys it. If the owners of a certain type of machine are more than satisfied with its work, prospective buyers can be fairly sure that the machine has all the good points that are claimed for it.

The makers of the Kelly concrete mixer have received so many letters from satisfied owners that they are making an exceptional offer to other contractors. They are sending their machine to contractors so that they can look it over and give it a trial, and if it is not satisfactory they will take the mixer back.

This method shows that the F. H. Clarke Manufacturing Company have a world of confidence in their product and that they are sure that it will be of value to the contractor.

One of the particular features of their machine is the magneto-equipped engine. This, the makers say, eliminates all battery troubles and gives the best of service.

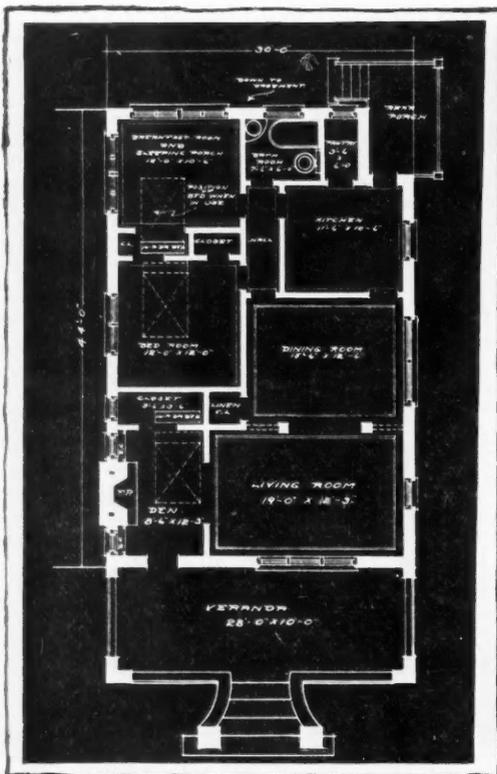
The company are offering this machine at a low price which they say is made possible by the eliminating of considerable salesman expense. They leave the final judgment entirely in the hands of the buyer, which is an indication of the confidence the makers have in their machine.



View Showing Strong Construction of Kelly Mixer.

Their circular matter gives many points of interest in connection with the Kelly mixer.

Copies of this circular and details of their proposition can be secured by writing to this concern at 10719 Superior Ave., Cleveland, Ohio.



Eight ROOMS
for the
Cost of Six

This plan shown exactly how you can get eight-room efficiency out of six-room space, by installing

MURPHY IN-A-DOR BEDS

You not only save the cost of building extra rooms; you save the expense of heating and decorating them—the estimated saving in building cost alone is about \$1400.00. The house is more efficient than if you had gone to the extra cost. Your client's housework is largely reduced. They *save* on their furniture investment.—They *save* on their coal and light bills and yet have the same living comforts of a much larger home.

One of the features of this particular plan is that one of the beds can be used either in the bedroom or on the sleeping porch as desired, or an ordinary bed can be placed in the bedroom and the Murphy In-A-Dor bed used only on the sleeping porch.

Send in this coupon for full information about In-A-Dor Beds.



A. C. B.
April, 1916.

Murphy Door Bed Co.
824 Westminster Bldg.,
Chicago, Ill.

Gentlemen:
Please send full information.

Name.....
Street.....
Town..... State.....

MURPHY DOOR BED CO.

Westminster Bldg., Chicago, Ill.
Leader News Bldg., Cleveland, O.

Chemical Bldg., St. Louis Mo.
Glendale Bldg., Kansas City, Mo.



PATENTED

We Want One Man

in every town to handle the

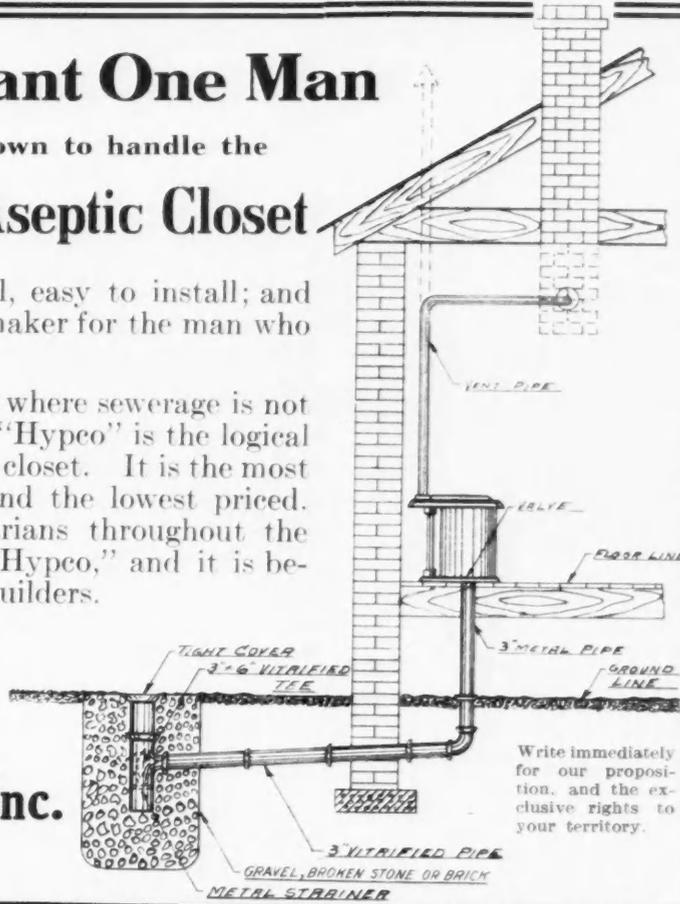
"Hypco" Aseptic Closet

Easy to sell, easy to install; and a big money-maker for the man who handles it.

In buildings where sewerage is not available, the "Hypco" is the logical and necessary closet. It is the most widely endorsed, the most sanitary, and the lowest priced. Prominent health officials and sanitarians throughout the country are greatly interested in the "Hypco," and it is being demanded by conscientious home builders.

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.

Hygienic Promotion Co., Inc.
DETROIT, MICH.



Write immediately for our proposition, and the exclusive rights to your territory.

In every summer cottage you build

—you can install, at a profit, a

Ro-San Indoor Closet

Every building—home, cottage, store or office—that has no sewer connection needs this modern sanitary indoor closet. Absolutely odorless. Act as our agent—this fixture sells easily to your customers—good profit. Hundreds of carpenters represent us. We also distribute through builders the

Ro-San Washstand
Provides Running Water, Hot or Cold, Without Plumbing. Every housewife wants one. Convenient, sanitary. Sells readily with little effort. Carry this work along with your regular business. Ask for terms to agents.

Rowe Sanitary Mfg. Co., 480 Rowe Bldg., Detroit, Mich.

Absolutely Odorless

Link Up With Our Success and Take Your Profits

Every home in which you install the

Kaustine Closet System

increases a hundred dollars in value

Why can't YOU do what Mr. Pharis is doing?

Mr. Pharis, contractor agent of Saginaw, Mich., 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 home."

No Sewer—Water or Cesspool Needed

Kaustine is actually the only successful Waterless Indoor Toilet on the market today. Brings sanitation, comfort and neatness of city toilet to unsewered districts. Endorsed by health authorities the States over.

Thousands of public and private buildings now equipped. Send for **Special Builders' Offer**—and get your share of the profits on the new installations.

Clip the Coupon NOW and mail it today to the

KAUSTINE CO., Inc.
Dept. 1138, Buffalo, New York
Also
C. P. R. Building, Toronto, Ont.



Kaustine Co., Inc.
Dept. 1138, Buffalo, N. Y.

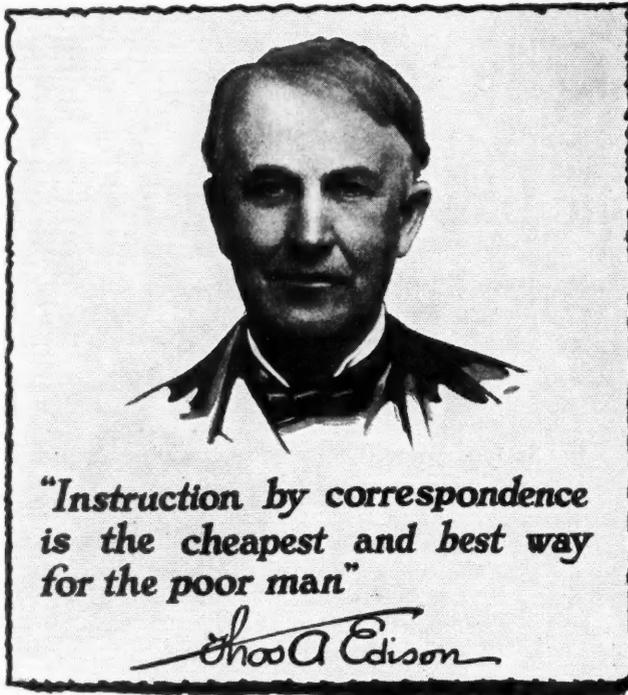
Send me at once Special Builders' Offer and Special Booklet marked X below.

- Factories
- Schools
- Churches
- Workmen's Homes
- Suburban Homes
- Summer Residences
- Name
- Address

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



Edison is Right!!!

You admit the International Correspondence Schools are a good thing. You'd take a course right now "if"—"except"—

"If" what? If you weren't so "overworked," with such "long hours," or had more strength and energy?

Wasn't it Edison who stayed up half the night to educate himself in spite of every handicap you could ever have?

All big men who have made their mark in the world had the *ambition*—the *determination*—to improve their spare time, to train themselves for big work. You, too, can possess power, money and happiness if you'll only make the effort. The reward is great—it's worth it.

Here's all we ask: Merely mail this coupon. Put it up to us without paying or promising. Let us send you the details of others' success through the I. C. S., and then decide. Mark and mail this coupon now.

INTERNATIONAL CORRESPONDENCE SCHOOLS
Box E-8129 Scranton, Pa.

INTERNATIONAL CORRESPONDENCE SCHOOLS
Box E-8129 SCRANTON, PA.

Explain, without further obligation on my part, how I can qualify for the position before which I mark X

<input type="checkbox"/> ELECTRICAL ENGINEERING	<input type="checkbox"/> ADVERTISING
<input type="checkbox"/> Electric Lighting	<input type="checkbox"/> Window Trimming
<input type="checkbox"/> Electric Railways	<input type="checkbox"/> Show Card Writing
<input type="checkbox"/> Electric Wiring	<input type="checkbox"/> Lettering and Sign Painting
<input type="checkbox"/> Telephone Expert	<input type="checkbox"/> ILLUSTRATING
<input type="checkbox"/> MECHANICAL ENGINEERING	<input type="checkbox"/> DESIGNING
<input type="checkbox"/> Mechanical Drafting	<input type="checkbox"/> BOOKKEEPING
<input type="checkbox"/> Shop Practice	<input type="checkbox"/> Stenography and Typewriting
<input type="checkbox"/> Gas Engines	<input type="checkbox"/> Higher Accounting
<input type="checkbox"/> CIVIL ENGINEERING	<input type="checkbox"/> Railway Accounting
<input type="checkbox"/> Surveying and Mapping	<input type="checkbox"/> Commercial Law
<input type="checkbox"/> MINE FOREMAN AND SUPT.	<input type="checkbox"/> GOOD ENGLISH
<input type="checkbox"/> Metal Mining	<input type="checkbox"/> Teachers Course
<input type="checkbox"/> STATIONARY ENGINEERING	<input type="checkbox"/> English Branches
<input type="checkbox"/> Marine Engineering	<input type="checkbox"/> CIVIL SERVICE
<input type="checkbox"/> ARCHITECTURE	<input type="checkbox"/> Railway Mail Clerk
<input type="checkbox"/> Building Contractor	<input type="checkbox"/> AGRICULTURE
<input type="checkbox"/> Architectural Drafting	<input type="checkbox"/> POULTRY
<input type="checkbox"/> Concrete Engineering	<input type="checkbox"/> Textile Manufacturing
<input type="checkbox"/> Structural Engineering	<input type="checkbox"/> Navigation
<input type="checkbox"/> PLUMBING AND HEATING	<input type="checkbox"/> Chemistry
<input type="checkbox"/> Sheet Metal Worker	<input type="checkbox"/> AUTO RUNNING
<input type="checkbox"/> SALESMANSHIP	<input type="checkbox"/> Motor Boat Running
	<input type="checkbox"/> Spanish
	<input type="checkbox"/> German
	<input type="checkbox"/> French
	<input type="checkbox"/> Italian

Name _____
 Present Occupation _____
 Street and No. _____
 City _____ State _____

"Northwestern" Sales Manager Visits the West

Mr. Walter H. Kestin, Sales Manager of the Concrete Machinery Department of the Northwestern Steel and Iron Works, Eau Claire, Wis., represented his company at the Tenth Annual Middle West Cement Show, held under the auspices of the Middle West Cement Users' Association at Omaha, February 29 to March 4.

An exhibit of the well-known "Northwestern" line of concrete mixers and concrete tile forms was made.

Mr. Kestin's aggressive personality makes him a good "mixer" as well as a good mixer salesman.

The "Northwestern" line, particularly the 5-foot mixer, is attracting an unusual amount of interest, and it is reported that sales are being made in large volume.



Self Acting Barn Door Fastener

It is as important to fasten a swinging barn door open as it is to fasten it shut. If the door can swing back and forth it will not take very long to break the hinges so that the door will sag down. The best kind of a latch for this purpose is one that fastens automatically when the door is swung open.



The D. A. D. Latch

The latch shown here operates in this way. The point "C" catches in one of the wire clips when the door is closed and the point "B" engages the other wire clip, which is fastened on the side of the barn when the door is open. When the door is locked shut it can be opened from the outside by means of the handle marked "A." A wire can be placed thru the hole in the part "C" and run along the door so that the door can be shut from inside the building.

This latch is made by the D. A. D. Latch Company, Manchester, Iowa. They are making a special introductory offer of this latch to our readers. Details can be obtained from their advertisement on another page of this issue or from the makers direct.



A Large Exhibit of Low Charging Mixer at the Cement Show

The illustration on page 156 shows not only the largest but the only exclusive exhibit of low-charging mixers at the Cement Show. Six machines from 3 ft. capacity up to 16 ft. mounted on trucks with gasoline engines were on display.

Both "The Standard" and "SSS" type of mixers were shown, the former were all equipped with folding platform which, with the low-charging open drum, the thoro mixing device, semi-automatic discharge with the simple construction throughout are the particular features of this low-charging design.

Two new sizes were shown in the "SSS" Mixers, one being the new low priced machine having capacity of 9 cu. ft. of unmixed materials mounted on truck and equipped with gasoline engine, the complete outfit weighing only about 1,800 pounds. This is the new machine having a capacity of one bag batch up to 1:3:5 mix.

The other new size is also mounted on truck, with 4 Hp. gasoline engine, housed, this machine will take care of any one-bag batch up to 11 cubic feet of unmixed materials. It is also sold at a very low price, considering the capacity and quality of the outfit.

All of "The Standard" machines exhibited were equipped with belt drive and floating idler; this drive has been brought

(Continued to page 156)

MYERS GIANT TUBULAR AND STAYON



EACH SET
PACKED IN
ATTRAC-
TIVE INDI-
VIDUAL BOX



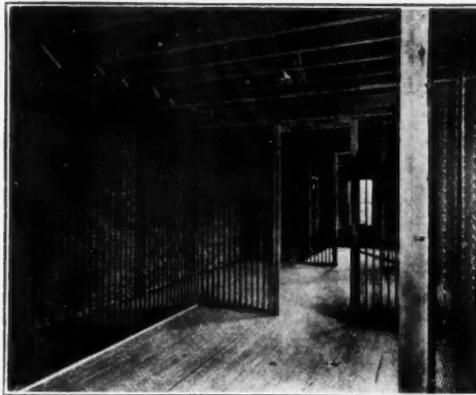
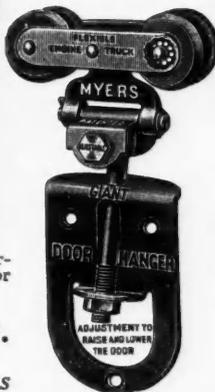
Most styles of Myers Door Hangers are adjustable (up and down, in and out) and are also flexible permitting doors to pass over uneven surfaces on the buildings without binding. The large rollers, equipped with hard steel roller bearings, insure easy operating door-ways. The Myers Giant Hangers can be used with the Giant Tubular Girder Track or with the covered, storm proof Hercules.

Write for Booklet, showing eleven different styles of Myers' Hangers suitable for barn, garage and warehouse doors.

F. E. MYERS & BRO.
Ashland, Ohio
ASHLAND PUMP and HAY TOOL WORKS

The Best Hangers To Hang To

This year promises to be a big one for the building trades. Continued prosperity means more money for improvements. Many new buildings will be erected and many old ones will be repaired. This will mean an unusually large demand for **MYERS HAY TOOLS AND DOOR HANGERS.**



Bowers Sanitarium, Lancaster, Pa.

Architect, H. M. Barthelmeu.

Contractor, L. V. Wright.

Self-Sentering Partitions.

For Economical Partitions

Self-Sentering solid partitions in wood framed, steel framed or concrete buildings save material and labor and take much less space than other types.

Self-Sentering

(You'll know it by its Diamond Mesh)

Acts as both lath and stud. It's plastered up on both sides alike to a total thickness of only 2 or 3 inches. Yet partitions are firm, fire-proof and permanent.

Self-Sentering is rigid and easy to handle, economical to plaster.

Note how simply Self-Sentering partitions are adapted to wood frame as shown above.

The "Fireproofing Handbook," full of helpful designs, specifications and illustrations about fireproof building will be sent on request.

The General Fireproofing Company
6004 Logan Avenue Youngstown, Ohio

Our Free Plans Will Help You—

Meadows
TRADE MARK REGISTERED

Don't figure on any crib or granary without consulting our Free Plans. They will show you how to get greatest capacity at least expense by installing **Meadows Inside Stationary Cup Elevators.**

The most convenient and economical elevators, carrying small grain as well as ear corn.

The picture shows a 40-foot Crib. Cupola need not be as large as shown in picture; and cribs 36 feet or less in length with half-pitch roofs require no cupola.

Elevator is confined to one side of driveway. No pit is necessary for dumping grain. Just a hole 16 inches deep in to which boot of elevator is set. The wagon jack is entirely overhead, fastened to the joists.

But write in today for our free Crib and Granary plans, catalogs and large posters telling all about our outfits and their application. Valuable information for the builder, and writing for it obligates you in no way.

Meadows Mfg. Co.
Pontiac, Illinois





Exhibit of Standard and S. S. S. Low-Charging Mixers at Chicago Cement Show.

out in the last year or two and is especially desirable, the makers say, as the belt drive is not only simpler than friction clutch drive, but absorbs all the jar from the mixer, and it is not carried back to interfere with the engine.

It is interesting to note that the first low-charging open-drum mixer was exhibited by The Standard Scale & Supply Co., in the Cement Shows in 1909, and ever since the same low-charging design has been shown or exhibited in the same

offices, branch houses and warehouses in New York, Philadelphia, Baltimore, Cleveland and Chicago, and have representatives carrying stock in all sections, including Boston, Hartford, Providence, Albany, Cincinnati, Detroit, Louisville, Minneapolis Omaha, St. Louis, Kansas City, Dallas, San Antonio, Salt Lake City, Phoenix, Los Angeles, San Francisco, Portland, and Toronto and Halifax, Canada.

location of the Annex as this year. The Standard Company are said to be the only manufacturer that has exhibited continuously during all this period.

One of the signs displayed called attention to the fact that about one-third of the mixers exhibited in last year's show had been discontinued or dropped out. This percentage of change has been maintained at nearly every show. The practical contractor will appreciate the importance of buying machinery and equipment from an established manufacturer so that duplicate machines, parts or repairs can be secured at any time.

Another sign called attention to the fact that the same machines can be used for mixing mortars or plasters as well as concrete. This is particularly important to the building contractor.

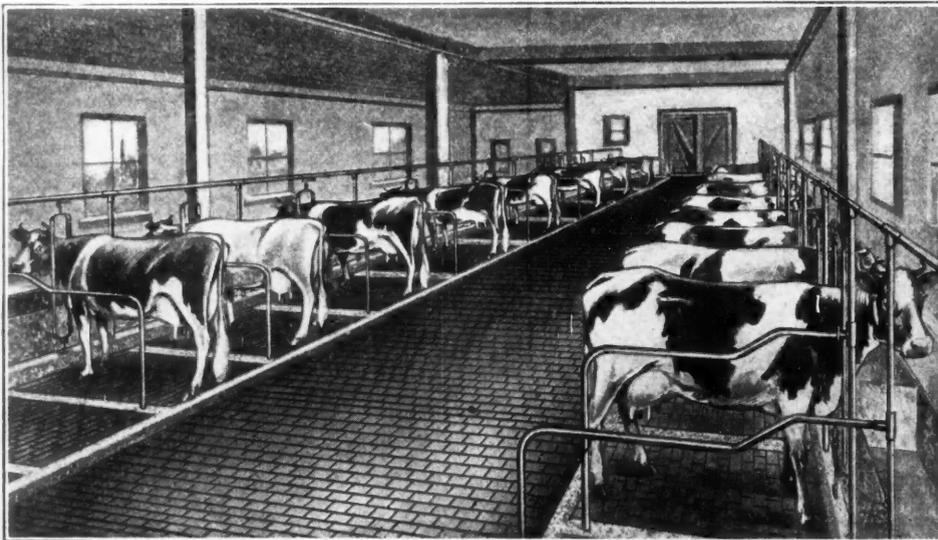
Another important point is brought out in a sign calling attention to the fact that the machines were not an experiment, but that the same general design was still used after many years of practical experience.

The Standard Scale & Supply Co., of Pittsburgh, manufacturers of "The Standard" and the "SSS" Low-Charging Mixers, have

SANITARY **LINWAX** FLOORS Are Wear Proof

They are more sanitary than cement; more comfortable than plank; positively antiseptic and as restful to hoof and limb as natural turf.

Made of enduring wood in which everything that can possibly rot is destroyed by a scientific process that makes Linwax Floors practically everlasting. They are so rich in germicidal properties that no germ, insect, vermin or wood worm can live and breed.



Linwax Floors are the cheapest in the end. They will outlast the building.

The wise farmer will welcome such a floor. It is what he has wanted for years. You should be the first builder to suggest Linwax Floors to him. It will be the big point in your plans.

Write for our Builders' Catalogue and proposition today while the thought is free in your mind.

LINWAX MFG. CO.
INDIANAPOLIS, IND.



**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



THE rich, artistic effects which were the feature of ancient Greek architecture are possible today. They may be easily achieved with concrete and stucco, finished with

Bay State *Brick and Cement* Coating

It gives a dull surface in white and attractive tints, but doesn't hide the distinctive texture of concrete. Bay State Coating, the *original*, also weatherproofs the walls. Architects and builders in all parts of the country have been using it for sixteen years. To realize the full possibilities of concrete for homes and bungalows, find out what Bay State Coating will do.

Trial Can Free—just write for it, specifying what tint you prefer. Ask for booklet 30.

WADSWORTH, HOWLAND & CO., Inc., Boston, Mass.
Paint and Varnish Makers

**A Free Book of Money-Saving
Ideas for Dairy Barn Builders**



You will be interested in reading "The James Way." It tells many of the things learned by W. D. James—America's foremost dairy barn designer. It will help you make more money.

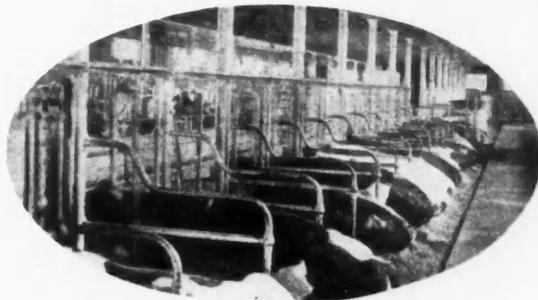
It tells about the new plank frame construction, the best system of ventilation, perfect lighting, proper width and arrangement. It tells about stable floors, site, size, appearance, design, drainage and equipment. And it shows four floor plans of barns that have attracted widespread attention.

You can obtain a copy of this valuable, helpful book **free**. Merely answer these few questions and the book will come by return mail. For whom do you expect to build or remodel dairy barns? (Give names and addresses.) When? For how many cows? Address

JAMES MANUFACTURING COMPANY
8675 Cane St., Fort Atkinson, Wis.; Elmira, N. Y.

**Special Offer
of Blue Prints**

Mr. James wants to make you a special offer of complete working blue prints of modern dairy barns of different sizes and types. Also ask how to secure free help from our architectural department. Write today.



The well-known Jenningshurst Stock Farm, Towanda, Pa., is equipped with our

Sanitary Barn Equipment

Selected because the New Modern Equipment is made to meet all modern requirements in the best possible way. Thousands of other satisfied barn-owners throughout the country testify to the success of our equipment.

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 Street ATTICA, N. Y.



If Cement Roads Need Expansion Joints Like These—

Then Cement Stuccoed Houses Should be Treated The Same Way and Would Look Like This—

To overcome the buckling and cracking in a stucco made of Portland cement or similar ingredients, it would be necessary to use expansion joints, just the same as in building a road made of cement. So much greater would be the need because of the comparative thinness of stucco. Even then you could **never be sure** of avoiding breaks and cracks. But if you use

KELLASTONE

IMPERISHABLE STUCCO

you can be **assured** that the stucco applied will be free from the cracks, buckling, loosening and falling caused by expansion and contraction. This is because Kellastone does not expand or contract from change of temperature or stress. Yet it is remarkably elastic, and adheres so firmly to wood, brick, stone and tile that shrinkage from window and door casings never occurs. It is weatherproof, fireproof, everlasting. It's the only stucco that permits you to run no chances with your reputation. Kellastone is used by the U. S. Government and big institutions everywhere.

Kellastone Composition Flooring surpasses any other flooring material. Resists abrasion even under great weight, deadens noise, has no seams or cracks, never shrinks. Lasts indefinitely. Used in factories, office buildings, hospitals and homes, etc.

*Send postal for free illustrated facts today about
Kellastone and Kellastone Composition Flooring*

National Kellastone Co.

504 Association Bldg.

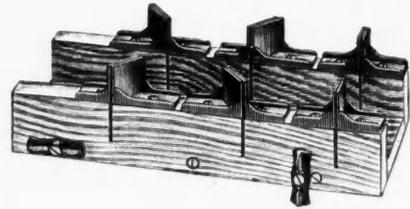
Chicago, Ill.

Kellastone Mfg. Co., 412 Union Oil Bldg., Los Angeles, Cal
Licensed Distributors for Southern California



Olmsted's Improved Mitre Boxes

If you ever have trouble with your mitre box, write H. L. Olmsted's Son, Hasbrouck Heights, N. J., and ask him to tell you about his boxes made with hardwood frame and iron saw guides. Those who prefer a mitre box made of wood



The Construction of Olmsted's Improved Mitre Box.

will find these iron guides a great help. They make the box last five times as long, and keep it accurate all the time. The illustration shows one of the styles offered.

Mr. Olmsted also has a universal mitre box made of iron and steel. If you don't know about the Olmsted mitre box, you ought to.



A High Grade Low Priced Cupola

Now is the time of year when the new buildings are being considered for the farm, and the builder must have a good line on all the various accessories that are needed for these new and improved buildings.

Ventilators and cupolas are among the many important parts of barns and farm buildings that will be needed as the new buildings are constructed and the old ones arranged to be more modern. Ventilators can be either put on new or old buildings, and in either case will be an important factor in improving the sanitary conditions and consequently improving the health of the farm animals.



The Pleasing Appearance of "O. K." Cupolas is Shown Here.

"O. K." Cupolas have several good features that will recommend them to the builder. They are very strongly constructed and will give good service because of this. They are handsome in appearance and will dress up any building on which they are placed.

It is made bird, rain, snow and wind proof and all the materials used in its construction are rust proofed.

Philip Bernard & Co., 2400 Floyd Ave., Sioux City, Iowa, are the makers of "O. K." cupolas. Builders and contractors who are interested in this line can secure a description of their offer to builders by writing to them at this address.



"The Concrete Dope Book" for Contractors

A new departure in catalogs is shown in the new "Concrete Dope Book" that has been prepared by the Cement Tile Machinery Company and is now ready for distribution. About half this book is devoted to descriptions and specifications of "Winner" mixers, and the other half takes up the problems of the concrete contractor and gives costs and methods on various kinds of work.

A considerable part of this information is in the form of tables that deal with the amounts of various materials used for certain classes of work while other tables take up costs on the average job. The tables of the quantities of materials needed are particularly valuable to any man in the contracting or building business as they enable him to make accu-

(Continued to page 160.)

SERVICE
that which identifies
PORTER BARN EQUIPMENT

THE BUILDING SEASON IS HERE

Mr. Contractor—are you fully prepared to handle those new and remodeled barns in your vicinity?

Remember, the **PORTER FREE PLANNING DEPARTMENT** is always on the job and can render practical assistance any time you ask for it.

Let's have the names of farmers who will build, and then get together and give them real value for their money.

Ask for our complete catalogue and thus obtain a better idea of the simplicity and durability of **Porter Barn Equipment**.

J. E. PORTER COMPANY

620 Fremont Street

OTTAWA, ILL.



Some Details of Truss Construction

You will find many helpful barn illustrations, with descriptions that everyone can understand, in the

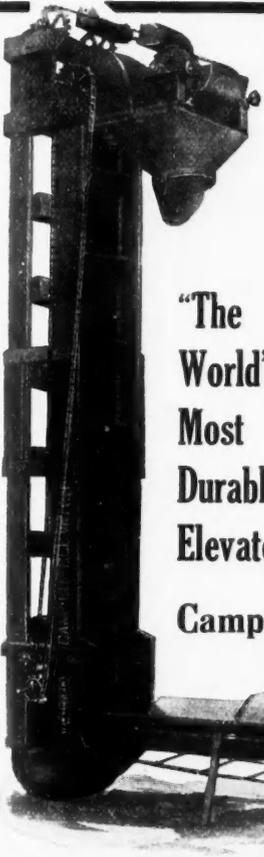
Louden Barn Plan Book
SENT FREE TO
CARPENTERS and BUILDERS

51 representative designs of cow barns, horse barns, combination barns, hog houses and other farm buildings, with full description and estimated cost of each.

194 drawings, plans and photographs illustrating every phase of barn construction. **Not a catalog.** A book of valuable, practical information, which you'll appreciate—and it's free.

Write for it today—no obligation.

THE LOUDEN MACHINERY CO.
5503 Court St., Fairfield, Iowa



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"

—two Bits for the Price of One



For every Caldwell High Speed "Z" Twist Auger Bit ordered (from this advertisement) at prices shown, an extra bit will be given free (not exceeding in value the amount of your order), or an order for a 4-16 bit at 35c will entitle you to a 16-16 worth 65c. An order for one dozen will give you an extra dozen free, etc. We are making this offer to introduce our bits to you direct, but are forced to limit the offer to

30 Days Only

Every user of auger bits will realize that this is an exceptional offer and will be quick to take advantage of it.

So order now before the orders pile up. Either write now, or tear this ad out, and put it where you won't forget it. You will never forget a Caldwell after you have once used one. The point and the twist are "unforgettable." Order by size.

Regular	4	5	6	7	8	9	10	11-12	13-14	15-16	—16ths
Prices	30	35	35	38	40	45	50	55	60	65	—cents

Sets of 13 Bits in canvas roll, \$5.50

The Caldwell Auger Bit Co.
LEBANON, N. H.

rate estimates in the shortest time possible. Quantities are much the same for any class of work in all parts of the country, while costs tables have to be changed to suit local conditions. The arrangement of the cost tables will, however, be of value and in many cases will probably fit local conditions very closely.

The concise, compact arrangement of the tables shown also adds to the usefulness of this booklet. All the material is thus readily accessible and can be found quickly when needed.

Descriptions and illustrations are given of the various styles and sizes of "Winner" mixers. The descriptions are arranged in the form of a specification to show the construction, power, capacity, etc., of their machines.

Every contractor should have a copy of this booklet for a help in estimating and we would advise our readers to write for a copy which will be sent on request. The address of the Cement Tile Machinery Company is 449 Rath St., Waterloo, Iowa.



New Model Hypco Aseptic Closet

The accompanying installation diagram shows a new type of chemical closet as offered by the Hygienic Promotion Co., Inc., Detroit, Mich. It is a modification of their well known Hypco Aseptic Closet and is known as Model No. 2.

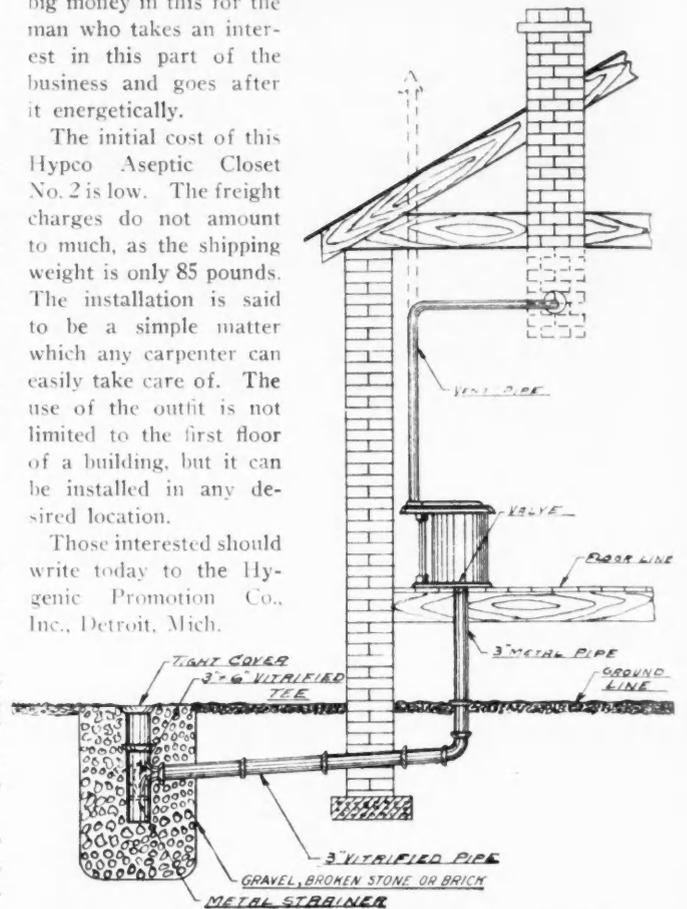
The distinguishing feature of this outfit is that it provides for final disposal of the contents of the closet outside of the building by simply opening a valve. A filter bed formed of broken stone receives and disposes of the digested contents. This means a great convenience for the owner, and will make this outfit extra easy to sell.

Builders operating in rural communities where there are no sewers should be able to include one or more of these outfits in every plan. The Hygienic Promotion Co. make a very liberal discount to carpenters and builders, so there should be

big money in this for the man who takes an interest in this part of the business and goes after it energetically.

The initial cost of this Hypco Aseptic Closet No. 2 is low. The freight charges do not amount to much, as the shipping weight is only 85 pounds. The installation is said to be a simple matter which any carpenter can easily take care of. The use of the outfit is not limited to the first floor of a building, but it can be installed in any desired location.

Those interested should write today to the Hygienic Promotion Co., Inc., Detroit, Mich.



House Section Showing Hypco Aseptic Closet Installation.

Here is the Weatherproof Cannon Ball Barn Door Hanger—

Here's the hanger that appeals to every consumer who sees it. It is a big step in advance and is setting a new sales mark.

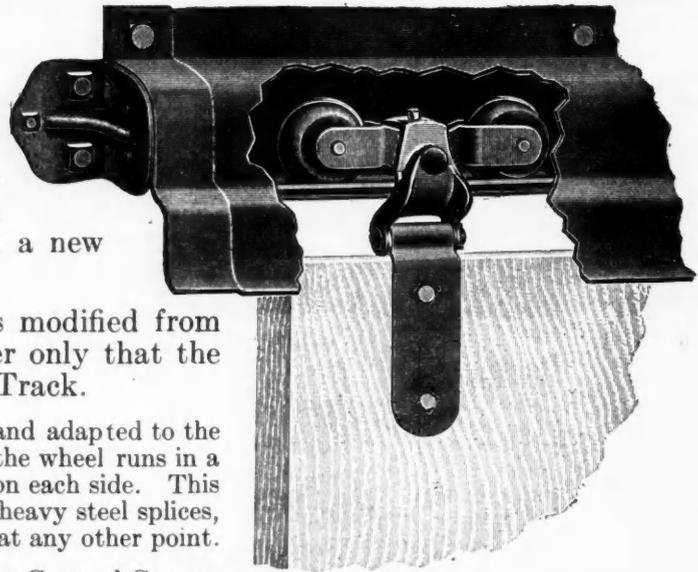
The tandem and flexible hanger is modified from the old reliable Cannon Ball Hanger only that the stirrup is shaped to conform to the Track.

The track is our latest design, is V-shaped and adapted to the Cannon Ball Hanger wheel. The bead of the wheel runs in a groove and the wheel has an even bearing on each side. This track is made of heavy steel provided with heavy steel splices, making it just as strong at the splices as at any other point.

The cover is the same identical cover used on Covered Cannon Ball Track construction and is the only perfect track cover obtainable, since it not only completely encloses the Hanger and Track but also extends down below the top of the door and makes a tight closure.

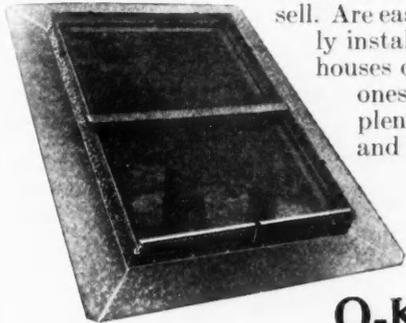
We also call attention to the fact that Weatherproof Cannon Ball Hangers are equipped with a Track Cleaning device which automatically removes obstructions of any kind from the groove of the Track, making it self-cleaning.

HUNT, HELM, FERRIS & CO., 304 Hunt St., Harvard, Ill.



Quick and Easy Profits

Every carpenter and builder can make **big profits** by recommending and installing **O-K Sunshine Windows** for hog houses. Every farmer wants them. They are easy to sell. Are easily and quickly installed in old hog houses or built in new ones. Hogs need plenty of sunshine and the **O-K Sunshine Windows** solve the problem.



O-K Sunshine Windows

are made with a galvanized iron frame and a four-inch flashing on all sides. They are absolutely water-tight and will last a lifetime. Glass is protected by a wire screen. No putty necessary.

Get these easy profits. Write for full particulars and our special proposition to you. Don't wait—write today.

Phillip Bernard Company

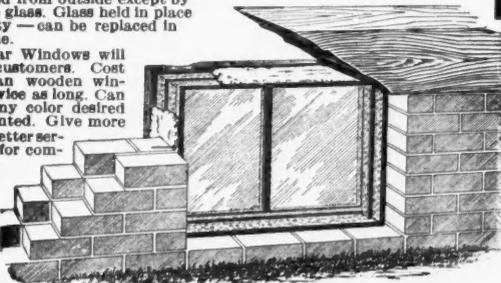
2810 Floyd Avenue - Sioux City, Iowa

Famous Chief Cellar Windows Will Not Stick, Warp or Rot

The solution of the cellar window problem—a modern, 20th Century Cellar Window made right for service. Made of steel-window, casing and all. No rotting, shrinking or swelling. Fits perfectly all the time. Trouble proof, easy to open and close, leak-proof and fire-proof. Will not rust. Nothing about it to wear out. Fitted with special, inside steel latch—cannot be opened from outside except by breaking the glass. Glass held in place without putty—can be replaced in minute's time.

Chief Cellar Windows will please your customers. Cost no more than wooden windows—last twice as long. Can be painted any color desired or left unpainted. Give more service and better service. Write for complete description, prices and terms.

SHRAUGER & JOHNSON
420 Walnut St
Atlantic, Iowa



HIPPED TURRET SKYLIGHT



with swinging sash. Size 24" high; all windows on each side made to open at the same time. Operating device securely 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.



Residence of Geo. W. Elkins, Elkins Park, Pa.
Horace Prumbauer, Philadelphia, Architect

First Choice of Architect and Builder

Every architect or builder appreciates the value of scientific refrigeration. They are giving the refrigerator question the attention it demands for every building that calls for the storage of fresh foods. Investigation of the most efficient refrigeration system will lead you to endorse and recommend the

McCray Refrigerator

For thirty years the McCray has been used in the best residences, hotels, clubs, restaurants and Public institutions. It was chosen by the U. S. Government for use in the U. S. Pure Food Laboratories and other government institutions, and is recognized as the Standard of Refrigerator Superiority.

The McCray Patented System of Refrigeration keeps a current of cold, dry pure air continually circulating. The "snow-white" linings of Opal Glass and Solid Porcelain are sanitary and easily cleaned.

McCray Refrigerators come in all stock sizes or are built-to-order for every requirement of Residences, Hotels, Clubs, Restaurants, Florists, Grocers, Public Institutions, Hospitals, Markets, etc.

Suggestions and Plans Sent Free to Architects and Builders

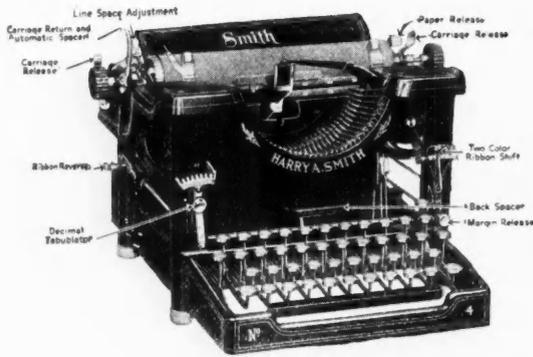
Get These Catalogs For Your Files

No. 92—Regular Sizes for Residences No. 70—For Grocers
No. 61—For Meat Markets No. 74—For Florists
No. 50—For Hotels, Clubs, Institutions

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



The McCray Refrigerator installed in the Elkins Residence



TYPEWRITER SENSATION!

Free Trial—Use as You Pay

Send Me Only \$2.00 a Month Until the Low Total Price of \$34.15 is Paid, and the Machine is Yours

This is absolutely the most generous typewriter offer ever made. Do not rent a machine when you can pay \$2.00 a month and own one. Think of it—Buying a \$100.00 Typewriter for \$34.15. Cash price, \$32.30. Never before has anything like this been attempted.

Standard Visible SMITH Model No. 4

Perfect machines, Standard Size. Keyboard of Standard Universal arrangement, 42 keys writing 84 characters—universally used in teaching the touch system. The entire line of writing completely visible at all times, has the Decimal tabulator, the two-color ribbon, with automatic reverse, the back spacer, ball bearing carriage action, in fact every late style feature and modern operating convenience. Comes to you with everything complete, tools, cover, operating book and instructions, ribbon, practice paper—nothing extra to buy. **You cannot imagine the perfection of this beautiful typewriter until you have seen it. I have a thousand of these perfect late style Model No. 4 typewriters at this bargain price, and each purchaser fortunate enough to secure one of these beautiful machines must try it out in home or office before deciding to buy.** I will send it to you F. O. B. Chicago for five days' free trial. It will sell itself, but if you are not satisfied that this is the greatest typewriter bargain you ever saw, you can return it at my expense. You won't want to return it after you try it—you cannot equal this wonderful value anywhere.

You Take No Risk—Put in Your Order Now

When the typewriter arrives deposit with the express agent \$6.15 and take the machine for five days' trial. If you are convinced that it is the best typewriter you ever saw keep it and send me \$2.00 a month until my bargain price of \$34.15 is paid. If you don't want it, return it to the express agent, receive your \$6.15 and return the machine to me. I will pay the return express charges. This machine is guaranteed just as if you paid \$100.00 for it. It is standard. Thousands and thousands of people own and use these typewriters and think them the best ever manufactured.

The supply at this price is very limited, the price will probably be raised when my next advertisement appears, so don't delay. Fill in the coupon today—mail to me—the typewriter will be shipped promptly. There is no red tape. I employ no solicitors—no collectors—no chattel mortgage. It is simply understood that I retain title to the machine until the full \$34.15 is paid. You cannot lose. It is the greatest typewriter opportunity you will ever have. **Do not send me one cent. Get this coupon in the mails today—sure.**

HARRY A. SMITH, Room 721, 231 N. Fifth Ave., Chicago

-----**Tear Out—Mail Today**-----

H. A. SMITH, Room 721, 231 N. Fifth Ave., Chicago. Ill.

Ship me your Model No. 4 typewriter F. O. B. Chicago, as described in this advertisement. I will pay you the \$28.00 balance of the SPECIAL \$34.15 purchase price, at the rate of \$2.00 per month. The title to remain in you until fully paid for. It is understood that I have five days in which to examine and try the typewriter. If I choose not to keep it I will carefully repack it and return it to the express agent. It is understood that you give the standard guarantee.

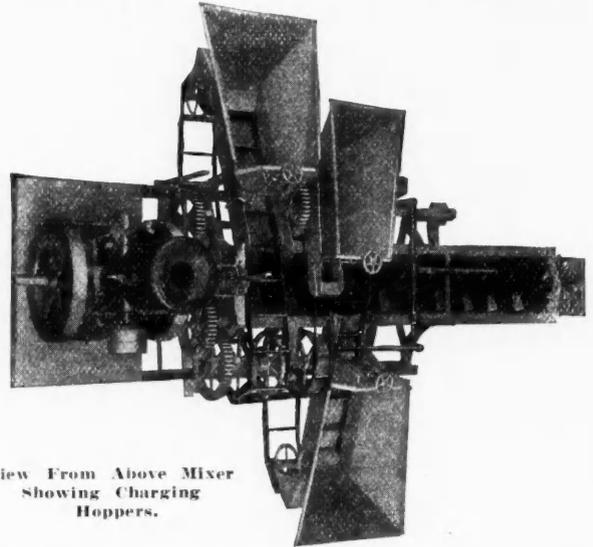
Name

Address

The Low Down Force Feed Concrete Mixer

Strength and accuracy are very necessary features of a continuous mixer. It must have plenty of strength to keep handling the concrete all the time and the proportioning of material must be accurate to insure a uniform quality for the concrete.

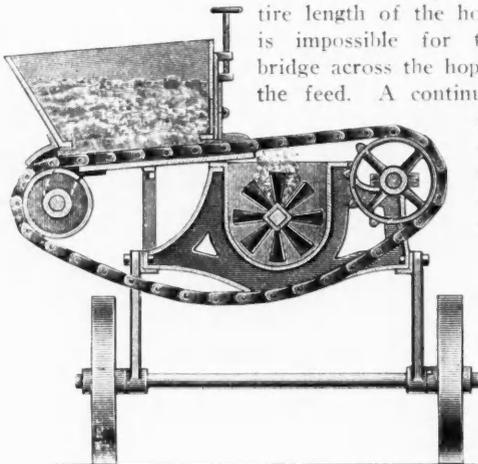
The feeding arrangement of the Low Down mixer is shown in the accompanying illustration and gives a clear idea of the automatic, positive measuring device that is being used



View From Above Mixer Showing Charging Hoppers.

on these mixers. The gates can be raised or lowered to give the proper proportions for either the sand or stone with regard to the amount of cement used. The gates are hinged so that large stones can pass thru without breakage and the springs hold it in place.

The cement hopper has a capacity of three sacks of cement and the feed is controlled by a feed chain, as shown in the illustration that passes thru the entire length of the hopper so that it is impossible for the cement to bridge across the hopper and cut off the feed. A continuous stream of cement is forced into the mixing trough and is mixed dry with the sand and aggregates which have been previously mixed together in the first part of the trough.



Accurate Cement Feed on the Elite Low-Down Mixer.

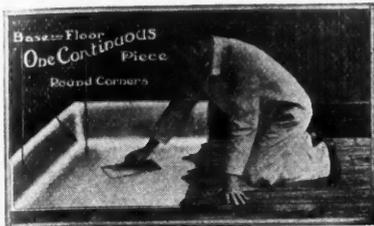
The mixing paddles are made of malleable iron mounted on a steel square shaft and the trough is designed with sufficient strength to stand up under the work of handling concrete. It is also of a length to insure the best sort of a mix. The trough is 7 feet long and has 42 paddles.

The Elite Manufacturing Company, Ashland, Ohio, have many flattering comments on the work that their machine has given for all kinds of concrete work including both mass concrete and reinforced concrete. They also make the well known "Reliable" scaffold bracket.

Catalogs describing their various products will be sent on request.

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

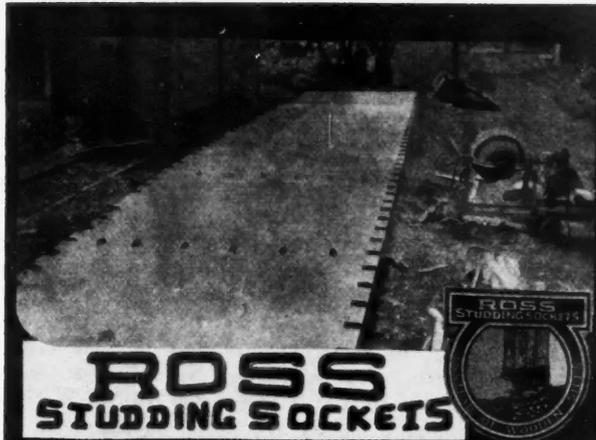
As you know, "SANTILITE COMPOSITION FLOORING" is laid just like plaster 1/2 of an inch thick on any sub-floor of wood or cement—sets in 6 to 8 hours into a smooth, jointless, absolutely sanitary surface, without cracks to collect dirt, germs and filth—absolutely no trouble to keep clean—never grows dusty 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.



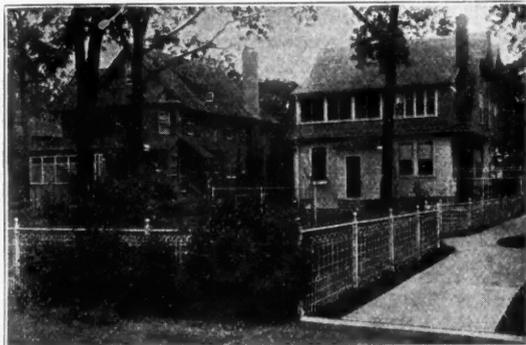
are used in many commercial and private coalsheds to hold studding to concrete floors.

Studding in coalsheds are subject to heavy side-pressure and extreme strains. Because Ross Studding Sockets, at low cost, have successfully stood such service tests for more than ten years, they are especially to be recommended by contractors who build buildings to last.

Contractors sell many Ross Studding Sockets for coalsheds, as well as corner bins, granaries, barns, garages, etc. Write for our new illustrated catalogues.

G. M. Ross & Co.

1424 Broad St. - - - Grinnell, Iowa



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

Comfort Indoor Closet

Odorless Sanitary Germ-Proof

Every home without sewerage needs one. Put a warm Comfort Toilet in your home, a guarantee of healthy, sanitary conditions. A boon to sick people. Can be placed anywhere in house.

Fly Breeding Can Be Destroyed

Help "Slay the Fly"—Have City Conveniences. Germ-life killed by chemicals in retort. Emptied once a month—no trouble. Needs no other attention. Boards of Health endorse it. Write now for literature, prices, etc.



SENT ON 30 DAYS FREE TRIAL

Agents Wanted—Exclusive Territory.

COMFORT CHEMICAL CLOSET CO. 304 Factory Bldg. TOLEDO, OHIO

Fine Neckties Hosiery & Handkerchiefs

GIVEN AWAY

with the famous DURO Guaranteed Shirts & Furnishings at big saving postpaid. Catalog sent for name and address of 5 friends.

Room 202

GOODELL & COMPANY
158 East 34th St., NEW YORK
Largest Mail Order Shirt House in the World
Advertised in 100 leading magazines—Highest Bank References.



Koehring Builds Low Price Mixer on the "Ford" Plan

The Koehring Machine Company, Milwaukee, Wis., displayed two new mixers at the Chicago Show which will be built in big volume on the "Ford" plan—fast manufacture of strictly standardized machines in big volume to make a low price possible.

The mixers are called the "Dandie" line, consisting of construction type mixer in 5 cubic feet and 10 cubic feet capacities, and a high drum end loading paver built in 10 cubic feet and 20 cubic feet capacities.

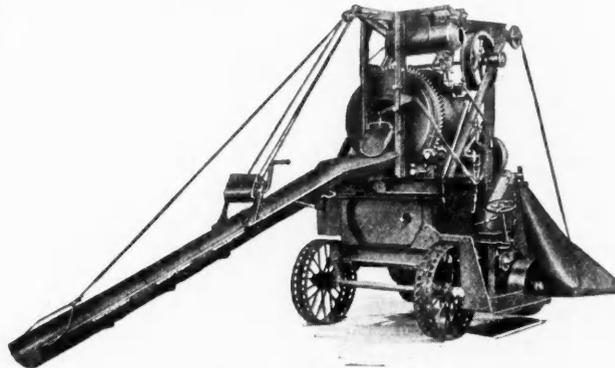
The Dandie construction type mixer is a low-down mixer with platform for wheelbarrow charging, and may also be equipped with batch hopper and power loading skip.

The mixing action is the same as on regular Koehring mixers, with discharge spout extending inside the drum, and in mixing position forming part of the mixing action. This chute is reversed to discharge. The trucks are extra strong, and tires extra wide, all bearings are constructed on the universal principle. Double drum drive gears are cast from special composition metal. The power loading skip has automatic knock-out and brake, automatically stopping skip in charging position and holding it until released.

The "Dandie" high-drum pavers are built in 10 cubic feet and 20 cubic feet capacities. This height of drum affords an unusually great spouting range, and makes possible the

steep angle that causes fast flow of creamy concrete.

The loading skip accommodates two wheelers at the same time, which is provided with automatic knock-out and lock. The spout is self-compensating, maintaining the point of dis-



Dandie High-Drum Paver.

charge at the same distance from the ground, regardless of how many sections are in use. The Dandie Pavers are powered with gasoline engine, or with steam boiler and engine. Power plants on all Dandie Mixers are securely housed. The Koehring Machine Company is distributing special literature on the Dandie line, booklet 42-E on the low charging mixer, and booklet 42-F on the Dandie Paver.

**Plenty of Work This Winter—
If You Own a**



Portable Woodworking Mill

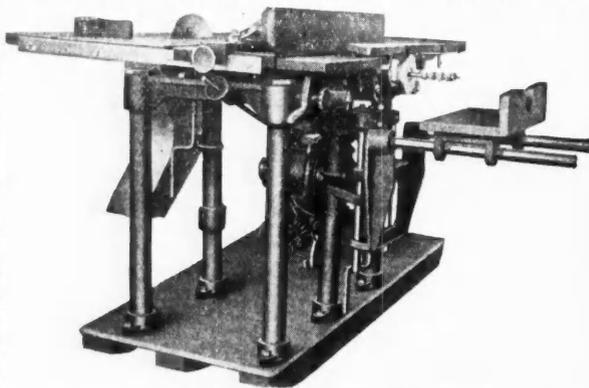
A man with this valuable piece of equipment can do any number of things during the slack season. He can make all sorts of interior improvements—such as built-in side-boards, medicine cabinets, stair work and cabinet work. He can also be getting ready for next year—making sash and doors, exterior and interior trim, etc. Many Builders have paid for this machine and made a handsome profit, too, during the winter season.

A Machine for all Purposes

The BERLIN heavy duty Portable Saw Rig consists of a Rip Saw, Cross Cut Saw, Dado Saw, Grooving Machine, Jointer, Jig Saw, Boring Machine, Sander and Emery Wheel. It comes equipped with either a gasoline engine or electric motor mounted on its own base. It is easily moved from job to job and is strong and rigid. Guaranteed for two years.

Write for Details and Full Information Today

SCHAEFER MFG. CO., Berlin, Wis.



THE

**GERMANTOWN
MASTER SHINGLER**

THESE hatchets are made by hand from the finest steel obtainable. They are individually tempered and severely tested. The edge is the toughest and hardest ever produced. The scoring is double forged and doubly durable. These tools will instantly demonstrate their superior quality. A shingle gauge is attached to the bit. No. 280. Price \$1.25.

GERMANTOWN TOOL WORKS

PHILADELPHIA, PA.

BRANCH: 62 EAST LAKE ST., CHICAGO



\$1.60

No Shift All Steel Folding Saw Vise

Fore Plane ... \$3.00
Jack \$2.50
Block
\$1.00



\$2.00

Buckeye Planes

The Newest TIME Saving Carpenter Tools

Ask your dealer to show you these tools, and write for circulars.

BUCKEYE SAW VISE CO.

2050 W. 55th St. :-: Cleveland, Ohio

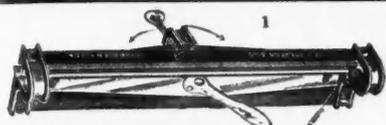


Cap and Bit drop in together



90c

Buckeye All Steel Folding Saw Vise



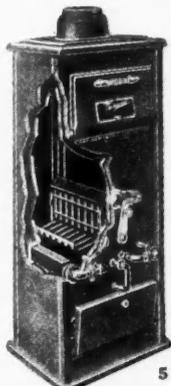
FOLDING STEEL SAW VISE

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 1/2". 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, 1/2" screw.



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.

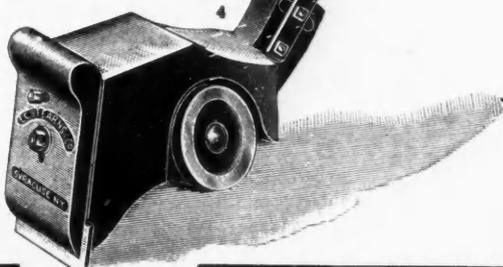


stands for good mechanical design and good values. Send for our Catalog today. Mention by number (see numbers which accompany illustrations) which ones of the five specials you are most interested in.

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.



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 level and length for all saw teeth ranging from 4 to 16 to the inch.

Money for Building

The Straus Plan of financing real estate improvements is the outgrowth of thirty-four years of business experience. To those contemplating building operations it offers advantages of the utmost value:

- Prompt action all the way through.**
- Equitable loans---no hard and fast rules.**
- Construction loans---when needed most.**
- Practical, conservative financing.**
- Benefit of an unusual service.**

We furnish money through building loans amounting to \$100,000 and over, in the larger cities of the United States, secured by the best class of office buildings, hotels, industrial plants, apartment buildings, and the like.

Write for Booklet "L" which explains the Straus Plan completely

S. W. STRAUS & CO.

ESTABLISHED 1882 — INCORPORATED
STRAUS BUILDING 150 BROADWAY
CHICAGO | NEW YORK
DETROIT — MINNEAPOLIS

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 the page. Let this free book tell you all about 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.
274 Mitchell St.,
Cadillac, Mich.

Please send FREE the book on concrete and Helm Presses.

Name

HELM BRICK MACHINE CO.
274 Mitchell St.
CADILLAC, MICH.

Address

Bicycling the "Rage" at Winter Resort

In the Chicago "Tribune's" society columns, this item recently appeared: "You have to be very imaginative to guess what is the favorite sport at Palm Beach these days. It's bicycling. The whole place, young and old, goes in for a swim about 11 o'clock and plays around until luncheon time on the beach. And after that it's golf, tennis—then bicycling, and everybody's having a superb time and staying much longer than they expected to."

The pendulum of favor has for several years been swinging back to bicycling as a sport. The sporting pages of almost every newspaper is giving space to the six-day bicycle races, which have been held in increasing numbers this winter, and performing to huge crowds.

The truth of the matter is, that bicycling is such royal good fun, such exhilarating sport, that it simply cannot be relegated to the dust heap.

Aside from its value as a recreation and a diversion, bicycling never has lost its favor with thousands upon thousands of factory workers and others who use it as the one best solution of the daily transportation problem, and it has constantly grown in popularity with the younger generation.

There is a constant fund of suggestions for the man or boy who owns a bicycle or who is interested in getting one in the catalog of that pioneer bicycle house, which started in when the bicycle was a "craze," and has grown to occupy the place of "largest in the world." The Mead Cycle Co., to whom we refer, are always glad to send their latest catalog to our readers. Mail your requests to them. Address to Dept. L-122, Chicago, Ill.



The Aloe Convertible Level

The best way to find out whether anything is satisfactory is by testing it under actual conditions. This is especially true of transits and levels, which must be accurate if they are to be used at all.

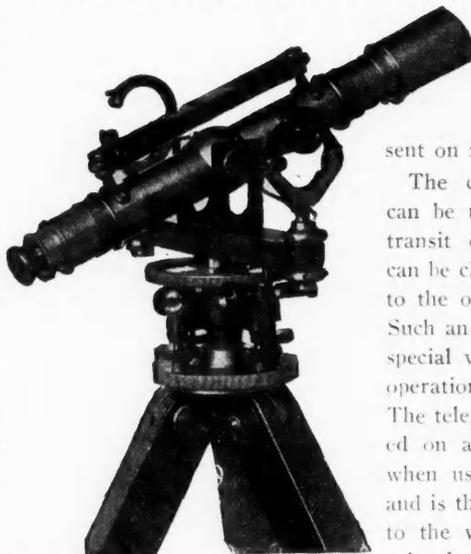
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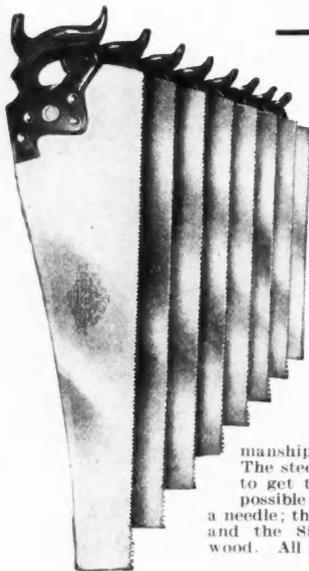
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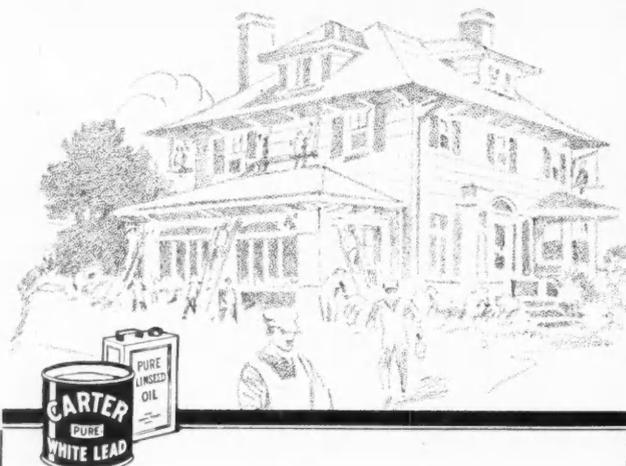
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Oak Flooring and Floor Laying Troubles

By W. L. Claffey

Editor's Note: Mr. Claffey is secretary of the Oak Flooring Manufacturers' Association and the cases that he cites should prove valuable to the manufacturer, to the lumber dealer, to the architect and the builder.

Oak flooring troubles originate from many causes. Oak flooring is made in a scientific way, and the different processes from the rough oak lumber to the finished flooring are subjected to the most careful inspection and scientific tests. The object of this article is to cite actual cases that have come under our observation thru an expert inspector whose sole duty is to investigate complaints on oak flooring. This inspector is employed by manufacturers, and has qualified as an expert on oak flooring.

In Detroit not long ago he was called upon to examine an oak floor that had bad crevices every 8 inches. He went to the cellar and found that the sub-floor ran parallel to the oak flooring. The boards in the sub-floor were 8 inches in width. The sub-floor shrank as most sub-floors do, with the result that it made the crevices appear in the oak flooring. The floor layer that laid the floors remarked that he never laid oak floors before and thought that he was laying them the proper way. The contractor was forced to take up the oak floors at quite an expense and new floors were laid the proper way, or at right angles to the sub-floor.

In Chicago recently oak floors were laid in a large apartment building while the doors and windows were not yet in place. The flooring was in bundles for about two weeks spread about the different rooms and rain and snow drifted in on the bundles. The result was that many pieces absorbed moisture near the ends, and when the floors were laid bad-looking crevices appeared. No attempt was made on the part of the contractors or owners to heat the building. The time was in December. The owner claimed that he was unable to get the heating system installed and did not know that it made much difference whether a building was heated or not for oak flooring laying. The superintendent of the job representing the architect made no report to the architect on this condition. Some of the floors had to be torn up and replaced with new floors at quite an expense to the owner.

A case in Toledo, brought to light where a floor layer used a heavy sledge hammer in driving up pieces. He drove the pieces up so tight that the floor had the appearance of waves. The superintendent of the job informed the floor layer that he was driving it too tight, at the time, but the warning was not heeded. The result was that the whole floor had to be torn up and replaced.

At Cleveland a few months ago a beautiful oak floor was badly damaged by improper nailing. The nails were driven at an angle of about 90 degrees which made it almost impossible to drive the piece up snug. Many bad crevices appeared. When the owner was advised that nails should be driven at an angle of about 50 degrees and when it was demonstrated to him in some of the rooms that had not been laid how the strips drove up after nailing at this angle, he compelled the contractor to tear up the floors in three rooms. They were replaced at the expense of the contractor. The contractor we found out later was a novice at the floor-laying game—in fact, it was his first venture.

In Evanston, Ill., a few weeks ago, oak floors were being laid, and the floor layer complained to the owner that pieces would not fit up snug. Our inspector went to the job and found that the flooring layer was not driving the nails below the tongue. Most of these nails extended $\frac{1}{4}$ inch above the tongue, and the result was that it held the next piece out. As soon as the nails were countersunk or driven down further the pieces fitted up perfectly. The case brought out the fact that this was about the second job the floor layer ever had.

(Continued to page 170.)

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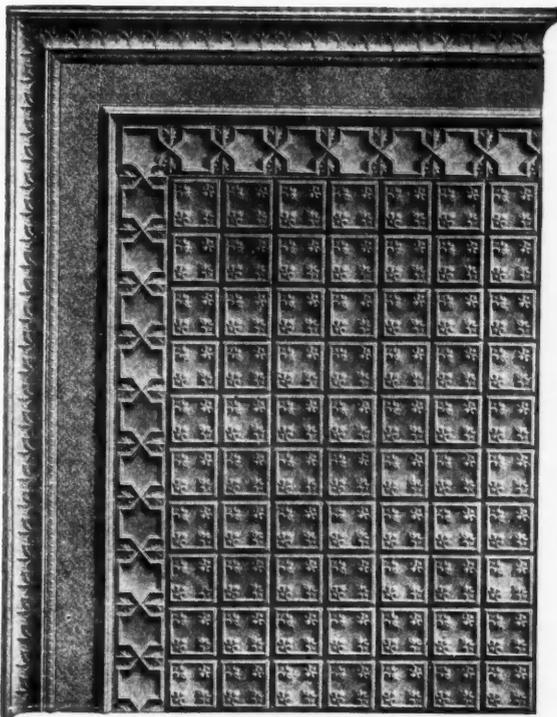
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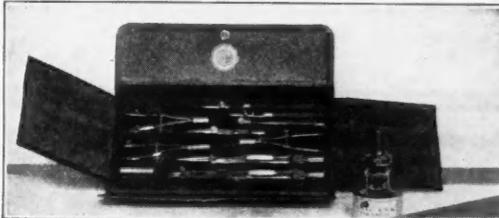
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The owner now is suing the contractor for new floors. At St. Louis, Mo., about six months ago, a ballroom was laid with oak flooring amid the worst possible conditions. The owner issued instructions that the floor should be fin-

ished by Christmas in order to have a ball that was widely advertised. The contractor, who was an experienced flooring man, informed the owner that he would not, under any circumstances, lay the flooring, owing to the paster being green and

damp, together with the sub-floor covered with wet cement. The owner then took the matter into his own hands and cancelled the flooring contract with this contractor and engaged another one and had the floors laid, with the result that in two weeks' time the floor started to buckle up, making it unfit for a dance floor. The owner then went back to the first contractor and gave him full authority to go ahead and make a good job, regardless of the time of opening up. The entire floor had to be torn up and replaced at an enormous expense to the owner.

Another case in Springfield, Ill., brought out the fact that oak flooring was laid even before the plaster work was started. Thin building paper was placed over the oak floors, and the plaster work was finished. In a very short time the oak flooring started to bulge up in revolt, caused by the moisture absorbed from the wet plaster. The eight floors in the house had to be torn up and replaced. In this particular case the architect was entirely to blame, as he issued instructions to the contractors to have the oak floors laid first and plaster work afterwards.

At Kansas City this winter a beautiful oak floor was badly damaged in a large expensive residence, chiefly caused by the dealer who stored the oak flooring in an open shed exposed to the elements. All the ends absorbed moisture fully 1/16 of an inch. When this flooring was taken to the jobs it naturally left large crevices starting at the ends down to about 12 inches. When all the facts of the case were presented to the architect, the architect placed the blame upon the dealer for the improper housing of oak flooring.

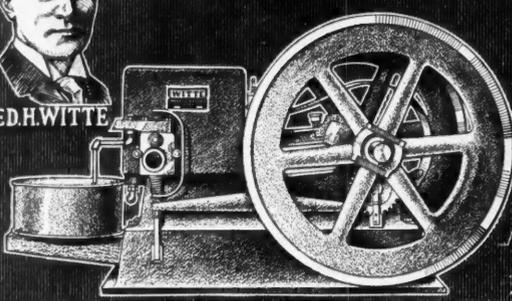
Floor layers before they started on an oak flooring laying job should invariably make a rule to do some examining work before proceeding. First, to examine the condition of the plaster, and the sub-floor to ascertain if thoroly dry. Second, to examine the oak flooring to find out if it has absorbed any moisture at the lumber yard, or in transit. Third, if in winter, to see that the temperature of the rooms is about 70 degrees and that they have been that warm for a week or ten days with the oak flooring in bundles in the different rooms. If this is done, it certainly would eliminate a great many of the flooring troubles and save unnecessary expenses.

NOTE—An article on "How to Lay Oak Flooring" will appear in this magazine with illustrations in an early issue.



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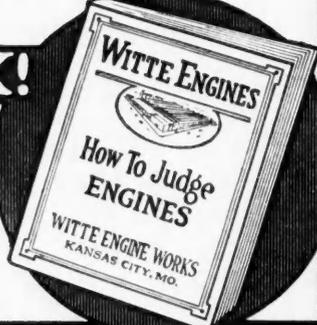
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