

FEBRUARY 1917

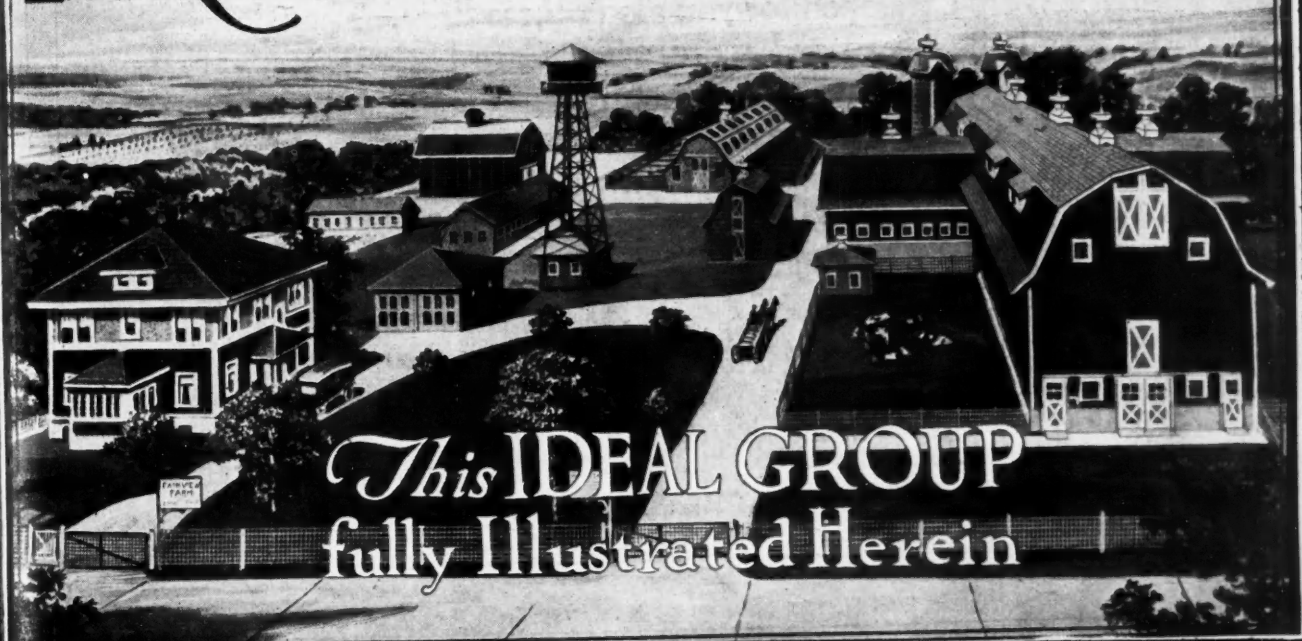
AMERICAN BUILDER

FORMERLY
AMERICAN
CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER

Third Annual FARM BUILDING NUMBER



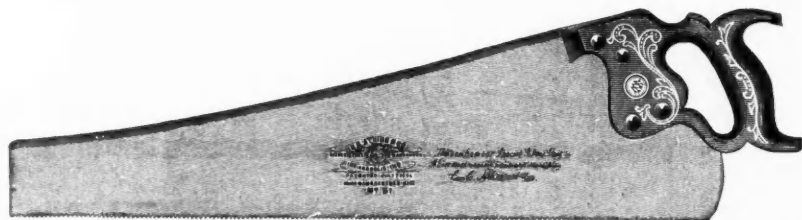
This IDEAL GROUP
fully Illustrated Herein

Price 20 Cents

Building Helps

Are being offered you every day. They have been developed for your assistance to increase your efficiency. They result in a larger return of profit at the end of the job.

ATKINS SILVER STEEL SAWS



Were developed for you along these lines. They do all the above and more. They are back savers—day brighteners. The snappy way they eat through wood adds a tinge of delight to your work. Less filing and setting means time for something else. Time means money. Use ATKINS SILVER STEEL SAWS and develop these possibilities.

*Your Dealer can
accommodate you*

E. C. Atkins & Company, Inc.

ESTABLISHED 1857

Indianapolis, Indiana

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



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Advertisements That Really Serve

IF WE were the old-fashioned type of editor, or at all given to narrowness, we could work ourself into a jealous stew over the fondness so many of our readers show for the advertising parts of this paper.

They write us, and even tell us face to face, that while the editorial articles and illustrations are good and all of that, "We get the most out of the advertisements."

Fortunately for our peace of mind, we are able to view this in the light of an indorsement, and a very high one, of our editorial policies. Almost without exception, the advertisements appearing in the AMERICAN BUILDER are packed full of real information; they give new good ideas. Each one fills its space with real information, and then offers to send more—in illustrated hand-books, catalogs, samples, etc.—to anyone who is interested.

This is genuine service, freely offered by reputable business organizations, each one of which has made a close study of the problems in its particular line. If these concerns did not advertise in our pages your editor would have to engage a great many more special writers and illustrators to furnish the same information in regard to new materials and equipment—and even then such information would not have the practical value to the business man who is in the market and wants to know what to buy and where to get it to the best advantage.

So you see, we feel that each different group of advertisements really constitutes an editorial department. In fairness, we ought to list each one of these advertising or sales managers as an associate editor!

Wouldn't it make a list?—something like four hundred in this present issue! And every one of these men, and the firms back of them, are at the service of AMERICAN BUILDER readers! Write and get better acquainted.

Advertising That Lives Long

ONE of the best proofs of the real value of AMERICAN BUILDER advertisements is the fact that they live so long. Our readers evidently take very good care of their copies and refer back constantly to advertisements that have appeared

months, and sometimes years before. The following are two typical examples coming to our attention in the same mail on Jan. 11:

The American Floor Surfacing Machine Co., Toledo, Ohio, wrote us that they had been tracing several inquiries lately received from advertising that appeared in this publication several years ago. "I have traced one down today," writes Secretary W. B. Frey, "that I believe you will be interested in. We always make it a point to find out the source of the business that we get so that we can credit the different publications, and you will notice from the attached letter that the House Carpenter of the Onondaga Hotel, Syracuse, N. Y., found in our ad in an edition of your publication printed about ten years ago."

This is a great record. It must have been one of the very first advertisements of the American Floor Surfacing Machine Co., since they began using space in the AMERICAN CARPENTER AND BUILDER in July, 1907, and have been in every issue since.

THE same mail that brought us the above item from Mr. Frey brought the following from R. R. Thompson, treasurer of the L. & I. J. White Company, manufacturers of edge tools, Buffalo, N. Y.:

"It would perhaps interest you to note the attached ad that has just come in to us. This is from one of your magazines about four years old. Some magazine that will pull for four years!"

The ad referred to was a half-page announcement of a special proposition to one carpenter or builder in every community to demonstrate and take orders for high-grade edge tools.

These are by no means unusual or exceptional instances. We have strong proof every day that AMERICAN BUILDER advertisements are really interesting and helpful to our readers and are appreciated by them. This present issue of the publication contains a good many advertisements—the greatest number and variety, in fact, ever before assembled in any building publication. Go thru them carefully, and do not slight any one just because there are a good many of them. Each one is worth special study, since it represents real service and the possibility of profit or prestige to builders.

Very sincerely yours,

EDITOR AMERICAN BUILDER.

Contents for February, 1917

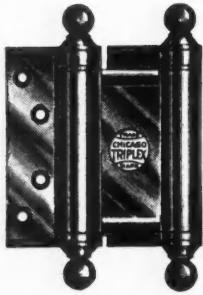
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		70	Modern Nine-Room Farm House.....	54	Water Supply Diagram.....
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				110	What a New Brick Porch Will Do.....
				95	Yours for Safer Building.....

1-46 add

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

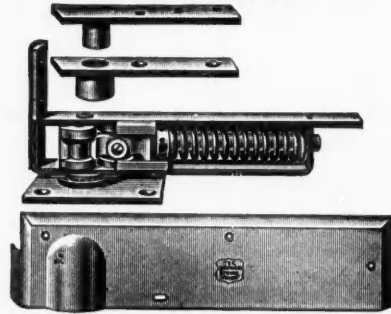


NEW YORK

BOMMER

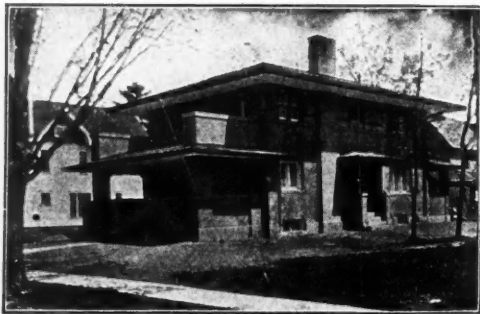
**Floor Surface Spring Hinge
For Double-Acting and Single-Acting Doors
Release and Holdback Ball Bearing
Alignment Device**

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.



Stained with Cabot's Stucco Stain
Percy D. Bentley, Architect, La Crosse, Wis.

Smoky, Dusty Stucco Houses

look dirty and discouraging. They can be transformed into cheerful and attractive habitations at small expense by tinting them with

Cabot's Stucco Stains

(Waterproof)

The tints are rich and natural—don't look "painty"—and they are easily and quickly applied, and lasting. Anyone can put them on. They are not like the thick and heavy coatings, and therefore spread farther, go on easier and cannot crack or peel off. They make the stucco rainproof, so that it is protected from dampness, freezing and crumbling. Artistic coloring is the one thing needed to make stucco houses good to look at, and Cabot's Stucco Stains do the work perfectly. Send for Color-card and Catalog—Free.

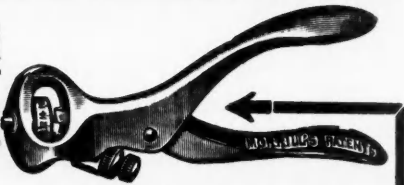
Samuel Cabot, Inc., Manfg. Chemists, Boston
1133 Broadway, New York 24 W. Kinzie St., Chicago

Cabot's Shingle Stains, Heat and Cold-proof "Quilt", Old Virginia White, Waterproofings, etc.

Worth Much to You

Morrill

Saw Set



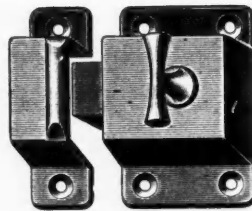
All master carpenters are using this Saw Set. In one operation it takes out the wrong set and puts in the right one. Write for FREE booklet "Saw Points". It tells how to properly joint, set and file hand saws.

CHAS. MORRILL

84 Lafayette Street
NEW YORK

BUILDERS' HARDWARE

No. 1496—Antique Copper
Finish Cupboard Turns,
\$1.10 per Doz.

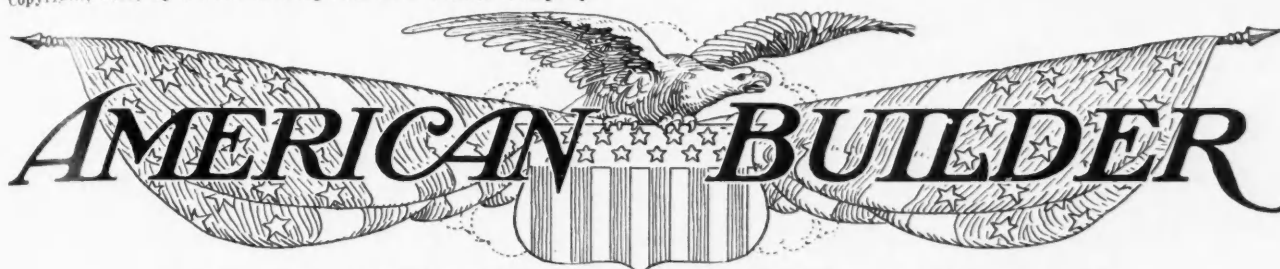


No. 6 Catalog is full of such bargains and shows a complete line of Builders' Hardware. It's free for the asking.

We do not sell to carpenters or contractors in Cook County, Ill.

REHM HARDWARE COMPANY
1501 Blue Island Ave. - - - - CHICAGO, ILL.

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Formerly AMERICAN CARPENTER AND BUILDER

Member of the Audit Bureau of Circulations
Circulation Audited and Verified March 27, 1916

<p><i>The</i> World's Greatest Building Paper</p>	<p>Important Notice</p> <p>When your subscription expires, renew at once, using the blank enclosed in your final copy. If it expires with this issue your renewal must reach us before February 25 to avoid missing the March number. Use P. O. or Express Money Order if possible, but bills or 2-cent stamps may be sent at our risk.</p>	<p><i>The</i> World's Greatest Building Paper</p>
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American Builder

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

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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.

PROTECTION FOR OUR READERS

The publishers of the AMERICAN BUILDER reserve the right to decline any advertising they believe is detrimental to the interests of its readers; to edit advertising copy and to change or eliminate any statements that reflect injuriously or cast discredit upon other building products, machinery, equipment, supplies or tools.

The AMERICAN BUILDER will use every lawful means to safeguard the interests of its readers and its advertisers, and make every effort to protect them from concerns whose business methods are questionable. Where the slightest doubt exists, write the publishers for complete information. It may save money, time and worry.

Be sure in writing to advertisers to say: "I saw your advertisement in the AMERICAN BUILDER."

VOL. XXII

February, 1917

No. 5

Now the "AMERICAN BUILDER"

IN response to numerous suggestions, earnest requests and entreaties, the name of this publication is shortened, beginning with this issue, to the AMERICAN BUILDER.

This simplified form of the well known but cumbersome title of "American Carpenter and Builder" will be welcome, we feel sure, to our many friends and well-wishers. It has been with a good deal of hesitation that we make even this slight change in the publication name. In fact, for more than five years it has been under consideration. The old name which we have worked for and built up thru twelve years of enthusiasm and devotion to stand for the biggest, best, and most extensively read of building journals,

naturally has a real value and a sentimental worth not to be lightly laid aside.

However, these are busy days for all—it is the time to cut out lost motion and wasted effort. We must simplify. Therefore, from now on the "American Carpenter and Builder" will be known simply as the AMERICAN BUILDER.

It is a broader title and more truly descriptive of the broad field this publication covers. There will be no change of editorial or business policy or of ownership under the new name.

President and Editor-in-Chief

Here's Why the Farmers are Building

UNIQUE compilation of the comparative prices of farm products and lumber is made by an up-state lumber dealer, who has a retail yard, and who also has an elevator where he buys grain from the farmers. His statistics show that in 1906, a wagon load of wheat, 50 bushels, purchased 1,200 feet of No. 1 shiplap. In 1916 the same amount of wheat purchased an average of 2,800 feet of the same class of lumber. In 1906 50 bushels of corn bought 4,600 first grade cedar shingles. In 1916 the same amount of corn purchased 10,220 shingles of the same grade.



Building Construction Greatest Ever Known

THE vast amount of building construction throughout the United States during the past year was the most remarkable ever known. While statistics do not show the number of dwellings, churches, schools, theaters, etc., it is a known fact that there were more small dwellings erected for workingmen's use than ever before. In many places where manufacturing interests were compelled to import men to operate their shops and not finding suitable places for them to reside, plans were immediately prepared for small-sized dwellings to accommodate their needs and retain their services. Several rubber concerns in Ohio were forced to build hundreds of such homes.

But with the far-reaching prosperity wave which has covered every nook and corner of the United States, men in general have laid aside some of their earnings and invested in homes; manufacturers have used some of their surplus earnings to enlarge factories and meet trade requirements; speculative builders have seen fit to enlarge their holdings; new schools, colleges and churches have been erected—all at increased costs of material, until today the country has reached a building stage heretofore unknown.

And the future. Never has a year opened so auspiciously as 1917. More plans are on the boards of architects than for several years past—work which undoubtedly will mature because people are pretty well money-filled at present. Building material costs can be expected to decline somewhat, for most lines were selling at fictitious prices. Railroad facilities for handling material will be better before spring, and all in all everything points to a tremendous building period.

Last year's record may not be surpassed in value, but more buildings will likely go up. High prices had considerable to do with the valuations reported for 1916 for the number of structures built did not much exceed those built in 1915.

New York holds first place in amount of new work; Chicago is second, Boston third, Detroit fourth and Philadelphia fifth. Duluth made the greatest gain of any one city, increasing 275 per cent. Akron and Canton, Ohio, increased 112 and 116 per cent respectively. In the 70 cities reported below the total amount aggregated \$811,802,216 for 1916, as against \$735,102,-

273 for 1915, an increase of \$76,704,943. Nineteen of the 70 cities showed a slight decrease. Below will be seen the figures for various cities:

	Valuation 1916	Valuation 1915
Akron, O.	\$12,823,540	\$ 6,090,650
Albany, N. Y.	4,224,781	4,771,980
Allentown, Pa.	2,177,924	1,977,135
Atlanta, Ga.	3,679,968	4,585,639
Baltimore, Md.	10,102,113	7,318,059
Binghamton, N. Y.	1,925,751	1,517,902
Birmingham, Ala.	2,386,869	1,750,902
Boston, Mass.	64,078,000	64,291,000
Bridgeport, Conn.	6,713,000	8,707,119
Brockton, Mass.	1,359,065	1,167,618
Brooklyn, N. Y.	41,282,644	45,601,851
Buffalo, N. Y.	12,611,000	11,792,000
Canton, O.	4,369,655	2,065,190
Cedar Rapids, Ia.	1,779,000	1,761,000
Charlotte, N. C.	838,100	1,118,706
Chicago, Ill.	112,941,150	97,289,680
Cincinnati, O.	10,617,360	14,025,323
Cleveland, O.	32,981,603	32,690,305
Columbus, O.	7,194,240	4,928,425
Denver, Colo.	4,061,630	2,648,575
Dayton, O.	3,735,000	2,254,862
Detroit, Mich.	51,062,790	31,534,800
Duluth, Minn.	10,179,413	2,714,464
Elizabeth, N. J.	2,301,490	1,362,988
Erie, Pa.	2,801,092	2,054,268
Evansville, Ind.	1,417,396	2,252,557
Grand Rapids, Mich.	3,479,239	2,684,087
Harrisburg, Pa.	1,825,145	1,428,950
Hartford, Conn.	7,383,163	3,573,595
Huntington, W. Va.	1,575,376	1,182,560
Indianapolis, Ind.	8,862,107	5,984,924
Jacksonville, Fla.	1,366,292	1,658,158
Kansas City, Kan.	748,000	971,200
Kansas City, Mo.	11,562,504	10,667,405
Los Angeles, Cal.	15,036,045	11,888,662
Louisville, Ky.	4,022,275	4,055,890
Memphis, Tenn.	3,091,710	2,696,238
Milwaukee, Wis.	15,042,492	12,349,058
Minneapolis, Minn.	23,914,475	16,349,080
Nashville, Tenn.	4,140,769	1,511,983
New Haven, Conn.	5,020,446	7,104,947
New Orleans, La.	3,117,604	2,823,670
New York and Boros.	168,276,521	103,023,800
Newark, N. J.	8,808,316	7,912,184
Norfolk, Va.	2,644,363	1,865,958
Oakland, Cal.	5,368,345	5,045,285
Omaha, Neb.	7,225,957	5,382,005
Philadelphia, Pa.	49,896,370	39,544,225
Pittsburgh, Pa.	13,574,810	14,327,010
Portland, Ore.	6,997,000	4,895,245
Richmond, Va.	4,985,591	3,244,752
Rochester, N. Y.	9,282,447	9,108,333
Sacramento, Cal.	2,097,860	1,395,578
St. Louis, Mo.	15,900,121	11,428,020
St. Paul, Minn.	11,086,670	11,678,565
Salt Lake City, Utah	2,776,259	2,252,620
San Francisco, Cal.	17,858,991	13,968,704
Savannah, Ga.	1,244,592	1,646,720
Seattle, Wash.	8,482,054	6,470,656
Sioux City, Iowa	3,089,505	2,051,397
Spokane, Wash.	1,012,072	1,199,522
Springfield, Mass.	7,101,032	6,062,181
Syracuse, N. Y.	4,394,960	4,663,216
Toledo, O.	8,799,194	7,714,679
Trenton, N. J.	2,378,651	2,590,861
Utica, N. Y.	1,819,170	2,133,020
Washington, D. C.	12,760,520	11,738,067
Wheeling, W. Va.	978,866	590,184
Wilmington, Del.	2,787,864	1,524,879
Worcester, Mass.	6,624,259	4,561,129
Youngstown, O.	3,819,635	2,676,640

S. M. ROBERTS,

Pittsburgh, Pa.



Wisconsin Master Builders' Association Convention Interesting

THE fifth annual state convention of the Master Builders' Association of Wisconsin, which was held at Oshkosh, Wis., Jan. 11, 12 and 13, was a very interesting one. There were morning, afternoon and evening sessions on the first two days of the convention and adjournment was in the forenoon of the third day. Papers on a variety of subjects touching upon the legal, technical and human sides of building questions were presented. In addition to the lectures and a trip thru the sash and door factories of Oshkosh were interesting features.



EDITOR'S NOTE: February is the month when the farm builder and farm building ideas have their inning. All others step back! Give the farm improvement enthusiast a chance; and he will line out a home-run for bigger crops, better live stock and vastly improved living conditions on the farm and in country communities.

This is our Third Annual Farm Building Number. Our efforts of two years ago and then again of last February met with such whole-hearted approval that we have been encouraged this year to prepare an even more ambitious program of special illustrations and editorial features.

Some of the foremost living authorities have contributed to this present issue, each along the line of his own particular specialty, and our own Architectural and Art Departments have surpassed themselves to illustrate these special features adequately.

EDITOR AMERICAN BUILDER.

The Group Planning of Farm Buildings

OR LAYING OUT THE FARMSTEAD TO PROMOTE HAPPINESS AND TO SAVE STEPS

By L. W. Chase

Head of Department of Agricultural Engineering, the University of Nebraska



IT MAY seem strange to say that a farmer kisses his wife before he goes out to milk, but this is what one farmer reports he does. He says his barn is so far from the house that it is a long time before he can get back. Another farmer asks, "Why did you build your barn way off there?" The

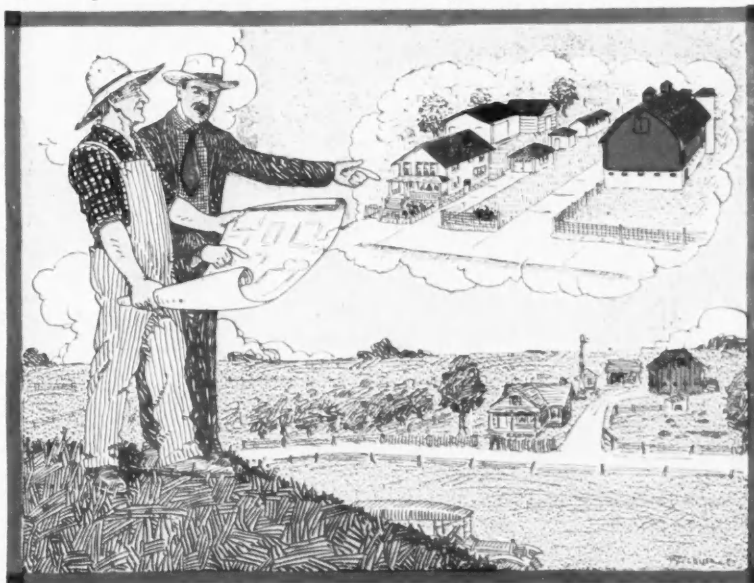
reply came quick: "I didn't, but the woman who lived on my place before I bought it said she didn't want any nasty stable smells coming across her table, so she had the barns set up way out there."

And that is just what the agricultural engineer or the contractor is up against: one farmer wants his barn close to the house and the other wants it a good distance away, and how is the councilor going to advise? Learn the method of handling the labor about the buildings and the prevailing direction of air currents in that vicinity and act accordingly.

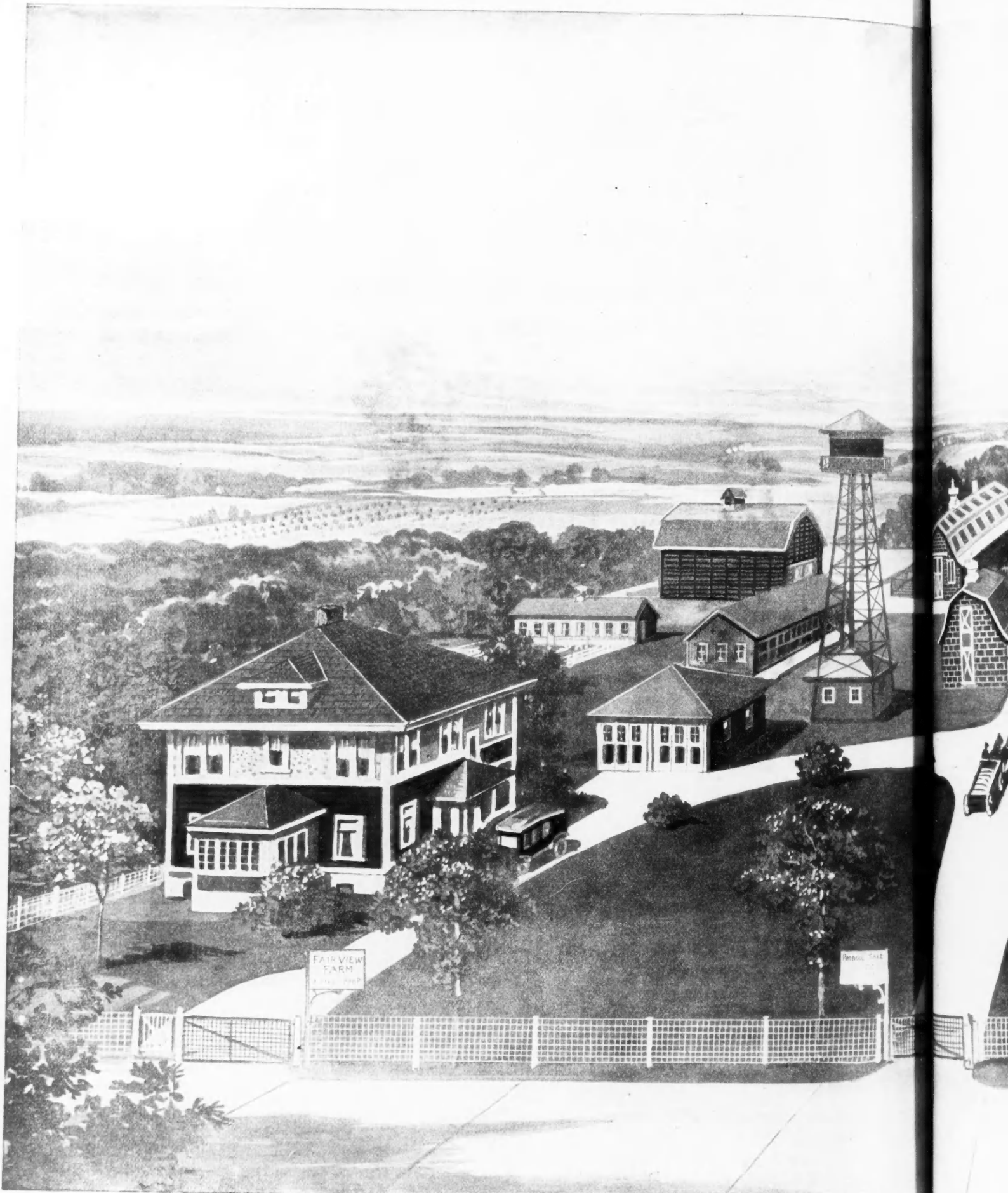
If all the labor used about the barns is housed in the farmer's home, then the barns and house should be as close together

as is consistent with cleanliness, convenience of handling feed and equipment, and good appearance. If, however, the labor is housed in a separate building from the farmer's house the latter can be farther away from the barns than in the previous case, while the home for the help should be conveniently close to the barns.

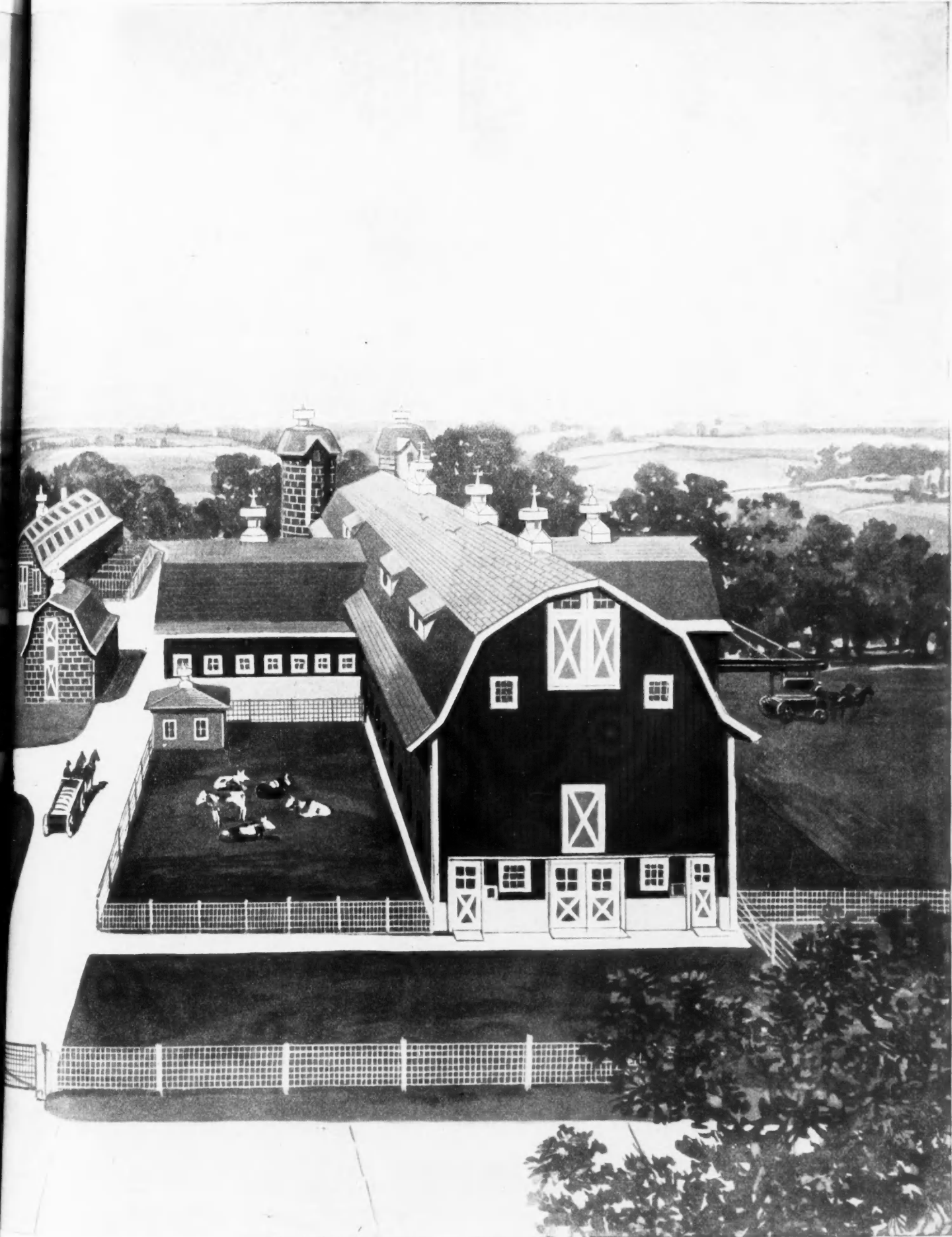
Each and every step taken about a farmstead should be accounted for. Possibly one or two steps do not



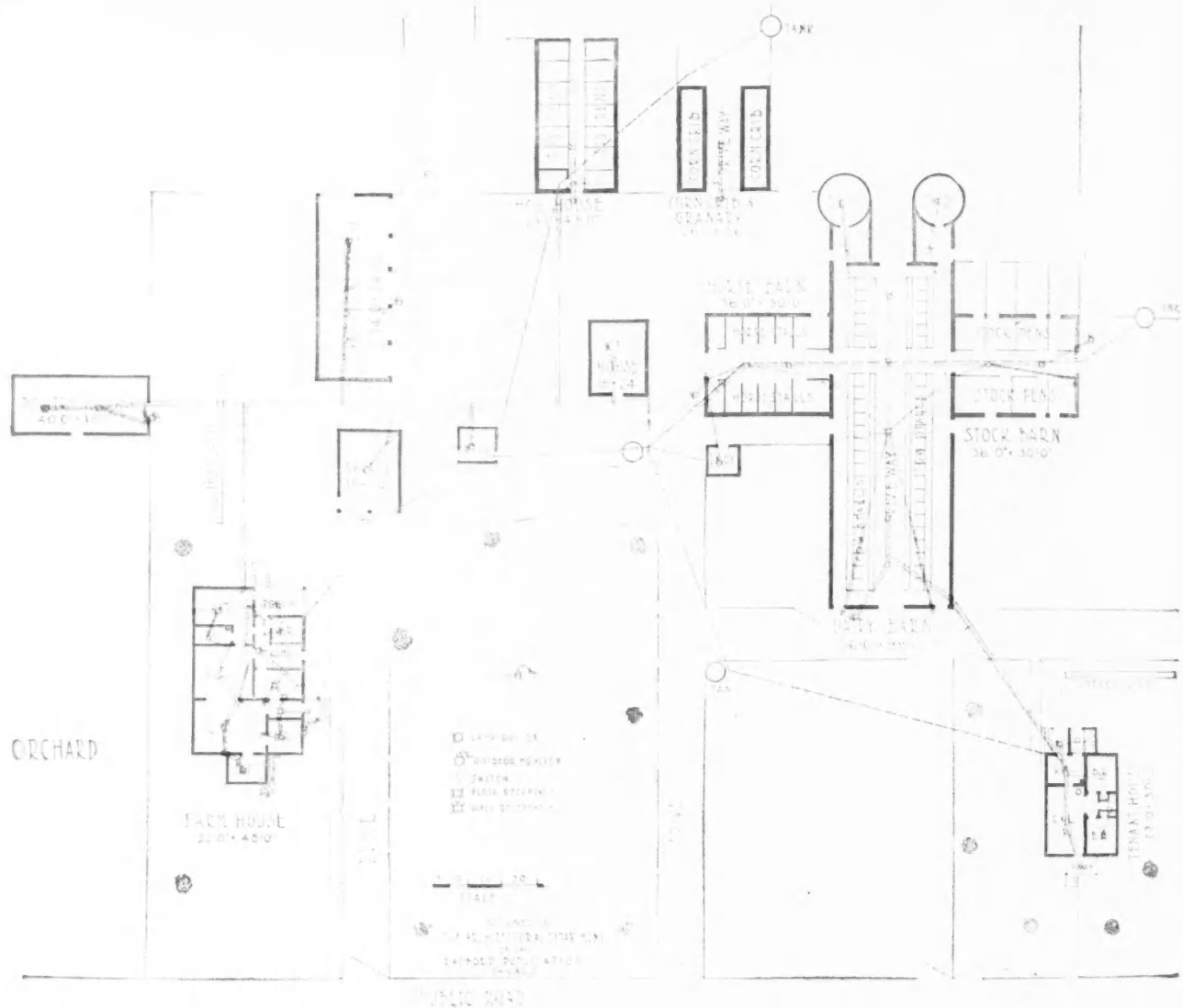
What the Architect is to the City Man Planning a Skyscraper, the Rural Builder is to the Farmer who Remodels or Builds New. Make Every One of Your Farm Buildings Complete, Convenient and Sanitary — Worthy of the Confidence Your Farmer Customers Place in You.



These Building have been specially designed in the Architectural Department of the Radford Publications, Chicago, for use as Farm Buildings. They are illustrated in full detail. Study them thoroly. They are available and contain



INGS FOR A PROSPEROUS FARM OF AVERAGE SIZE.
Farm Building Number of the "American Builder." Each of these ten farm buildings will be found on the pages following.
and contain the latest ideas in design, construction and equipment.



PLOT PLAN OF IDEAL GROUP OF FARM BUILDINGS.

The arrangement of this farmstead follows out substantially the principles laid down by Prof. Chase. It is a compact group that will save steps; at the same time no building is concealed from farmhouse or road. The electric lighting system indicated in red has been laid out with a generous use of 3-way switches, so that the farmer can light up in front of him in going from one building to another, and then turn out the light without going back to it, thus saving many steps and much current. The big barn consolidates much of the chore labor under one roof. The two-story crib is handy both to the hog house and the stable. The implement shed is on the lane to the fields. The farmhouse and tenant house each have a desirable location. Varying conditions would modify some features of this layout in actual use, but as an ideal, it is worthy of careful study.

amount to much, but since hundreds of trips are made annually over the same ground the aggregate amounts to enormous figures. On a dozen or so farms in Nebraska records have been kept of the number of trips between house and barn each day. This ranges from 34 to 53, with an average of over 40. If the house and barn are 130 feet apart the distance traveled between them is about a mile, if they are 200 feet apart this distance has increased to about a mile and a half, while if they are 300 feet apart, which is a good average for present farmsteads, the total distance traveled between them per day is about $2\frac{1}{4}$ miles, and if the distance is 400 feet the total distance traveled is about three miles.

By considering the first and last cases mentioned we find a difference of two miles traveled each day,

which amounts to 730 miles in one year and to 7,300 miles in ten years. Very few men can walk more than 7,000 miles in one year; hence there is one year's time lost every ten years in walking between the house and barn, if they are separated 400 feet, when they could just as well have been only 130 feet.

In most sections of the country there are very few winds from the east and the northeast, while there are many during the summer from the south and southwest, and there are many in the winter from the northwest. If the farmstead can be planned so the out-buildings are to the northeast of the house they can be brought up close, but if they are south or west or northwest, they should be kept farther away.

The manager of a factory builds his home just as far from his plant as time and distance will permit.

This is to get his family away from the unsightly surroundings of the factory neighborhood. The barns of a farm are the factory to the farmer, but time will not permit his building his home far away; so he should place it in a small park adjoining the barns. Trees and shrubs should screen the barns from the house and at the same time make a background for the latter.

The farmer's family always desires to have the house close to the highway. The passing vehicles break up the monotony surrounding their labors. But with the advent of the automobile and its trail of dust, farm homes must now be moved back from the highway, especially when they must be placed on the leeward side of the road during the dusty months of the year. This distance varies from 200 feet to a quarter of a mile, depending upon the topography and the amount the highway is used.

There are just as many troublesome elements entering when arranging the out-buildings with respect to each other as there are to locating them with respect to the house. It is not desirable to drive the stock from the barns to the highway past the house, neither is it conducive to cleanliness to haul hay and straw over such a route. The necessities a front and back drive, one past the house, the other directly to the barn.

All buildings which house feed that is to be fed to the stock in small quantities, should be placed where the feed can be conveniently removed, even at the sacrifice of easily filling the building. A few extra seconds spent in driving into a granary or barn with a load

of corn or hay is nothing compared to the amount of time lost in taking this feed from the storehouse to the feed bunks in small quantities.

These storehouses should also be conveniently placed with respect to the fields. If the route between the fields and storehouse is circuitous and contains sharp bends, fences will be broken down and the corners of racks smashed in. All paths and lanes should be as nearly straight as possible.

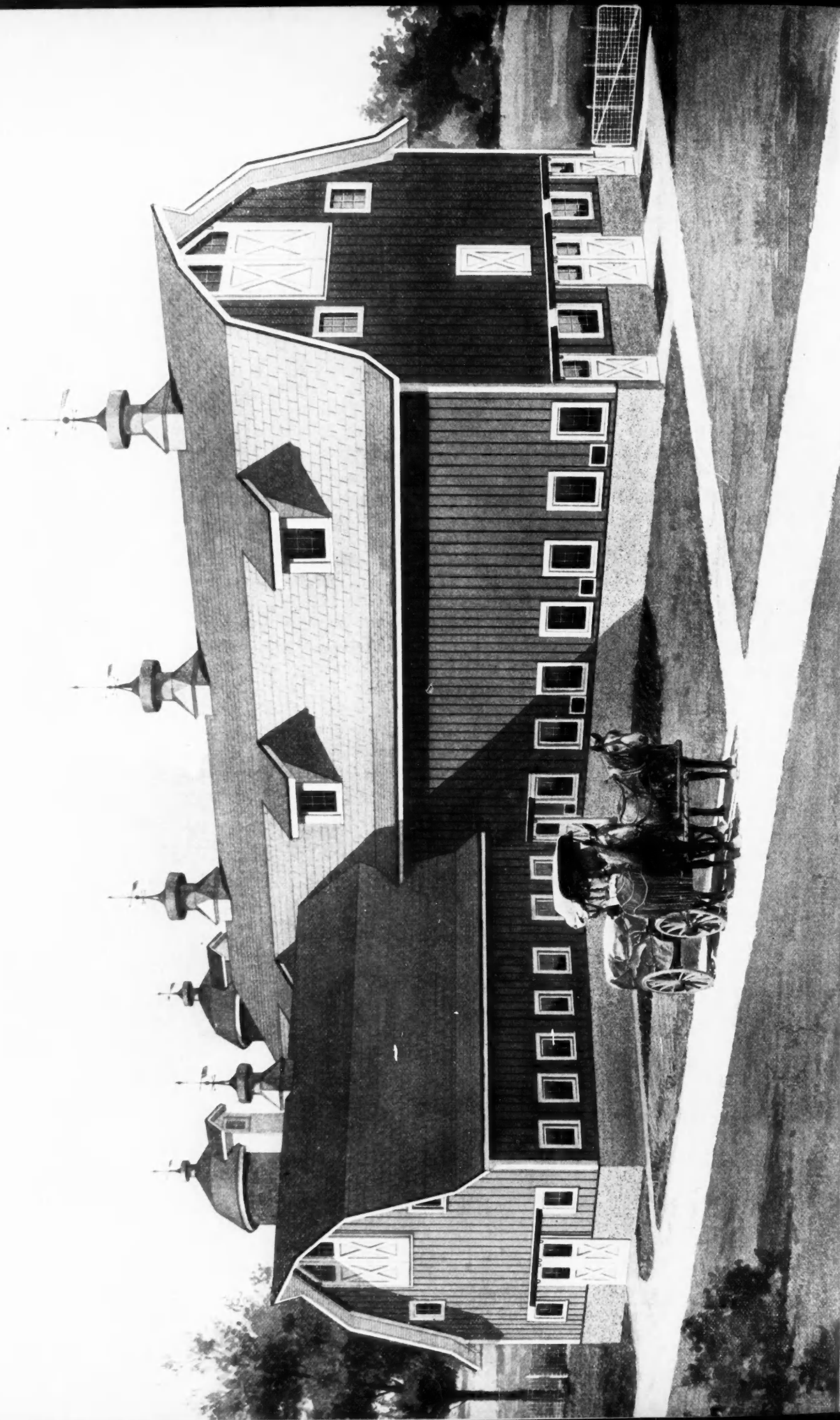
Animals enjoy fresh air and sunshine, yet they must be protected from the storms. All barns and sheds should be on the north and west of the yards and all yards should be open to the south. All barns should be accessible for feed, yet there must be a maximum amount of yard space adjoining them. These yards should then in turn be convenient to the pasture or browsing fields.

Many farmers are inclined to locate and arrange their buildings with respect to the well. This should not be done when sanitation, warmth, and convenience must be sacrificed. Water will flow thru pipes, and it is easy to force it thru. It is not easy to take care of a barn yard located down in a hollow or on the north side of a hill or way out in a field where it is inconvenient to get to it.

Convenience is not the only thing to be considered in the planning and arranging of buildings. They must be planned for beauty and designed and constructed so that the owner will desire—because of the pride he takes in them—to keep them and their surroundings neat and clean.



Front View of Large General Barn. The form in which this Barn is planned, gives it an impressive, distinctive appearance from every point of view. The dairy stable is in the main section; the horse barn the left wing, and the stock or calf barn the right wing. For floor plans and details of construction, see Pages 57 to 61.



General Photographic View of Large Combination Dairy and Horse Barn, as Viewed from the Horse Stable Wing. The Main Section of this Barn is 36 Feet Wide and 98 Feet Long; Stables 46 Cows in Stanchions in a Double Row Facing Out. The Horse Barn Wing Measures 30 by 36 Feet and Contains Single Stalls and Two Box Stalls, Besides Harness Room and Office. The Stock Barn Wing on the Far Side is the Same Size as the Horse Barn. For Floor Plans and Details of this Fine Building, see Pages 57 to 61. This is Our Design No. A386

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Designing Big General Barn for Appearance as Well as Economy

THE principal farm building of our Ideal Group is a combined cow, horse, calf and storage barn. It is laid out in the form of a cross, this design having been adopted for several very good reasons.

In the first place, it is a convenience to the farmer to have much of his work consolidated within the walls of a single building. However, the dairy regulations of several States do not permit milch cows to be stabled in the same room with horses or young stock where the litter is not removed every day. Avoiding this difficulty we come to this cross-shape floor plan; for it gives us truly a three-in-one stable arrangement. The horses and young stock are entirely shut away from the dairy stable.

But aside from all other considerations, the strongest recommendation that this design has, is its good looks. Viewed from any angle,

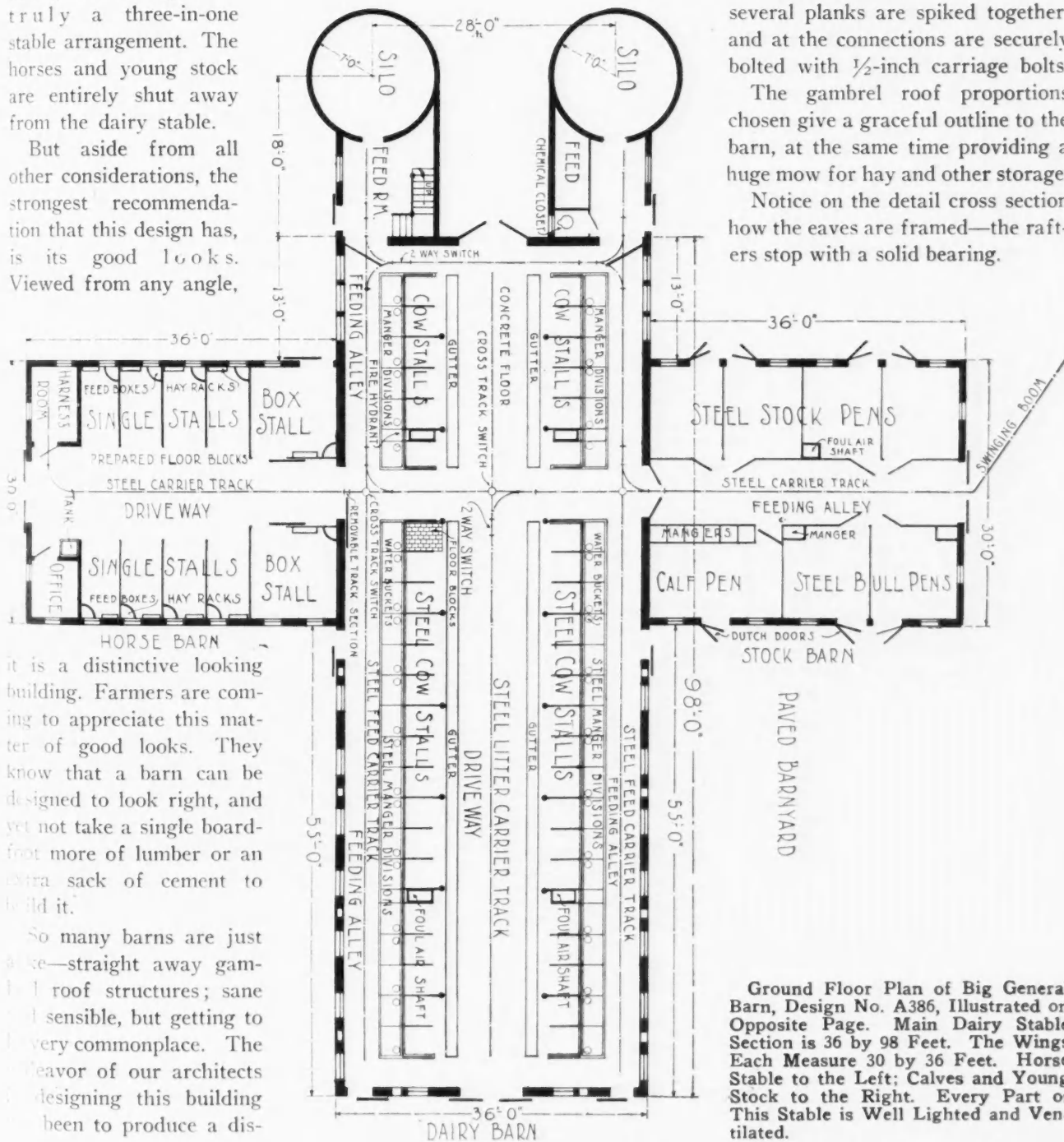
tinctive design that would be at the same time economical to build and very convenient to use. If you will study these floor plans, the detail drawings and the two outside views carefully, we believe you will agree that they have succeeded very well.

Such a building costs but little more, yet sells at a higher valuation.

In construction this building follows the popular plank frame style, which makes use of nothing heavier than 2-inch stuff—stock size material regularly carried and easily obtainable at any lumber yard. Where strength is needed, as in the trusses, several planks are spiked together, and at the connections are securely bolted with 1/2-inch carriage bolts.

The gambrel roof proportions chosen give a graceful outline to the barn, at the same time providing a huge mow for hay and other storage.

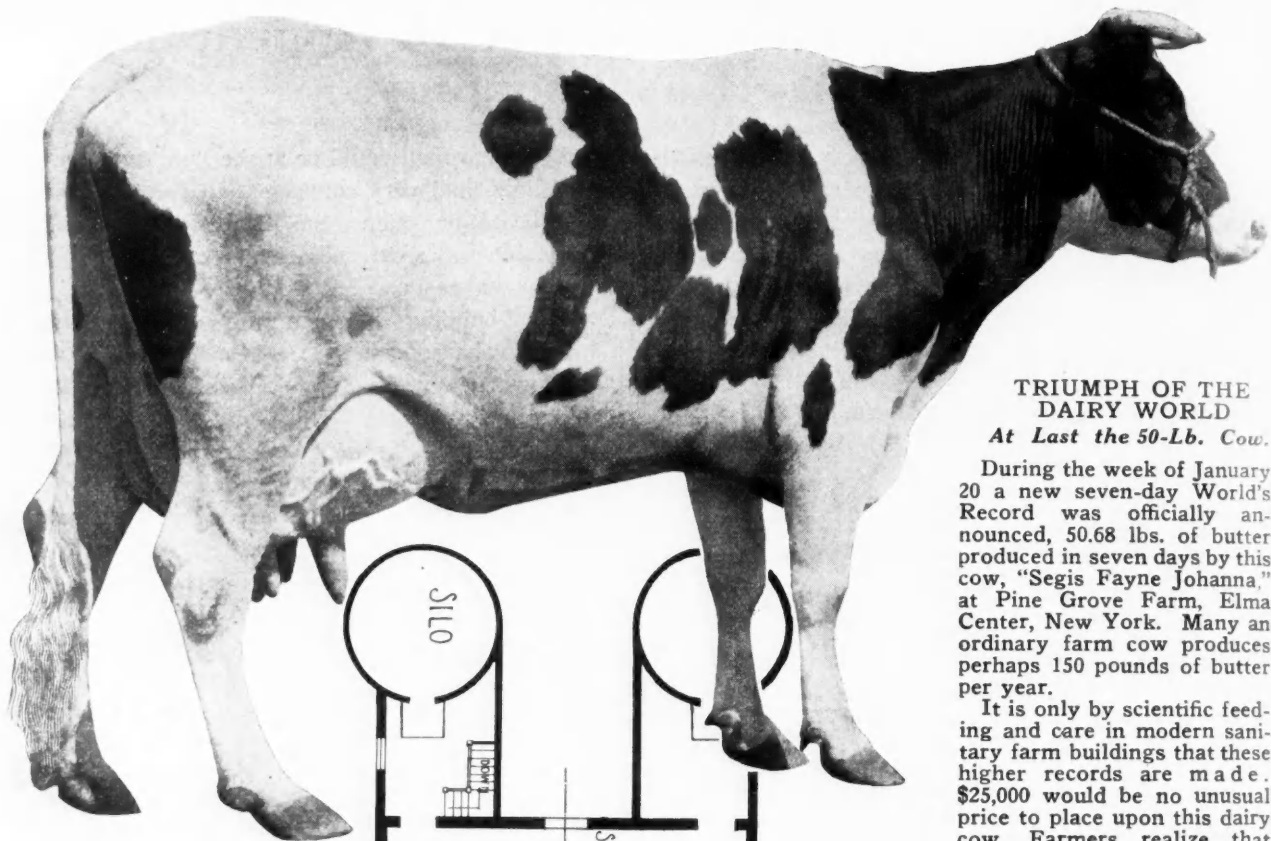
Notice on the detail cross section how the eaves are framed—the rafters stop with a solid bearing.



Ground Floor Plan of Big General Barn, Design No. A386, Illustrated on Opposite Page. Main Dairy Stable Section is 36 by 98 Feet. The Wings Each Measure 30 by 36 Feet. Horse Stable to the Left; Calves and Young Stock to the Right. Every Part of This Stable is Well Lighted and Ventilated.

it is a distinctive looking building. Farmers are coming to appreciate this matter of good looks. They know that a barn can be designed to look right, and yet not take a single board-foot more of lumber or an extra sack of cement to build it.

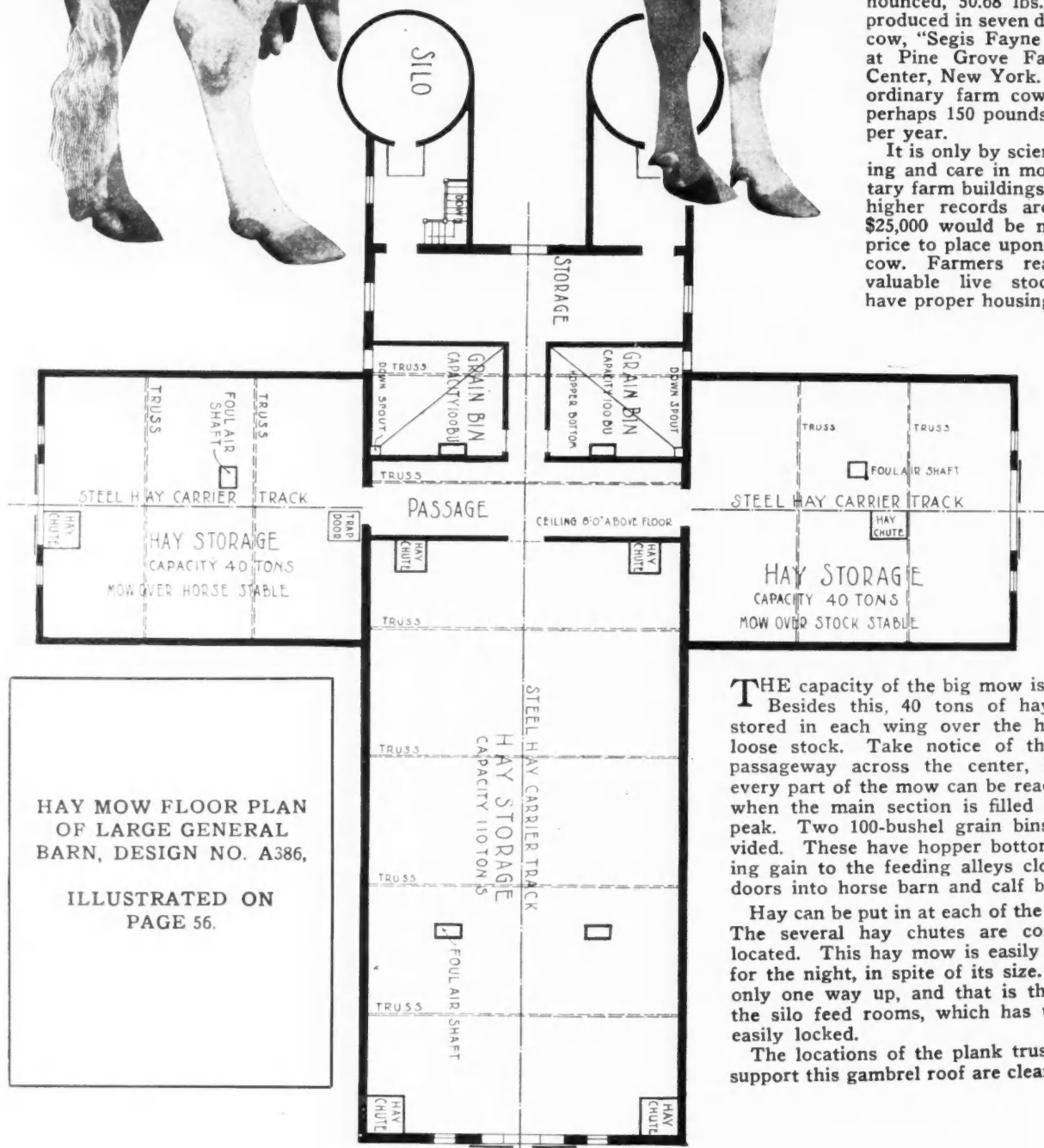
So many barns are just alike—straight away gambrel roof structures; sane and sensible, but getting to be very commonplace. The endeavor of our architects in designing this building has been to produce a dis-



TRIUMPH OF THE DAIRY WORLD
At Last the 50-Lb. Cow.

During the week of January 20 a new seven-day World's Record was officially announced, 50.68 lbs. of butter produced in seven days by this cow, "Segis Fayne Johanna," at Pine Grove Farm, Elma Center, New York. Many an ordinary farm cow produces perhaps 150 pounds of butter per year.

It is only by scientific feeding and care in modern sanitary farm buildings that these higher records are made. \$25,000 would be no unusual price to place upon this dairy cow. Farmers realize that valuable live stock should have proper housing.



HAY MOW FLOOR PLAN
OF LARGE GENERAL
BARN, DESIGN NO. A386,

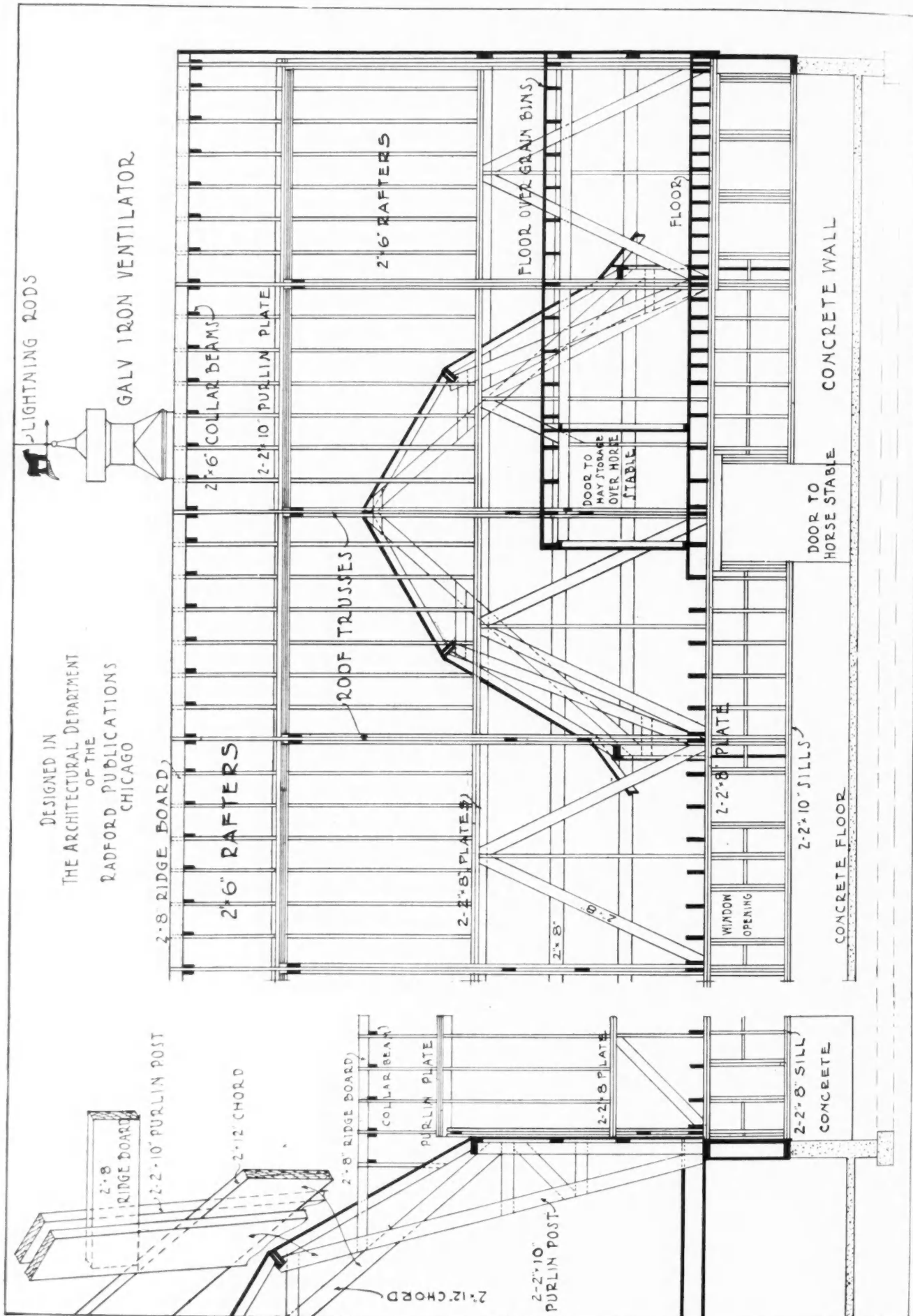
ILLUSTRATED ON
PAGE 56.

THE capacity of the big mow is 110 tons. Besides this, 40 tons of hay can be stored in each wing over the horses and loose stock. Take notice of the covered passageway across the center, by which every part of the mow can be reached, even when the main section is filled up to the peak. Two 100-bushel grain bins are provided. These have hopper bottom, delivering grain to the feeding alleys close by the doors into horse barn and calf barn.

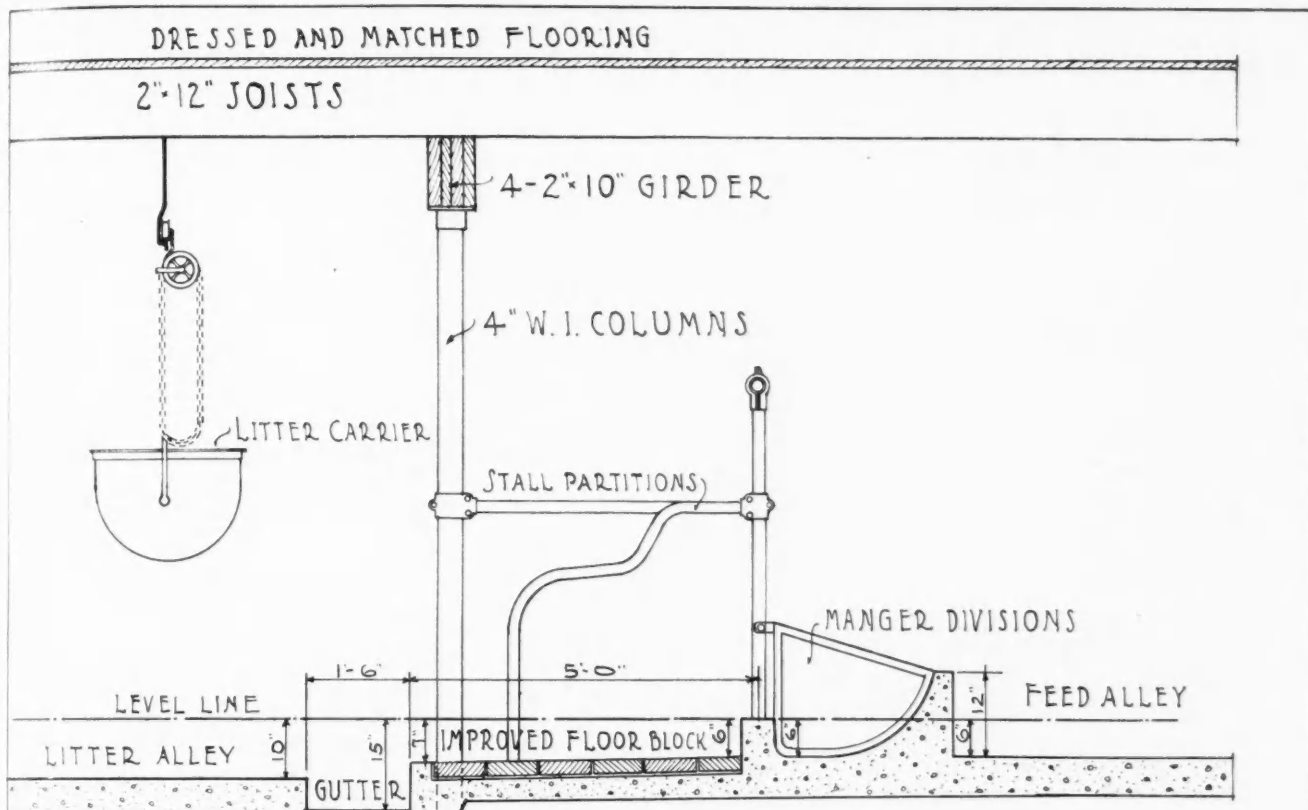
Hay can be put in at each of the four ends. The several hay chutes are conveniently located. This hay mow is easily locked up for the night, in spite of its size. There is only one way up, and that is thru one of the silo feed rooms, which has two doors easily locked.

The locations of the plank trusses which support this gambrel roof are clearly shown.

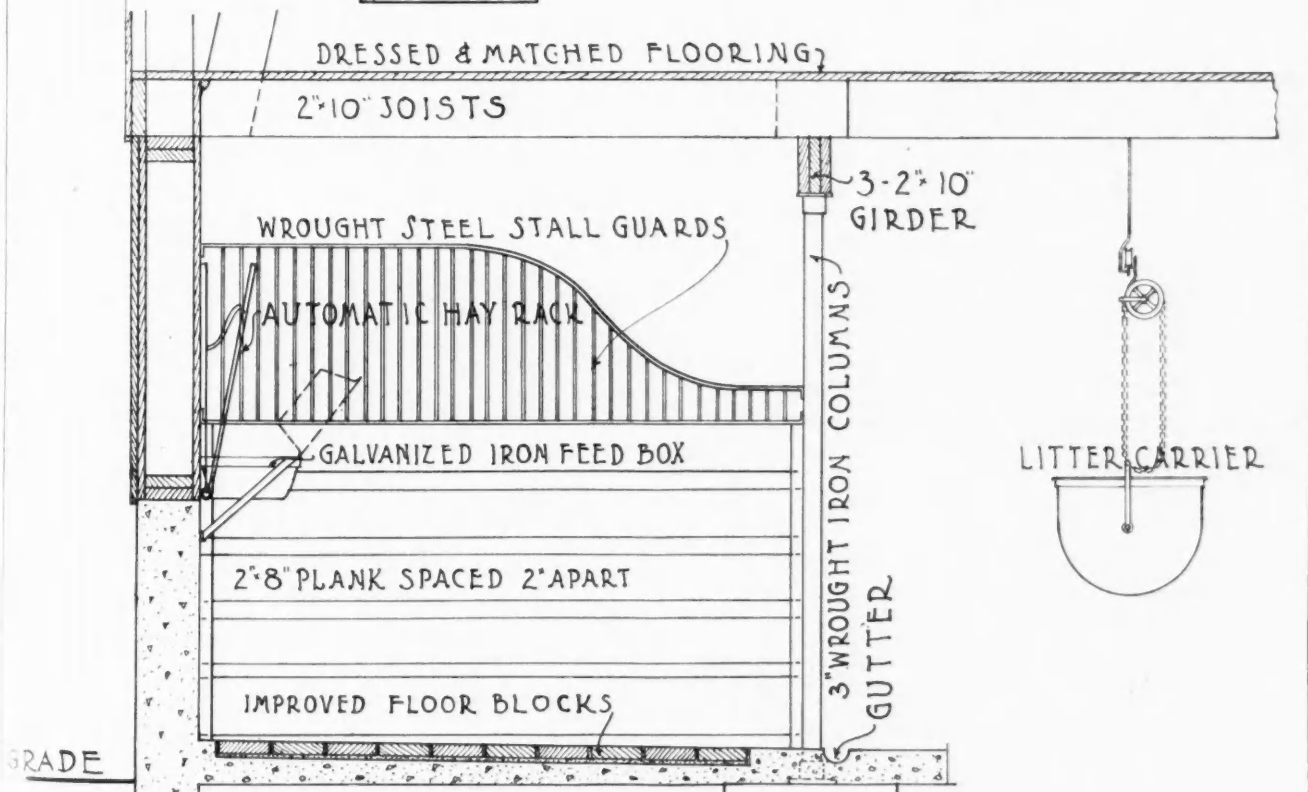
42'-6"



Longitudinal Section Thru Big Gambrel Roof Barn, Design No. A386, Illustrated on Page 56. This View Shows Intersection of Horse Stable Wing with Main Section. Notice How Passageway in Hay Mow is Formed Across the Center of the Barn to Make All Parts of the Mow Accessible, Even When the Center is Filled.



CONCRETE FOOTING COW STALL DETAIL



HORSE STALL DETAIL

DESIGNED IN
THE ARCHITECTURAL DEPARTMENT
OF THE
RADFORD PUBLICATIONS
CHICAGO

Details of Sanitary Cow Stalls and Horse Stalls in Big Barn, Design No. A386, Illustrated on Page 56.

Better Barn Equipment the Best Reason for Farm Building Improvements

FARMERS CAN NO LONGER AFFORD TO MAKE THE OLD BARN DO

THE buildings of the Ideal Group are, of course, completely supplied with every sort of labor-saving and efficiency encouraging equipment. These are the things for which new farm buildings are really put up. They are at the bottom of nine out of ten barn remodeling enterprises.

The fact is that farmers have been an overworked class. With the old-style stables, where all the work was done by hand and to no advantage whatever, the farmer's stable chores were an awful burden. With increasing prosperity, it is only natural that he has wanted to get out from under, as much as he possibly could.

A hard, sanitary stable floor lightens the labor easily one-half; putting in an overhead litter and feed carrier system lightens it 50% more. You can't have these labor-saving conveniences in the old-style barn without complete remodeling; and it is the longing for these labor-saving conveniences, more than anything else, that brings the farmer up to the point of either remodeling or building a new barn.

Coupled to this idea of lightening his work, there is also the pride and satisfaction of having a clean, well lighted, comfortable stable. This means iron-pipe stock pens and cow stalls and comfortable swinging stanchions. A concrete feed alley is put in with mangers of sheet metal that can be easily raised for cleaning. Every cow has her own water bucket with plenty of fresh water piped direct to her stall, and

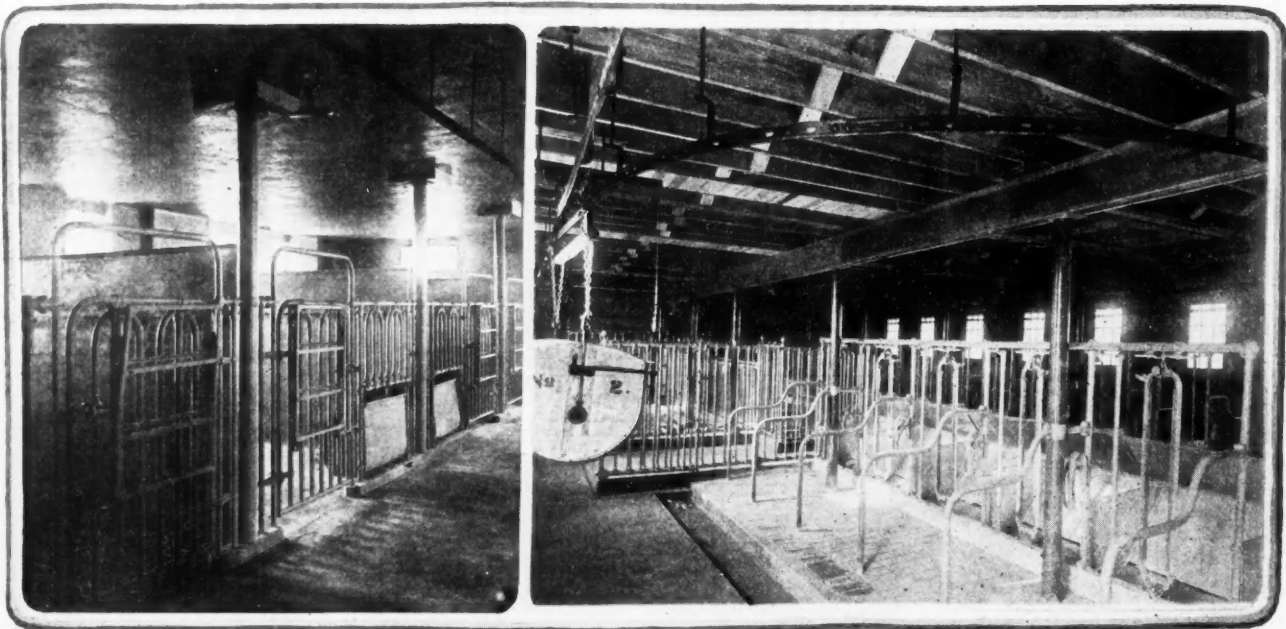
not touched by any other animal. This means a great deal in preserving a healthy herd.

Plenty of sunlight is wanted in the modern stable. Farm building experts prefer the nine-light window, and these sash are set up and down the long way in the wall. The best lumber dealers are carrying these nine-light sash in stock, and recommend them for barns. The older four-light sash does not give sufficient glass area.

A very important item of barn equipment is door track and hangers for the large doors, and also for numerous small doors around the stable. Animals are not nearly so liable to hurt themselves on these as on swinging doors. The newer door tracks are fully protected from the weather, and the hangers are guaranteed to operate easily under all conditions.

In the hay mow, the hay track and fork present a special problem that has been solved very satisfactorily in modern equipment. The technical points of this vary with the type of outfit chosen, and are fully explained in the booklets issued by the manufacturers. The older four-light sash does not give sufficient glass area.

Strangely enough, in these automobile and motor truck days the horse has come in for considerable pampering again. Horse stable equipment is finding a better market today than for twenty years past. The automatic hay rack saves enough hay in a year's time to pay for itself, and the iron stall partition tops dress up a horse stable as nothing else can. For box stalls and bull pens there are iron pipe units that every farmer wants.



SANITARY IRON PIPE STABLE EQUIPMENT

To the Left, Box Stalls or Pens with Improved Hay Rack On the Gate and Tip-Up Iron Manger Alongside, On the Floor. To the Right, Cow Stanchions and Stall Divisions. Stalls Floored with Special Flooring Blocks. Trolley Track and Carrier for the Easy Handling of Feed or Litter are Clearly Shown.

The Ideal Farm has Permanent Silos

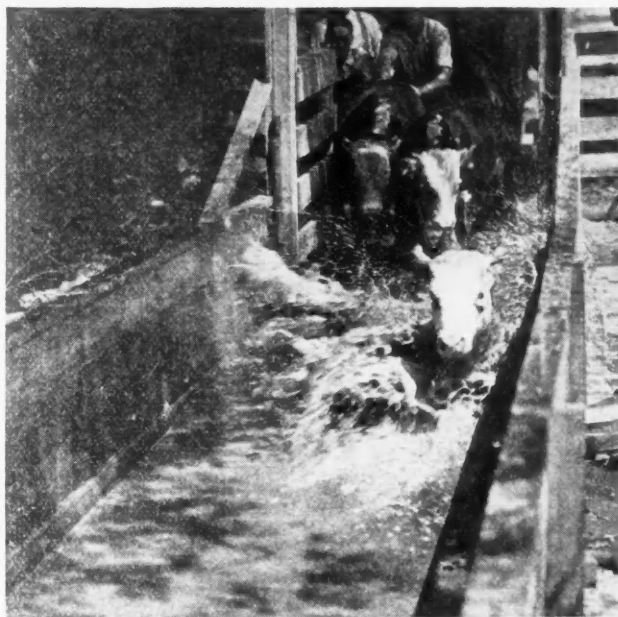
THE fact that a silo is a paying investment is now generally known. Men who use silage are enthusiastic over it for feeding all kinds of live stock. They find that they are able to feed silage at a profit when market conditions are very much against them. An ideal group of farm buildings must have one or more silos included in its plan.

There has been a strong tendency among men who have had experience with silos toward the permanent types. Surely the silo should be considered in the light of a permanent structure as much as any of the other buildings in the group. Qualities which have been found necessary or desirable in a silo are usually qualities inherent in the permanent type. This silo is durable, fire-proof, storm-proof, air-tight, structurally strong, smooth and non-conductive to heat, cold and moisture. Most of these qualities contribute to the big fundamental requirement that the silo preserve the silage for a reasonably long time without spoilage.

Viewed from another angle, the silo which is to be installed as a part of an ideal group of farm structures must have a pleasing appearance. No group may be called truly "ideal" if it does not please the eye, and certainly the silo is one of the most conspicuous objects in the group. A good appearance is characteristic of almost any member of the family of permanent silos.

Country builders should equip themselves for the construction of permanent silos. A good silo is a good advertisement. It is noticed and talked about. The neighbors hear all about its construction. If the builder displays his ability to handle the work in a creditable manner the neighbor farmer will not forget it.

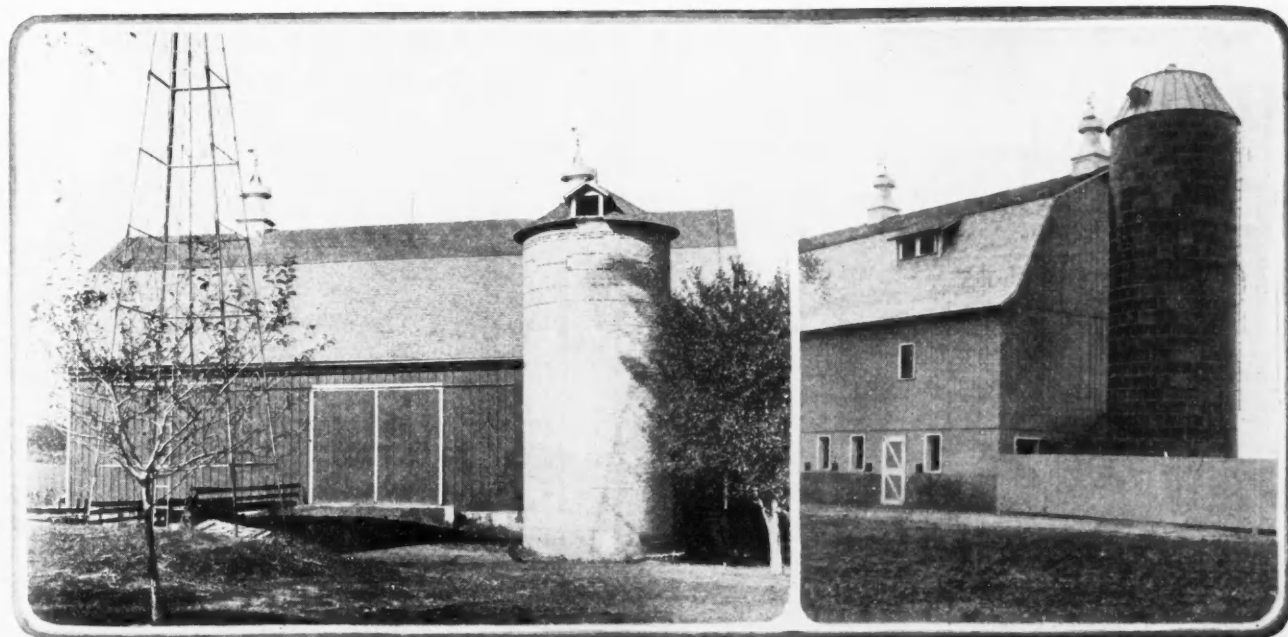
By some it is considered necessary to devote full time



Concrete Dipping Tank for Cattle or Hogs Has Become One of the Regular Farmyard Improvements in These Sanitary Times.

to the business of constructing silos. There may, perhaps, be cases where this is the advisable thing to do. There is no doubt, however, that, with a properly organized force of men, any builder can make good profits building permanent silos in connection with the construction of other farm structures. By so doing he places himself in the way of more business and does not share the profits with others on the largest and best jobs.

The equipment necessary for the construction of permanent silos will involve an expense when the work is started, but it will be used over again, for the most part, and will pay for itself eventually.



TWO POPULAR PERMANENT SILOS.

To the Left, the New Reinforced Vitrified Brick Silo That Has Become So Popular Thruout Wisconsin and Adjacent States. To the Right, the Familiar Silo of Impervious Hollow Tile. Either of These Silos Dress Up a Group of Farm Buildings and Last for An Indefinite Period.

Properly Constructed Flues Essential to Barn Ventilation

IT'S NOT ENOUGH TO PUT A GOOD LOOKING VENTILATOR ON TOP OF A BARN—CONNECT IT UP OR IT WON'T VENTILATE

IT is surprising how many galvanized iron cupola ventilators are being set on along barn ridge poles just for looks. Like the little "ivergreen tree in the spattoon" at Mike O'Flynn's banquet, they are there "jist for ornimintation."

The manufacturers of cupola ventilators have done a great work in making roof ventilators well known to all barn builders, for every modern barn needs ventilating. Modern barns are built practically air-tight these days, and crack ventilation doesn't serve, as it always has in the past. And it is the builders who are to blame that so many modern barns are close, damp and smelly—in spite of the fact that their roofs are graced with several large and beautiful galvanized iron cupolas. The barn builders are to blame, because, with one or two notable exceptions, only the roof ventilator is furnished by the manufacturer, it being left to the builder to put on the ventilators and build and connect up the flues that make it a real ventilating system.

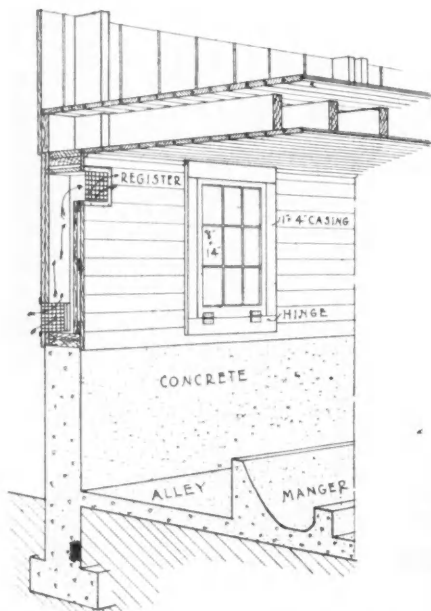
The part of the barn we must ventilate is not the hay mow, but the basement, the stable where the animals are. Unless you connect up the ventilator heads on the roof with thoroly insulated foul air shafts extending down on each side to within about a foot of the stable floor, you can't expect to ventilate that stable, even with the most powerful and scientifically constructed array of ventilators perched along the ridge pole.

One of the pioneer concerns in the barn ventilator manufacturing

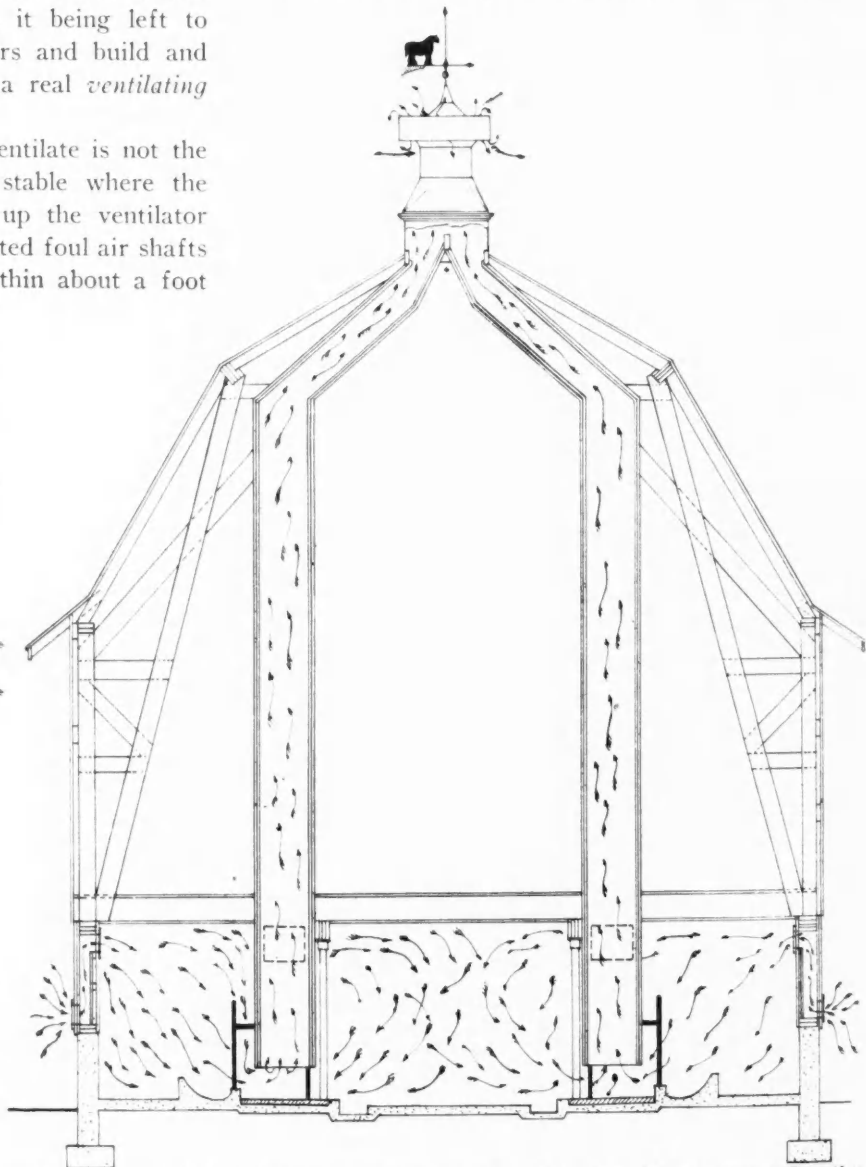
field has considered this matter of designing and installing the flues so important, that it maintains a large crew of experts out on the job all the time to make sure that a real ventilating system is put in wherever this ventilator is used.

We want every one of our readers to realize the importance of this matter. We all know the necessity of having fresh, pure air to breathe, but we forget what huge quantities of air are consumed by farm live stock. One authority states that the following quantities are required if stable air is to be kept healthful for the stock:

	Cubic feet per hour per head
Horses.....	4,924
Cows.....	3,953
Swine.....	1,510



Detail of Fresh Air Intake Flue for Dairy Barn Admitting Fresh Air at the Ceiling in Front of the Cattle.



Detail of Ventilating Flues for Stables Where Cows Face Out. The Necessary Location of the Foul Air Flues Back of the Cattle Makes Them More in the Way Than in Stables Arranged for Cows to Face In.

This means cubic feet of air to be supplied by the ventilating system; not cubic feet of stable space.

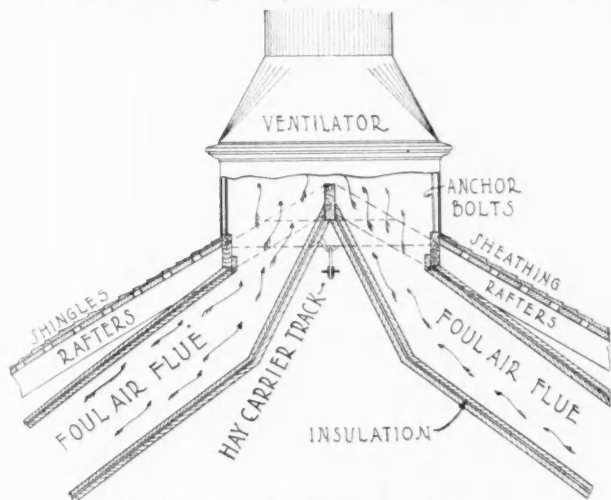
The dangers of insufficient ventilation are well known to most farmers and barn builders. They are: exhaustion of oxygen; accumulation of carbon dioxide and other poisonous gases; accumulation of disease bacteria; increasing dampness of the stable air which

will form on the inside of the flue, eventually stopping passage of air.

It is better to have flues as nearly straight as possible with an ample cross-section area. In case of a slight angle in a flue, the cross-section area should be increased. Better air circulation will be secured by making one or more larger flues instead of many small ones, and it is usually best to have as few as possible that will carry off all impure air from the stable.

The out-take flue should extend to within one foot of the stable floor so that air may come up the flue from the floor. This is very important, as the coldest air at the floor should be removed during the winter instead of the warm air at the ceiling. There should be an opening in the ceiling for warm air to escape when the stable becomes overheated. Both these openings should be provided with regulating doors so that they may be partly or completely closed.

Study these drawings carefully, and post up thoroly on the barn ventilating data contained in several of the ventilator manufacturers' hand-books and catalogs. Qualify yourself to build in real ventilating systems that will ventilate.

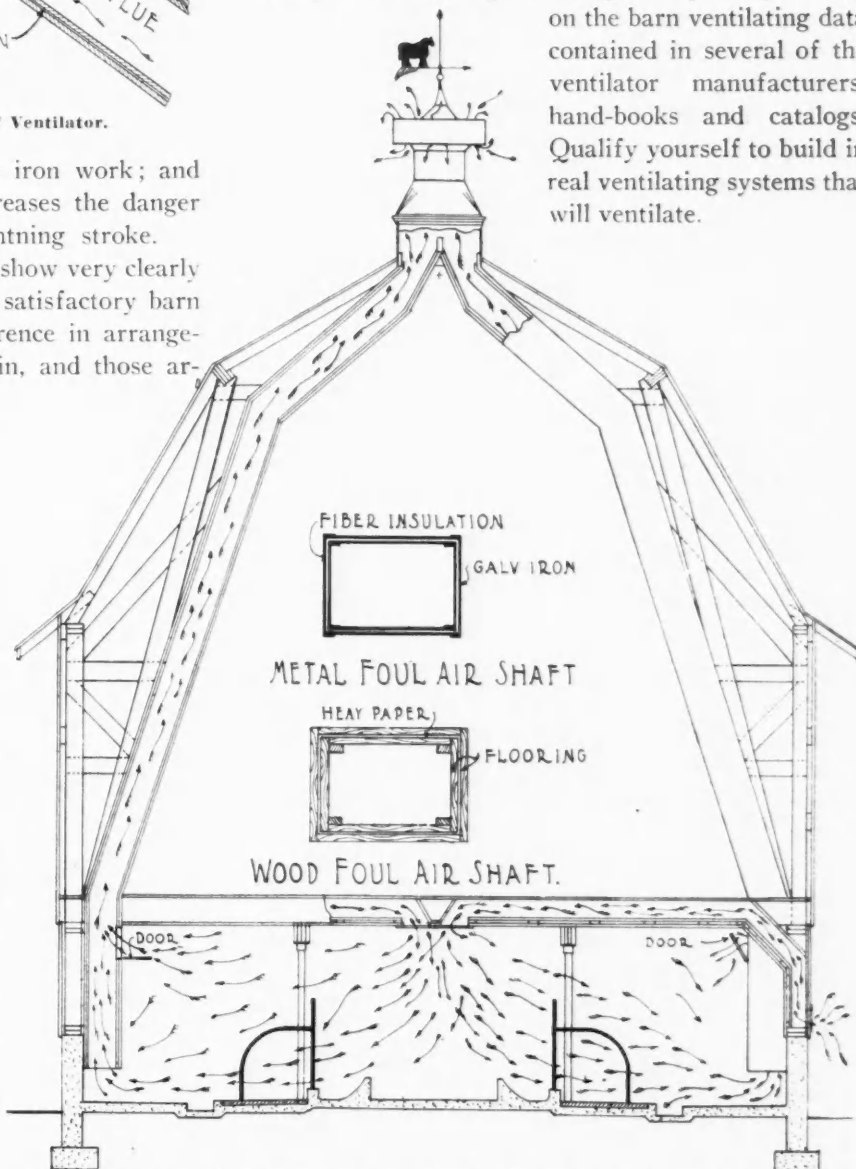


Detail of Foul Air Outlet Into Roof Ventilator.

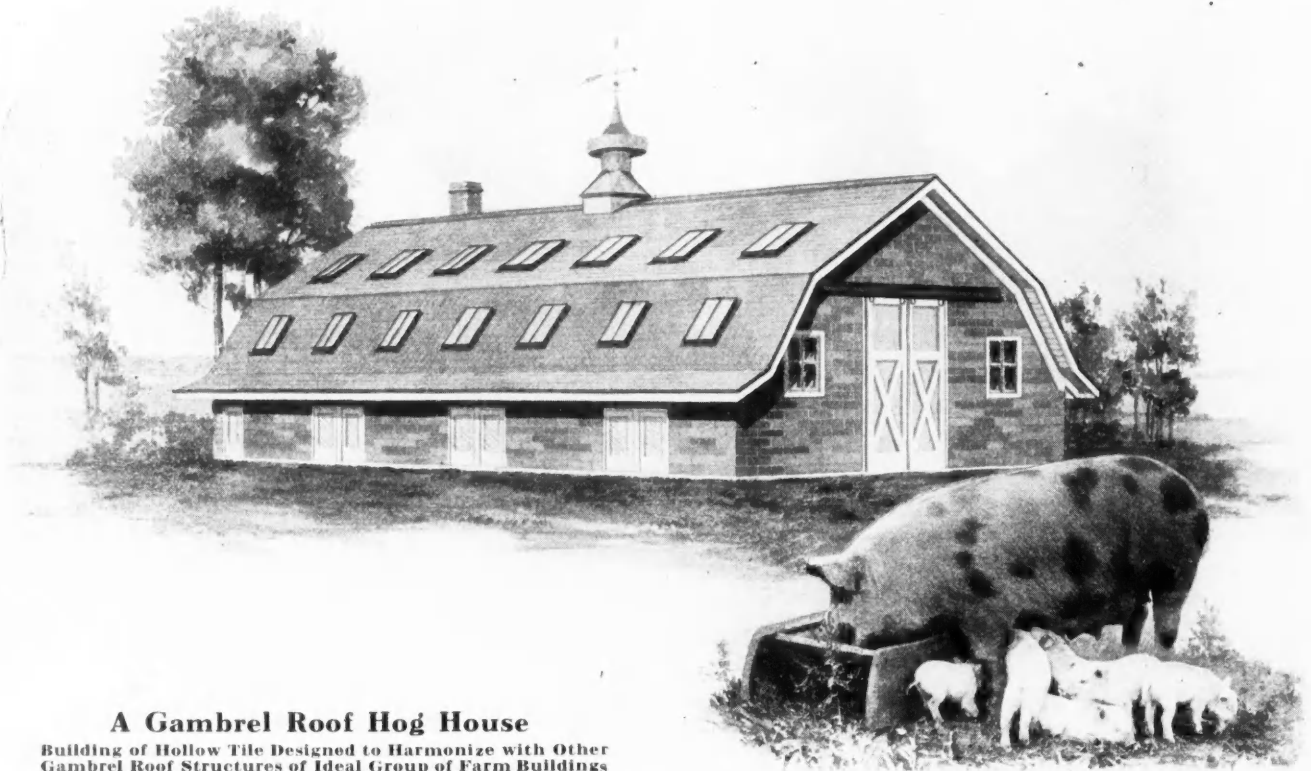
quickly rots barn timbers and rusts iron work; and the accumulation of dust which increases the danger of spontaneous combustion and lightning stroke.

The accompanying detail drawings show very clearly the essentials of the construction of satisfactory barn ventilating systems. Note the difference in arrangement for stables with cows facing in, and those arranged for cows to face out. Fresh air is always admitted at the ceiling in front of the animals, and the foul air is exhausted from the floor back of the animals.

The really important thing is to have the air flues, especially the foul air flues, properly insulated. A ventilating flue should have all the characteristics of a good chimney, with air-tight walls so that no air enters except from the stable. Its interior surfaces should be smooth. If constructed of wood, use two thicknesses of matched stuff $\frac{7}{8}$ inch thick, with heavy building paper or felt between. If the flues are to be constructed of galvanized iron, use heavy fiber insulation between the two sheets of metal. The idea is to make a flue wall that is a nonconductor of heat, otherwise the warm stable air will be quickly chilled in passing up thru the colder hay mow, with the result that quantities of frost



Details of Ventilating System, Cows Facing In. Fresh Air is Piped from Just Above the Foundation Wall and Between Floor Joists to the Center Aisle, Where it is Admitted. The Cows Should Always Face the Fresh Air. The Foul Air Flues Are Against the Outside Walls and Come Down to Within a Foot of the Floor. Note Insulated Construction of Foul Air Flues in Either Galvanized Iron or Wood. Proper Insulation of Flues is Very Important.



A Gambrel Roof Hog House

Building of Hollow Tile Designed to Harmonize with Other Gambrel Roof Structures of Ideal Group of Farm Buildings

THE wise farmer these days takes care to house his hogs just as carefully as he does his milch cows. Pork is the farmer's gold mine, and it is in the winter and early spring, when snug housing is most needed, that the little pigs have to be given their start in life.

Winter hog houses of structural tile are liked because of their warmth and the ease with which they are kept clean. These walls are easily laid up by any builder and the cost is not great. Nearly all lumber dealers are now carrying in stock the 8 by 5 by 12-inch tile for farm building use.

This hog house is designed to be placed north and south. The roof windows allow the sun to shine into the pens in the forenoon thru the windows on the east half of the roof, and in the afternoon thru the west roof windows.

The gambrel roof is something of a novelty for hog houses, but has several advantages in its favor. There is little need for height along the outside walls, but the head room is out in the feed alley and at the front of the pens where it is needed. The roof is strong, almost self-supporting. Two-inch pipe columns along each side of the feed alley support the doubled 2 by 8-inch girders or purlin plates.

Those who make a business of

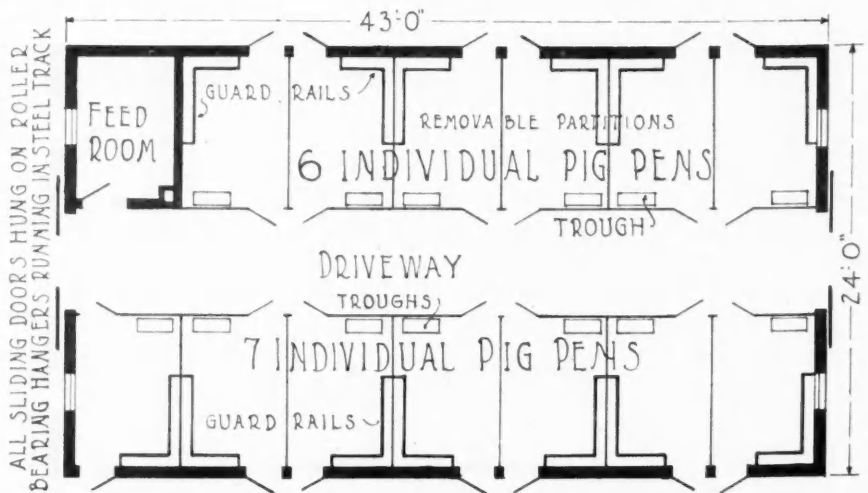
raising swine value sanitary partitions and feed troughs for their hog houses quite as much as the dairyman does for his cattle barn. Partitions made out of steel gates have come into use to a considerable extent.

Hog houses should be well ventilated. The cross sectional view on the opposite page shows how this ventilating system is arranged.



Arrangement of Dairy House

ASSUME a dairy business conducted on the plan of selling cream and feeding skimmed milk warm to the calves, pigs and chickens. There is great feeding value in skimmed milk when it is



Floor Plan of Gambrel Roof Hog House Design No. A385, Illustrated Above, and with Construction Drawing on Opposite Page.

An Ideal Group of Farm Buildings

67

properly handled. We have arranged a dairy convenient to the cow stable in the Ideal group as much as for the proper use of skimmed milk as for the money to be got for the cream.

It is a short ways from the stable to the dairy. An electric motor operates the separator, so that the separating can be carried on just as fast as the pails of milk are ready. The man who does the feeding carries the warm milk at once to the young stock to give the young animals the full benefit. Skimmed milk, fed warm, is worth 10 per cent more than the same milk after it gets cold.

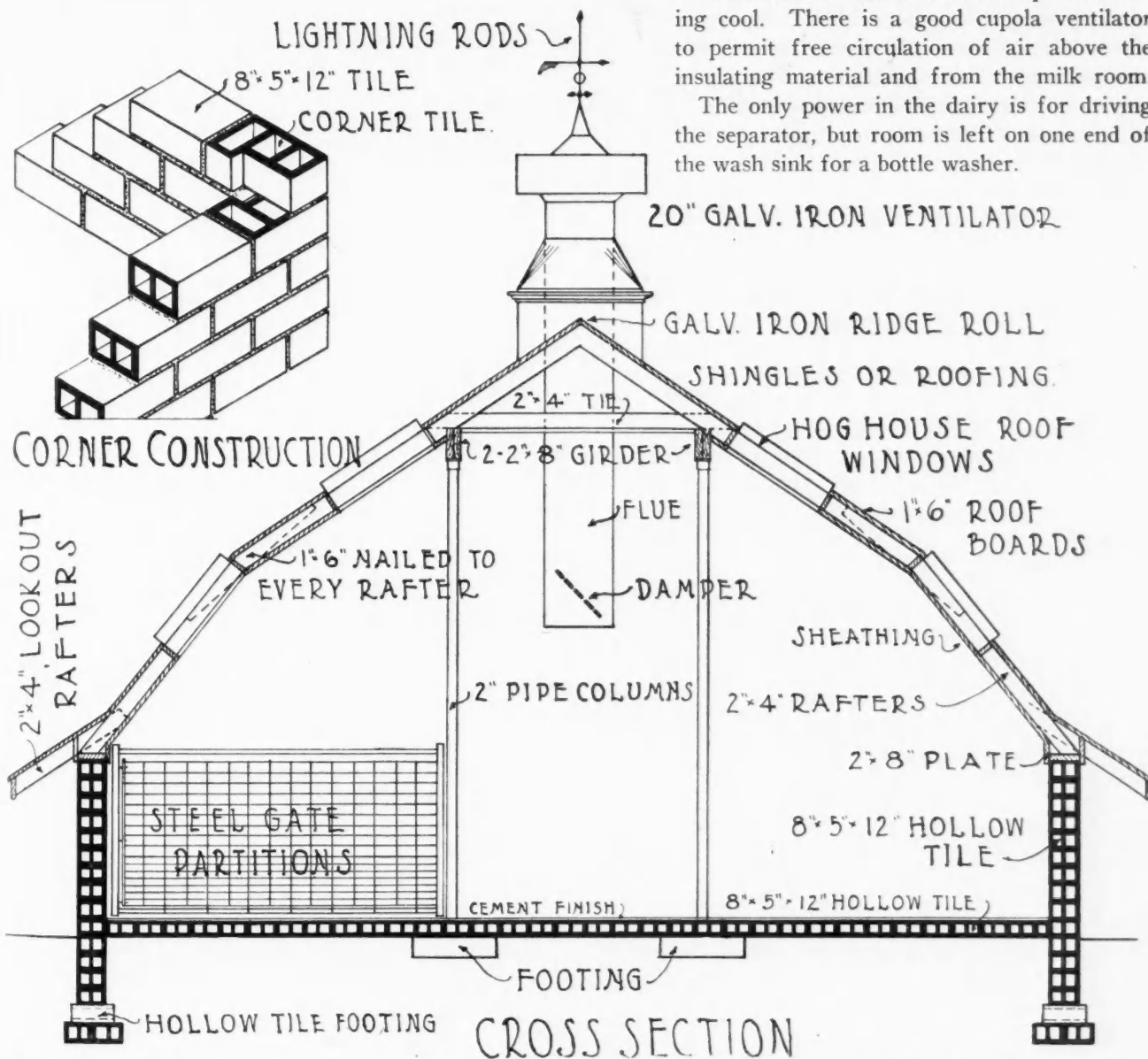
The dairy house is small, but it is well built. There is a concrete foundation which joins the walls, all built solid together. The wall is carried up high enough to give plenty of head room, and the ceiling is lathed and plastered with a smooth finish. The walls are constructed of metal lath, stuccoed over with a rich mortar made as smooth as possible, and the ceiling is waterproofed so that the ceiling and sides as



"A" Shaped Hog House or Portable Cot of the Sort that Every Farmer Likes and Usually Wants Ten or a Dozen of.

well as the floor may be washed down with a hose. Above the ceiling is 6 inches of a mineral wool insulator which keeps the ceiling cool. There is a good cupola ventilator to permit free circulation of air above the insulating material and from the milk room.

The only power in the dairy is for driving the separator, but room is left on one end of the wash sink for a bottle washer.



Working Plan Detail of Gambrel Roof Tile Construction Hog House, Design No. A385, Illustrated on the Opposite Page.



The Type of Two-Story Corn Crib and Granary Which Is Being So Successfully Used on the Average Farm. Equipment Includes Cup Elevator for Putting in Grain and Drag Chain for Taking It Out. Design No. A391.

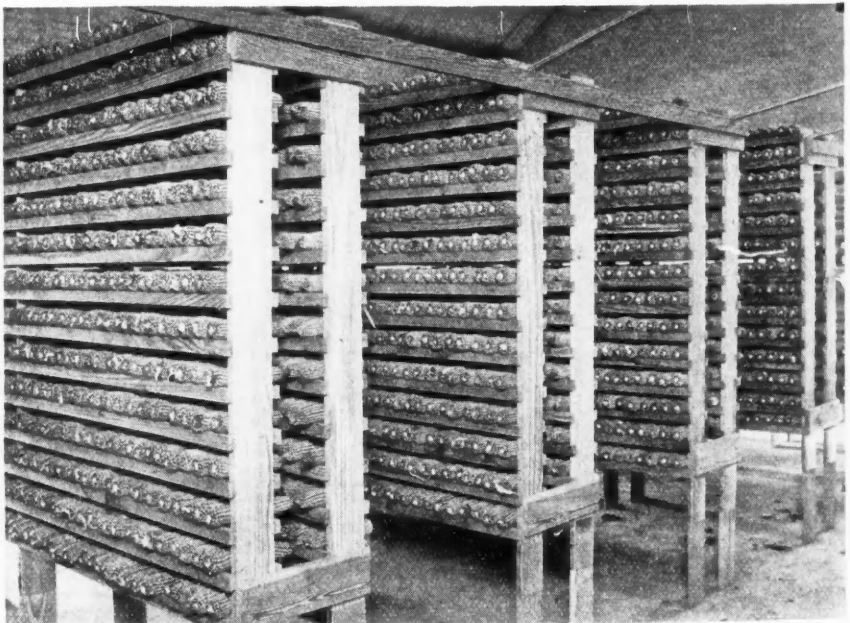
The Modern Corn Crib and Granary

THE best farms of average size are now being planned to include a two-story corn crib and granary of the type shown in the accompanying illustrations. The Ideal Group would not be complete without it. This type of building is the result of a great many years of study and experience and it fills a long-felt want. The two-story building concentrates a large storage capacity on a relatively small area, saves a considerable amount which might be spent in erecting separate buildings, furnishes valuable machinery storage space at certain times of the year and when properly equipped cuts down the labor of handling corn and grain at a saving of from 20 to 25 per cent.

Every country builder should acquaint himself with the construction details of this corn crib and granary. Because of the nature of its use, the building must be built carefully. It must be strong to carry the heavy loads impressed upon it and it must be arranged to meet the requirements of the machinery installed within. In order

to clearly understand the importance of this last item, the builder should study carefully the machinery used in a corn crib and granary of this kind.

The building must, of necessity conform to any special demands made on it by the elevating machinery which is selected. In general, the cupola must be constructed so that corn and grain may be delivered

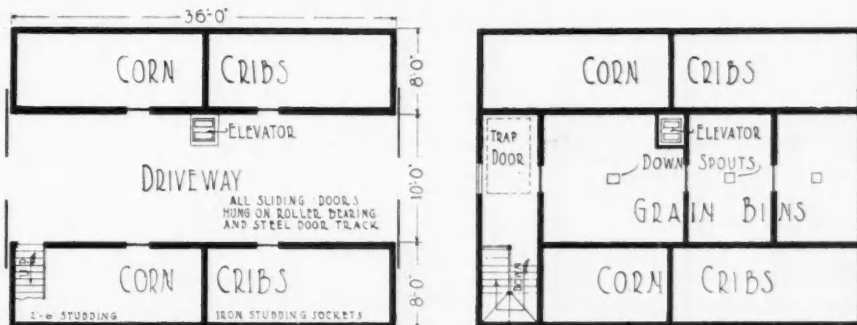


Easily Built Racks for Seed Corn Where It Is Graded and Kept in Best Condition.

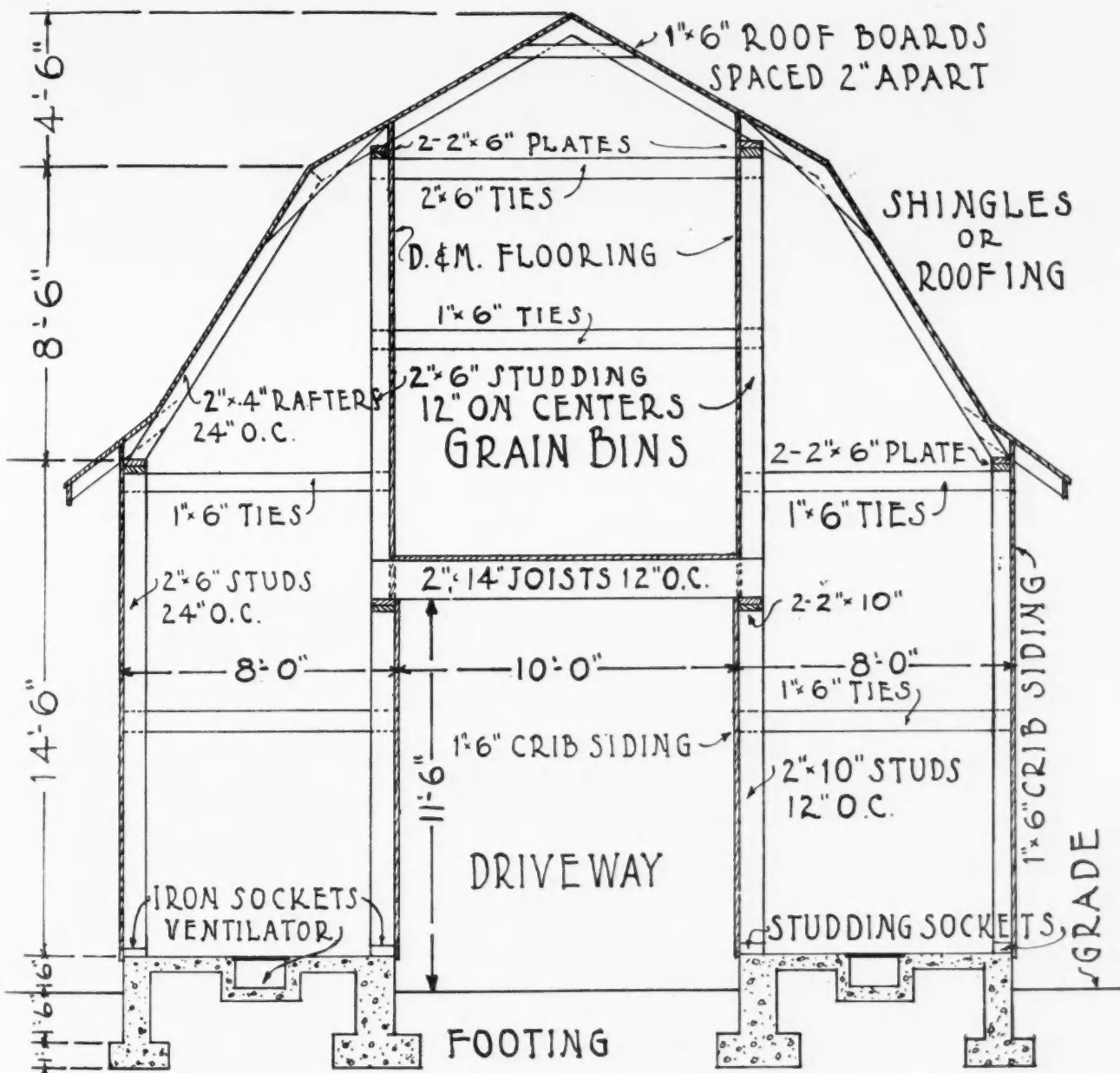
by chute to the cribs and bins from the elevator head. The floor must, for some elevators, be constructed with a pit under the elevator shaft. Sufficient headroom must be provided in the driveway so that the front of the wagon may be jacked up in unloading.

The foundation is an important part of this building. The outer walls must be carried down below frost line in order to prevent heaving when the ground is frozen. These outer walls, however, do not carry as heavy a load as those which flank the driveway. The inner walls and footings will be heavier than those under the outer walls of the building. A drag chain and ventilating channel

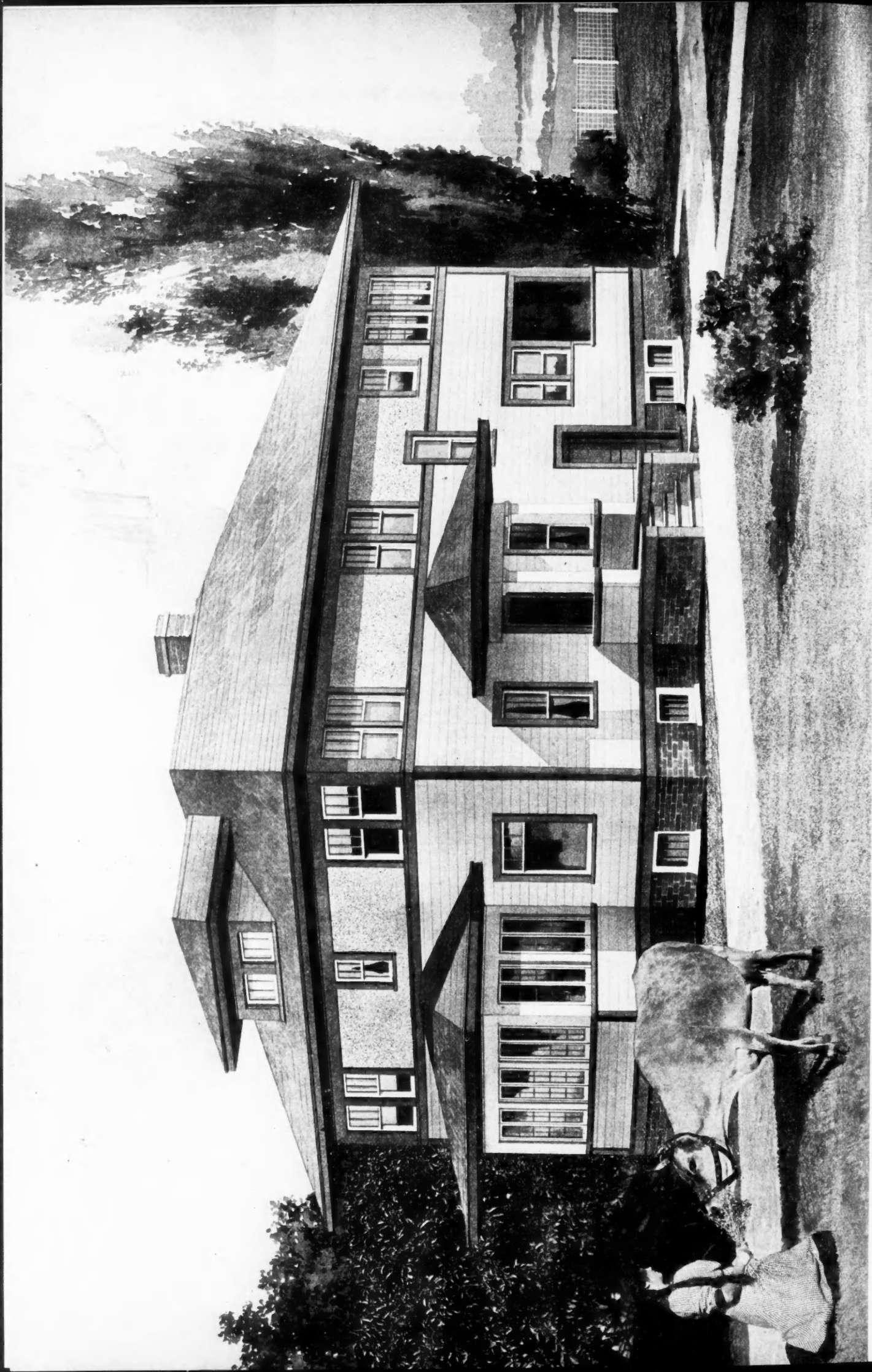
is formed in the concrete along the length of the building under the center of each row of corn cribs. The drag chain is used for taking out the corn from the lower bins. The grain stored above, of course, runs down by gravity when the spouts are opened.



First Floor Plan. Second Floor Plan. Showing Arrangement of Two-Story Corn Crib and Granary. Size 36 Feet by 26 Feet.



Section of Two-Story Corn Crib and Granary, Design No. A391, Showing Construction Details. Note Heavy Construction Required to Resist Grain Pressure.



Nine-Room Farm House of Dignified, Yet Attractive Design, and Containing all Modern Farm House Appointments and Conveniences. For Floor Plans and Details of Construction, See Pages 71 and 72. This Farm House is Our Design No. 46887.



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Basement Plan. First Floor Plan. Second Floor Plan.
 Arrangement of Farm House, Design No. 6887, Illustrated on Opposite Page. Size on the Ground, 32 by 48 Feet.

The Farm House Design

THE farm house of the Ideal Group is a good-looking, well arranged structure going well with the other buildings. It will accommodate a large family, and give them all home conveniences. No special provision is made in this house for rooming the hired help, as they are taken care of in the tenant house.

The farmer's office opening from both front and rear halls; the convenient washroom; the spacious dining room and living room group with its sun parlor; the large bed rooms on the second floor, one of them with sleeping porch; and the well arranged basement of this house are all excellent features.

Modern heating, water supply, sewage disposal and lighting system are provided for this house, as will be described in detail.

Heating The Modern Farm Home

By **Jas. Firestone**
 Heating Engineer

THE heating system illustrated by the accompanying plans and described in this article is in general use for large country homes. There is nothing unusual about this residence which is shown in the cut, but the heating system I recommend is a combination warm-air and hot-water.

The warm-air gravity heater, in order to work successfully and satisfactorily should be located in the center of warm air distribution. The leader, or basement pipes, should be of the same length as nearly as possible, and at least should have the same elevation. This equalizes the resistance offered by each warm-air pipe to the flow of air thru it, and at the same time insures a more even distribution of the warm air among the several pipes.

In looking over the plans, it at once becomes evident that it will require a very long warm-air pipe to reach the sun parlor, which, from a good warm air heating practice viewpoint, is not recommended. Direct radiation is provided for assisting the warm air member of the heating system in maintaining a satisfactory temperature there. This room has a large amount of exposure, and from its distant location from the heater,

the amount of warm air supplied will be limited, particularly during the severe winter weather. The deficiency in heat supplied by the warm air member will be made up by the small radiator. This radiator further serves as a balancer between the two members of the heating system.

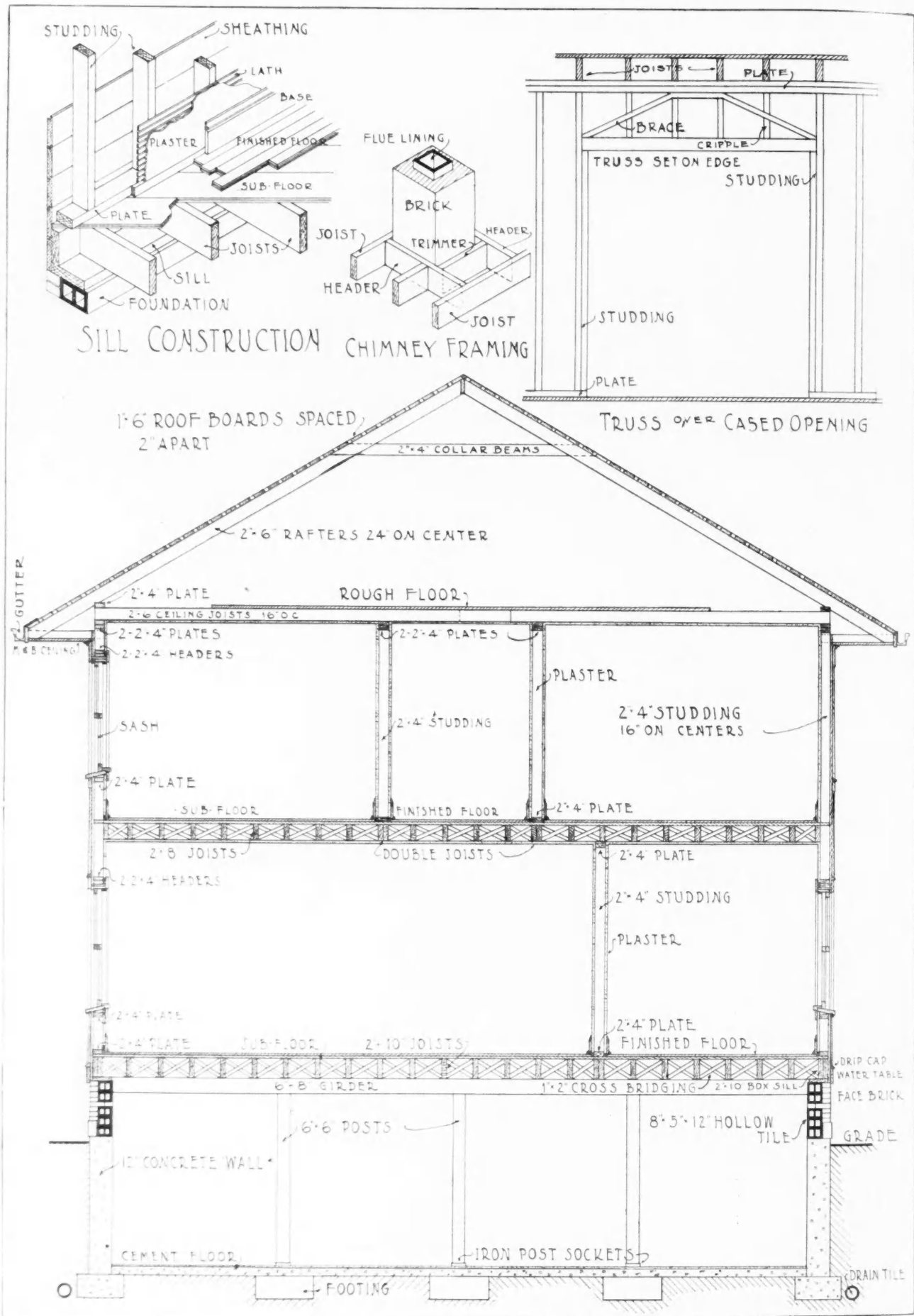
The registers selected for each of the respective rooms should contain ample area for the passage of warm air thru them. The side wall register used should have an extension at the bottom into the floor of from 4 to 6 inches, so as to provide a boot opening

(Continued to page 114.)

Pipeless or One-Register Furnace Satisfactory for Farm Dwellings

THE one-register furnace is winning new friends every day among the country people. It doesn't radiate any heat into the cellar, but delivers it all straight up into the living rooms. For this reason, the farmer's cellar is not spoiled for the cold storage of fruits and vegetables. The fact that the one-register furnace is also very economical in first cost and for fuel, works in its favor.

There can be no possible question of the suitability



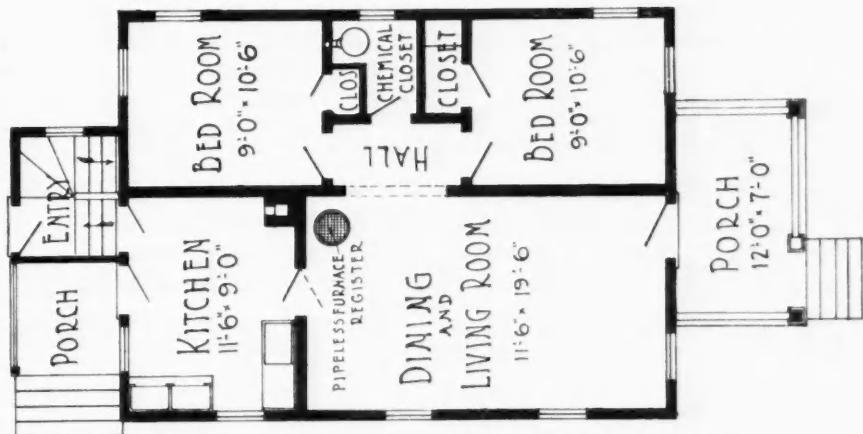
Construction Details of Farm House No. 6887, Illustrated on Page 70.

The plan... Dining... solid... good... with... vided... with... and... this

of t... cotte... tra... littl... of v... one... pri... av... 14... 4...



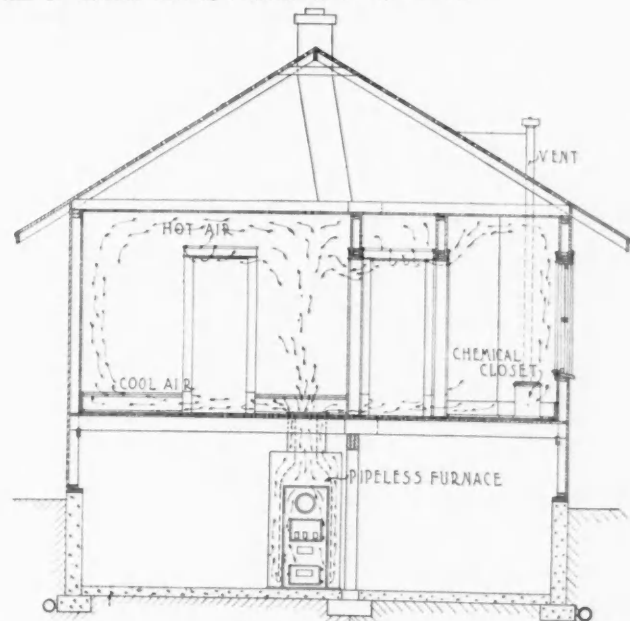
The Farm Tenant House is a well-planned little structure of four rooms. Dining room and living room are consolidated into one large room. Two good bed rooms are provided, each with clothes closet. Kitchen is provided with built-in cabinet and sink with drain board. The chemical closet and pipeless furnace are features of this tenant house. Design No. 6890.



Floor Plan of Tenant House, Measuring 22 by 30 Feet.

of the pipeless furnace for heating bungalows and cottages, as for instance, the farm tenant house illustrated herewith. The entire heating plant for this little house would cost around \$75.00. The transfusion of warmth would be perfect.

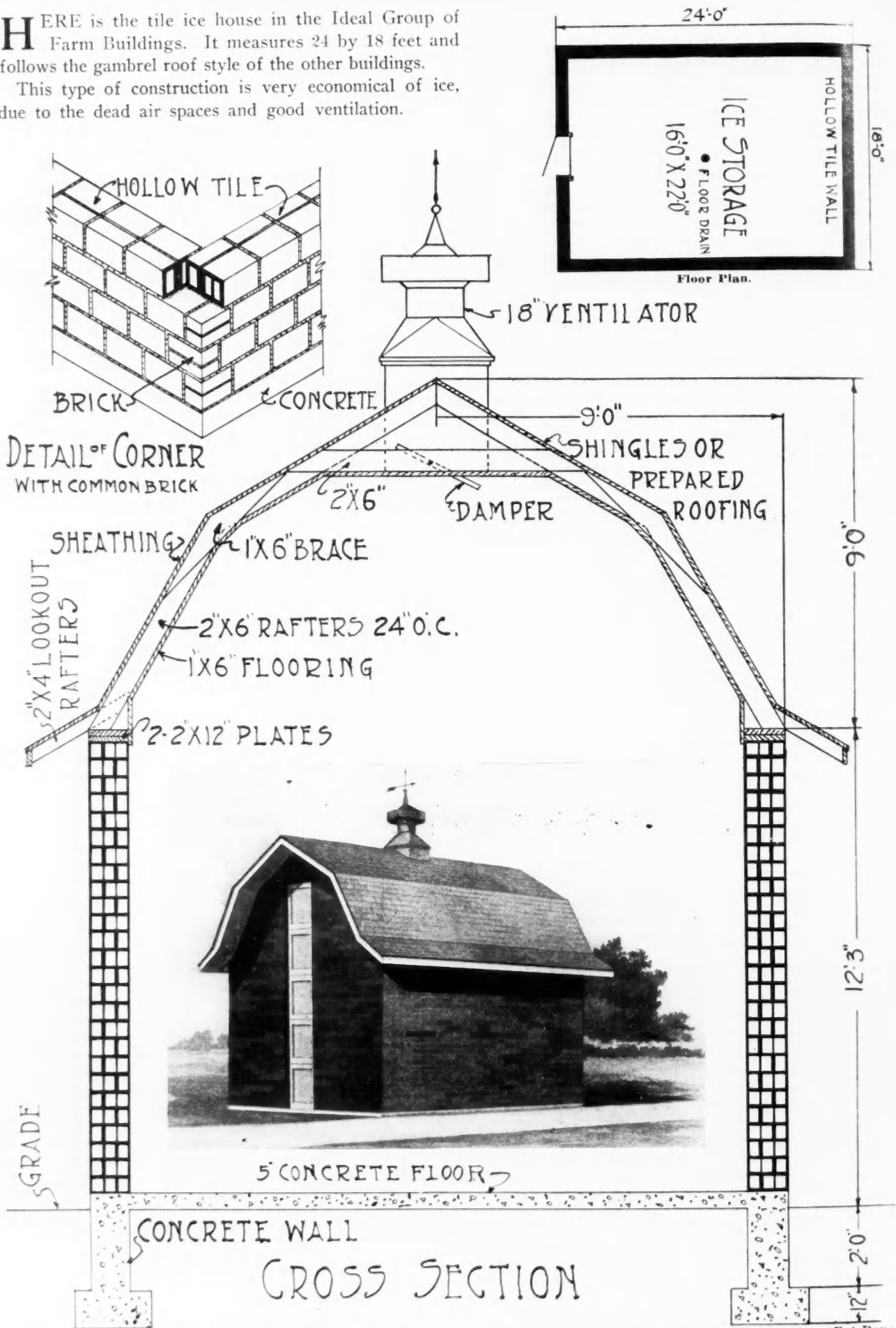
For larger houses, two-story houses, the pipeless or one-register heating system is being used with surprising results: surprising that is, to those not well acquainted with the ability of this style heater to deliver the goods. The farm home of the Ideal Group as illustrated on pages 70 and 71, can be heated with perfect efficiency by placing the large floor register in the corner of the dining room near the buffet. By placing an ornamental ceiling plate and register in the ceiling, directly above, an unlimited volume of warm air would be carried directly into the second floor hall. This register, in addition to the unlimited volume of warm air circulating thru the doors, halls and stairway, would give the pipeless furnace maximum efficiency in distributing the air evenly and quickly thruout the entire house.



Section Thru Tenant House Showing Arrangement of Pipeless Furnace Directly Under the Single Register which Distributes Warm Air All Thru the House, Coming Back as it Cools and Passing Down Again Around the Outside Rim of the Register to be Heated Again.

HERE is the tile ice house in the Ideal Group of Farm Buildings. It measures 24 by 18 feet and follows the gambrel roof style of the other buildings.

This type of construction is very economical of ice, due to the dead air spaces and good ventilation.



Farm Ice House of Tile Construction Built with 12-Inch Walls on a Good Concrete Foundation. Most Ice Houses Soon Rot Down. This One Will Last Practically Forever. It is Important to Ventilate an Ice House. This Matter is Well Taken Care of Here. Design No. A388.

Why the Chemical Closet?

THE PROBLEM OF SEWAGE DISPOSAL ON THE FARM HAS BEEN GIVEN A GREAT DEAL OF ATTENTION DURING RECENT YEARS, RESULTING IN THE PERFECTING A SATISFACTORY SOLUTION

WHY should inconveniences be tolerated on the farm that are not found in even the most humble of city homes? Is not the farmer entitled to every privilege that his city brother is granted? This would indeed be a poor state of civilization in which we are living if these questions could not be answered to the entire satisfaction of our most necessary friend, the farmer.

The country builder stands in an important position with respect to the answering of these questions. It is largely thru him that progress must be expressed. The work of scientists, architects, engineers and manufacturers—those who are applying their knowledge to the problems of the farmer—is bearing fruit in the form of numerous ways and means whereby the inconveniences of farm life may be eliminated. It remains, in many cases, for the country builder to satisfactorily apply what is found.

Perhaps what seemed, for a long time, to be the most difficult problem to be encountered in this progressive movement has now found a satisfactory solution. The out-of-door toilet has always been linked with regret. The ban is placed upon it in every city as soon as it is found possible to do so. Where people live grouped closely together, it *cannot* be tol-

erated because of the danger from spreading disease. Where people do not live grouped closely together, it should not be tolerated because of the great inconvenience which it brings.

The practical application of chemistry has found, in the modern chemical closet, a means of eliminating this inconvenience. The out-of-door toilet now has no excuse for existence and it is to be hoped that only a very few years will be required to completely exterminate it.

What has made this chemical closet possible? The principle involved is simple and its application has been tried and found satisfactory. Sewage may be rendered perfectly harmless by the action of certain chemicals which reduce all solid matter to the liquid state, destroy existing odors and positively destroy all harmful germ life. This is the action carried out in the chemical closet. The treated sewage may be disposed of without fear of soil pollution.

The installation of chemical closets is ample. The cost is paid back with interest in the great improvement brought about. Here is work that any country builder can do at a good profit with the assurance that he is doing his share to lift farm life a little nearer the plane where it rightfully belongs.

Modern Water Supply Equipment for The Modern Farm

IN planning the model farm plant the water supply is of vital importance. It must be pure, abundant and quickly and easily available for fire protection, irrigation, watering stock, handling milk and general domestic use.

Few dug or open wells are now made, hence our treatise will deal only with the artesian well. However, pumps can be obtained to serve any type of well which may be encountered. The modern drilled or cased well is recognized as best because of its safe and sanitary features.

Importance of Ample Sized Wells

Let the new well be from 4 to 6 inches diameter or larger, never smaller. It is a mistake to drill less than a 4-inch farm well, since in small diameter deep wells, capacity is restricted, as only small diameter cylinders may be utilized. Local conditions must usually govern the type of pumping equipment for the average farm, and here

the ingenuity of the American pump designer and manufacturer is acknowledged. In other parts of the world people have been content to use the dug wells, spring and cisterns that have served countless generations and were slow to adopt modern methods for handling the available water sup-

(Continued to page 130.)



A Substantial Concrete Drinking Trough with Plenty of Pure Water on Tap.

Farm Electric Lighting System

INCLUDING WIRING TO ALL BUILDINGS WITH CONVENIENT PLACING OF 3-WAY SWITCHES TO SAVE STEPS AND SAVE CURRENT

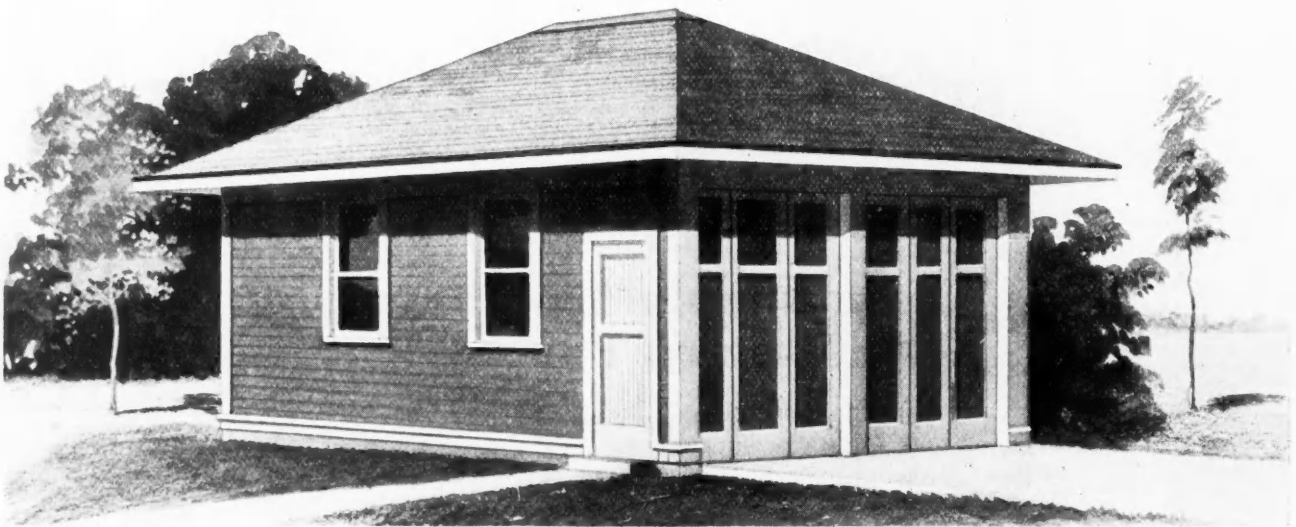
Of course the Ideal Group of Farm Buildings will be electric lighted. On the general plot plan (page 54) is shown in red the location of all lights for buildings or part of buildings shown, with switches to control such lights

We have arranged these switches in what might be termed the ideal way for the saving of time and current. A person may enter any of the main buildings from any entrance, go thru the building practically every way possible and turn lights on in front of him and turn out the lights that are left behind.

You will notice that buildings which have more than one outlet for lights have only one light controlled by

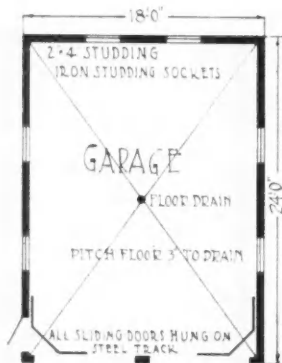
the entrance switch or switches, while balance of lights are to be turned on by hand. The idea of such an arrangement is that when a person arrives at the building it would be possible to turn on one light to give sufficient illumination of the building for the person to find his way around. He can then turn on lights wherever it may be needed for specific purposes. This system of arrangement should largely be followed wherever practical as it is very saving in the amount of current used, still giving light whenever wanted.

In the barns, hog house, etc., we have located more lights than are probably needed for general illumina-

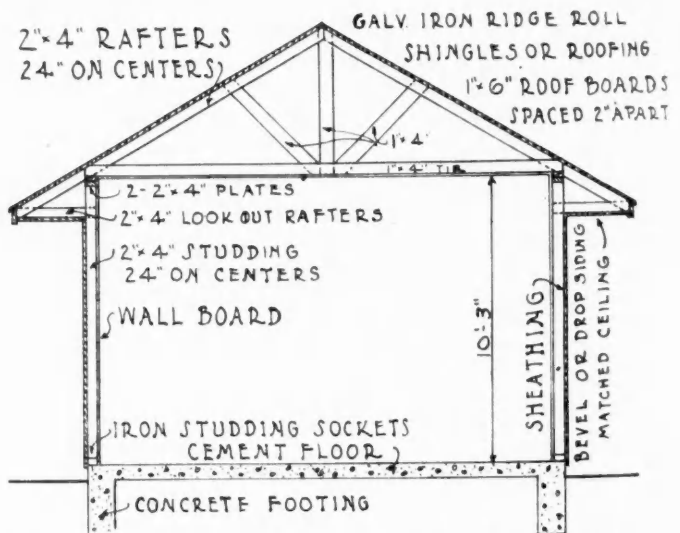


Farmer's Two-Car Garage. One of the Buildings of the Ideal Group. Constructed of 2 by 4's Set 24 Inches on Centers. Lined Inside with Wall Board and Sided with Bevel or Drop Siding. Design No. G175.

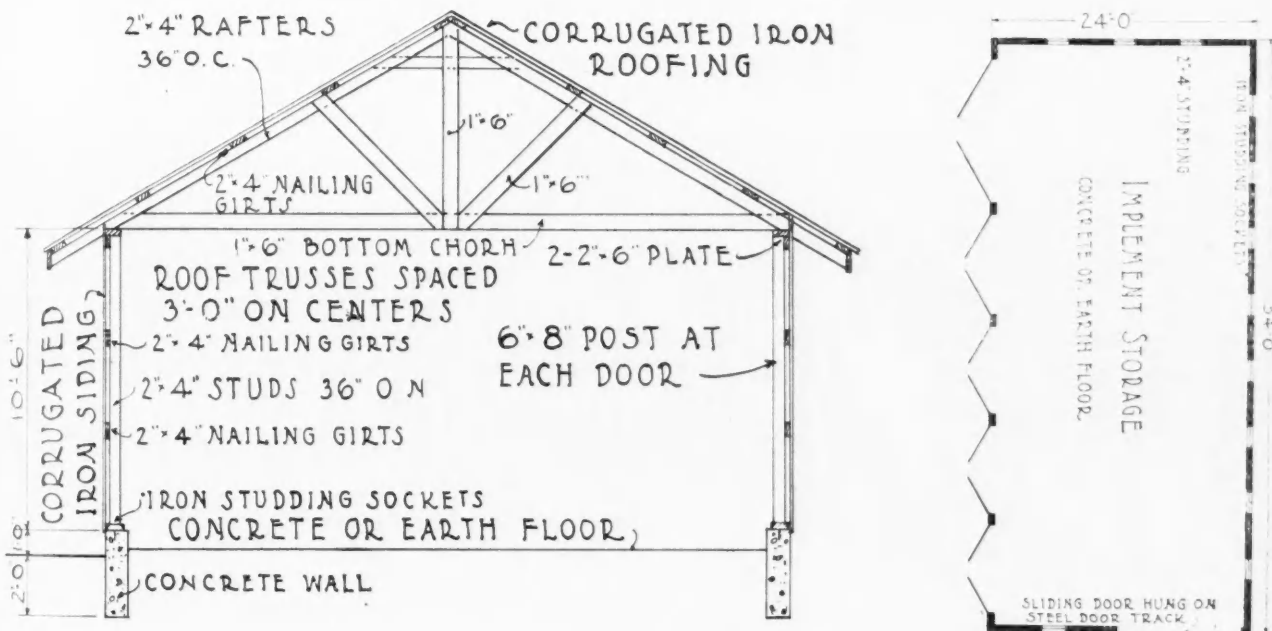
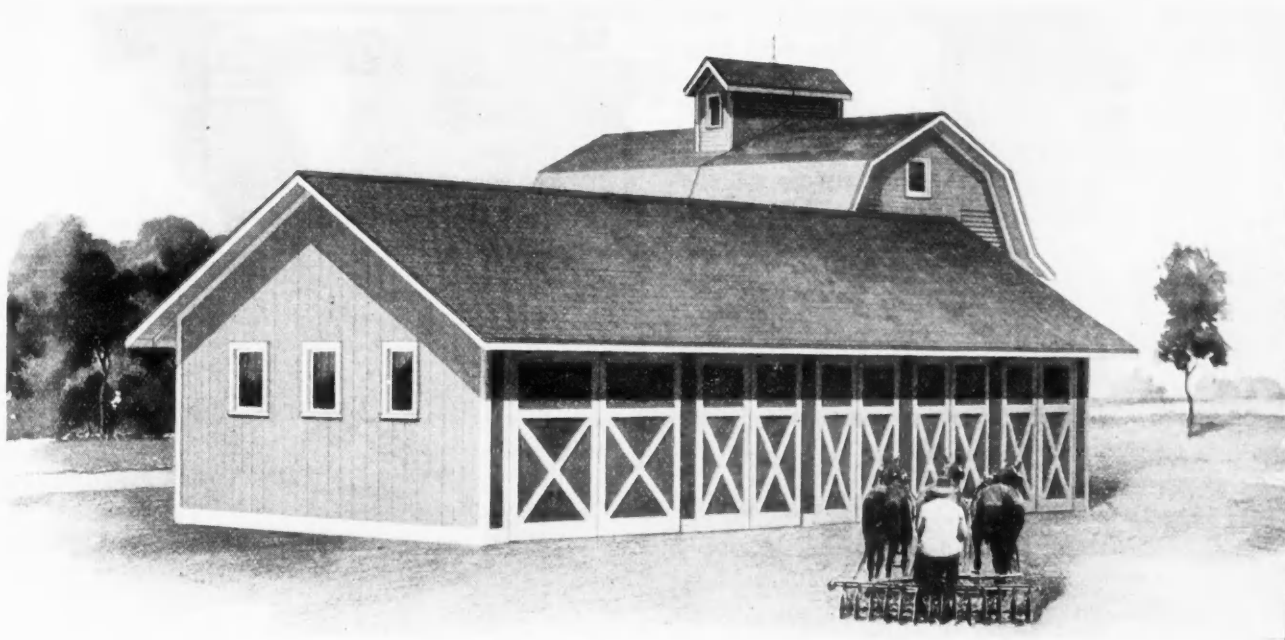
EVERY prosperous farm now has one or more cars and needs a good weather-tight garage to house them. This little building has a good appearance, yet is not costly. For the farmer, it's way ahead of running the machine into the carriage shed, or corn crib, or letting it stand out in the open.



Floor Plan of Two-Car Garage, Showing Arrangement of 3-Panel Doors Hung on Curved Track.



Construction Detail of Two-Car Garage, Showing Concrete Foundations and Floor, Iron Studding Sockets and Roof Construction.



Photographic Perspective, Cross-Section Detail Drawing, and Floor Plan Diagram of Implement Shed for the Ideal Group of Farm Buildings. This Implement Shed Might Well Be Roofed and Sided with Corrugated Iron. The Doors Are the Important Feature. There are Five Sets of Double Doors, Making It Possible to Get at Any Machine Without First Moving Several Others. Design No. A387.

tion, but consider such lights necessary in order to attach extension cords for whatever work such may be needed.

We have located a light in the approximate center of the entire group of buildings with a switch controlled from office for general illumination to the grounds. This light may be used continually during the evening hours or may be used for special occasions when such light may be wanted. We have located lights outside a number of the buildings which, if burned during the evening hours, will give illumination of the grounds thruout.

With regard to the switches, these have been located for convenience and saving more than for saving in initial installation. Where one light is controlled by

two or three switches, such may be accomplished by three and four-point switches. Where one light is controlled by more than three switches such should be accomplished by special remote control switches.

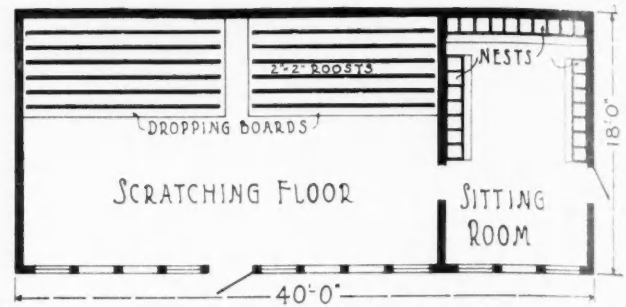
We have shown the location of the line connecting the different buildings. We have not shown poles for supporting same, as we often find buildings, structures, or trees, that may serve as supports for such wires in a more sightly manner than poles.

We have not indicated the number of lights to be used for each outlet, as such varies greatly with the local conditions. In general, however, for ordinary lighting of rooms a 16 candlepower lamp will supply such lighting for 100 square feet of floor space provided lamp is suspended not more than 7 feet above

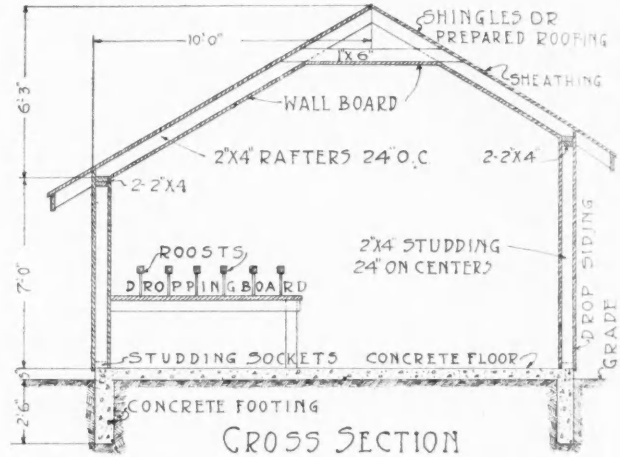
the floor and is permitted to distribute its full light. For reading or special purposes, of course, such lighting may be of indirect or semi-indirect lighting, both of which are very desirable and becoming common in farm lighting. It is probably needless to say that only Mazda lamps should be used for these installations, and that the Class C or nitrogen lamp which is now available for 30 volt current is by far the more satisfactory and economical illuminant to use.

In regard to the location of the plant, this would somewhat depend on the type of the plant. If a belted plant was used the machinery part should probably be located in the basement under main building. If a unit type of plant be employed, by which we mean a plant with engine and generator direct connected, on which engine can only be used for the purpose of driving the generator, the plant should be located in the basement of the main residence. This recommendation is made mainly because a basement keeps the most even temperature the year around which fits it best for housing the storage battery. It would be an advantage to have the entire plant within the confines of the residence, as it would not be as much subject to interference by any one who should not be permitted to operate or manipulate it. With the proper make of plants, the only disadvantage to this plan—namely, the noise and vibrations of the operating parts—has been sufficiently eliminated to be withdrawn as an objection.

EVERY farmstead should have its well-built poultry house. With eggs selling in Chicago this winter at 50 cents a dozen, and with prospects of going to a

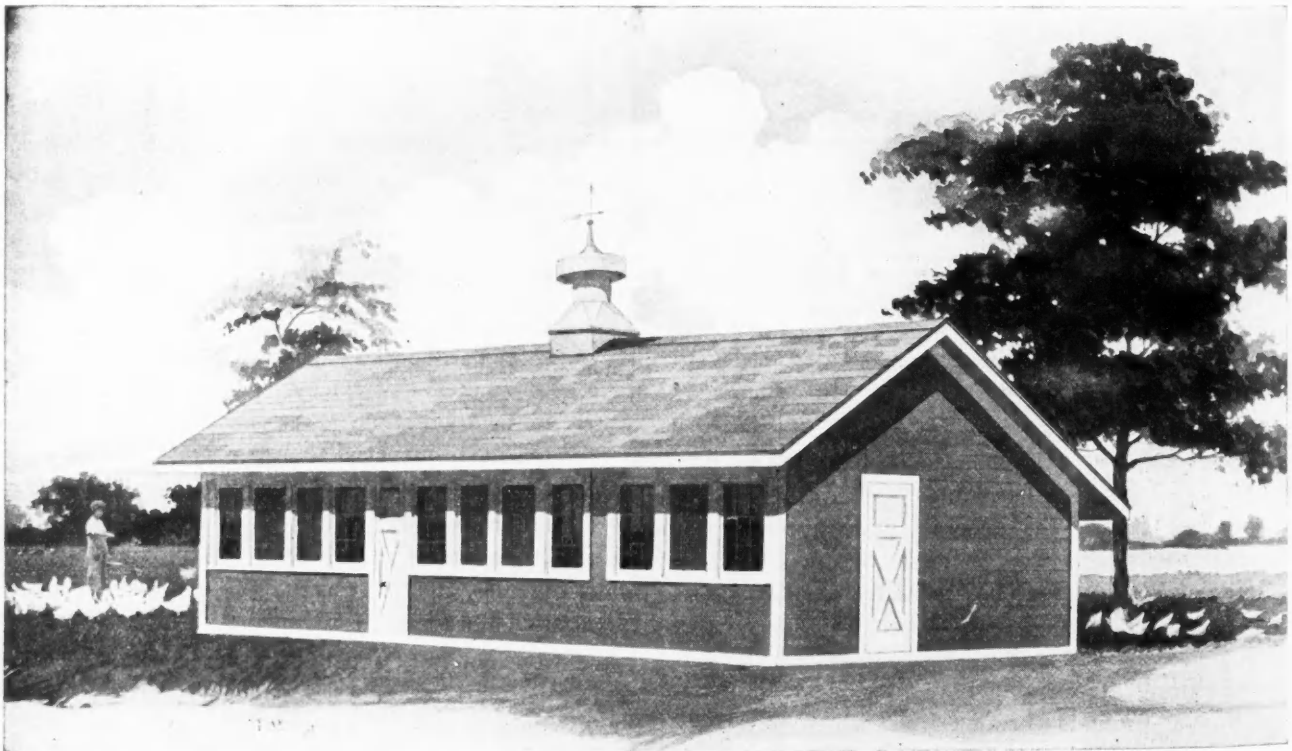


Floor Plan of Poultry House.



Cross Section of Poultry House, Showing Construction.

dollar next winter, in behooves the farmer to make sure of efficient winter laying. This can only be done in a warm, well-ventilated poultry house. A building like the one illustrated doesn't cost very much, yet it will put the chickens on a paying basis quicker than anything else.

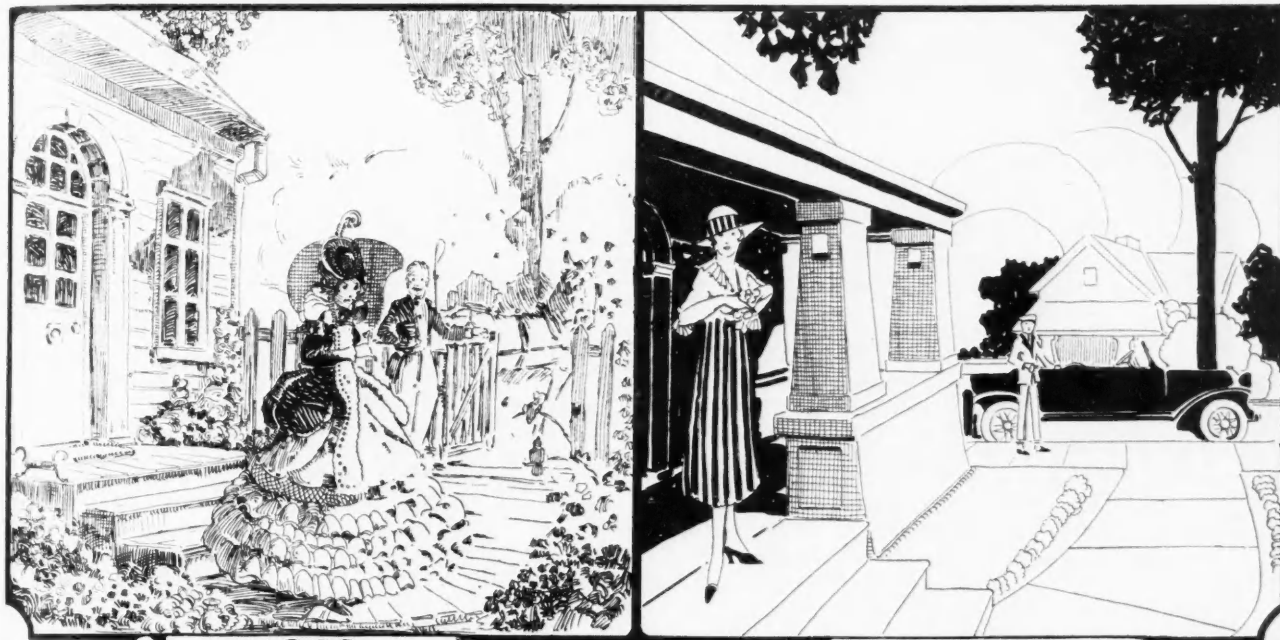


Photographic Perspective of Poultry House for Ideal Group. Notice that in the Front Five of the Window Frames Are Filled with Cheesecloth or Light Muslin in Place of the Glazed Sash. This is the Best Sort of Fresh Air Ventilation for Poultry Houses. This Building Measures 40 by 18 Feet, and is Divided Into Nesting Room and Scratching Floor. Design No. A392.

"The man, magazine, machine or material that is not at the front in ideas must take the dust of those leading."

—THE MAN FROM THE LUMBER YARD

The AMERICAN BUILDER has never taken the dust of any publication. The reason is obvious from the above statement. EDITOR.



1892

1917

Times Change—When I Was a Young Fellow My Sweetheart Wore a Bustle and I Don't Know How Many Skirts. My Son's Sweetheart Wears Only One Skirt—Very Abbreviated at That.

IT has taken me over fifty years to produce the face I am wearing. Architecturally considered it never was symmetrical. I had nothing to do with the original plan.

I have had to do with recent changes.

Over thirty years ago I considered that the proper face for me to wear was one of sternness—a face that would never show sentiment, nor a too lively interest in anything. I fancied it showed the firmness of iron. I now know that it showed the emptiness of mud.

The face I admire today is the one that shows a keen interest in all things from the most pretentious skyscraper to the most humble bug. A face that cannot be in sympathy with sorrow as well as joy has no excuse for existing.

Oh, yes, I have changed my ideas as to the kind of face I would like to wear, but I can't change my face. Neither the druggist nor the masseur can do anything for me.

Did you ever notice how human-like houses are?

Of course there is no relationship between the house and a renter or a second owner.

But there is a notable likeness between the home and the original owner.

I don't have to more than see a man and wife to know which was mainly responsible for the kind of house that was built.

Styles change in houses just the same as in dress.

The young generation has noticed the change from the trailing skirt to the 10-inch-from-the-sidewalk type.

When I was a young fellow my sweetheart wore a bustle and I don't know how many skirts. My son's sweetheart wears only one skirt—very abbreviated at that.

Yes, styles change. It is a good thing that there is an "urge" which some way makes us grow. Let the man who has complaint at changing conditions remove himself to Algiers or Jerusalem.



Plate B. Wichita, Kansas, High School Plastered Thruout on Metal Lath. Reason, Fire Protection.

1,000 Live Men Wanted

I want 1,000 live, aggressive men out of the half a hundred thousand who will read this article, to utilize it for the benefit of their towns and beautifying the homes of their people.

I frequently take my camera with me, and last fall had an opportunity of getting a picture which talks.

I was discussing the ways and means of improving building conditions with a dealer in building materials. Several recent advances were making him nervous about the outlook for next year. He said that

They had an architect to draw up plans for new twin stucco houses to have substantially the same interior arrangement as their old homes with the addition of sleeping porches to the rear.

When they had an estimate of the today cost of such houses they gave up the idea.

A Builder with An Idea

A builder got wind of this and presented the plan of modernizing their old homes. He presented figures, covering (1) the making into stucco buildings, (2) building of a summer kitchen with sleeping porch



Plate A. Originally Twin Houses, Frame Construction with Shingled Siding. This House to the Left Has Been Modernized by Overcoating with Cement Plaster on Metal Lath.

everybody seemed to have more money and everyone was living on a better plane, but he doubted if the purse could keep up to changing conditions.

S S S in This Idea

He gave me an idea that I am passing on to our readers as worthy of consideration, wherever are found people who take pride in their homes. This dealer told me of two men who had married sisters. Both families were of about the same financial standing and because of the economy of it and the further fact that the sisters had always dressed alike, they built adjacent houses exactly alike. This was some ten years since; the two families had prospered and like typical Americans they wanted more pretentious homes.

above, (3) changing the second floor front windows to modern lines, also widening and lengthening the front porch and adding steps from front porch into the side yard. The builder showed them that it would be difficult to get as good grade building material now as when their houses were built. He also emphasized the added coolness in summer and warmth in winter.

This plan appealed to the men because of the small investment required. It appealed especially to the women because new homes would mean moving into a new section of the town, distant from their church, with new neighbors and new companions for their children. They decided to try the builder's plan on one house.

The dealer I was talking with had supplied the mate-

rial to the contractor. Everyone was pleased with the results. Plate "A" shows the before and after. Contract has been let for giving a new face to the twin house.

The stuccoing of the building cost \$427.00.

Half Loaf Better Than No Bread

The dealer said he would of course prefer to supply material for an entire new building, but he believed he could create a big business for himself and make work for his contractor friends by pushing this remodeling business. He said he knew lots of good people who were having their shoes resoled and reheelled because they didn't want to buy new shoes at present prices until they had to.

We have letters which complain of the lack of opportunities in some localities. The more I observe conditions in various sections the more I am convinced

it is in the man and not the locality. The responsibility is on the dealer in material and the contractor

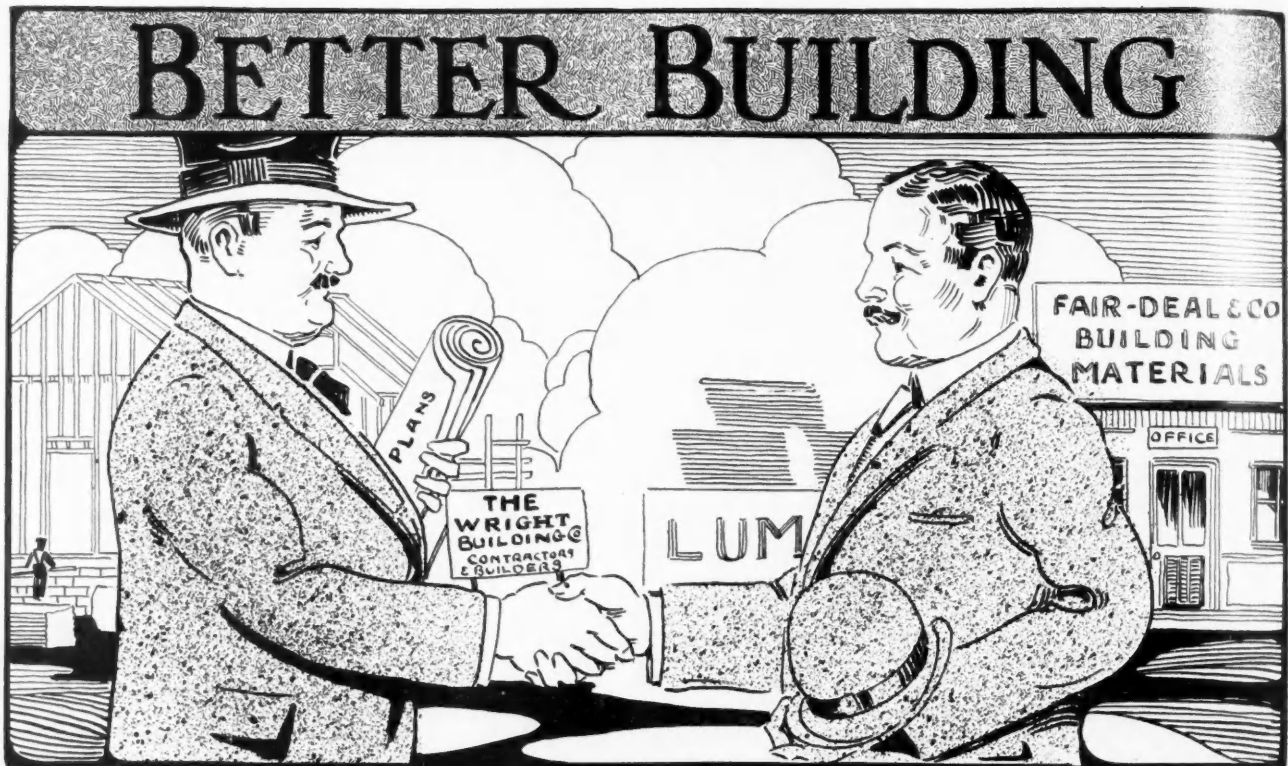
(Continued to page 116.)



Plate C. Old-Time Residence of Mr. A. Whiteside, Hutchinson, Kansas. Compare this Photograph Carefully with the One Below, Showing the Same House Remodeled.



Plate D. Mr. Whiteside's House After Remodeling. Did You Ever See a More Attractive, Up-to-Date Looking Job. Overcoated with Cement Plaster on Metal Lath. Root & Siemens, of Kansas City, Architects.



Dealer-Contractor Good-Will Best for Building

Building Plan Service for Lumber Dealers

HOW IT DEVELOPS BUILDING BUSINESS AND BRINGS DEALER, CONTRACTOR, AND OWNER INTO CLOSER BUSINESS RELATIONS—BEING PART OF AN ARTICLE PRESENTED IN "SYSTEM," THE MAGAZINE OF BUSINESS

By H. R. Isherwood

I HAVE been in the retail lumber business for fourteen years. What I am going to give in this article is just a plain statement of facts containing a few "hows" which have helped me fight rising costs. If they contain a helpful suggestion for some of my fellow merchants I shall be happy. The three principles on which I have worked are: (1) more effective advertising; (2) better service to customers; (3) an unusually profitable handling of credits and collections.

Nine years ago I came to a Wisconsin town to take over a small retail lumber yard. I was told that it was a small yard. It was. There was just about enough lumber and building material in stock to have built a good-sized chicken coop. I found that two competitors were well stocked. I like the country, thought I could see possibilities for the building up of a good business, and decided to stay.

The first step I took was to canvass the county, studying its needs from a builder's viewpoint. Next, I stocked the yard to meet what I thought were the requirements of the community; installed a simple cost system, and got a line on my competitors' methods of doing business and general policies.

I was now ready to start advertising—this brings me to the first of the three methods I have listed. I discovered that beyond the sending out of the

proverbial calendar, my competitors did not believe in advertising, altho there were two good newspapers in our town. I made up my mind that every time I used an advertisement I would dominate a page of space. To do this at a small expenditure was a problem. Finally, I hit upon a plan that worked.

How I Got Attention at Small Expense

Instead of using a half-page spread or more, I designed my advertisements to be seven columns wide, and from three to six inches deep. I used a strong, distinctive border, a light-faced type, easy to read, and always left plenty of white space. I made my copy educational, terse and snappy. In a town of five thousand, with two small papers not overcrowded with advertisements, a seven-column advertisement stands out like a sore thumb, while the cost is not prohibitive.

NOW for my building plan service—my second method. Every merchant has his own ideas of giving quality, or service, or satisfaction—or whatever name he likes to use when describing it to his customers. Our strongest sales policy is a service policy.

The predominant idea which we instill into the mind of the purchaser is the fitness of the stock under discussion for filling the particular requirements for which it is to be used. It may be the entire bill of

lumber for a dairy barn, hardwood flooring for one room in the home, or rough lumber for a pig-pen. The point which we wish to, and do, impress on the purchaser is to buy the best material for the specific purpose that he can afford. Every class of material has its grades; many have substitutes. After explaining the advantages of one grade over another, we leave the decision with the customer and his pocket-book.

These Service Plans Increased My Business Twenty Per Cent

Now for the service the personal appeal in our advertising developed. I said that we offered to give anyone a detailed estimate of material for any specific building, with a total cost. Few people know much about lumber or manufactured building materials, or the correct uses for them. I am not speaking of carpenters, contractors, or jacks-of-all trades, I am talking about farmers, my customers.

Here is what happened one bright morning, after we had advertised this service for about a month. A farmer came into my office and asked me to give him a figure on the material required for the construction

of a large dairy barn. I knew him as a customer of one of my competitors.

This Prospect Placed an Order Amounting to Fifteen Hundred Dollars

"All right," I answered, "we will be very glad to give you a detailed estimate, and a total cost. Have you a plan with you?"

"Why, yes; here it is."

Sure enough, there it was—his own rough sketch of the first floor plan of the barn, on the back of an envelope. The length and the width of the building were marked, and the number of stalls required. There was nothing to indicate the height, the plan of second-floor arrangements, the capacity of the hay mows, the grain bins, and so on.

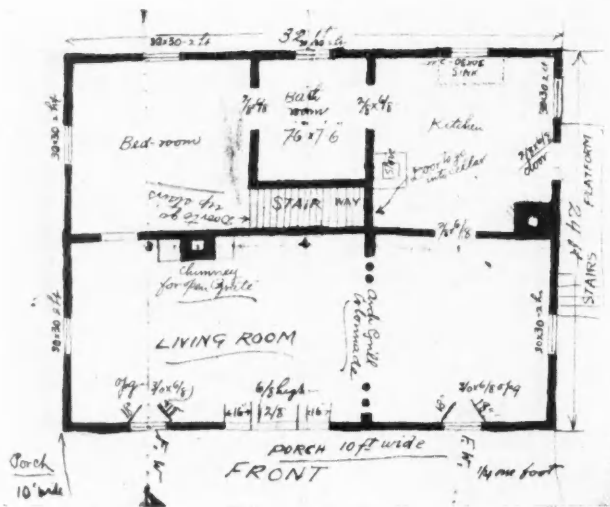
I studied the plan a few minutes, and did some tall thinking. Finally, I asked, "Now, Mr. Caldron, how do you want your second-floor plan arranged? How large a hay mow, and what capacity should your grain bins have to make them exactly fit your needs?"

"Why," answered Caldron, "I don't know. Bill Hawkins's barn just suits me, except that I don't like the way his grain bins are fixed. If you could take



INSIDE THE "SERVICE ROOM" OF A WIDE-AWAKE LUMBER DEALER.

The Yard Manager described his service department to the manufacturers and asked them for samples, price lists and catalogs. The response was so generous that he fitted up a large room in order to display everything. 1—Catalogs and price lists, 2—Samples of wall boards, 3—Samples of roofing, 4—Samples of mouldings, 5—Samples of floor coverings. This room is placed at the disposal of contractors and prospective builders.



Customer's Rough Sketch of Proposed Dwelling.

Jenkins's grain bins and Hawkins's hay mows and combine them into a second-floor plan for me, it would suit me fine."

That seemed simple.

"All right, we can do that. How soon do you expect to build?"

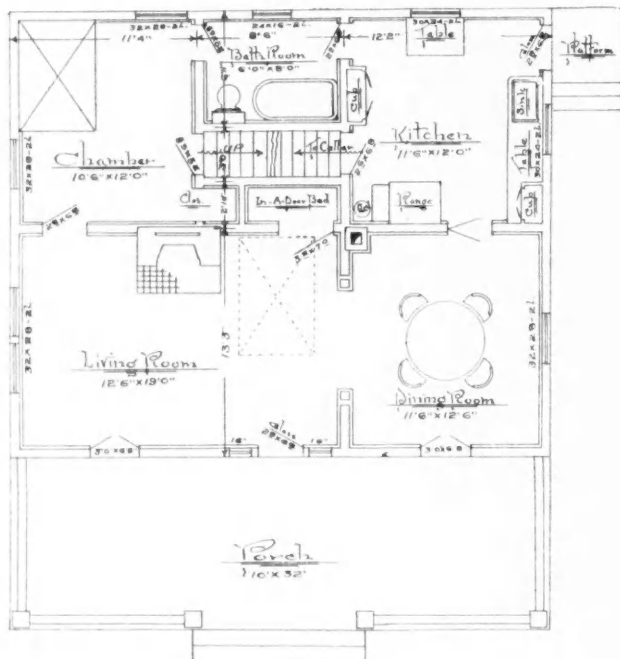
"In about three weeks."

"When will you be in town again?"

"Oh, 'bout a week."

That afternoon I took a local architect out in my machine and we visited Bill Hawkins' farm, ten miles out. Then we drove on to Jenkins' place. When we got back we had driven thirty miles.

The architect had the idea of the two barns. I gave him model barn plans published in book form with orders to draw up a detailed first and second-floor plan, side and front elevation, all on the same scale. This was done and a detailed estimate of all the



Ideas in Above Rough Sketch Redrawn in Proper Architectural Style by Lumberman's Service.

building materials required attached to it, with a total cost. I figured the material and wrote the specifications.

Within a week Caldron came in. I took him into my private office, got him talking about his farm, cows, crops, and like, finally getting around to the barn. Then I flashed the plans on him, all scaled correctly and marked in every detail. His eyes popped out and he exclaimed, "For goodness sake how, how did you do it?"

"That," I replied, "is part of our service for our customers. These plans are accurate, ready for blue printing for your contractor. They are your property and will not cost you a cent, providing you buy the material for your barn from us. Here are the specifications in detail and the total cost. Now, frankly, Mr. Caldron, I have specified the very best material on the market; for portions of that barn, if it is to be built right, require the best.

By Explaining Just What I Was Selling I Won This Man's Trade

"In other places, not so important, I have specified just common cheap-grade lumber, where it will do just as good work as a higher grade. We will make any changes in the plans which you may desire. Before you decide on this bill, however, I want you to take these plans and specifications and have some other lumber dealer figure the material required. Get his figures on the same materials specified here. Then we will be in a position to talk business. I won't lower my price one cent, nor will I charge you for my plans. We will be glad to have your business if we can serve you satisfactorily."

He said never a word, but got up and walked out. Remember, he was my competitor's customer. Later on I found that he had been sent to me to find out how my system of giving advance estimates worked.

Two weeks later Caldron came back. He said, "Mr. Isherwood, I have got a lower figure than yours on my barn."

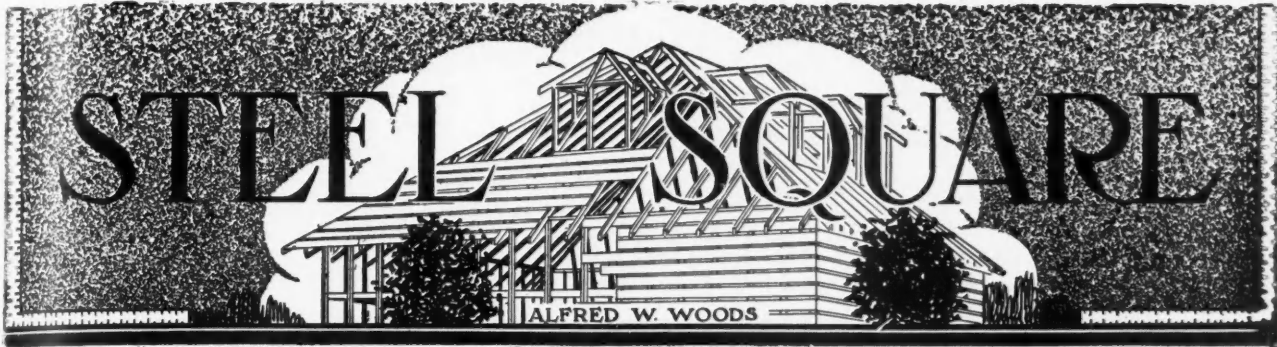
"Well, Mr. Caldron, are the figures given on the same grade of material as I specified, all the way thru?"

"I think so, but I am not sure; here is the estimate. I wanted you to go over it with me and see. I don't know much about lumber, and I like the square way in which you have treated me."

We went over my competitor's estimate. Remember, I had given Caldron my estimate to take to my competitor. I soon discovered that my competitor had quoted prices on the same material, but on lower grades on nearly everything, with the result that his bid was considerably lower than mine.

I proved this to Caldron by showing him the latest market quotations listed on all materials specified. I also showed him that by using the lower grades of some materials he cheapened his building far and away

(Continued to page 130.)



Barn Roof Framing on the Square

ILLUSTRATING A STEEL SQUARE METHOD FOR THE FRAMING OF GAMBREL ROOF RAFTERS FOR ANY WIDTH OF BUILDING

By A. W. Woods

WE have been asked to give on the square a rule for the framing of gambrel roofs; something that will apply to any width of building, yet maintain the same shape or pitch of the rafters that form the gambrel.

So far as we know, there is no recognized standard as being the proper thing, but it has been left largely to the designer to choose the shape roof as best suits his fancy, and that is about all that can be done. It does not matter what we think about it, others may think some other rule is better.

Therefore, what we have to offer is given more in

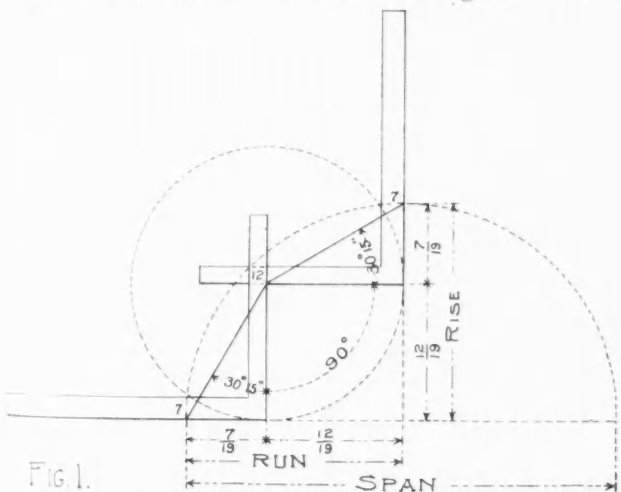


FIG. 1.
Where the Two Slopes of Gambrel Roof Are Same on Steel Square Except Reversed.

the way of suggestion. If any one thinks he has a better way, let him come forward and submit it to the readers to pass on same.

The object is to submit a standard to adopt to any width of building, and we believe 60 and 30 degrees are about the best to use for the lower and upper pitches, which are simply the same thing but reversed, and when equally divided between the comb and plate the rafters will be of same length and cuts for both sets of rafters. Twelve and 6 11/12 is about as near as can be had on the square for 30 and 60 degrees, but in order to avoid the fractions we will take 12 and 7, which will result in fraction in the degrees, which amounts to one-fourth of a degree; that is, it will be 1/4 of a degree

less than 60 and an equal amount more than 30, as it will be seen by referring to Fig. 1. In this illustration we have taken for an example a span 38 feet in width, and in this the scale is 1 inch to the foot; therefore, 12 and 7 give the seat and plumb cuts for both sets of rafters; that is, the rafters can all be cut from the same patterns, but when set up in place one-half of them will be reversed. In other words, what is the seat cut in one will be the plumb cut in the other.

Now, the question is how to maintain the ratio of proportion when the span is not 38 feet. It can be done in this way. NOTE the run of the lower rafter is 7 and that of the upper rafter is 12, and the sum of these is equal to 19. So all that is necessary is to divide the total run, or one-half of the span, into 19 parts, and this reduced to feet and inches will represent the combined run for both set of rafters, also their total rise. Twelve of these parts will represent the run for the upper rafter or the rise for the lower rafter, but this should not be allowed to confuse, as we said before, that all of the rafters can be cut from the same pattern.

For example, say the span is 32 feet. The span being 32 feet, the run will be equal to one-half of 32, which is 16, and represents the total run of the gambrel rafters which, reduced to inches, equals 192, and this, divided into 19 parts, equals 10 2/19 inches in each

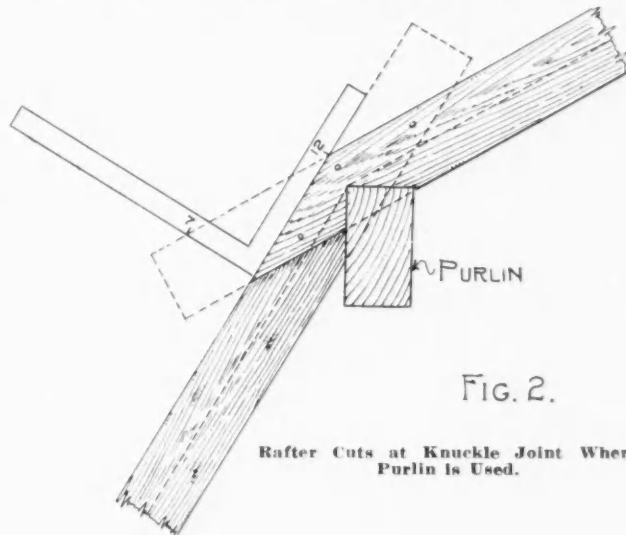


FIG. 2.

Rafter Cuts at Knuckle Joint Where Purlin is Used.

Barn Roof Framing

part, and 12 parts would be equal to $121 \frac{5}{19}$ or 10 feet $1 \frac{5}{19}$ inches and represents the required run of the rafter.

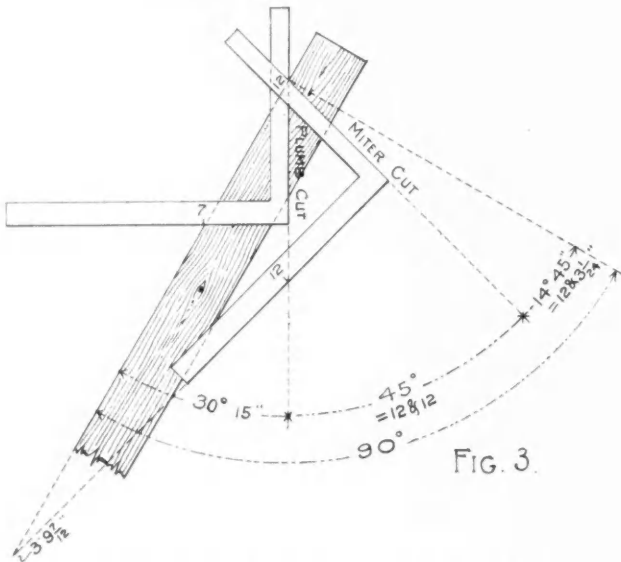
Having found the run, proceed in the usual way for a common gable roof, using 12 and 7 on the square.

If it is desired to find the length of the required rafter in a mathematical way, this may be done by mul-

for the overlap of the rafters that project beyond the top of the other rafter, as shown.

In Fig. 3 is shown how to obtain the miter cut at the knuckle. Note 7 and 12 give the plumb cut of the lower rafter with cut on the latter, and since the miter must rest at the half-way point between the plumb and seat cut of the two rafters, which is 90 degrees (see Fig. 1), and since the half of this is 45 degrees, by applying 12 and 12 to the plumb line will give the proper angle, as shown in Fig. 3.

If this cut be reckoned from the top edge of the rafter it would be 45 degrees plus 15 degrees and 15 minutes, equals 75 degrees and 15 minutes, and this taken on the square, working from 12 on the tongue, would require $45 \frac{7}{12}$ inches, or 3 feet $9 \frac{7}{12}$ inches on the blade. This being beyond the limits of the square, we must look to the compliment degree, which is, in this case, 14 degrees and 45 minutes, which, taken on the square, would be equal to 12 and $3 \frac{1}{4}$ inches. The side on which the latter is taken will give the required cut.



How to Obtain Miter Cut at Gambrel Knuckle.

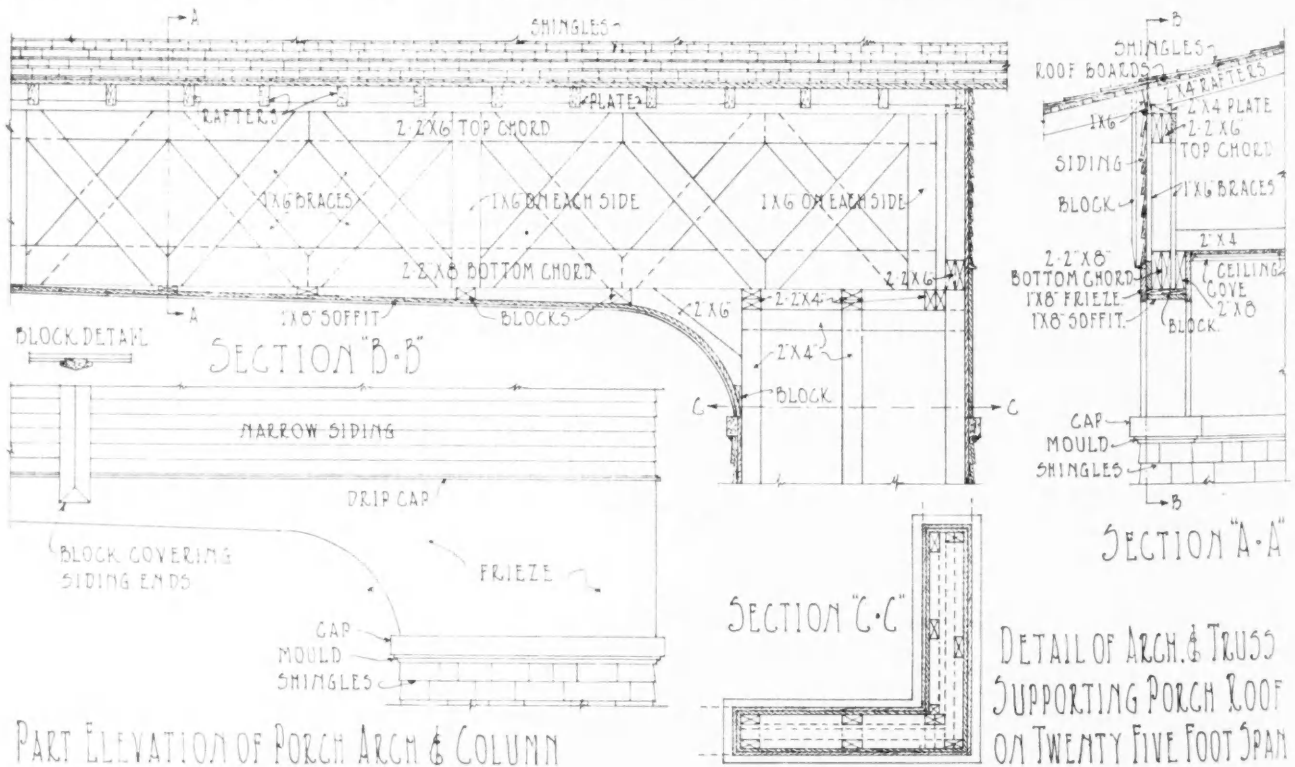
tiplying the decimal 13.89 by the number of feet and fractions of a foot in the run.

Passing on to Fig. 2 is shown the framing at the knuckle joint where a purlin is used. Twelve and 7 give the cuts for the notching out to fit over the corner of the purlin. These figures also give the proper angle

A Wood Truss for Wide Span Porch

Subscribers are constantly writing our Consulting Department in regard to long spans between porch columns. Below is a drawing of a light lattice truss for a 25-foot span.

A good little device for covering the siding joints across this span is illustrated. A neat cover mould divides the siding into three panels and hides the crack even if the truss begins to sag.



Details of Construction of Light Timber Truss for 25-Foot Span Between Porch Columns.



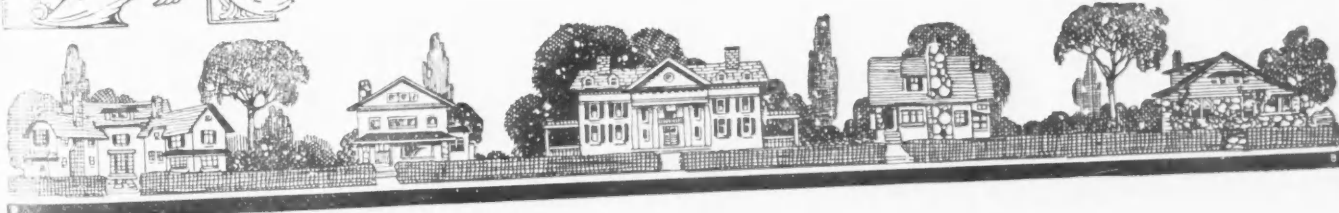
A Portfolio of Beautiful Homes

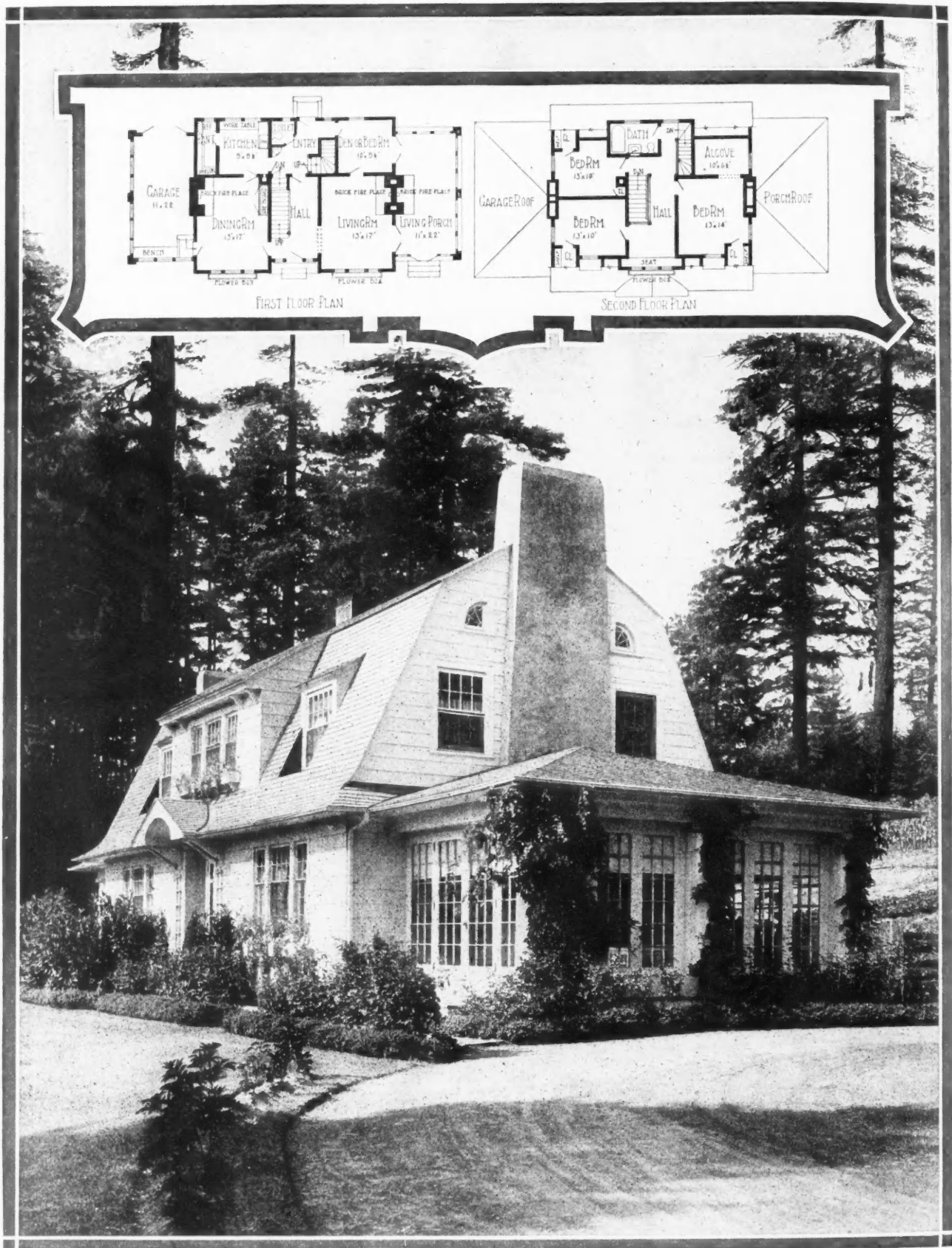
DWELLINGS of modest size, but of surpassing beauty, are available to builders in every community—dwellings complete in their every appointment and so skillfully designed that they please both the eye and the purse.

When building a HOME it is a pleasure to be even a little bit *extravagant*; for the many years of satisfaction will more than repay.

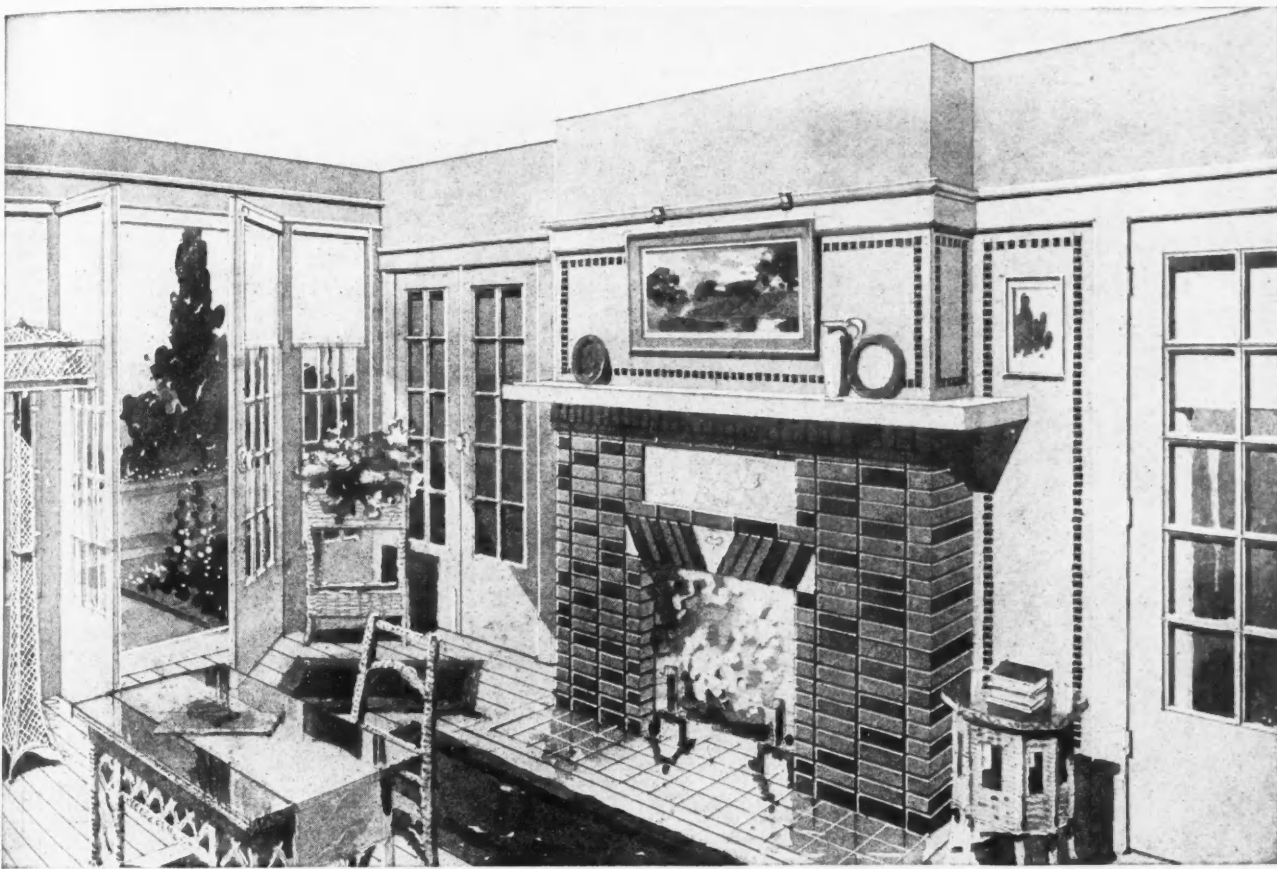
It is with considerable pleasure that the AMERICAN BUILDER presents this group of extraordinarily beautiful examples of modest home designing. If further details are desired regarding any one of them, a letter addressed to the publication office, Chicago, will bring full information.

HOME PLANNING EDITOR, AMERICAN BUILDER.

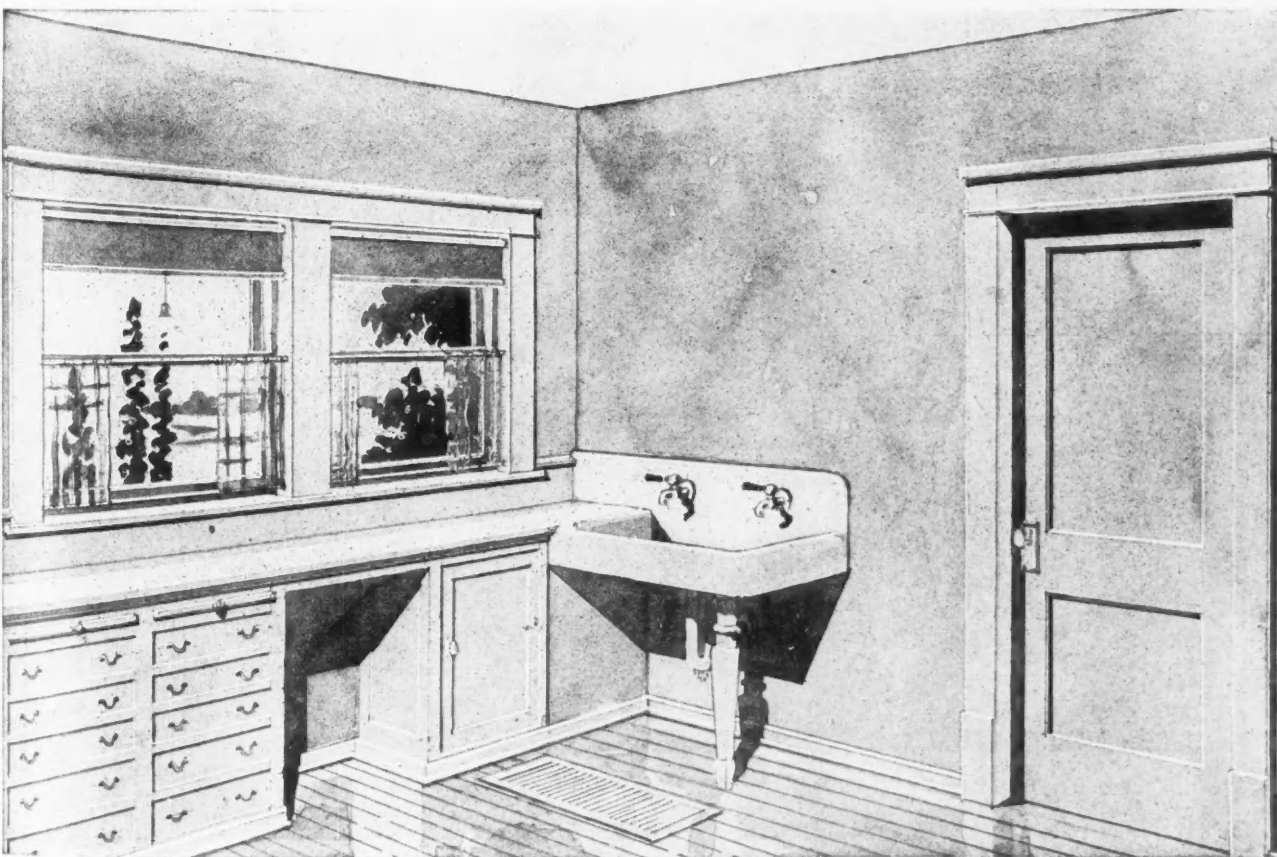




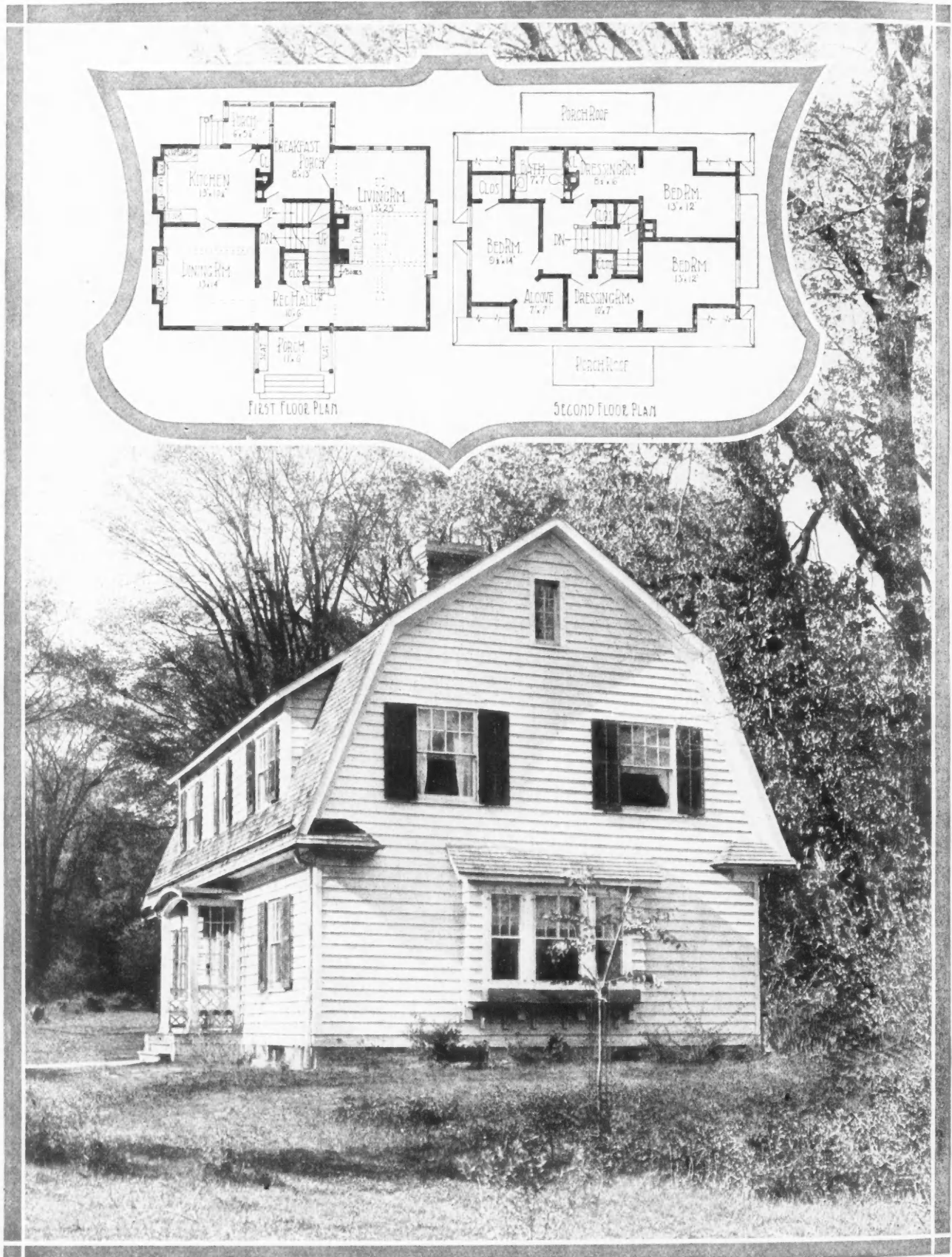
A PERFECT 8-ROOM DUTCH COLONIAL. It is seldom that you find a home of modest size and reasonable cost so perfect in every detail as this. Nature has joined with architect and builder to produce a residence gem. The floor plans show a perfect balance of spaces each side the central hall—living room balances dining room and sun porch the garage. The size of the house proper is $36\frac{1}{2}$ by 28 feet; porch and garage add 22 feet more to the length. Our design number is 6895.



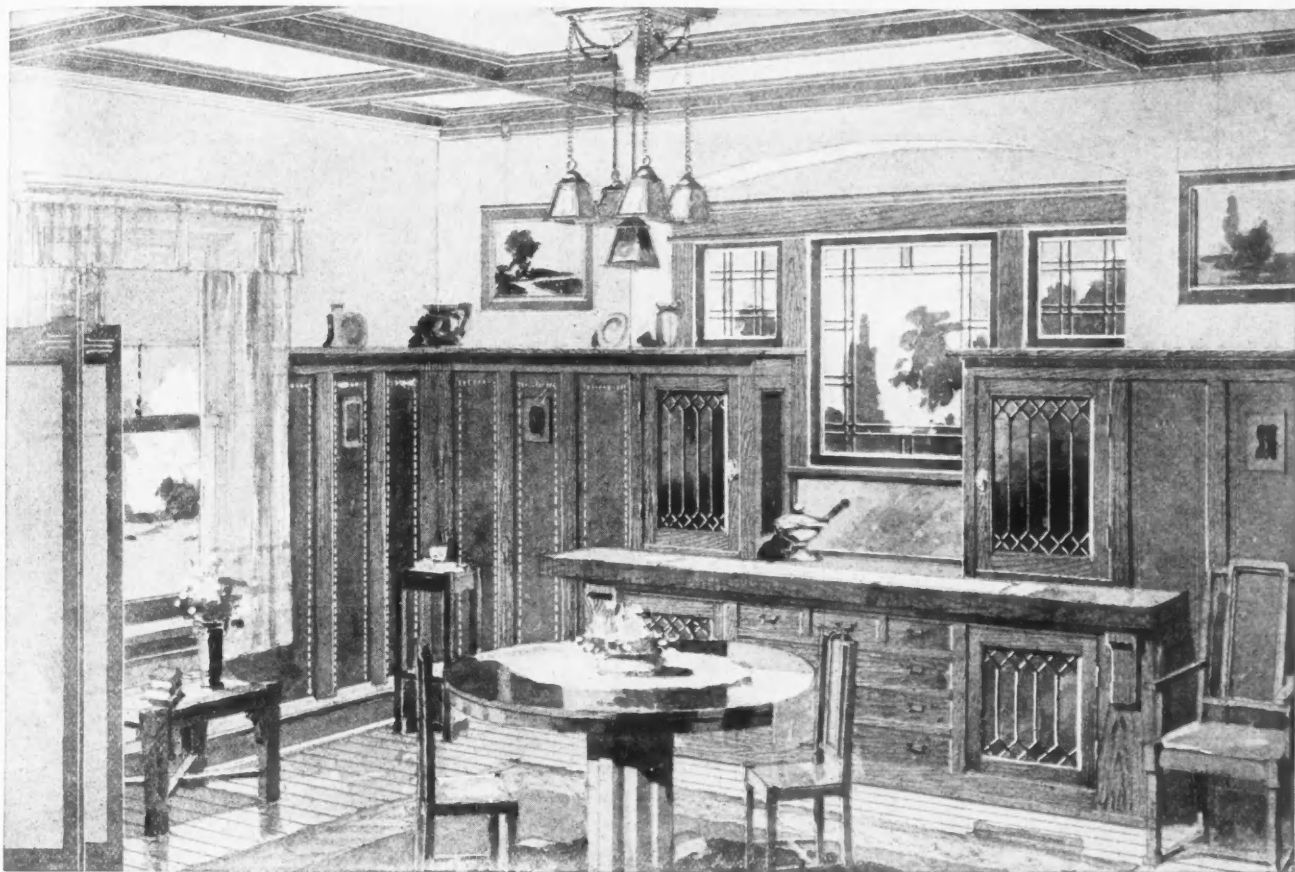
Interior view of spacious sun parlor or living porch in Colonial home on opposite page.



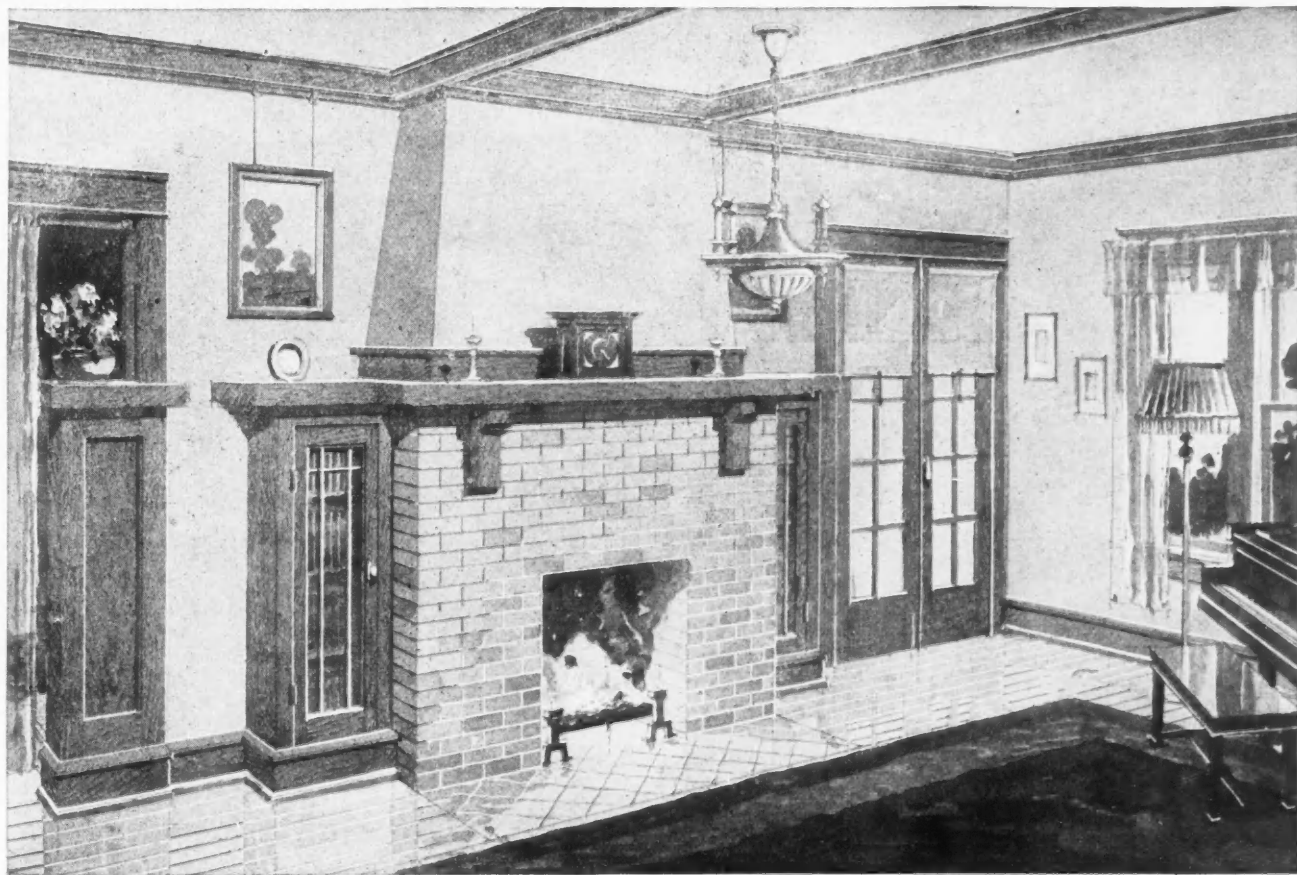
Corner of cheery kitchen in Colonial home on opposite page. All finish is white enamel.



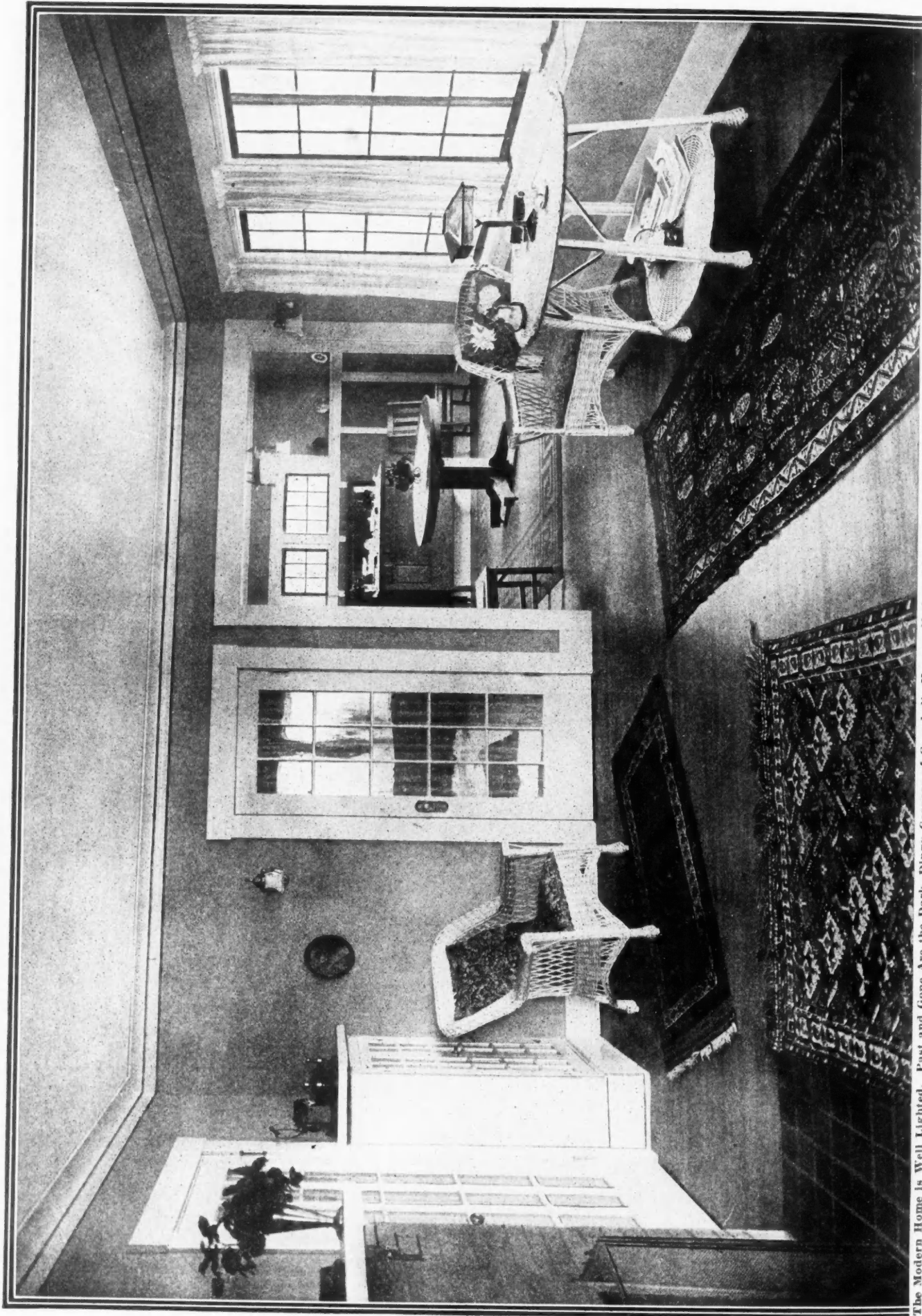
SIMPLICITY AND DIGNITY IN 7-ROOM HOME. The Colonial style is with us more than ever this year; and it's no passing fad, for true worth is on its side. This little white house, with green blinds, is at once the most homelike and up-to-date of dwellings. See that big living room, 13 by 25 feet, with sun parlor-breakfast porch annex! See that clever front and rear stair all in one! Note that second floor with its wealth of chummy alcoves and dressing rooms. Size of house is 38 by 26 feet. Our design number is 6889.



A View of the Paneled Dining Room in the Colonial House on Opposite Page, Looking Toward Built-in Buffet.

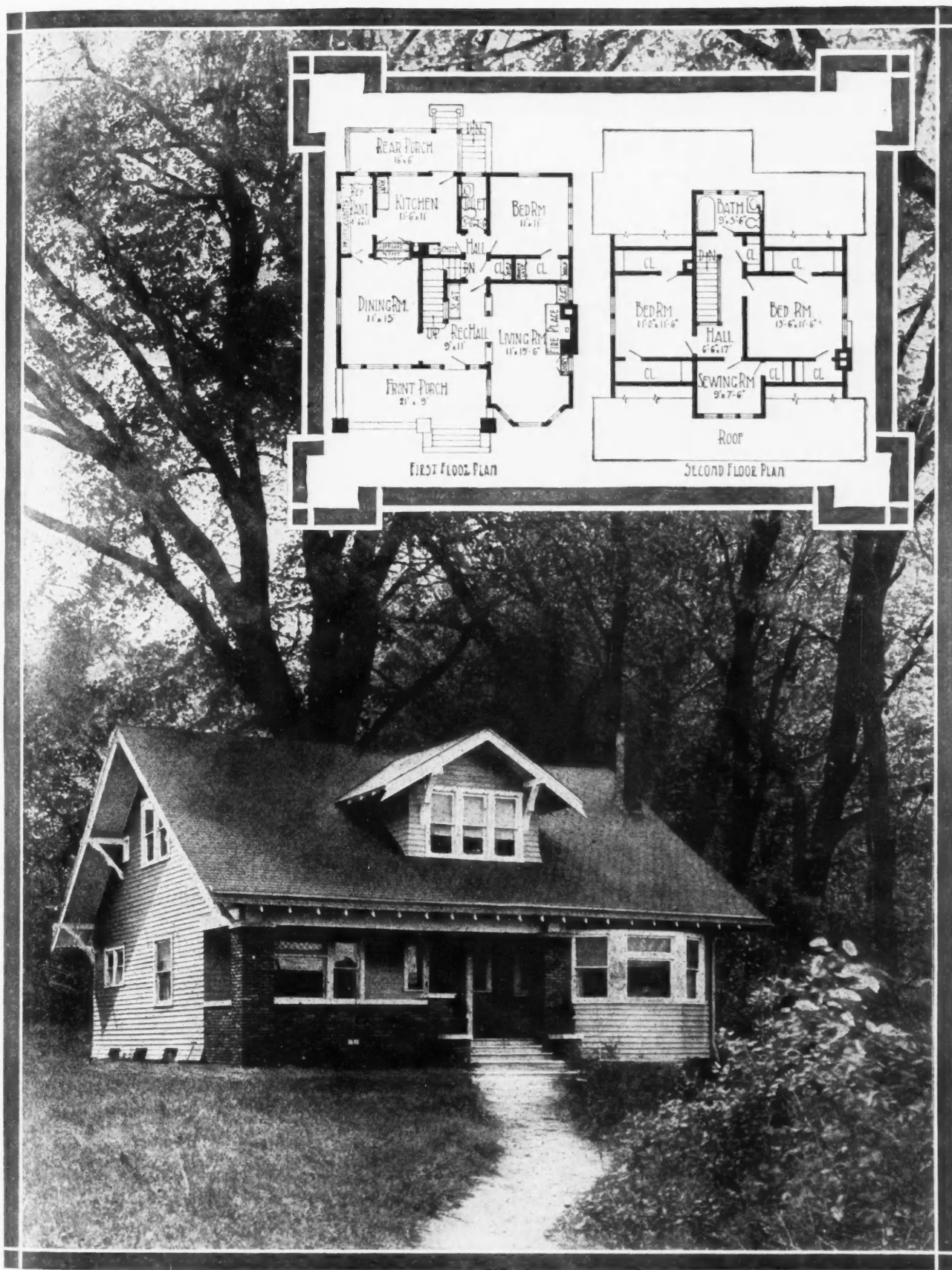


A View of the Big Living Room in Colonial House on Opposite Page, Looking Along the Fireplace Wall to the Full Glazed Breakfast Porch Doors.

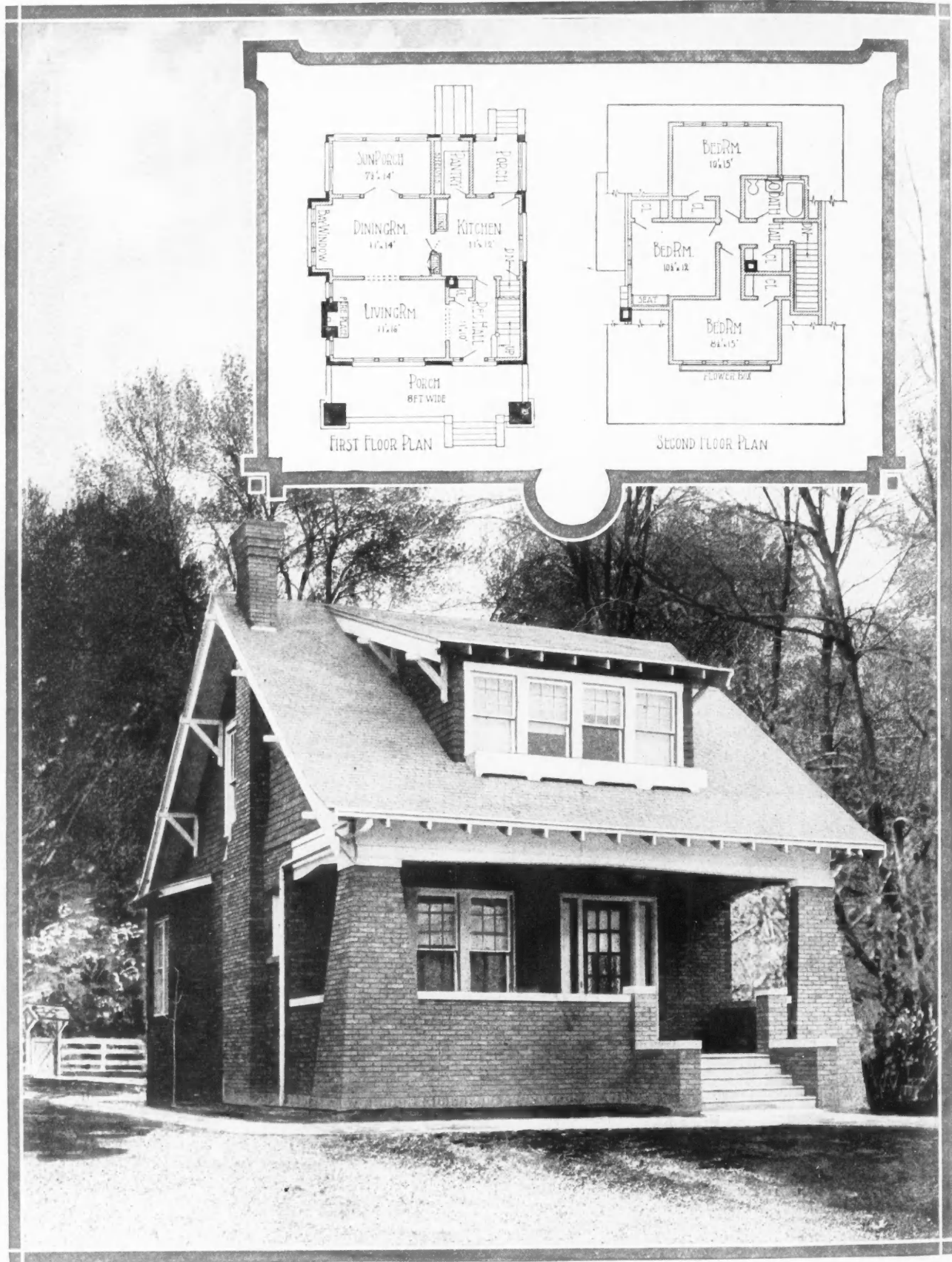


The Modern Home is Well Lighted. Fast and Gone Are the Dark, Dingy Corners of Granddad's House. Modern Living Rooms Have Their Windows Placed in Groups and Interior Doors Are Full Glazed so as not to Cut Off the Light. The Sunbath Living Room Illustrated is an Admirable Example.

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A MODIFIED WESTERN BUNGALOW OF SEVEN ROOMS. One good bed room on the main floor and two upstairs gauges the accommodations of this design. Moreover, the living room, reception hall, dining room and service portions are entirely adequate—beautiful rooms, all of them. Those who appreciate convenience will like this plan. The exterior has the brackets and show rafters that go with a bungalow roof. The brick porch is a beauty. Size of this house is 33 by 36½ feet. Our design number is 6888.



A MODERN BRICK VENEER HOME OF SIX ROOMS. For snugness and trimness this little dwelling is hard to beat. The face brick foundation and first story walls give a sense of security and permanence out of all proportion to the slight extra cost. The shingled upper walls avoid any feeling of top heaviness. Take note of that pleasant series of cheery rooms on the main floor—living room, dining room, sun parlor. Notice the good arrangement of second floor bed rooms. The size of this house is 28 by 32 feet. Our design number is 6902.

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

Noon Hour Talks by the Boss Carpenter

Talk No. 55. Factory Design

New Series No. 12

THE BOSS TELLS ABOUT THE DESIGN OF A SMALL FACTORY USING STEEL BEAMS AND CAST IRON COLUMNS FOR THE FRAME WORK.

DURING the last few talks," said the Boss, "we have considered the design of the main parts of the framing and floors of a small factory building using heavy timber girders and posts for the framing and thick plank flooring for the floors. This time we will take the same building with the same floor loads and use steel I-beams and cast-iron columns for the framing, but we will still keep the heavy plank flooring and hardwood wearing floor which we used in our other design. For the benefit of those who do not recall the general description of the building which we are to design, it may be well to state the problem again.

"We are to design the roof, floors, beams, girders, and posts or columns of a two-story and basement factory building 100 feet long and 50 feet width of front. The side walls are of brick and the foundations and footings of concrete. Figure 12A shows a plan of the building, while Fig. 12B shows a typical cross-section. The roof is of plank nailed to strips of heavy dimension timber which in turn are spiked to the flanges of the steel I-beams. The roof covering is of the ordinary 'tar-and-gravel' type put on according to a standard specification. The floors are of tongue-and-groove heavy wood flooring covered with a thinner hardwood or edge-grain softwood wearing surface. The floors are held to the I-beams as described above for the roof.

"We will assume a dead and live (including snow) roof load of 40 pounds per square foot of roof, and a dead and live floor load of 135 pounds per square foot of floor as in the previous factory problem. The general layout for the framing of the building will be the same as in the previous problem except that we will omit the intermediate beams at the quarter-points of the girders and only use beams at the posts and at the centers of the girders. This will lessen the number of beams used, but will increase the thickness of the roof and floor planks. The beams will also

be larger than if others were used at the quarter-points of the girders.

"The size of the roof and floor bays or panels is shown in Fig. 12A. The largest panels, or those in which the beams and girders are under the most load, are at the ends of the building. We will assume that the length of the girders in these bays is 16 feet, and the length of the beams 17 feet.

"For the roof calculations, the length of the roof planks between the beams upon which they are supported will be 8 feet. Taking a strip of roof 1 foot wide as a basis, the load carried by a section of roof 8 feet long and 1 foot wide will be $8 \times 1 \times 40 = 320$ pounds. Using 1,300 pounds per square inch as a safe working value for 'sound' yellow pine, and remembering the proper values for I and e for a rectangular cross-section, we have from our formula

$$\frac{p I}{e} = M = \frac{1}{8} W l$$

$$\frac{1,300 \times \frac{1}{12} \times 12 \times t^3}{\frac{1}{2}} = \frac{1}{8} \times 320 \times 8 \times 12$$

solving, $t^2 = 1.48$

$$t = 1.22 \text{ inches.}$$

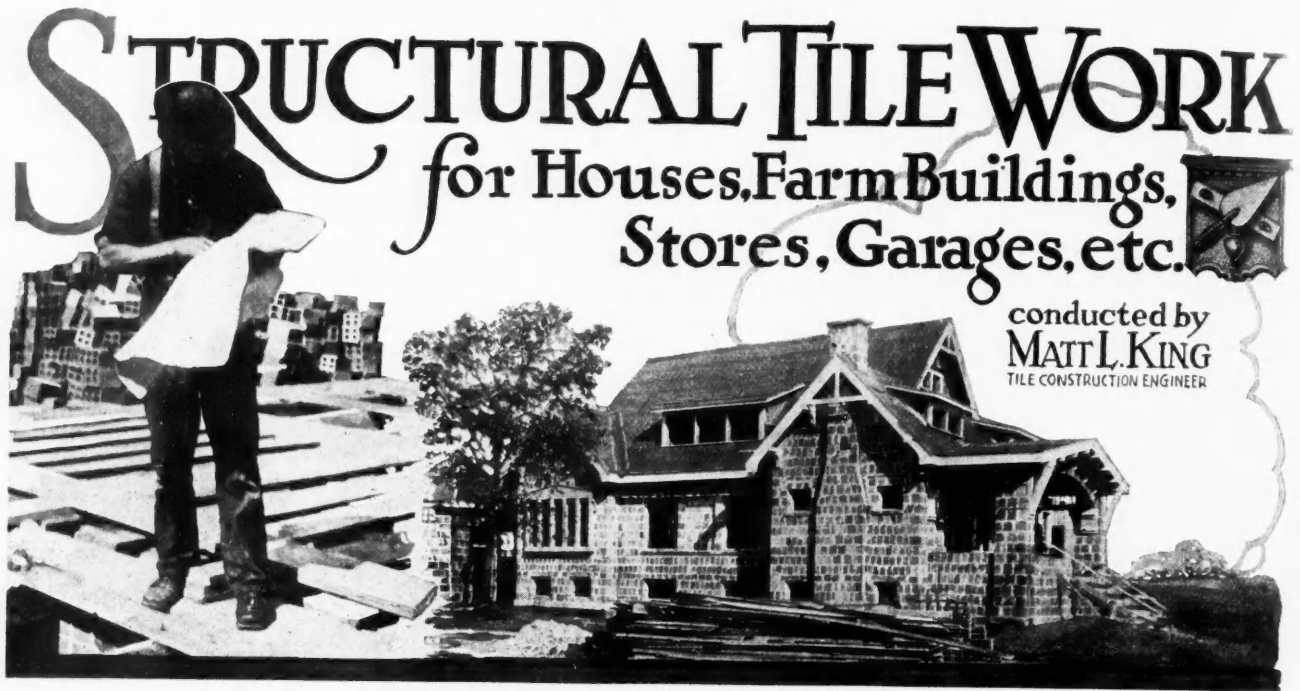
This value would indicate that 2-inch material, which is really $1\frac{5}{8}$ inches thick, would be needed for this roof. An examination of the formula for deflection,

$$d = \frac{5 W l^3}{384 E I},$$

which we have used before may result in too large a deflection for this thickness of material when used on so long a span. If so, a thicker material should be used regardless of the strength qualification.

"The roof intermediate beams will be of steel with an I-shaped cross-section. The length of these inter-

(Continued to page 122.)



An Introductory Word by Matt L. King

THE readers of this magazine may be more or less acquainted with the use of hollow tile in various kinds of constructions, and yet find it difficult to make these things plain to the man who wants a permanent building, and is concerned about some of the questions of strength and details of construction.

It is our aim to help such to furnish this information to your customer in a simple, plain and effective manner. Therefore in reading these pages from month to month you will often find things that look unnecessarily simple to you, things that you know all about. Don't be out of patience with this, but simply figure that "there is something I can show that man Jones who was asking about that very thing just the other day."

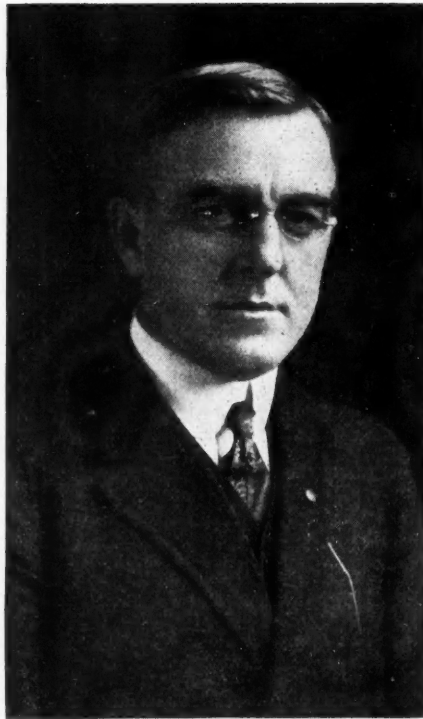
Also remember that you have men working for you, perhaps the last man that you took on, who does not know these things, and if he reads these pages he will learn the general principles and details of permanent construction.

It would save you the annoyance and loss of time incurred in explaining the thousand and one details to your men. Then see to it by one means or another that everyone of your men reads the *AMERICAN BUILDER* from cover to cover.

Also use this magazine in landing your business. Show your customer

that it is backed by one of the very largest and most reliable architectural organizations in the country. Assure them that especially in the line of moderate sized buildings the Radford Publications stand above any other organization for information on reliable, practical and economical buildings.

Then help us to add even further improvements by sending us your experience. Send us pictures of your buildings. We are always glad to pay for these things so that you will not be out anything, and in addition you will receive that much free advertising.



Matt L. King of Iowa, Tile Construction Engineer.

The idea of this department is to make it the equivalent of the best and highest priced correspondence school and valuable not only to you but to your customers. That is, in the course of a year or two, you and your customers have obtained the same as you would get thru an \$80 or \$125 correspondence course, all for \$2.

And besides that you have received equally reliable information along dozens of other lines, to say nothing of the advertising pages, forming the best sort of a buyer's guide.

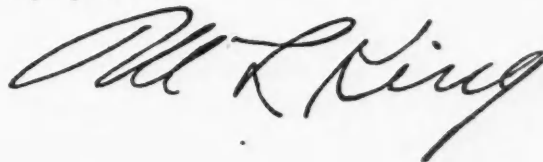
If there are any questions in your mind as to any phases of permanent construction write us. If there is anything you know about that you would like to put in convenient shape to show, write us about it.

The thing we are more certain of than anything else is that the greatest force in existence today is CO-OPERATION. The mass of facts that we have to distribute thru this department is due partially to our own experience in building, both from the standpoint of designing and spreading the mortar, but a large amount of it is due to our association with building contractors.

We have never met an experienced builder from whom we have not gained valuable information after even a short acquaintance. What any one individual

can do in this world is insignificant, but by working together we can do anything.

Let us join hands and pull together, each getting credit for what he does and thus enabling every man to get the kind of building that he wants and that will serve his purpose best.



Hard, Medium and Soft Burned Building Tile—How Produced and Where Each Should be Used

By Matt L. King

A FEW of the principles of the manufacture of hollow building tile will assist in selecting, buying and using the same intelligently.

In the first place there is some difference in clays. The remarks we make at this time, however, will pertain in general to all kinds. In general, clays are made up of thoroly mixed substances, part of which are infusible at the temperatures at which the clay is burned. Other portions of the same clay will fuse or melt, binding the entire mass together, while held in its original shape, by the infusible material.

The principle changes that occur are in size. The amount of this differs with different clays and there is a slight difference in size of hard and medium burned material. The hard burned material naturally is that in which the fusible substance has been more thoroly fused and will therefore absorb less moisture than material that has been less thoroly burned.

The strength of material of different grade of burning is surprisingly uniform when we consider the different grades of material made from the same clay. In fact the strength is so uniform on the different grades of material that it is difficult to make a general statement concerning the same.

A good many tests of materials selected from the same kiln for the purpose of these comparisons indicate that the medium burned block is slightly stronger than the very hard or soft burned. The difference in strength, however, is generally negligible.

In all questions of strength it should be born in mind that hollow clay blocks are strong enough for any ordinary purpose, regardless of whether or not they are hard or soft.

The most important feature as to quality to be considered is hardness for outside walls, where the material will be exposed to the weather and to moisture conditions near the grade line.

In burned hollow tile a very large portion of it is burned in what is known as down draft kilns, which are circular and vary from 24 ft. in diameter and sometimes smaller, up to considerably over 30 ft. Whether the fuel used is coal, oil, or gas the same general principles apply—that is the heat is applied at the top of the kiln, the flames and hot gases all passing down thru the material, thru the open work floor and then thru tunnels to the smoke stack.

Thus the material placed on the top of the kiln or where the direct heat from the fire hits it first, is harder than any other portion of the kiln. By skillful burning the temperature thruout the kiln is fairly uniform, but it will be seen from this brief description above that there is likely to be found material that is well manufactured in every respect but did not happen to be exposed to the same temperature as the hard burned material. This produces what is known as the medium or soft blocks.

For many purposes there is a distinct demand for the medium burned block, consequently a large amount of this grade of material is manufactured.

The object of this discussion of the quality of clay blocks is to enable you to use the same judgment in its use that you now use in the use of lumber.

For example, you do not use clear lumber for studding, rafters, sills, etc. Unquestionably clear lumber is better than that which is not clear. However, lower grades of

HAVE you inquiries? Is there anything that has been puzzling you about the clay block construction? If so write us. We are going to do our best to serve you, but you can help us wonderfully by writing us freely.

If there are any questions let us help you out. If we can't do it we will say so and get busy to work it out. If you have had some experience in tile construction and have anything you think would be of interest to other readers of the American Builder be sure to write us and if possible send photographs.

What has been your experience in the cost of laying up tile? This is an all important subject that will pay everyone to joint hands in learning about and to standardize.

EDITOR.

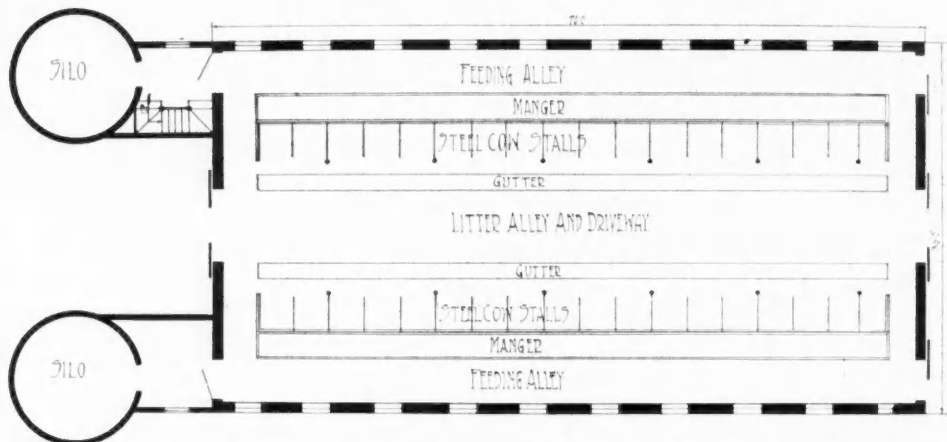
lumber serve the purpose and are considered good enough for framing work and the clear lumber, which is much higher in price, is used for other purposes. As for the window frames you secure a suitable kind and grade of lumber, in casings you do likewise, in framing you use a lower grade; in floors you use one grade, but a much lower grade for outside sheeting, and an even lower grade for roof sheeting.

Use this same judgment in the use of clay blocks. Walls, if exposed directly to the weather, especially at the grade line should be of hard burned material with an absorption of less than 10 per cent. Farther up on the wall, especially if the material is stuccoed, absorption is not so important, and on inside walls where the material is not subjected to moisture and daily freezes and thaws, the question of hardness is much less important.

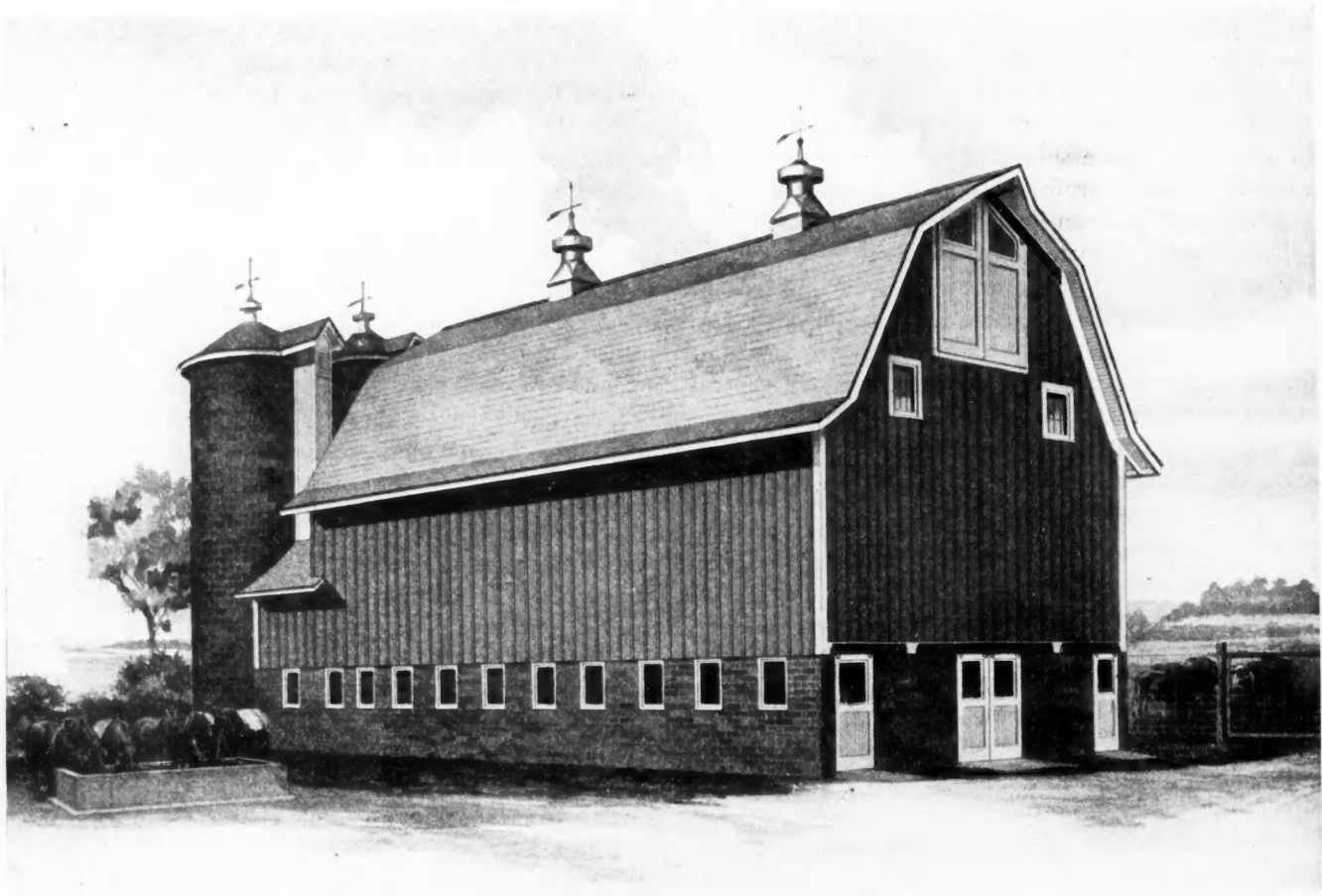
Also the inner walls can be made much thinner than outer walls. There are several reasons for this. They may have to bear even greater weight than

outer walls. However, as already pointed out, they have an abundant strength for all ordinary purposes. Often the deciding factor as to thickness of walls is the question of warmth, dryness, and side pressures due to wind storms or any other pressure that might come on the wall.

In some systems of fireproof floors, blocks are used entirely for the purpose of taking up space and are not depended upon for strength. In such a case as this the quality requirements are very different from any of the other cases mentioned above.



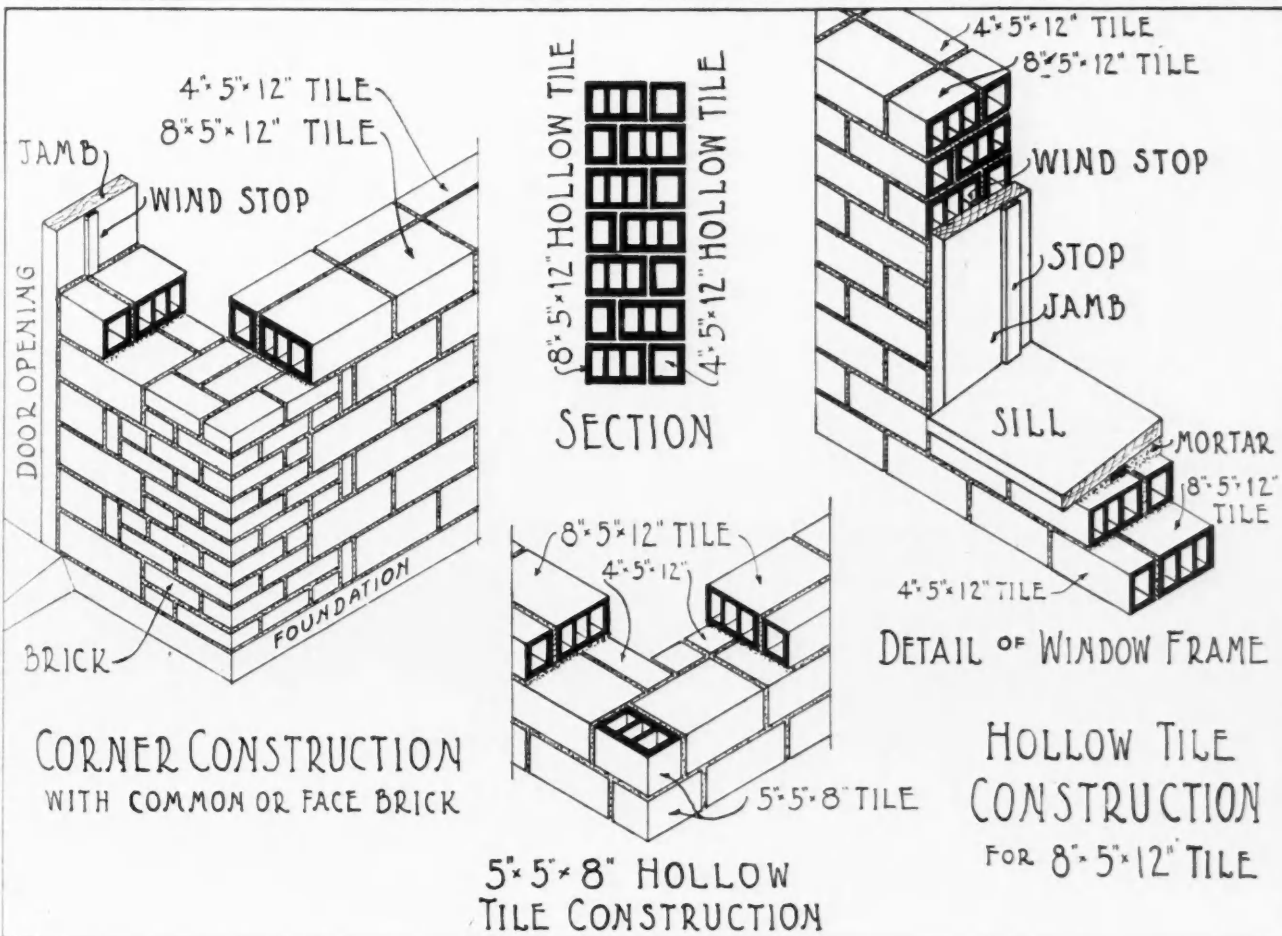
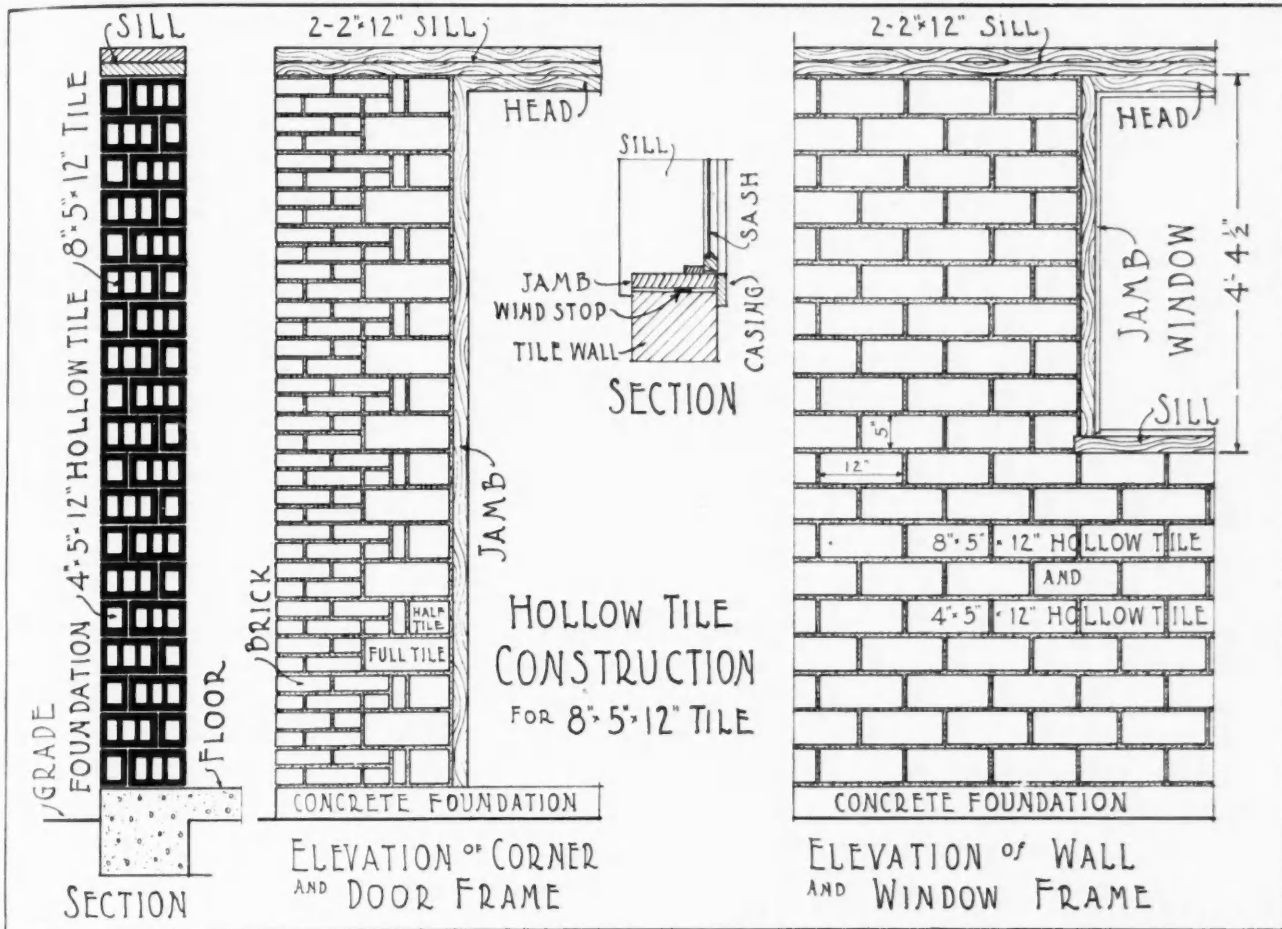
Floor Plan of Tile Basement Dairy Barn, Size 36 by 70, Design No. A384, Arranged to Stable 36 Cows, in Two Aisles Facing Out.



Photographic Perspective of Well-Designed Gambrel Roof Barn, with Structural Tile Basement. Basement is Well Lighted from Both Sides. Big Hay Mow Space Above Together with Two Tile Silos at Far End of Barn, Furnish Abundant Feed Storage. We Can Furnish Blueprints and Specifications for Only \$10.00 Per Set. Ask for Design No. A384.

For Details of Construction of Tile Basement Walls, See Opposite Page.

GRADE
DOOR OPENING



The Why of Hollow Tile Dwellings

AN INTRODUCTION ARTICLE EXPLAINING THE POPULARITY OF TILE HOMES ON PURELY ECONOMIC GROUNDS

By J. J. Cosgrove

APPLIED ceramic arts in this country bid fair to lead the world. Clay has become within the period of one brief quarter century the foundation, the superstructure and the finish for buildings. Cement is but clay in one of its many forms, while brick, hollow tile, wall and floor tile are one and all materials which owe their existence to clay.

We hear much and read much in recent years about the fireproof qualities of hollow tile buildings. We learn, too, of its heat, sound and moisture retarding properties. All very true, readily admitted by everybody, but heeded only by the few advanced builders who have given study to the subject. Why is this?

Simply because risk never yet deterred a man from engaging in an undertaking which promised a profit. The fact that a hollow-tile house is a *safe* building to quarter a family and household effects in, is not the real consideration which recommends homes of this material.

If I were charged with the conduct of an advertising



Laying Back-Up Tile and Face Brick Veneer at the Same Time. This Makes a Very High Grade Wall.

campaign for hollow-tile construction, it is economic grounds I would base my campaign on. Just see how logically all other claims subordinate themselves to this main talking point.

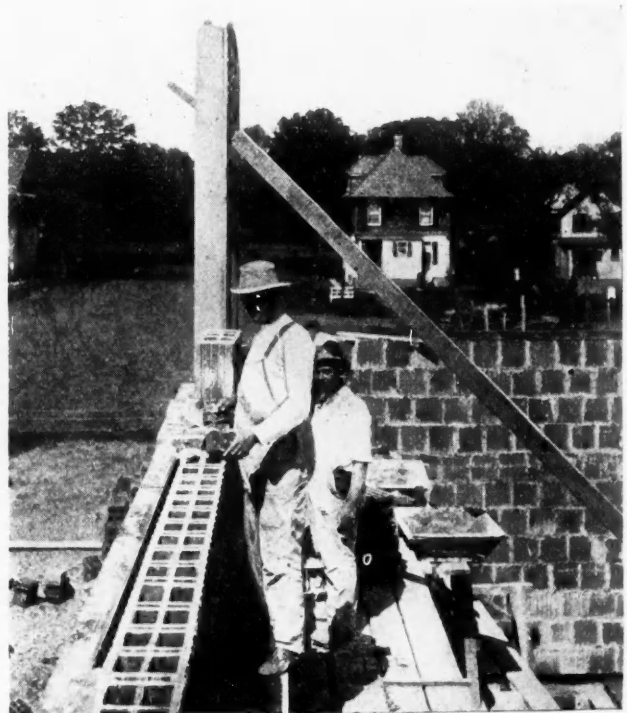
The building of homes is undertaken by two classes of people. First, by those whose hunger for a home prompts them to erect a building that will fulfill their ideal; second, by operation or speculative builders.

Suppose we take the speculative builder first. Why should he pay more for a hollow-tile house? Simply because he is not in business to see how cheaply he can build. The cost is merely incidental. It is in the sale, not in the building that his profit lies. It is no use building if he cannot sell. It is of but little more use for him to build if he has to carry for a long time or sell at poverty prices. He must get

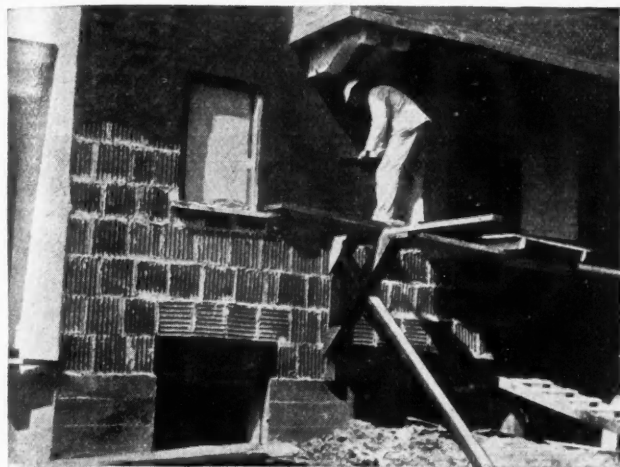
a good loan; sell in a quick market, and at a price which will net him a good profit, in order to make a success of the operation; and there is no doubt as to which of two operations, one wood the other hollow tile, will sell the more readily, at the better prices, and get the larger and more ready loan.

Therein is where the real value of hollow tile lies as a building material. It is in the price homes or buildings built of it bring in the open market. Not the price at which the homes can be built. Of course the elements of safety from fire, economy of fuel, and low cost of upkeep play their part, but in a secondary way only. They are the elements which influence the lender, the purchaser or the renter, and in turn through them the builders who are marching with the procession, not marking time.

The homeseeker for his part wants a building which will not have to be painted every couple of years or look shabby. He wants a building which will keep him warm in the coldest of winter weather. He wants a home that will look substantial and not rapidly grow seedy or take his last cent making repairs. He wants a building he can rent at a good figure if he finds it necessary for any reason to give up the place himself. He wants a building he can sell readily if he wants to leave the neighborhood or city; and he wants a home he can raise a good loan on without trouble, if he wants to use the money in his business or requires it for any purpose.



Showing Method of Bonding Face Brick to Tile Backing by Means of Brick Headers. Note Air Space Between Brick and Tile.



A Favorite Finish for Rough Tile for Residences is Cement Plaster. Photograph Shows Workmen Spreading on the First Coat.

Economic reasons all. Some fleeting thought that it is safe from fire and the family in no danger of being burned to death might flash thru his mind, but it is not the deciding factor. Let me repeat the fact that it is because it pays better to build of hollow tile, that the trend has set strongly in that direction.

The banks which loan on property want something substantial to base the credit on. Fire loss they can protect themselves against by insurance; but where is the insurance to protect a lender against depreciation in appearance, carrying with it depreciation of neighborhood? What insurance will protect them against vacancies because the buildings are too cold in winter?

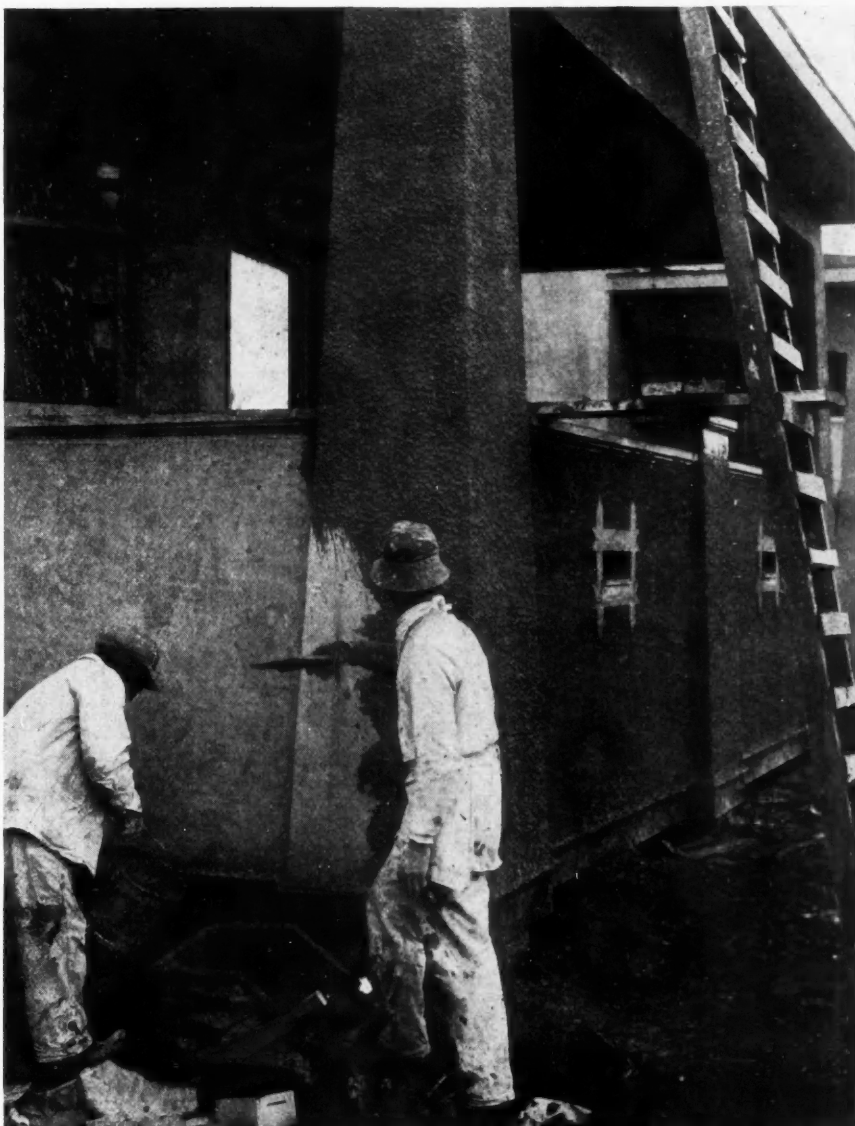
Economic considerations every one, which you will see are forcing us to a more substantial and more permanently artistic type of buildings.

So much for the speculative builder. The person who builds from home-hunger tends likewise in the same direction. No man carries in his mind as an ideal a flimsy home; an unsubstantial home or a perishable home. He dreams of it not only as a shelter for himself, but for his children and his children's children, down a long line of succession. He does not want it to burn, and destroy the dearest possessions of his lifetime, as well as his future hopes and dreams, so he, the home lover, who builds for an ideal, really thinks of the fireproof quality as the most

desirable element, secondary to the economic considerations. But it amounts to the same thing—he wants a hollow-tile home. If money is a consideration to him, and he has saved and scrimped for years to gather together the needed money for his home, he will be prompted by all of the principles of the speculative builder to put up a building on which he can realize the most, either in rent, loan or sale, and with the least trouble and in the least possible time.

Economy and safety, then, are the two principal elements in the order stated which have ushered in the present era of hollow-tile building.

There is another element which must not be overlooked by the shrewd operator or investor. This third element is human nature. Prejudices and likes are hard to overcome. What we have been accustomed to all our lives we look upon as the standard and want for our own. In European countries and Great Britain they build of masonry. Naturally, then, when Europeans come to America to live they want what they were accustomed to at home, and the foreign-born home buyers are not a negligible number by any



Showing Method of Applying Rough Cast or Pebble Dash Finish to First Plaster Coat.

means. Some of the Eastern cities are populated by fully three-fourths of foreign-born citizens, and among that class will be found a greater percentage of home buyers and smaller percentage of automobile buyers than elsewhere.

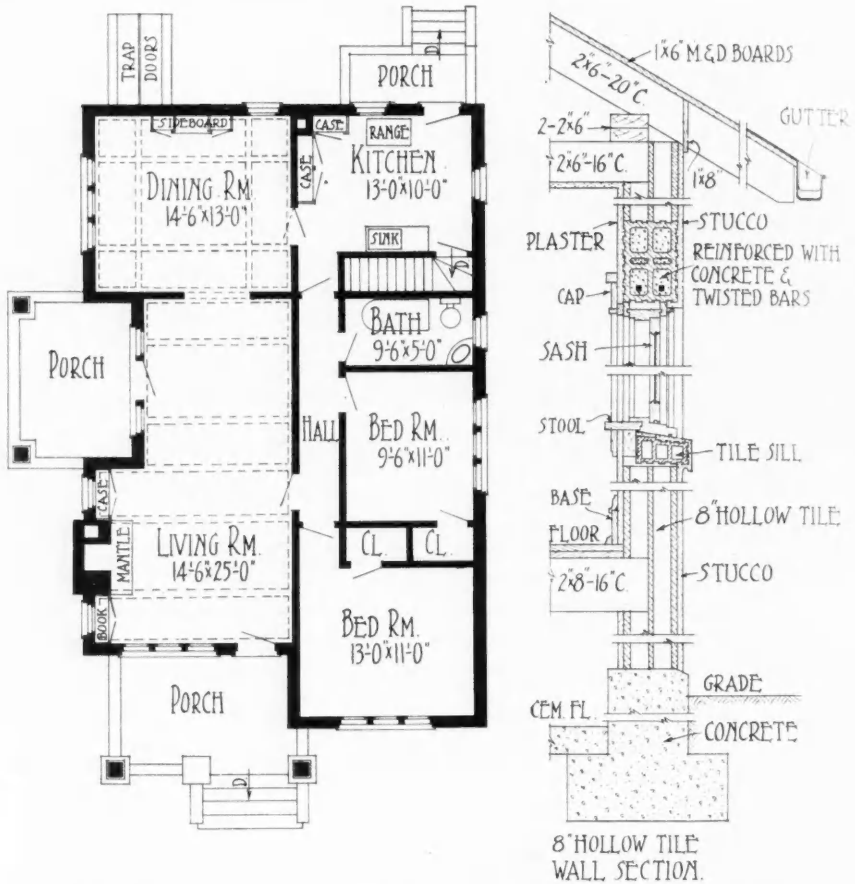
The speculative builder who ignores the housing customs of foreign-born home seekers cannot expect to win much of their trade. He must build substantially and of masonry—hollow tile—to remind them of the lands of their birth, to interest them in what he has to offer.

Within the past few years the tendency towards hollow-tile construction has become a trend, and S O S calls are being sent out from all quarters for further information about buildings of this material. It will be the aim of this series, therefore, to explain in detail, not only why there is greater profit in building of hollow-tile than of any other material, but what to do, how to do it, and how to estimate hollow-tile building construction.

Five-Room Tile Bungalow

THE fireproof bungalow illustrated below has five pleasant rooms. Walls are of structural tile, stuccoed on the outside and plastered within directly to the tile

without furring. Very little depreciation to this home. Arrangement of living room and dining room with connecting porch is a novel feature of the design. Fireplace is delightfully well situated. A truly "homey" house.



Floor Plan and Construction Detail of 5-Room Tile Bungalow, Size 30x46 Feet.



A Plastered Tile Bungalow of Strictly Modern Design, Containing 5 Rooms and Bath. We Will be Glad to Give Any Further Information Desired Concerning this Design or Can Furnish Blueprinted Working Plans and Typewritten Specifications for Only \$8.00 Per Set. In Writing Please Mention Design No. 6886.

Industrial Housing—A Necessary Development

BECAUSE OF THE IMMENSE GROWTH OF AMERICAN INDUSTRIES, THE PROBLEM OF HOUSING EMPLOYEES HAS BEEN FORCED INTO THE IMMEDIATE CONSIDERATION OF EVERY LARGE MANUFACTURING CONCERN



Fig. 1. The New Negro Shacks of Tile on the Right which Replace those on the Left at the Bethlehem Steel Company Plant at Sparrow's Point, Md.

LARGE manufacturing plants are located where shipping facilities, natural resources and other fundamental influences are most favorable. The problem of housing employees must be taken up as a separate item under the plant construction plan. Projects carried out during recent years indicate clearly the fact that the large manufacturers realize the necessity of interesting themselves in the home life of their employees. Thousands of dollars have been spent in the construction of buildings which are rented to employees by their employers. Thousands of dollars must still be spent before the problem is satisfactorily solved. This fact offers the opportunity for architects and builders to co-operate with manufacturers

in carrying out improvements which are urgently necessary.

Interesting, in this connection, is the plan which has been carried out by the Bethlehem Steel Company at their Sparrow's Point, Maryland, plant. This plan involved the construction of 100 negro shacks, 24 double houses and four rows of 10-family cottages. Plans and specifications for these structures were prepared by Bissler and Sinkler, architects, of Philadelphia, Pennsylvania. High grade hollow tile having a face surface of pleasing texture was selected as the material for walls. The design and arrangement of the three building types show the result of a careful study of details.



Fig. 2. Rear View of the Double House Type Erected by Bethlehem Steel Company at Sparrow's Point, Md.

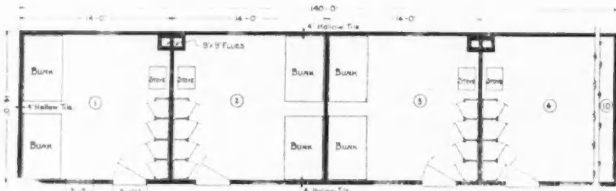


Fig. 3. Front and End View and Floor Plan of Negro Shacks of Bethlehem Steel Co.

Interiors were finished with cement plaster placed directly on the scored surface of the tile. All chimneys were built of brick with flue linings. The floors of the shacks and the basement floors of the double houses and cottages were built of concrete. Precast reinforced concrete lintels were used over all window and door openings except in second floor dormers. All pilasters and columns were built of 4-inch hollow tile. Whenever 12-inch walls were used they were built up of a combination of 8-inch and 4-inch hollow tile. Hot and cold water and electric lights were provided in all buildings.

The arrangement and appearance of the negro shacks may be seen in Figs. 1 and 3. There are ten rows of these shacks, ten shacks to the row, accommodating 400 men. Each room is 14 feet square, has a door and window in front and two windows in the rear. The rooms are equipped with two double-deck

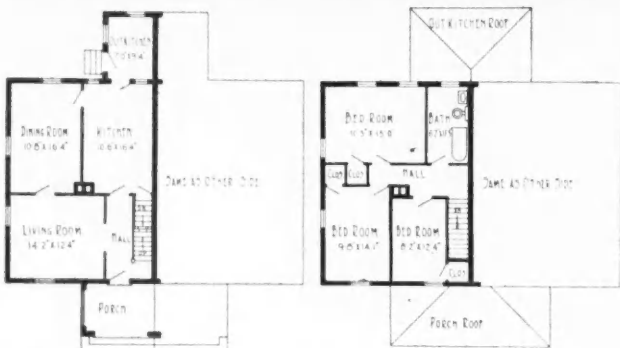


Fig. 4. A Row of Double Houses and Floor Plans of Same.

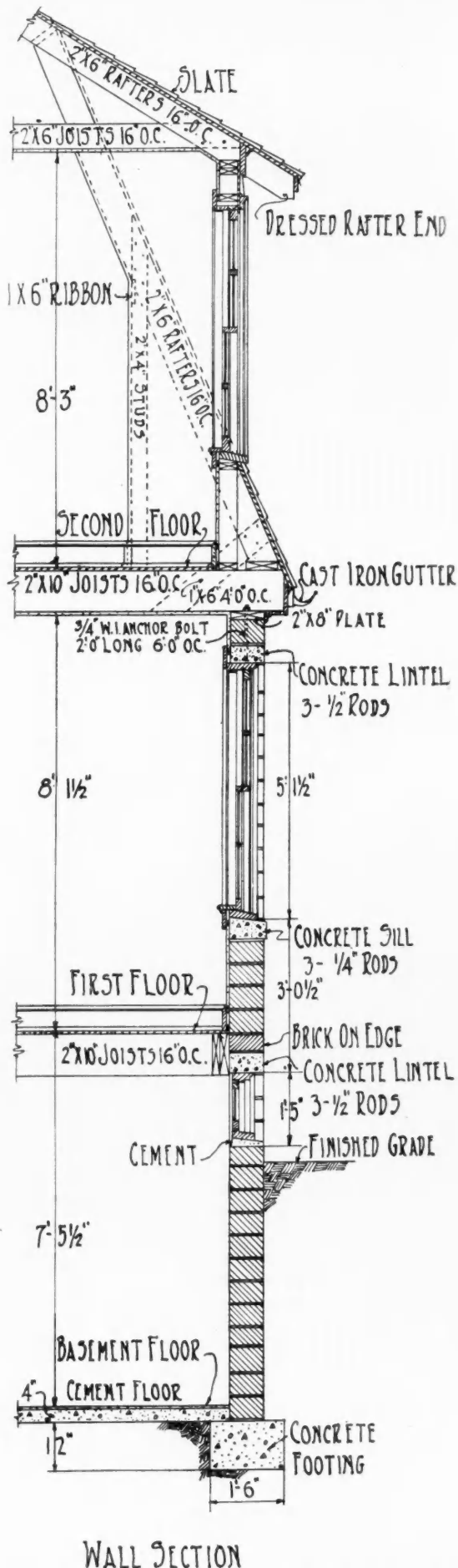


Fig. 5. Section of Cottage Row Wall Thru Second Story Dormer.

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iron cots, enameled iron wash bowls and stoves. The foundation walls are of concrete and the upper and division walls are of 4-inch hollow tile. Slate roofs are placed on wood framing.

The approximate cost of a ten-room row of shacks was \$2,200. The rent is \$1.50 per man per month and it is estimated that they will pay for themselves in four years.

In some respects the design and equipment of the double houses and cottage row apartments are similar. In each type the porch floors are of reinforced concrete, asbestos shingles are used on the roof and a belt course of brick is laid just above the basement window lintels. Enameled iron plumbing fixtures and hot air heaters are used.

The double houses are shown in Figs. 2 and 4. Each side of the double house has 6 rooms, a stair hall and bath. The buildings are 30 feet by 44 feet with an



Fig. 7. Rear View of Row of Cottages Owned by Bethlehem Steel Company at Sparrow's Point, Md.

addition 10 feet by 20 feet, one story high, at the rear. Hollow tile foundation and upper walls, to second floor, are 12 inches thick. Above this the walls are 8 inches thick. Porch walls are of 8-inch hollow tile. The approximate cost of each double

(Continued to page 108.)

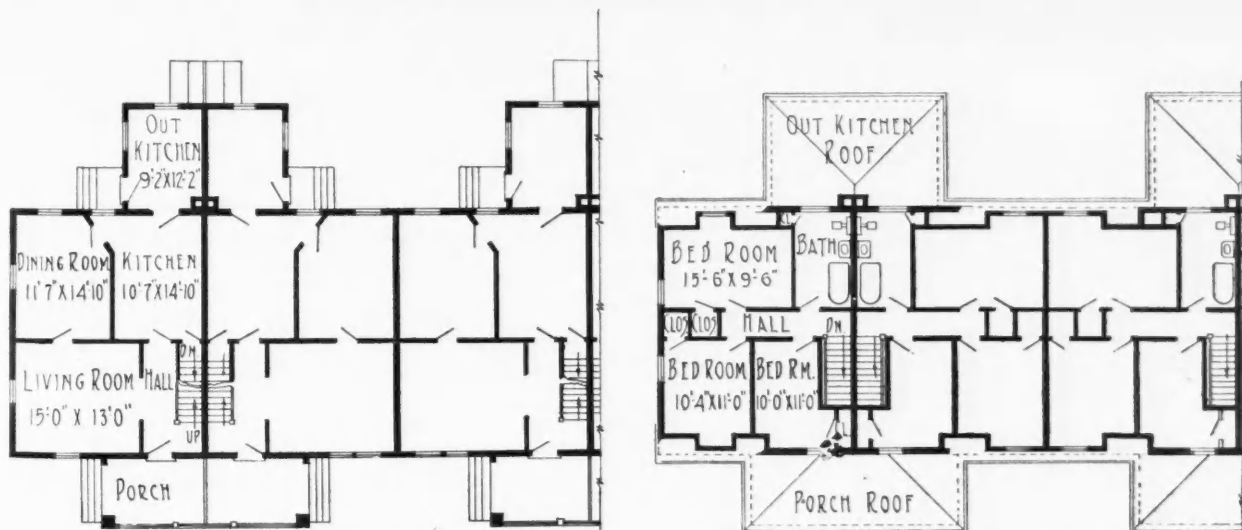
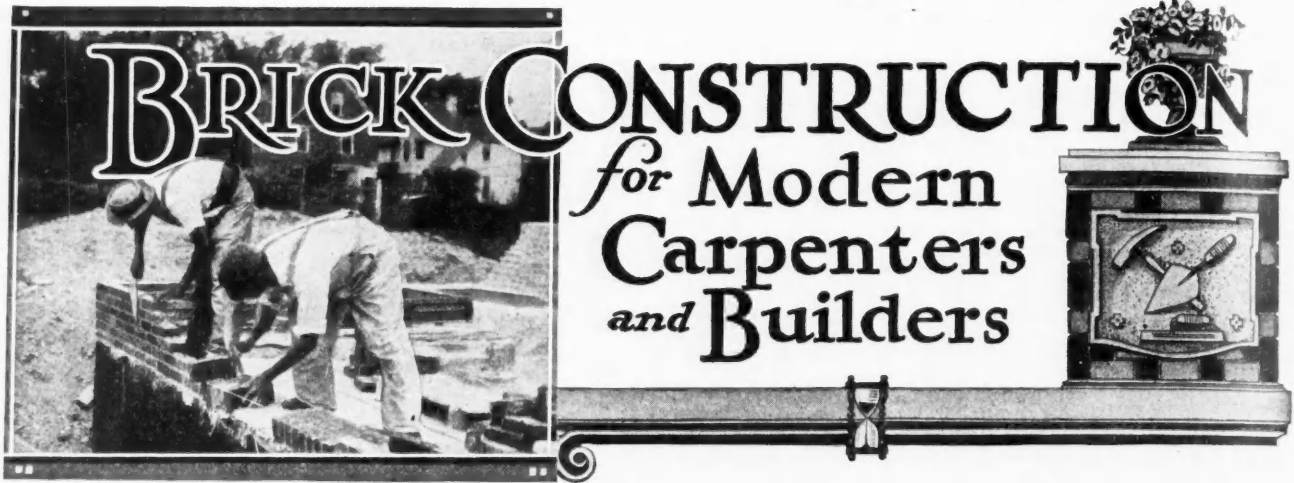


Fig. 6. Front View and Floor Plans of Cottage Row Type of Structure Erected at Sparrow's Point, Md., by Bethlehem Steel Co.



Profit in Brick-Hollow Tile Bungalows

AN INTERVIEW WITH CONTRACTOR GEO. SCHINDELBEK OF AURORA, ILL.

By C. L. Rorick

THE experience of various contractors thruout the country differs greatly. But their general interests are all in common. The experience of Mr. George Schindelbek will be found interesting by everyone and especially those builders who have been paying but little attention to the use of brick and hollow tile in building work.

He is today and has been for many years, a contractor in Aurora, Ill. During the earlier part of his career he confined his work to frame houses. That was before hollow tile and brick veneer were thought of very much in connection with house building. Today, however, he has broadened the scope of his work and is contracting for both brick and tile houses and frame structures.

In speaking of his experiences Contractor Schindelbek says: "Today I am building with face brick and hollow tile almost entirely, for I have found that personally I can make more money in handling this class of job. For example, the brick house, Photo A, I can sell for \$3,600. In frame the best I can get for

the same bungalow is \$3,000. This is 20 per cent more for the house of face brick and hollow tile, and it costs me only about 5 per cent more to build it.

"I have built eleven houses this year and have made almost all of my houses of the bungalow style. This style, with me, seems to sell best. The designs illustrated in photos A and C are those I have been building mostly. I can add a sleeping porch, which always takes well, on either of the houses for an additional charge of \$200. The arrangement of this porch is shown in the circle, photo C. This is the rear view of the little house just below it.

"I build all of my houses with kitchen cabinets, bathroom fittings and heating plant completely installed. I find a ready market for all of my houses. They are seldom finished before they are sold, and in many cases the house is sold before I start with the face-brick veneer. In such cases the purchaser has the chance of selecting many of the things to be used in the building.

"When I first started building these houses people



Photo B. Contractor Schindelbek in the Doorway of One of His Brick and Tile Cottages at Aurora. The Braces Are to Keep the Walls in Alignment, as This Job Was Done in Zero Weather.

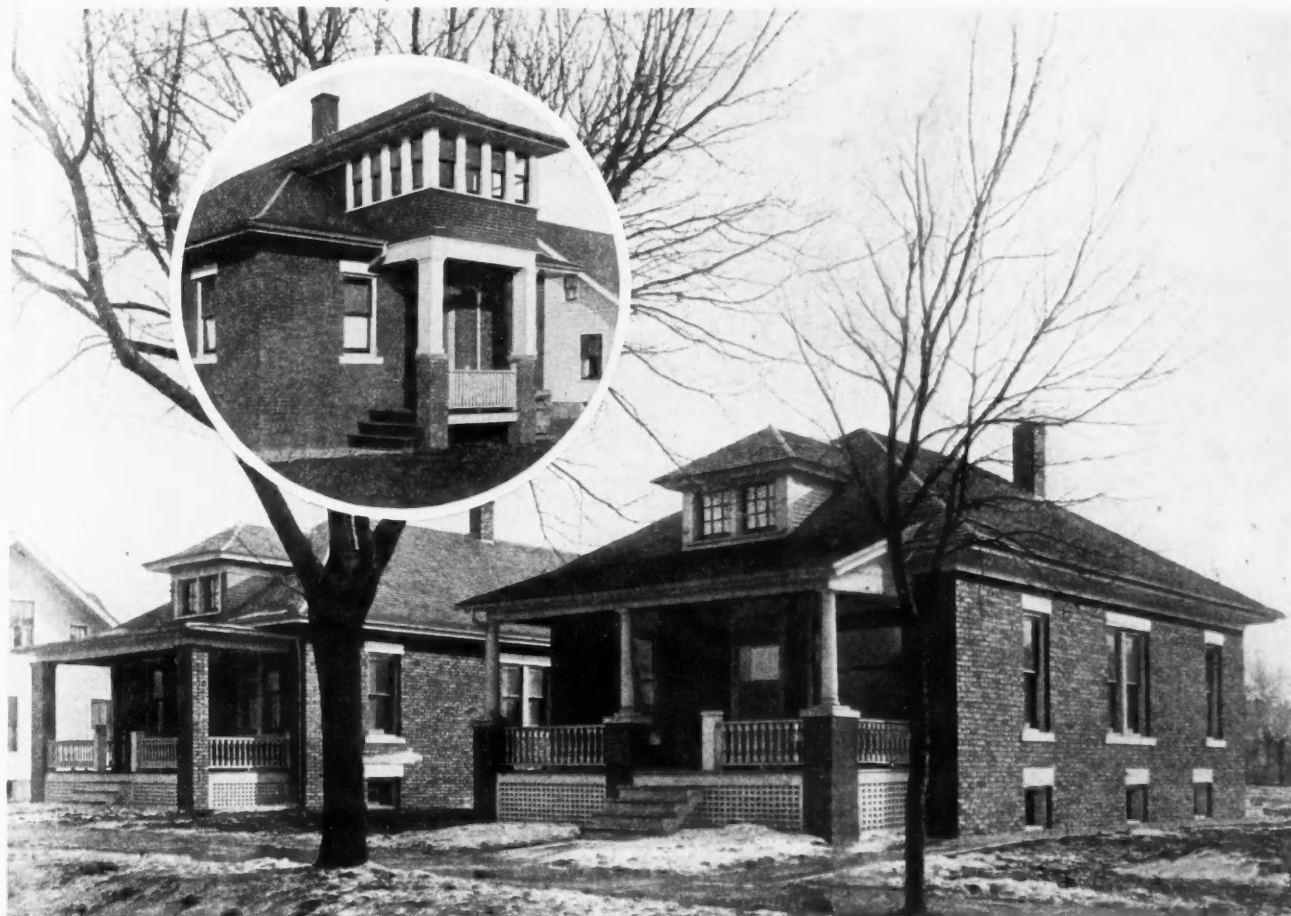


Photo C. Two of the Schindelbek Brick and Tile Cottages, The One at the Left Having a Second-Story Sleeping Porch as Illustrated in the Circle. This Little Extra Brings \$200.00 Additional on the Selling Price.

were surprised as the price for which I could sell them. It was the imagined cost which did keep, and is keeping, many of them from being built now. The insurance rate for these houses is 12½ per cent less; they are warmer in winter and cooler in summer; they are not painted and they are very substantial. These are among some of the advantages I find in the houses.

“At present most of the houses in the community are being built of brick and tile, and during the next few years I expect to build between 25 and 50 houses every year.

“Another thing—as regards my profits—is that I do not have to give so much of my personal attention to houses which I am building of brick

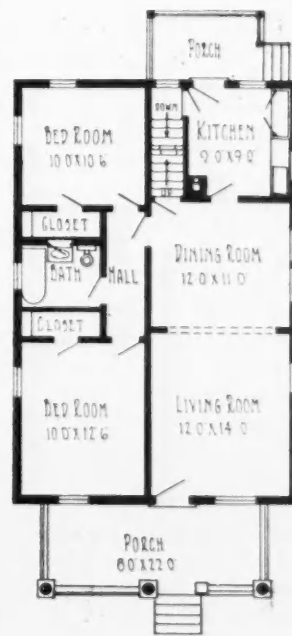
and tile. After the construction is started I don't have to watch it one-half as close as I do in other cases in order to make sure that things are done the way they should be.

“Of course the pleasing thing is that I can make a larger profit and at the same time give satisfaction to my buyers. Giving satisfaction to my buyers helps in more than one way. The principal thing as regards profits in this respect is that I don't have to spend money and time finding buyers for the future. My satisfied buyers of the past do that for me.”

Contractor Schindelbek, like a lot of other contractors, used to think brick construction was too expensive. During a quiet period in his business he decided to experiment. He had quite a set idea that the



Floor Plan of Sleeping Porch Cottage Shown Above to the Left.



Floor Plan of Five-Room Cottage Illustrated Above. Size, 24 by 36 Feet.



Photo A. A Six-Room Brick Veneer and Tile Bungalow, Which Sells Readily for \$3,600.00. Contractor Schindelbek Says He Can Handle Two Such Houses with No More Attention to Detail Than One House Formerly Required.

houses would sell if he could build and sell them at the right price. Nothing further needs to be said regarding the outcome. You have just read of his experience and can use it as it best fits your needs.

As for the house designs, they are very unique and conveniently arranged. Both the exterior design and interior arrangements have been varied so that one at least can be found which will please the disposition of the prospective buyer. All of the houses are of a narrow design. This makes it possible to build on a minimum lot frontage. It is a thing of much importance, too, especially in the larger cities where property is more expensive.

For these designs a 30-foot lot is sufficient. The houses are only 24 to 26 feet wide. This leaves room enough on the sides for a walk leading to the rear of the house and for plenty of light to come in thru the side windows, even tho houses may be built on both of the adjoining lots.



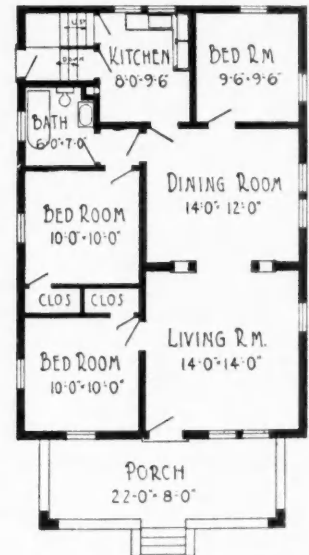
Type of Houses First Erected by Contractor Schindelbek and Selling at About \$4,000.00. The Bungalow Type Adopted Later Sells More Readily and at a Better Margin of Profit.

Industrial Housing

(Continued from page 105.)

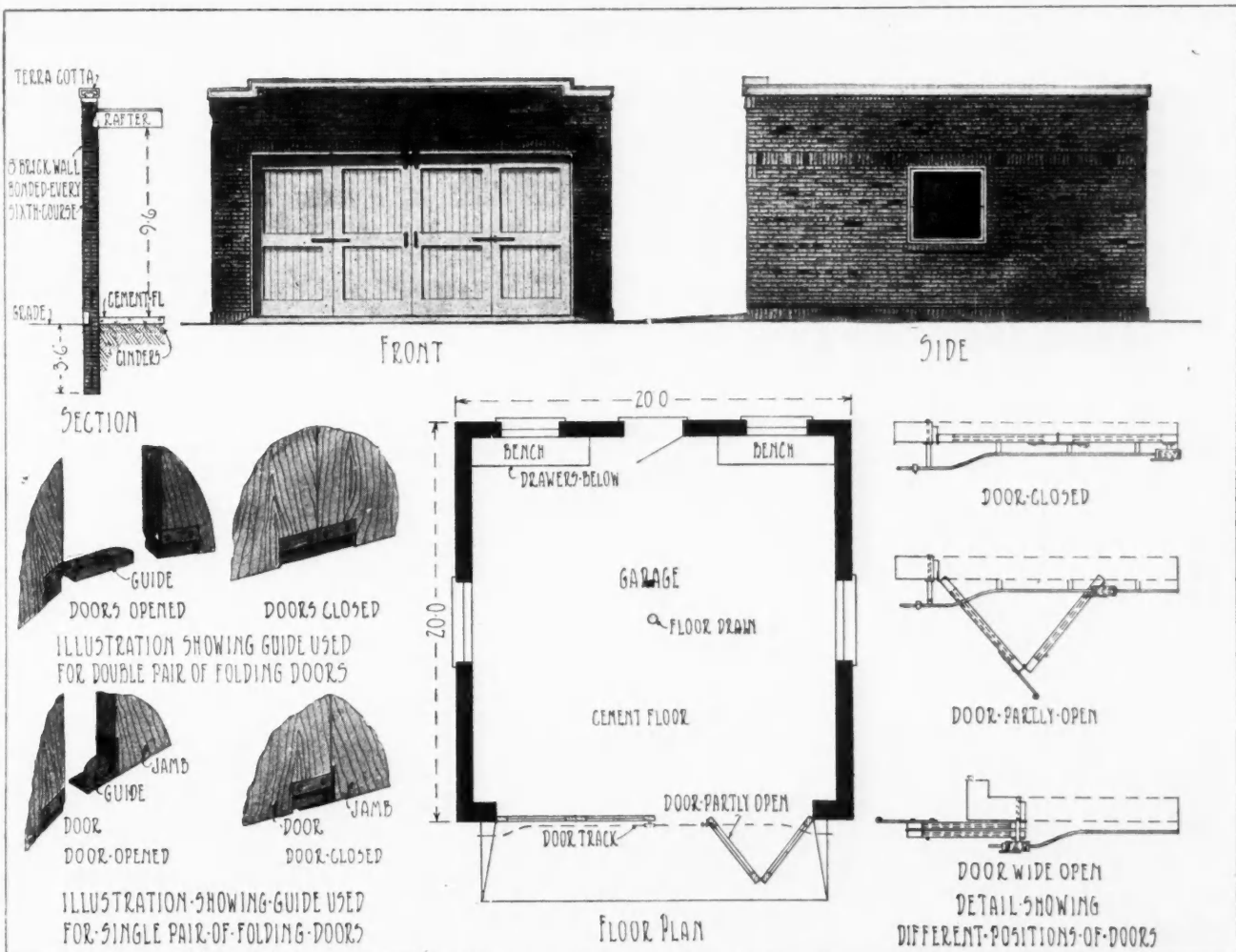
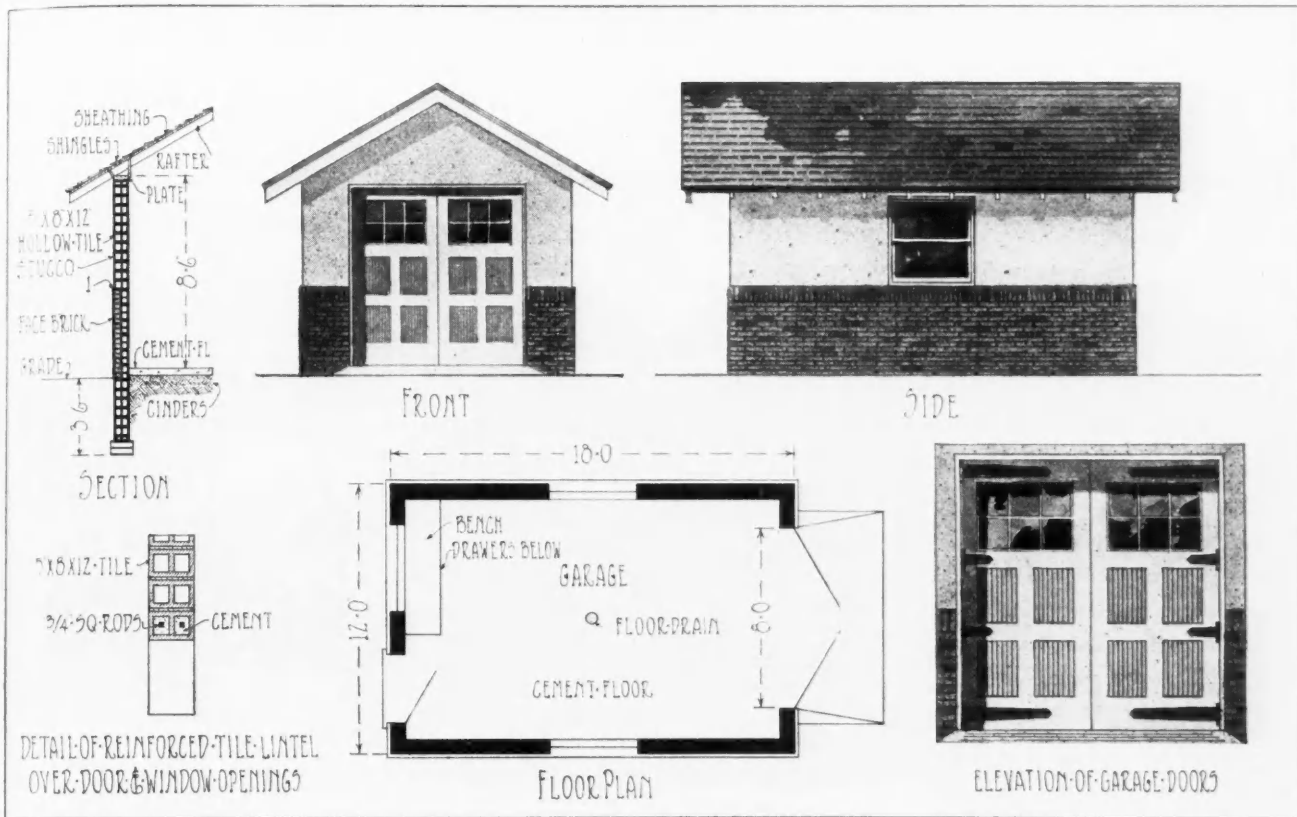
house was \$5,100, and each side rents for \$18 per month.

The cottage row structures are shown in Figs. 6 and 7, and a wall section is shown in Fig. 5. In each apartment there are three rooms, a stair hall and a pantry on the first floor, and three bed rooms, a bath and stair hall on the second floor. The size of the cottage row is 30 feet by 250 feet with pantry additions 10 by 20 feet. Foundation walls are 12 inches thick on the ends and 8 inches thick on front and back. Upper walls are 12 inches thick up to second floor and 8 inches thick above this. The approximate cost of one row was \$23,000, and each apartment rents for \$20 per month.



Floor Plan of Six-Room Cottage Illustrated Above. Size, 26 by 38 Feet.

Progressive methods were used in the construction of these buildings. An interesting feature may be seen in Figs. 4 and 6. A railroad siding was constructed to the site of the building operations to facilitate delivery of materials. Since a project of this kind is usually of considerable magnitude, it is possible to bring about a considerable saving by a careful study of building methods and materials handling methods.



Two Garages of Fire Resisting Construction. The Upper a One-Car Garage of 8 by 8-Inch Hollow Tile, with Brick Veneer and Stucco Outside Finish. The Lower is a Two-Car Garage Built with 8-Inch Brick Walls. Note the Two Popular Styles of Garage Door Hardware Illustrated. The Lower Garage is Design No. G176, the Upper Design No. G177.

A New Brick Porch Will Save This House

ALMOST ANY HOUSE WHICH BEGINS TO LOOK OUT-OF-DATE MAY BE BROUGHT UP-TO-THE-MINUTE BY THE ADDITION OF A WELL-BUILT BRICK PORCH.

DURING recent years the method of remodeling old houses which consists in the addition of brick porches has become increasingly popular. Thousands of examples of this kind of work may be found. It cannot be disputed that the improved appearance is responsible for a material increase in the value of the property.

The popularity of this method of remodeling caused the publishers of this paper to offer, in the January issue, to draw up remodeling sketches free of charge for any reader who would send in a photograph showing the house in need of remodeling.

Not long after this offer was made, William B. Stapp, contractor and builder at Norton, Kansas, sent in the photograph shown on the opposite page, with the request that sketches be drawn up for him. The old porch, he said, was too narrow, the floor being 6 feet 4 inches with the house projecting 7 inches beyond the porch. He asked that a porch be designed which would be at least 8 feet wide with a concrete or brick rail. On the original porch it was 8 feet from the floor to the top of open work and an 8-inch frieze was placed above, making it 8 feet 8 inches from the floor to the ceiling.

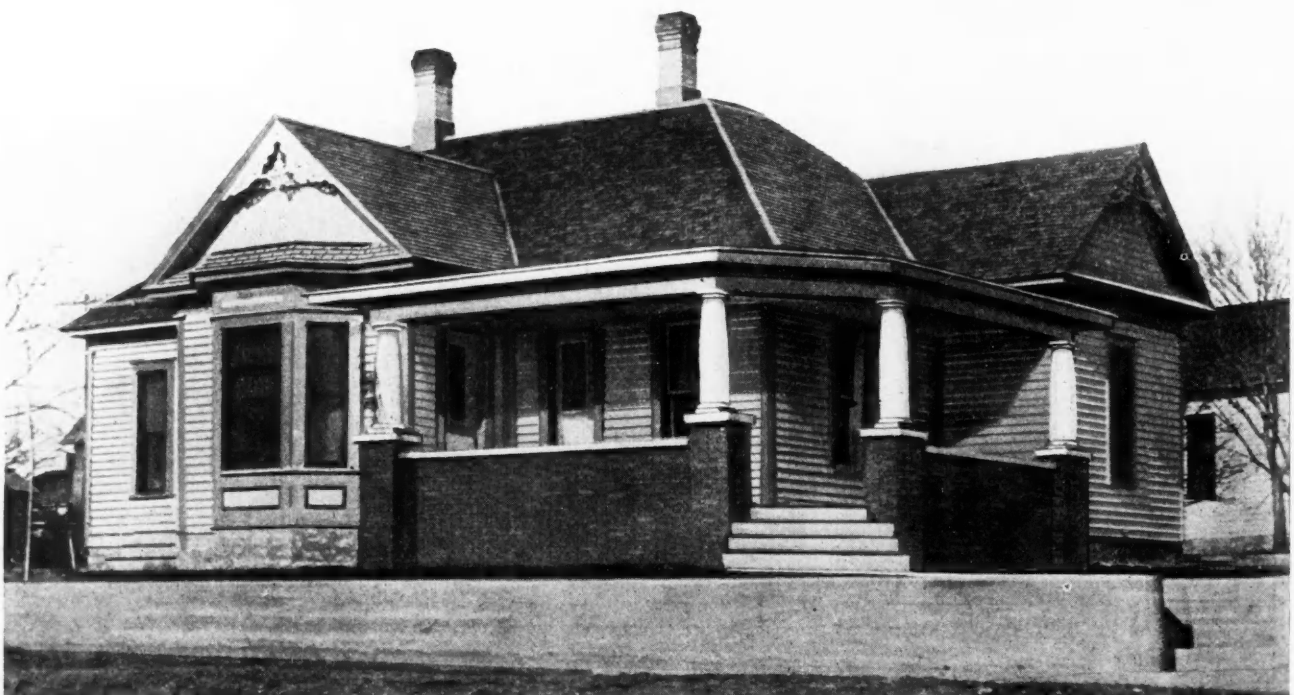
In the view shown on this page our Service Department artist has looked a little way into the future, and has built a porch on Mr. Stapp's house, following the sketch furnished by the Architectural Department. The porch walls are built of brick and are 8 inches thick. There are four brick piers 16 inches square.

Turned wood columns are placed on these piers, supporting the porch roof. White or very light gray concrete coping is placed on top of the brick walls and piers. The brick is beautiful texture face brick such as may be found in the stock of any progressive lumber or building material dealer.

There are many different kinds of face brick from which to pick the surface effect desired. The mortar color may be varied to further the effect. This flexibility is perhaps one very good reason for the popularity of brick porches.

Every builder should consider carefully the possibility of business of this kind. In every settled community there are houses which could be benefited by the addition of a brick porch. The cost of this addition would be well repaid by the improvement in appearance and increase in value of the property. It takes little argument to convince the average man that this sort of remodeling will pay for itself, if it is really needed. The best argument is a sketch which will suggest what might be done, backed up with figures to show what will be needed to make the change and what the approximate cost will be. The dealer will find it to his advantage to co-operate with the builder in establishing business of this kind. Working together they should be able to work up remodeling schemes which will find a ready market.

The AMERICAN BUILDER wishes to assist its readers in working up this business. Experience has shown that a picture is needed to aid the sale of proposed work of this kind. Here is our offer: Get a good

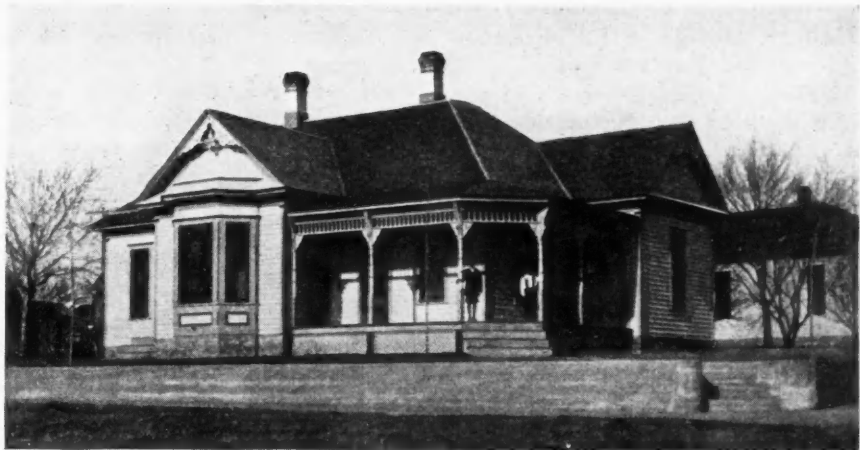


Our Remodeling Suggestion. When Mr. Stapp Completes His Remodeling Work the House Shown on Opposite Page Will Look Like This.

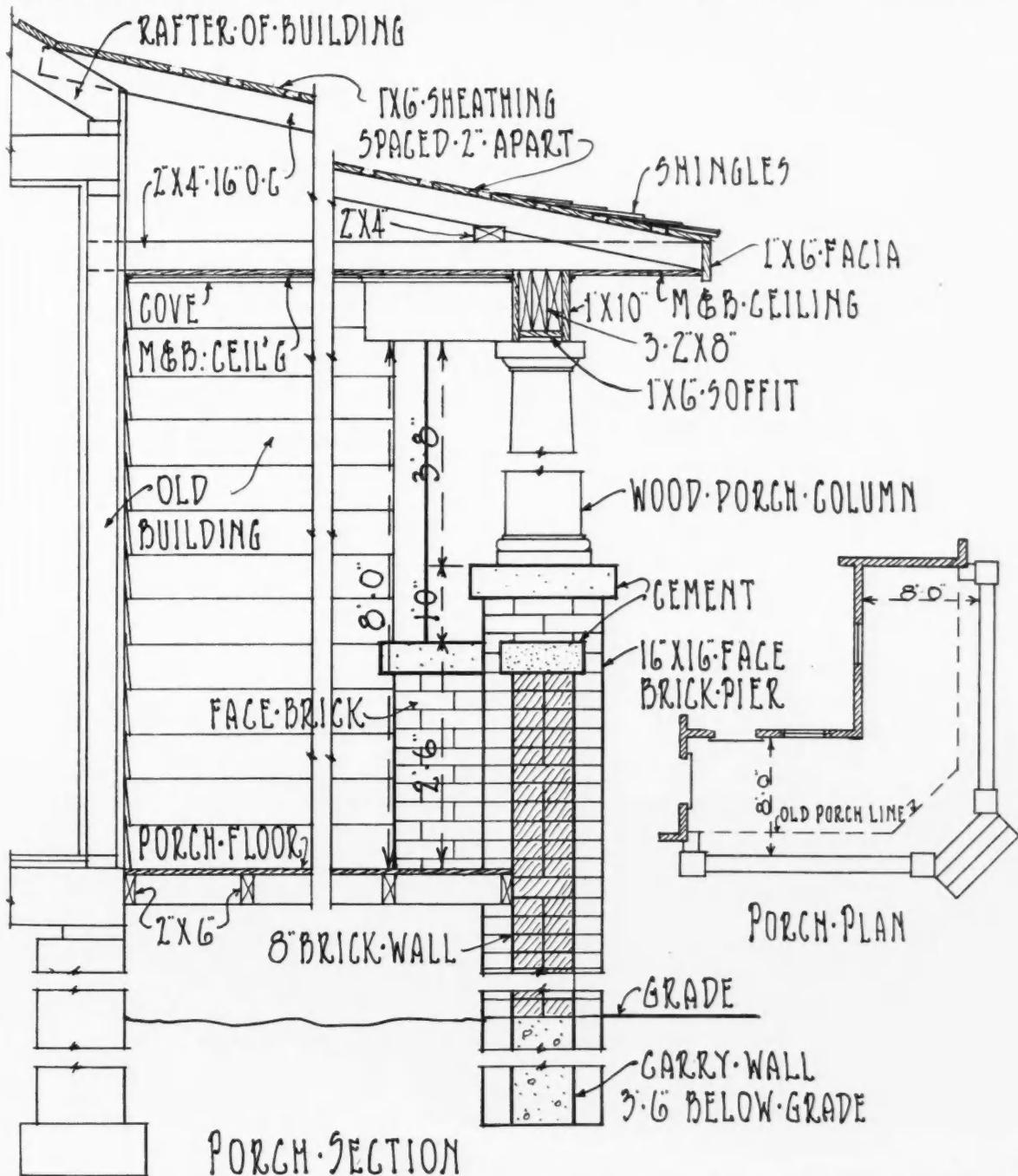
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photograph of the house of someone who might be interested in building a new brick porch. Send in this photograph and our Service Department artist will paint in a modernized porch as suggested by our Architectural Department. Use this picture in presenting the proposition to the prospective buyer.

NOTE—The Architectural Department of the American Builder will furnish, free of charge, remodeling sketches for any of our readers. Send us a photograph and dimensions of the house as it is, and we will fix it as it should be.



This is the Photograph Sent in by Mr. Stapp. He Says that This House Needs a New Porch—a Brick One.



Showing Details of Modernized Porch, Illustrated on the Opposite Page, and Suggested as a Substitute for the Old Porch Shown Above.

Modern Design Brick Cottage for Narrow Lot

Making a house as fireproof as possible and thus lowering the insurance rate; making it attractive, desirable and light; and constructing it for warmth in winter and coolness in summer—these are things the builder and architect must embody in a house at the lowest possible cost.

Advances in the building industry make it more nearly possible to perfect solutions to the above problems every day. The builder must keep pace with these advances or drop by the wayside.

In solving the problem of making the house fireproof, durable, warm in the winter and cool in the summer, Design No. 6907 will serve admirably well.

The house is a framed structure with a veneer of face brick on the outside. Extra heavy foundations, which are considered necessary by some, are in reality absolutely not necessary. The ordinary 10-inch foundation of brick, tile, concrete or stone is sufficient if put down to clay, gravel or other solid ground.

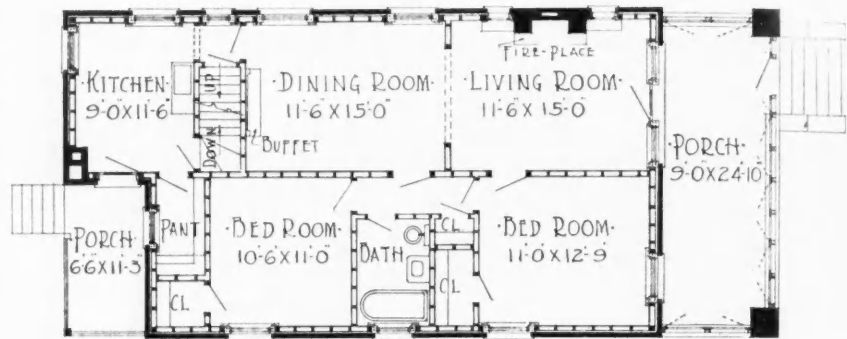
After the framing of the house is completed and the sheathing boards put

on, the outside veneer of face brick is commenced.

The brick construction brings many straight lines into the exterior design. This, together with the neat appearance of brick veneer, makes the house very trim and it catches the eye of all passers-by. The porch wall coping and window sills throughout the house are made

The house can be nicely built on a 30-foot lot and still have room on the sides, in case the neighboring lots are built on, for light to come in the side windows and for a walk to be built around to the rear.

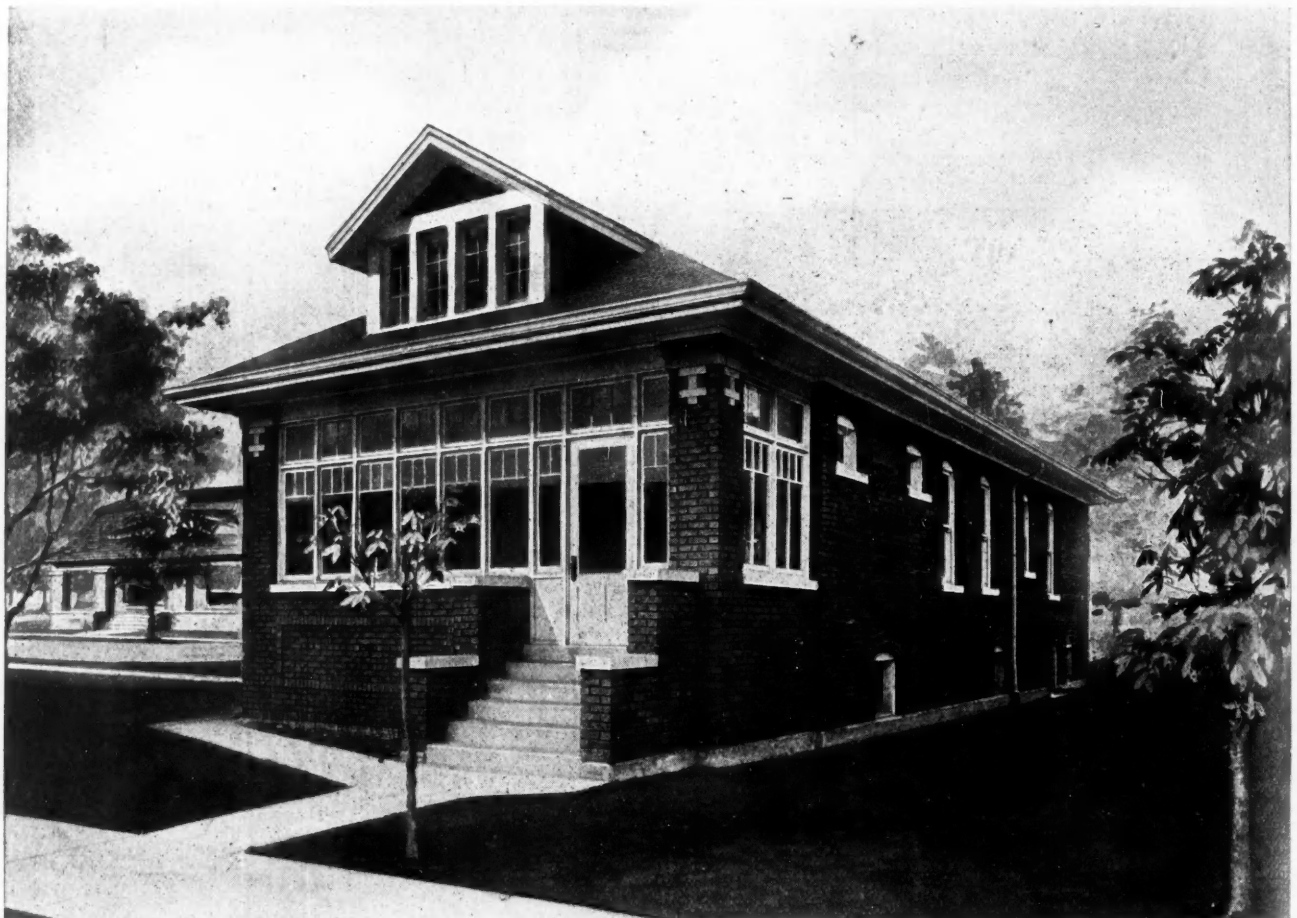
Casement windows or storm sash can be used to enclose the porch in the winter and make a beautiful sun parlor.



Arrangement of House. Size, 45 feet by 24 feet 10 inches.

of white stone or terra cotta. This breaks that sameness and plain appearance. The white trimmings of the window frames and other fixtures harmonize well with most any kind of face brick it is desired to use.

A notable thing in the arrangement of the rooms is the hall from which the two chambers and the bath radiate. This makes for privacy—a very desirable thing where all rooms are on one floor.



Narrow lot brick veneer house. Size, 45 feet by 24 feet 10 inches. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$7.00 per set. Blueprints consist of basement plan, roof plan, main floor plan; front, rear, two side elevations; wall sections, and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6907.



Western Hollow Tile FOR FARM BUILDINGS

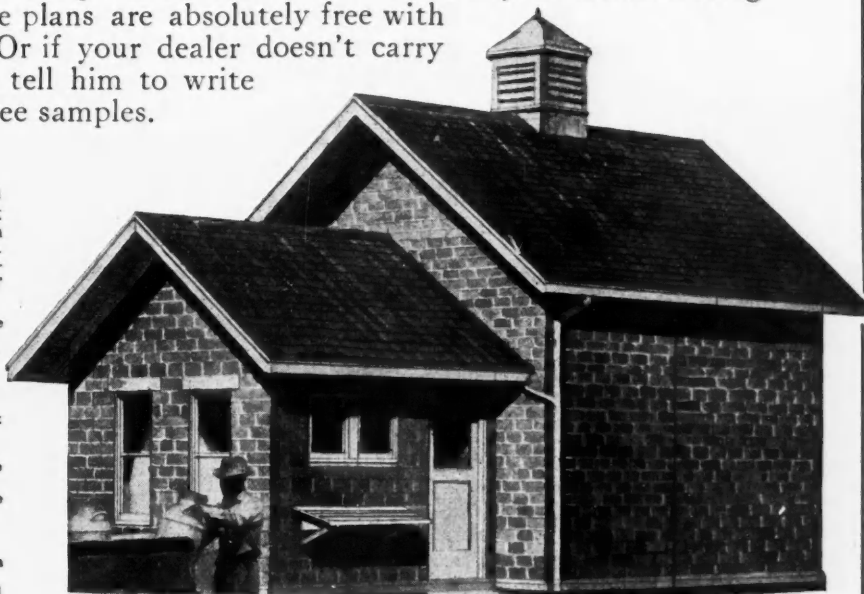
Warmer in winter and cooler in summer. Fireproof, vermin-proof and permanent. Time was when wood was cheap, and clay blocks had not come into general use—a condition which made burnable material excusable. But with the introduction of Hollow Tile, all worry as to the life and profitableness of his buildings can be erased from the farmer's mind

And Hollow Tile is cheaper than brick or frame, if you figure your costs by the year. Get the floor plans for the above barn from your local building material dealer. These plans are absolutely free with no strings attached. Or if your dealer doesn't carry Western Hollow Tile tell him to write us for the plans and free samples.

Western Face Brick

Cover every need—from chimney and foundation brick to the most beautiful face brick in a full range of colors and textures. Each and every piece is manufactured from shale and fire clay. Our product consists of the following:

- COMMON, Medium Hard Wire Cut.
- COMMONS, Vitrified Hard Wire Cut.
- VITRIFIED SEWER Brick.
- R. D. CHIMNEY Brick.
- CLOISTERS, smooth face brick and finish.
- RUGS, vertical scored texture.
- PERSIANS, wire cut face, matte texture.
- EMPIRES, wire cut face, matte texture.
- GOTHIC, stippled texture.
- DORIC, stippled texture.
- HOLLOW BUILDING TILE, in standard sizes.
- PARTITION TILE, in standard sizes.



THE WESTERN BRICK COMPANY

Danville, Illinois

Heating the Farm House

(Continued from page 71.)

at the base of the riser of at least 9 by 13 inches. From the side wall register on the first floor (base board), stacks are extended to the second floor of required size to heat the room. This method of warm air distribution provided a separate register in each room, and makes it possible to heat two rooms with one basement leader pipe. Stacks of double wall construction are always to be recommended over single wall pipes, even if asbestos covered, as they are of more substantial construction and at the same time, allow less loss of heat.

This method of warm air distribution among the several rooms from the heater reduces the number of pipes taken off the heater and at the same time, makes it possible to increase their size so that two purposes are attained; first, less space in the basement is used for the heating system; second, less frictional resistance is offered to the circulation of the air in the heating system. A glance at the plans shows but eight leader pipes used for the warming of approximately twelve rooms and hall.

The cold-air faces should be located in the coldest parts of the house and in positions where they will offer relief to several rooms where they are opened to each other. A cold-air face near the stairway will not only offer relief to the rooms adjoining the hall, but will take care of the cold air from the second

floor. The cold-air faces in the living rooms and dining room will take care of the cold air from the most exposed portions of the house.

The pipes carrying the cold air from the faces to the ducts should be of standard grade of galvanized iron and have all seams and joints made tight. These pipes should have an area equal to the total leader pipe area.

The cold-air ducts below the basement floor can be constructed entirely of concrete or concrete and brick, and should be done at the time the basement is completed. Their construction should be such as to make them not only water but air-tight, so as not to allow any foul or tainted air in the basement to enter into the heating system and be poured into the rooms above. The free air area in the ducts should be approximately 15 per cent greater than the round pipe leading to them. This increase in area is to compensate for the increase in frictional resistance.

All warm-air pipes and the hood should be covered with heavy asbestos paper and every precaution taken thruout the entire system to make sure every joint is tight.

House owners would be doing themselves a favor by excavating their basements one foot or more deeper than contemplated, which would not only allow greater elevation to the warm-air pipes, but would permit their construction near enough to the ceiling so as not to interfere with head room in the basement.

Did you get your Share of the 10,000

- Kawneer -
STORE FRONTS

installed last year?

DID you ever stop and think what a couple of Kawneer Fronts, installed by you during the dull winter months, would mean to you? You, no doubt, do. There is good money in it for you; there is a chance to show people in your town that you are busy the year round.

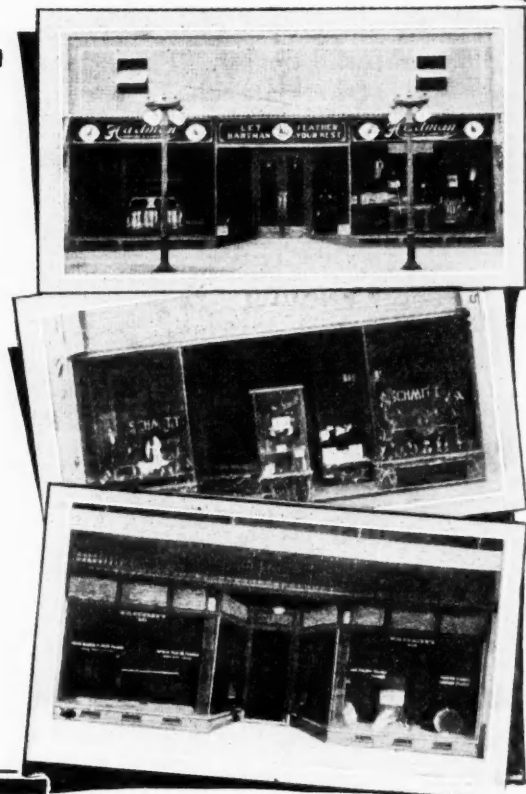
Your profit on the installation of a couple of Kawneer Fronts will cover your coal bills—and a little more.

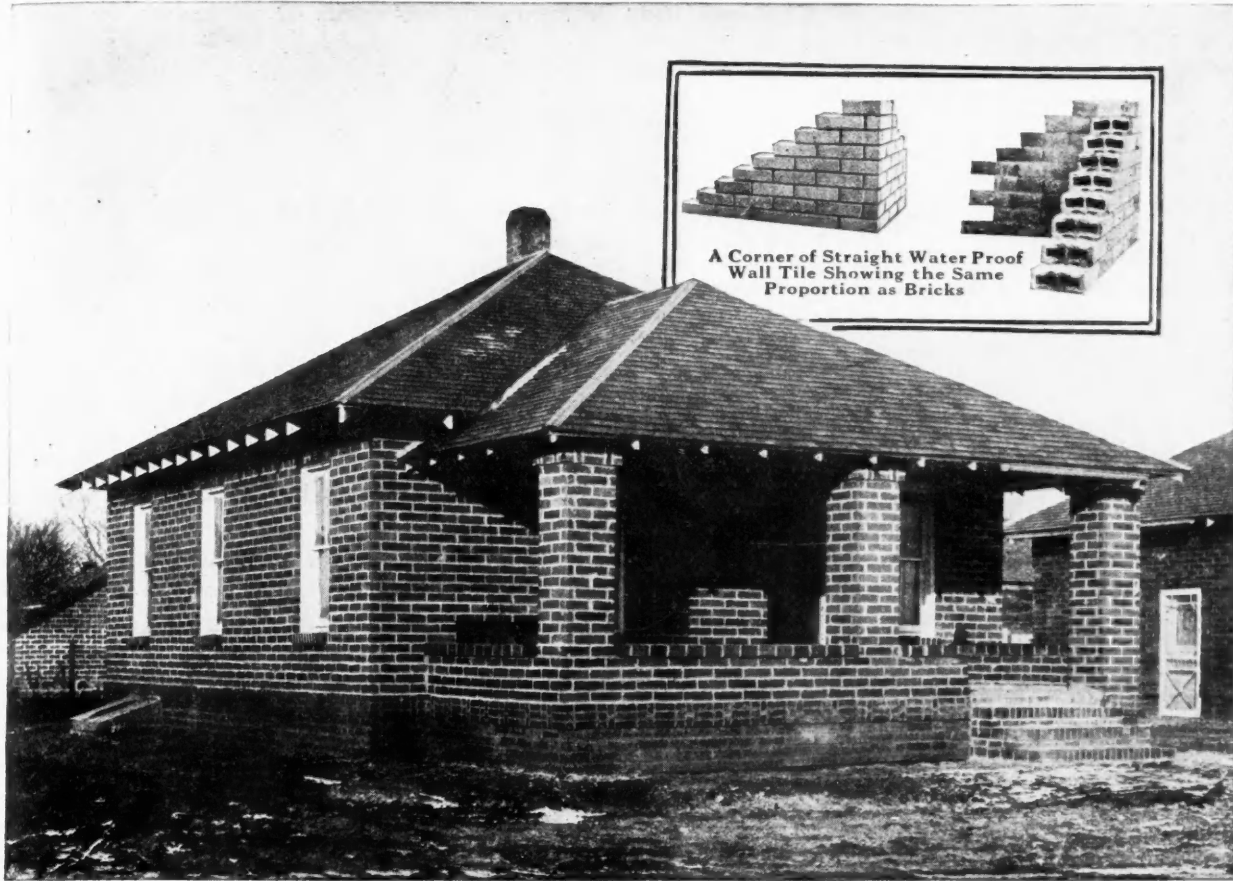
Why not work for yourself, there is plenty of this work in the winter months? Remember, the merchant needs his front when **YOU** are **busy**.

We will always be glad to help and co-operate with you without charging you a cent. This is fair enough, is it not?

Write for our catalog "H", which contains sectional details of Kawneer Store Fronts.

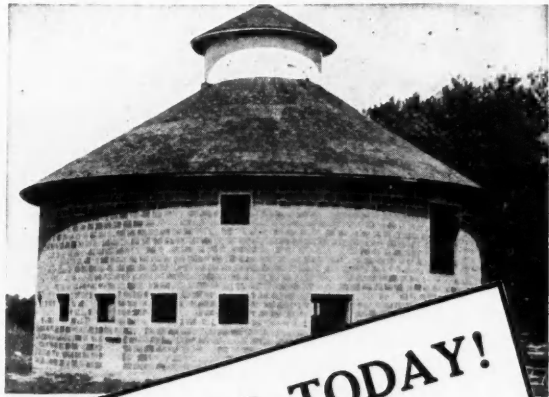
Kawneer Mfg. Company
Niles, Michigan





A Corner of Straight Water Proof Wall Tile Showing the Same Proportion as Bricks

Permanent Low-Cost Buildings



MAIL THIS TODAY!

It brings you our catalogs and bulletins on Adel Clay Products.

Name.....

City.....

State.....

Can be absolutely assured your customers if you build with

Adel Texture Tile

The most economical building material—durable, fireproof, moisture-proof and repair-proof.

Shaped to form continuous air passages, for the purpose of keeping out water and frost; assuring warm buildings in winter, and cool in summer. This feature alone is worth the attention of every progressive contractor. Another point of interest is that the handsome little house at the top cost just a little over \$1,000.

If You Are Interested in More Efficient Building, Send in the Coupon at Once

Adel Clay Products Co.
Adel, Iowa

Lightning Rod Opportunity for Builders

By Jos. L. A. Barnett

I have been a journeyman carpenter myself, and know from experience that the carpenter is the logical man to install lightning rods. Put the proposition up to your customers thus: "Mr. Smith," or whatever the name happens to be, "I have nearly completed the job, but before putting on the finishing touches I should like to make a suggestion in your interest—that you have the buildings fitted with lightning rods. I am well equipped to do the work, and the best time to do it is *now*. I am living right here and can be relied upon to give you a reliable job. It is in your own interest I am making this suggestion, because I have erected your building and take sufficient interest in seeing that it is properly protected from lightning. Give the work to somebody else if you like, but don't hold me responsible if the roof leaks or needs repairing when they've finished. The cost of lightning rods is very small compared with the protection they afford; besides that, they effect a lower rate of fire insurance. I will gladly give you an estimate for this work and show you the samples of Barnett's lightning rods, which I have erected on numerous buildings."

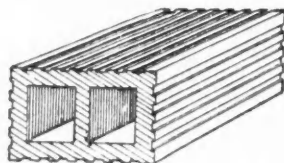
The owner will actually be glad you made the offer, because he knows you are responsible and have a reputation to uphold.

Another thing: It's not fair to yourself, after you have done the hard work, to let another man come along and make the easy money, putting up the lightning rods, when you can easily do it yourself. You have first claim, because the owner is somewhat under obligation to you, and consequently he'll take your word, and you may just as well put this profit in your own pocket.

I know there is a big opportunity for business here for hundreds of the readers of this journal. I will gladly send special information to all those addressing Jos. L. A. Barnett & Company, Riverside, Ia., and mentioning this paper.

Use Minerva Hollow Tile

Made of High Grade Ohio Fire Clay
for All Classes of Buildings



Consider this fire-proof material in all your building plans this year. It is being used extensively everywhere with benefit to both the contractor and his clients. We will be glad to quote you prices through your local dealer. Our new folder No. 5 is interesting. It tells you more about this material. Won't you send for it?

Metropolitan Shale Pavers

Are Ideal for Stores, Churches, Libraries,
Schools, Garages, Theatres, Etc.



Buildings of this type are very substantial and attractive when built of paving blocks. This you will appreciate when you see our new folder No. 10 full of such pictures and much valuable building information. Be sure to send for it.

Do not forget to write for Folders 5 and 10

Metropolitan Paving Brick Co., Canton, Ohio

Six Modern Plants Making 175,000,000 Brick and Tile Annually

Cement Stucco on Metal Lath

(Continued from page 81)

to keep their community in touch with the twentieth century ideas. The incentive for some people to leave the town of medium or small size is its general unattractiveness. The relative cost for modernizing old buildings is small. With wheat keeping on the skyline there are tens of thousands of farmers who have money left after paying for gasoline to put new faces on their homes.

Hundreds of thousands of home owners in village, town and city would bless the man who would show them how to modernize their homes at small cost. The live one will acquaint himself with these money-making ideas thru the pages of his builder's magazine.

Absent Mindedness

I came near overlooking an important feature as shown in Plate "A."

The stucco was placed on metal lath stapled to the weather boarding. This added about an inch to the thickness of walls, a piece of moulding around the frame and sill of the window made the proper finish.

The utility of metal lath for this kind of work impressed me very much some four years ago when one of the old world's fair hotels was revamped. This hotel had been built in 1893.

The builder evidently was ambitious to see how cheap brick and mortar could be used. He was very successful. The breezes from Lake Michigan had eaten the mortar from all the corners and scooped it out from under the window sills. The old building had that moth-eaten appearance which suggests cockroaches, vermin and other unpleasant inhabitants.

One day I saw a gang of men fastening metal lath on to the brick.

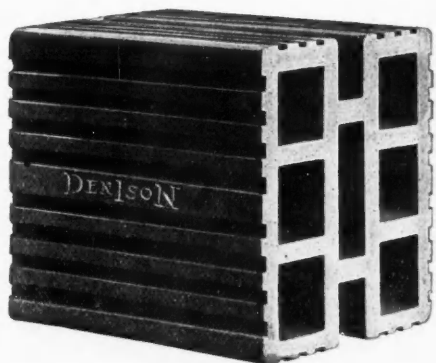
The next time I chanced to pass that way I saw a building which had from all exterior evidence the freshness of recent construction.

I was "turkeyed" last Thanksgiving day by a real estate man in a suburb to the west of Chicago. After traveling from soup to nuts we were more than pleased to take a ride as the day was perfect and there was to be seen a varied architecture running from the Wright houses to the severely sane type.

If anyone doubted the tremendously increasing popularity of stucco, they should drive thru Oak Park and River Forest. There are hundreds of them from the modest cottage to the elaborate bungalow and up to the most expensive residences costing in several instances \$35,000.00 I commented on the substantial appearance of some that had a good many years to their credit.

The real estate man explained it by saying they were all laid on metal lath. He also showed me a number of buildings that had been brought up to date by minor additions and over-coated. These were

(Continued to page 118)



Some Advantages of

Denison Load-Bearing-Tile



Denison Fire-Proofing Company Mason City, Iowa

It Is the Strongest Tile Made

Denison Load Bearing Tile has a guaranteed crushing strength of 600 lbs. to the square inch. It is suitable for use in large office buildings, schools, churches and public buildings of every description. It is just as suitable for residence and farm buildings and the fact that it is absolutely fireproof gives it great advantage over all other building materials.

The mason will find that it is very easy to handle and will lay up in much less time than any other material. The bedding surfaces are convenient to get at and they do not require as much mortar as other tile used for like purposes. It does not require expert supervision to lay, and it is easily adaptable to any height of window ledge, cornice, etc.

Costs No More Than Good Frame Construction

Yet it provides a structure that is fire-safe and permanent.

The exterior finish can be of brick facing or cement stucco applied directly to the tile, which is grooved to provide a proper clinching surface. The inside wall does not require any furring for plastering.

A particularly valuable feature is the non-continuous mortar joint which absolutely prevents frost or moisture from penetrating to the inside wall.

Write us for information and prices at your nearest shipping point.

DENISON FIRE PROOFING COMPANY

Mason City, Iowa





Plate E. Old-Fashioned Frame Residence at Peru, Ill.



Plate F. Peru Residence Modernized by Cement Plaster Overcoating.

not to be distinguished from their neighbors, whose foundations had been laid twenty years later.

While the ladies discussed babies, what to wear and the high cost of living, we discussed building.

This real estate man has had the idea in his head of buying bargain property that is fairly well designed, modernizing it by the metal lath stucco method and selling at the market.

He expressed his dissatisfaction with the sameness of color, the mottled spots that develop and impracticability of painting.

Painting Stucco at 1-5 the Cost of Wood

Within thirty days I was able to send him data relative to several equipments of air spray machines that would paint a stucco house with less than a fifth the labor cost of painting a wooden building of same size. This new system is going to revolutionize as well as popularize stucco. One of the serious objections to stucco has been the sameness in appearance. While mere man did not give thought to this, the fastidious female did. The most finicky can now be

(Continued to page 120.)

Send for FREE FLOOR PLANS of This Fire Proof Home

HUNDREDS OF CONTRACTORS ARE NOW BUILDING OF FACE BRICK VENEER AT THE SAME COST AS ALL FRAME. THEY BACK IT UP WITH HOLLOW TILE AT 10% ADDITIONAL. YOU CAN DO THE SAME—THE "AMERICAN BUILDER" SHOWS YOU HOW.

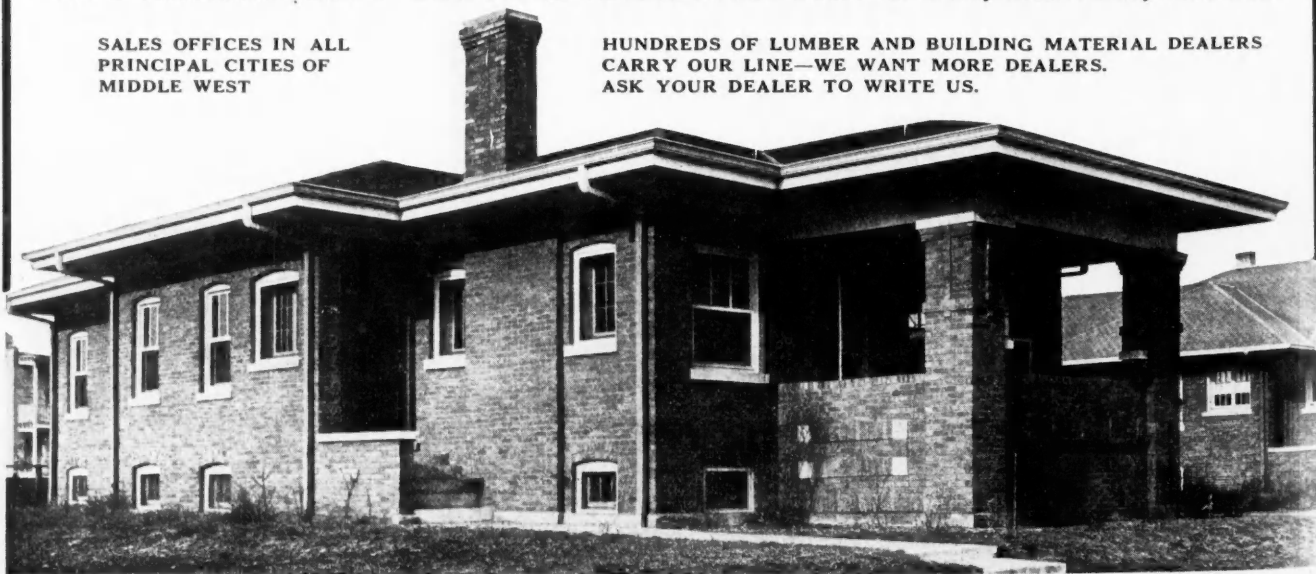
Everyone would rather build a beautiful face brick house than one of frame, but they all think it is "too expensive." Enterprising contractors are showing these people that the little difference in cost is saved over and over again in less insurance, painting, fuel, depreciation, etc., to say nothing of additional comfort and increased selling value. The contractors are getting the business without competition and at a better profit. It's time you are getting in line. One brick house always sells another—if built of our "NAVAJO" or "BROCADE."

Send for Our Free Portfolio of Face Brick in Natural Colors. Laid in the Wall in a Full Range of Bonds and Mortar Joints

THE KANSAS BUFF BRICK & MANUFACTURING CO., Buffville, Kansas

SALES OFFICES IN ALL
PRINCIPAL CITIES OF
MIDDLE WEST

HUNDREDS OF LUMBER AND BUILDING MATERIAL DEALERS
CARRY OUR LINE—WE WANT MORE DEALERS.
ASK YOUR DEALER TO WRITE US.



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

What One Man Did With
Haeger Tile

UPON recommendation of his architect, Mr. Owner ordered plans and specifications calling for the use of durable, well-burned, load-bearing tile. Various makes of hollow tile were considered, and it was finally decided that "Haeger Tile" best suited the requirements. The successful contractor, although unfamiliar with hollow tile construction, found no difficulty in laying the tile, as they were furnished in sizes for every purpose.

The result was a substantial house, a pleased owner, and a neat profit on the contract. The contractor built this house for \$4,500.00; and

You Can Do the Same—

By ordering "Haeger Tile" for your contracts you too can be sure of excellent tile and the assurance that tile will arrive in good condition and meet the approval of the architect or inspector in charge.

"Haeger Tile" meet the requirements of the Wisconsin State Building Code which carries very strict provisions as to strength of tile. Prompt shipments, good tile, and correct sizes for every purpose, mean *profit* for you. Let us help you with your next hollow tile contract.

Haeger Brick & Tile Co.
AURORA, ILLINOIS

Write us for information and prices on your hollow tile requirements. We can ship profitably to all points in Illinois, Wisconsin and Iowa.



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

satisfied. She can have her stucco home done in pure white so that it will look like a snow bank, a practical brown, a cream or whatsoever she may wish. This air spray machine will apply the waterproofing that should go on every stucco building, not only in a tenth of the time required by hand, but in a much more thoro way. It reaches every crevice in a way that a bristle brush cannot.

Modernizing Buildings

Since I have been interested in metal lath I have seen a number of instances where it was used to advantage.

The style in residences twenty to thirty years ago was for as many furbelows and as much gingerbread ornamentations as possible. The style today is of the massive type. In nothing has there been more evolution than in the front porch. A hundred years ago it was all house and no porch. When I was a youngster I didn't do much courting on the front porch because there was not room for two. Many recent houses are mostly porch with a few rooms for cooking, eating and sleeping.

An enterprising contractor at Peru, Ill., a town of about 7,000 people, made over one of these old-timers (Plate "E," page 118) into as modern a residence as can be found in seven states (Plate "F"). This was made possible by metal lath.

Plenty of Competition

There are a dozen or more manufacturers of this material. Each one can probably show you wherein his product is the best and wherein he can best serve you. It will pay you to get in touch with these people. Those of enterprise, without charge, will supply engineering data from which contractors can work and will provide all who wish to learn with full instruction for handling.

No man who has to do with plaster, stucco or concrete can afford not to be thoroly posted as to metal lath possibilities, for inside and outside use.

The man, magazine, machine or material that does not keep to the front in ideas has to take the dust of those who lead.

There is a reason why Chicago requires all boiler room ceilings to be of plaster on metal lath.

A recent fire in the basement of a Duluth store got no further because of the plastered metal lath.

Benefit your community, and put dollars in your pocket by showing people how to spend their money to secure these results.

If in doubt as to how to do it, ask

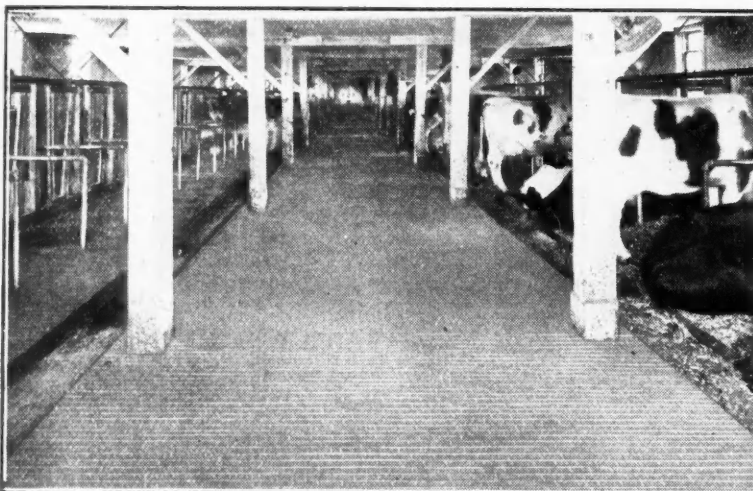
Yours truly,

THE MAN FROM THE LUMBER YARD.

NOTE: The AMERICAN BUILDER has a reference department that will be pleased to supply all desired information on the subject of metal lath construction.

KREOLITE WOOD BLOCK FLOORS

The Ideal Floor for Cow Barns, Stables, Piggeries and Sheep Pens



Kreolite Wood Block Floor in Car Barn, Walker & Sons, Walkerville, Canada

Veterinarians, Agricultural Colleges, Dairy Farmers and Stock Raisers throughout the country use and endorse Kreolite Block Floors.

Specifications for laying, samples and barn floor booklet are yours for the asking. Write today

THE JENNISON-WRIGHT COMPANY

2472 Broadway

Toledo, Ohio

Hundreds of prominent builders and barn owners have realized that the sanitary Kreolite Block Floors in their barns and stables are paying them better returns than the ordinary six per cent.

Kreolite Blocks are manufactured from select Long Leaf Yellow Pine and impregnated under heavy pressure with an antiseptic preservative, making them impervious to moisture or acids and proof against decay. The blocks are laid so that the wear comes on the end of the grain, hence they wear like a mallet; will outlast three or four plank or concrete floors.

The oil in the blocks is death to insects, or vermin, thus helps in freeing stock from the pests, preventing diseases.

Kreolite Block Floors are warm and comfortable, preventing any stiff joints, sore knees or rheumatism so common on concrete floors.

Every Kreolite Wood Block Floor laid is an asset to the builder, for it is sure to please the owner.

The floors are easily laid; any good workman can lay the floor by following simple instructions.

THESE books are in great demand by readers of the American Carpenter and Builder. They are going fast. Send today if you would be sure of getting copies. Remember that

Hy-tex

The Standard of Quality in Brick


is served from all our Branch Offices: Baltimore; Chicago; Cleveland; Davenport; DuBois, Pa.; Indianapolis; Kansas City; Minneapolis; New York City; Omaha, Philadelphia; Roseville, Ohio; Toledo, Washington, D. C.

Write for information, color cards, or samples to us or the Branch nearest you.

Hydraulic-Press Brick Co.
SAINT LOUIS

Largest Makers of Face Brick in the World

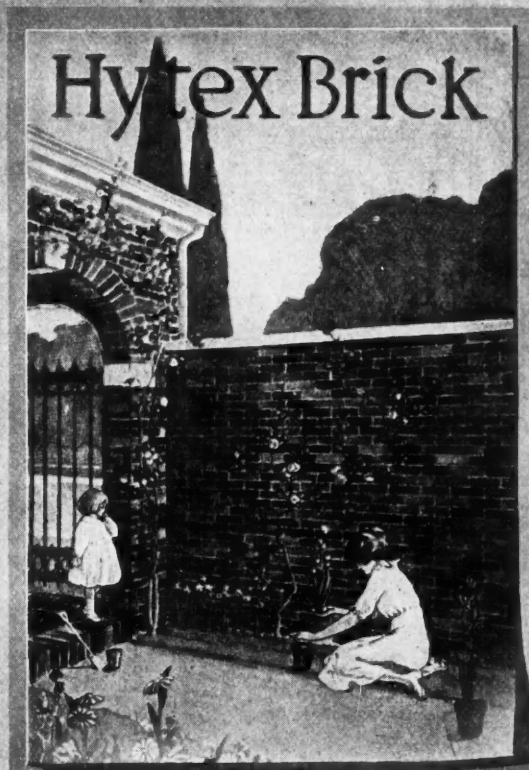
SUGGESTIONS FOR SMALL Hy-tex HOMES



— CUMULICAL CONTENTS —	
HY-TEX BRICK (NO EXTRA CHARGE WHEN IN QUANTITY)	
ANY PART	
6" x 2 1/2" x 2 1/2"	10725 CU FT
CENTRAL PART ABOVE PART	
2 1/2" x 3 1/2" x 2 1/2"	7174.25
WHITE 4 1/2" x 3 1/2" x 2 1/2"	494.125
ROOF 15" x 12 1/2" x 2"	604.375
CHIMNEY BRICK ROOM	
12 1/2" x 12 1/2" x 4"	650
LAUNDRY & STORES	
8" x 11" x 15"	1480
AREAS, STEPS ETC	240
TOTAL COST \$3846.56 @ 18" x 2 1/2" x 2 1/2" CU FT	

MADE BY
BRICK COMPANY
MISSOURI

Hytex Brick



HYDRAULIC-PRESS BRICK COMPANY

SAINT LOUIS
CENTRAL NATIONAL BANK BUILDING

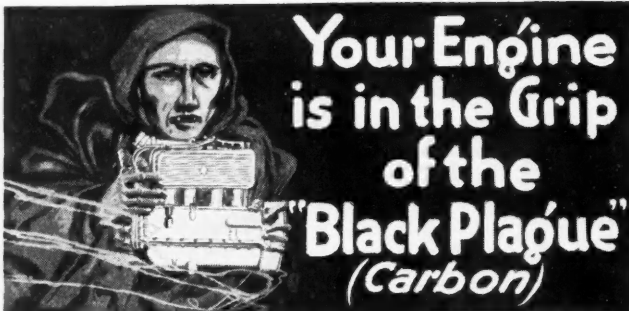
Tear off this coupon and mail today before you forget it

Hydraulic-Press Brick Company
St. Louis, Mo.

Gentlemen: Please send your two booklets offered in the American Carpenter & Builder, February, 1917, to:

Name.....

Address.....



THAT'S the principal reason your car starts so hard this cold weather. Fully 80% of your starting trouble can be eliminated if you will clean out your cylinders with

JOHNSON'S CARBON REMOVER

This is the latest and most perfect solution of the carbon problem. It is easy to use—inexpensive and absolutely harmless. It will save you ten times its cost every time you use it.

DO IT YOURSELF

Five minutes' time and no labor required. Simply lift your hood and pour an ounce of Johnson's Carbon Remover into each cylinder through the petcocks or spark plug openings. Go to bed—get up in the morning and drive a perfectly clean engine. You can save from \$3.00 to \$5.00 over any other method without loss of time and with very much better results.

USE IT EVERY 1000 MILES

If you will use Johnson's Carbon Remover every 1000 miles you can keep your engine clean and sweet and always at its highest efficiency and your gasoline consumption will drop from 12% to 25%.

OUR GUARANTEE

Johnson's Carbon Remover cannot injure any part of your motor. It contains no acids—does not in any way affect lubrication or injure the oil in the crank case. It has no action on any metal.

If your dealer cannot supply you, we will fill your order direct from Racine. Use attached coupon. With each of these \$1.00 cash orders, we will include gratis a half-pint can of Johnson's Stop-Squeak Oil—our new product. It penetrates between the leaves of springs, thoroughly lubricating them and giving perfect spring action.

S. C. JOHNSON & SON, Dept. ACB2, Racine, Wis.
LONDON SYDNEY

S. C. JOHNSON & SON, Dept. ACB1, Racine, Wis.
I enclose \$1.00 for which please send me by prepaid express enough Johnson's Guaranteed Carbon Remover to thoroughly clean an ordinary four-cylinder motor three times and include a half-pint can Johnson's Stop-Squeak Oil gratis.

Name

Address

City and State

My Dealer Is

Designing A Small Factory

Continued from Page 95

port a panel of roof 17 feet long and 8 feet wide loaded with 40 pounds per square foot of area, or 5,440 pounds per beam. This load is distributed uniformly along the length of the beam. Our formula for design will be the same as above—

$$\frac{p l}{e} = M = \frac{1}{8} W l$$

but now we have steel instead of wood, and an I-shape section instead of a rectangle. Our value of $I = 1$

— $b h^3$ is no longer to be used, but e is still one-half 12

the depth of the beam section. The value of p will be 60,000

— or 15,000 pounds per square inch if we use a 4

factor of safety of 4 on mild steel having an ultimate bending strength of 60,000 pounds per square inch.

"In problems of this kind where rolled steel shapes are used, we do not attempt to find the value of the moment of inertia (I) of the section, but take such values from the hand books published by the steel companies who furnish this kind of material. In these

Continued to page 124.)

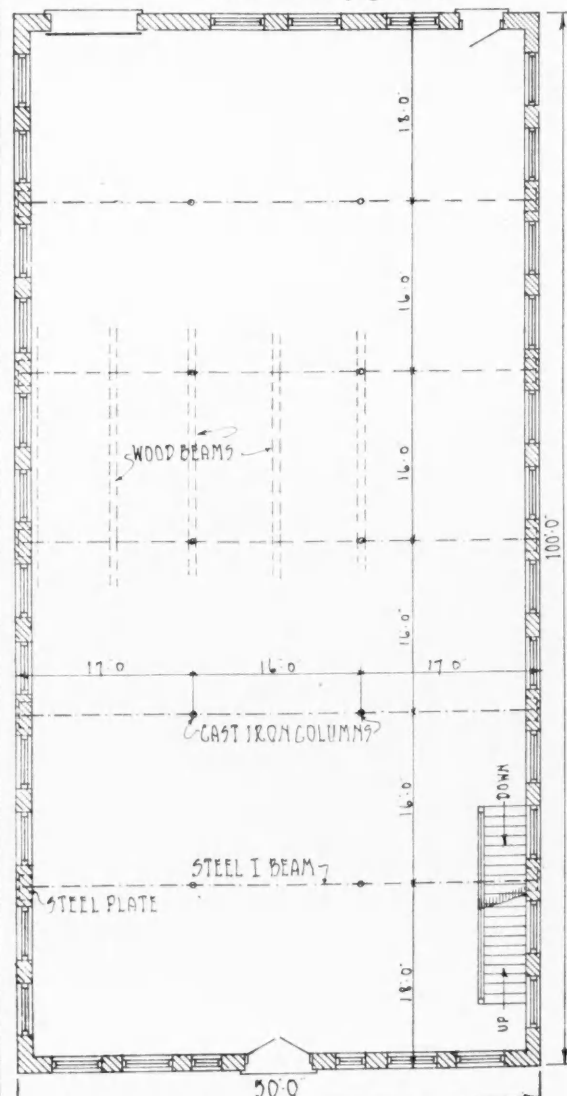


Fig. 12A. Roof and Floor Plan of Two-Story Factory Building Showing Method of Framing.

We Want To Tell You Again This Month About That Fire-Proof Brick House For Less Than \$2,500.00

SO many contractors took such a lively interest in these splendid little houses last month that we are showing them again. They are a revelation to many, in that they have actually been built of brick at about the cost of frame. These little houses are full two stories, have bath rooms, cemented coal cellars, hot and cold water, furnaces, laundries, china closets and kitchen cabinets and they cost less than \$2,500.00—to be exact \$2365.00. The construction is first-class throughout.

Brick construction has many advantages over frame—no painting, no repair bills, lower insurance, cooler in summer, warmer in winter and always beautiful and better looking with age. Talk to your next prospect about brick and you will find him interested.

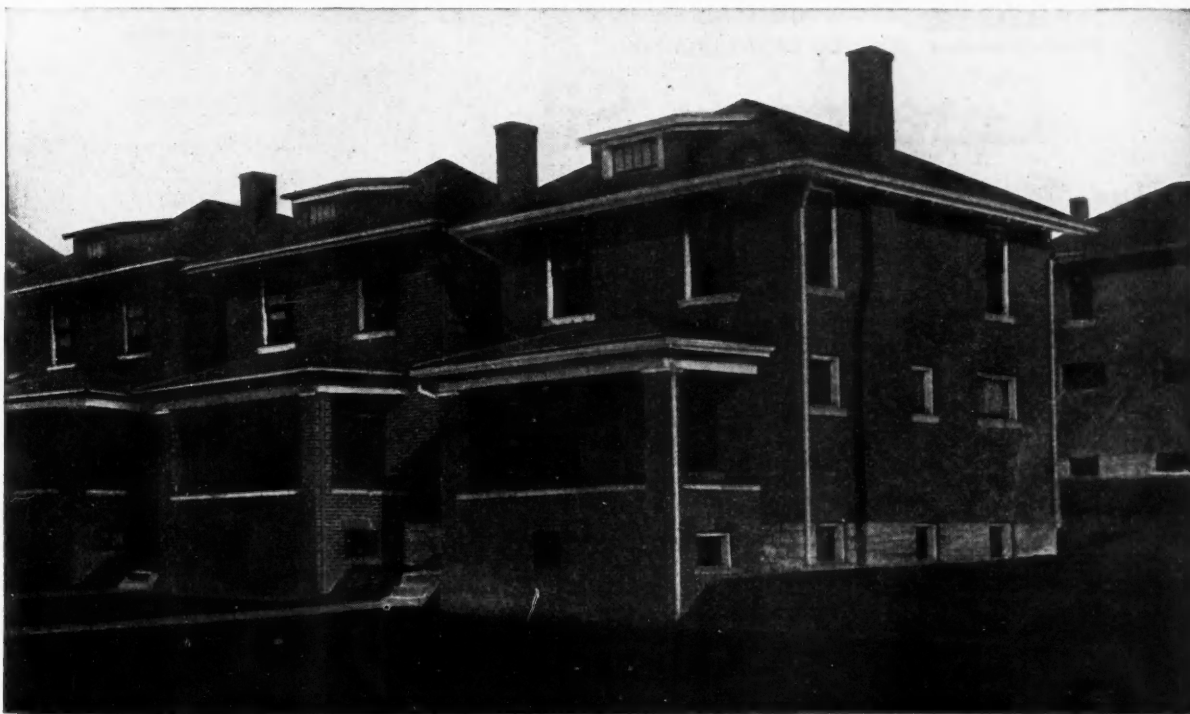
Did You Get The Free Floor Plans And Itemized Cost Of Labor And Material?

We have made floor plans of these houses, drawn to scale, and will send free blue prints of them, together with an itemized list of labor and materials showing costs in detail, to any reader of the American Builder who will write for them. If you know of some one who is going to build a house this spring this information will help you land the job. Every man prefers a brick house instead of frame, but most of them think brick is too expensive. Here is your opportunity to show him that it is not—and get a contract.

GET OUR NEW CATALOGUE—IT'S FREE

Write for our big new catalogue of Brick and Fireplaces, printed in natural colors.

The Beaver Clay Mfg. Company, New Galilee, Pa.
DISTRIBUTING AGENCIES IN ALL PRINCIPAL CITIES



Designing a Small Factory

hand books will be found tables of properties of each shape of steel member rolled by the company and values for standard shapes will be the same in all books. The following partial table is taken from the book issued by the Cambria Steel Company and applies to their standard steel I-beams:

Properties of Standard Steel I-Beams

1	2	3	4	5	6	7	8
Section Number	Depth of Beam	Weight per Foot	Area of Section	Thick-ness of Web	Width of Flange	Moment of Inertia Axis 1-1	Section Modulus Axis 1-1
	Inches	Pounds	Sq. In.	Inches	Inches	Inches	Inches
B-17	6	12.25	3.61	.23	3.33	21.8	7.3
B-17	6	14.75	4.34	.35	3.45	24.0	8.0
B-17	6	17.25	5.07	.47	3.57	26.2	8.7
B-21	7	15.00	4.42	.25	3.66	36.2	10.4
B-21	7	17.50	5.15	.35	3.76	39.2	11.2
B-21	7	20.00	5.88	.46	3.87	42.2	12.1
B-25	8	18.00	5.33	.27	4.00	56.9	14.2
B-25	8	20.25	5.96	.35	4.08	60.2	15.0
B-25	8	22.75	6.69	.44	4.17	64.1	16.0
B-25	8	25.25	7.43	.53	4.26	68.0	17.0
B-29	9	21.00	6.31	.29	4.33	84.9	18.9
B-29	9	25.00	7.35	.41	4.45	91.9	20.4
B-29	9	30.00	8.82	.57	4.61	101.9	22.6
B-29	9	35.00	10.29	.73	4.77	111.8	24.8
B-33	10	25.00	7.37	.31	4.66	122.1	24.4
B-33	10	30.00	8.82	.45	4.80	134.2	26.8
B-33	10	35.00	10.29	.60	4.95	146.4	29.3
B-33	10	40.00	11.76	.75	5.10	158.7	31.7
B-41	12	31.50	9.26	.35	5.00	215.8	36.0
B-41	12	35.00	10.29	.44	5.09	228.3	38.0
B-41	12	40.00	11.76	.56	5.21	245.9	41.0
B-53	15	42.00	12.48	.41	5.50	441.8	58.9
B-53	15	45.00	13.24	.46	5.55	455.8	60.8
B-53	15	50.00	14.71	.56	5.65	483.4	64.5
B-53	15	55.00	16.18	.66	5.75	511.0	68.1
B-53	15	60.00	17.65	.75	5.84	538.6	71.8

"You will notice that the heading of the eighth column is 'Section Modulus, Axis 1-1.' This is the name given to the $\frac{I}{e}$ part of our formula $\frac{pI}{e}$ when the beam is placed with the web or long dimension of the section in a vertical position. We will use this table in the solution of our problem.

"Filling in our formula, we have $15,000 \left(\frac{I}{e} \right) = \frac{1}{8} \times 5,440 \times 17 \times 17$ Solving for the section modulus $\frac{I}{e}$, we have $\frac{I}{e} = 9.2$. Looking

(Continued to page 126.)

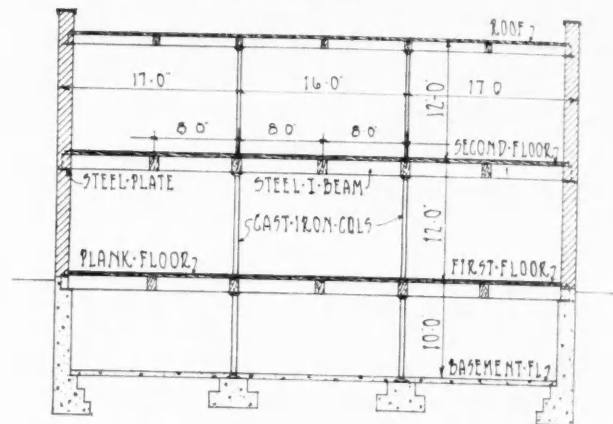
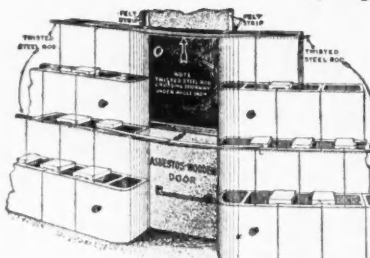


Fig. 12B. Cross-Section of Factory Building Showing Steel Beams and Girders and Cast Iron Columns.

Wanted One good man in every community to represent the

Guernsey Silo

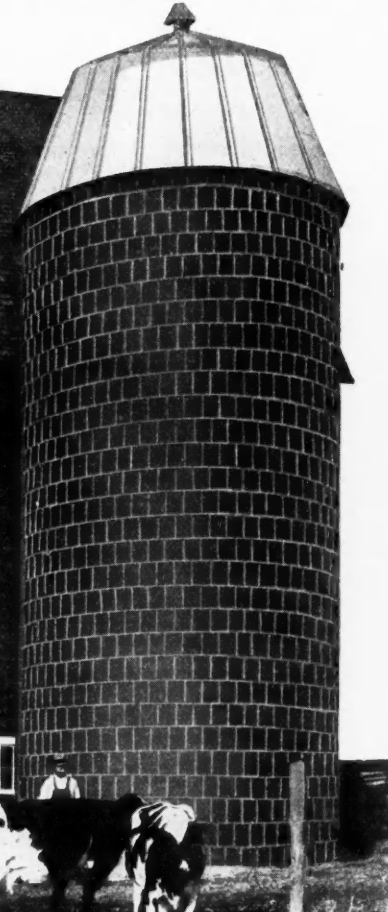
We have hundreds of contractor agents all over the country and we want more. We are offering an opportunity to one progressive contractor in every open territory.



Sectional view showing construction of the Guernsey Silo.

If you are interested in a larger income this year write now for our catalog, books of testimonials and our proposition. Also ask for a copy of letter showing adoption by U. S.

Guernsey Clay Co.
Indianapolis, Indiana





Up One Side of the Street and Down the Other—

You see nothing but homes of "Belden Brick" in Canton, Ohio. they could build in brick veneer at the same cost as frame. Three years ago, in Canton, the home of Belden Brick, all but 3% of our residence construction was in frame. Last year, 1916, it ran better than 26% brick. The reason is simple. Contractors have found and back it up with hollow tile at only 10% additional cost. They so advertised it in the Canton papers and Canton is fast becoming a city of face brick homes.

**TRADE MARK
BELDEN BRICK
CANTON, OHIO**

BUY DIRECT FROM MANUFACTURERS

Build with Brick

We have dealers in hundreds of cities and towns in the United States and Canada at the present time. We ask you to write for samples and prices and the name of our nearest dealer. Belden Brick are made in five modern factories and come in all colors, shapes and sizes, and in most textures, rough and smooth. We have the very brick you are looking for, be it house, bungalow, garage, theatre, store, bank, church, school, library or office building.

THE BELDEN BRICK COMPANY ESTABLISHED 1885 **Canton, Ohio**
FIRE PLANTS AT CANTON, SOMERSET, UHRICHVILLE, PORT WASHINGTON



USE THIS COUPON NOW

BELDEN BRICK CO., Canton, Ohio.

Gentlemen:— We are favorable to the use of brick for many purposes and would like to know more about your product.

We are figuring on building (use this line if anything definite).....

Your name.....

Address.....



For Permanency, Use BERGER'S EXPANDED METAL LATH

UNLESS the walls and ceilings of the buildings you erect are plastered on a secure foundation, unsightly cracks and falling plaster will be the result.

Permanency is assured by plastering on a base of Berger's Expanded Metal Lath, because the small diamond-shaped meshes securely grip the plaster, completely imbedding the lath. This gives a strong construction, the lath reinforcing the plaster at all points.

Berger's Expanded Metal Lath is not affected by moisture or temperature changes, hence cannot swell, warp or stain the plaster. It is **fire resisting**, vermin and sound proof, and prevents rats and mice from making holes thru the walls.

It is free from sharp edges to cut and injure the hands and can be easily formed into small members for cornices, coves, beam and column covering, etc.

The large sheets (8 feet long and 18 and 24 inches wide) make application easy and speedy.

BERGER'S CORNER BEADS insure a smooth corner to which the plaster properly adheres. Prevent plaster from cracking or chipping at the corners.

BERGER'S BASE SCREED, permanently applied, affords a secure ground for the plaster above and the cement base below, protecting both at all times. It makes a perfect job and saves time.

The merits of Expanded Metal Lath and the various methods of application are covered in Booklet F. A. B. Write for a copy.

The Berger Mfg. Co.
Canton, Ohio

Branches: { Boston New York Philadelphia
Chicago St. Louis Minneapolis
San Francisco Los Angeles

Export Dept.:
Berger Building, New York City, U. S. A.



in the eighth column of the table, we find that the number next above 9.2 is 10.4. Reading across the table to the second and third columns we find that 10.4 corresponds to a steel I-beam 7 inches deep and weighing 15 pounds per foot of length. This is the beam that we will use in our roof.

"The roof girders will be 16 feet long and will carry one-half the load from the beam in the end panel to one-half of that on the beam in the panel next to the end. This will be roughly the same as that carried by one of the intermediate beams, only it is concentrated at the center of the girder instead of being uniformly distributed along its length. The remainder of the load on the girder is carried direct to the posts by the intermediate beams which meet the girders at the posts. This location of the load in the center of the girder will change the value $\frac{1}{8} W l$ to $\frac{1}{4} W l$ where W is the load brought to the girder by the intermediate beams in each side at the middle.

"Filling in our formula for the girder calculation, we will have

$$15,000 \frac{I}{e} = \frac{1}{4} \times 5,440 \times 16 \times 12$$

$$\text{Solving for } \frac{I}{e}, \text{ we have } \frac{I}{e} = 17.4$$

From the table, as before, we find that the next value above in the weight column is a beam 9 inches deep weighing 21 pounds per foot of length. If we wish to lower our factor of safety a little, it is seen that the beam corresponding to 17.0 in the table might be used. This would be a beam 8 inches deep, weighing 25.25 pounds per foot of length. The 9-inch beam would be lighter and cheaper, but would give 1 inch less head room for the same height of ceiling.

"If it is desired to test the maximum deflection in either of these beams, the value of I to be used in our regular

$$\text{deflection formula, } \frac{5}{384} \frac{W l^3}{E I}$$

$$\text{and } \frac{1}{48} \frac{W l^3}{R I}$$

may be found in the seventh column of the table. The value of E to be used will be 30,000,000 pounds per square inch for mild steel.

"If the floor framing is of the same general plan as that of the roof, the method of calculation for thickness of floor planks, size of intermediate beams, and size of girders will be similar to that described in the work above.

"The load on a section of floor plank 1 foot wide and 8 feet long will be $8 \times 1 \times 135 = 1,080$ lbs. Then

$$\frac{1,300 \times 1/12 \times 12 \times t^3}{e} = \frac{1}{8} \times 1,080 \times 8 \times 12$$

$$\frac{1}{2} t$$

$$t^2 = 5. -$$

$$t = 2.23 \text{ inches.}$$

$$15,000 \frac{I}{e} = \frac{1}{8} \times (17 \times 8 \times 135) \times 17 \times 12$$

$$\frac{I}{e} = 31.2$$

By the table, this corresponds to a 10-inch steel I-beam weighing 40 pounds per foot of length.

"The girders for the floors will have a section modulus as given by the formula used for the roof girders if proper value are inserted:

$$15,000 \frac{I}{e} = \frac{1}{4} \times (17 \times 8 \times 135) \times 16 \times 12$$

(Continued to page 130.)

CERESIT

TRADE MARK
REGISTERED

WATERPROOFING COMPOUND

SATISFIED clients, worthwhile contracts, and profitable jobs are the logical results secured by Contractors who use CERESIT in all concrete, cement and stucco work.

From bungalow to sky-scraper, from garage to huge manufacturing plant—modern construction demands the use of one or more C. W. Co. Products.

Ceresit solves seemingly impossible waterproofing problems.

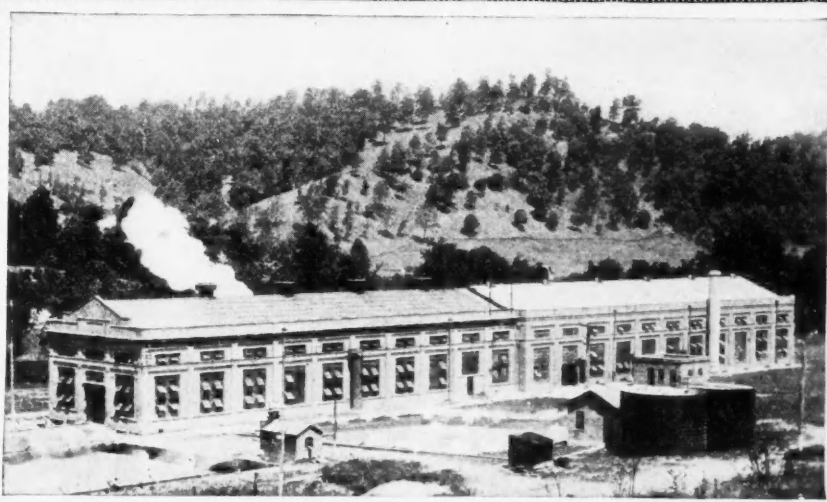
C. W. Co. Metallic Floor Hardener and Indurite Liquid Floor Hardener render concrete floors waterproof, dustless and proof against the most severe wear.

You should also know about Ceresitol, a liquid for waterproofing any concrete or stone surface; Damp-proof Plaster Bond; Damp-proof Coating and Stone Backing.

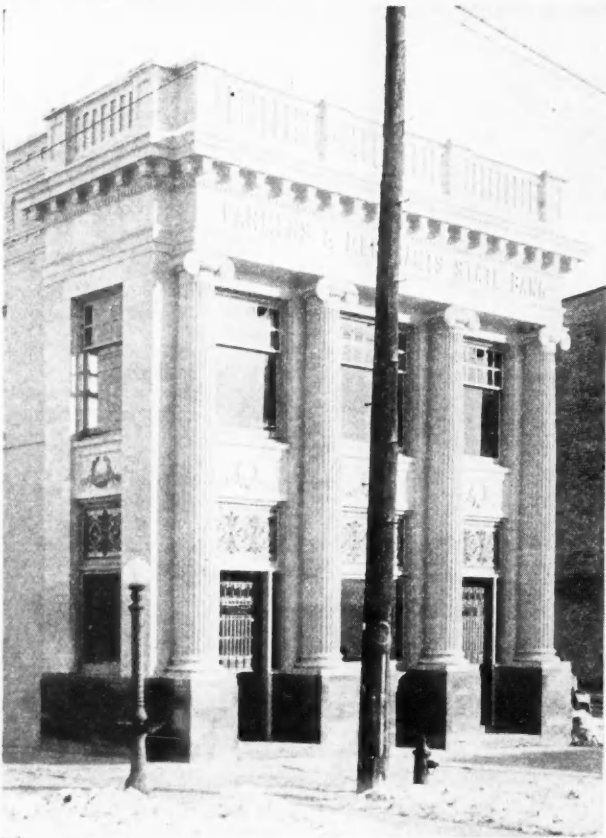
Learning about them involves no expense or obligation. Write now for File Summary Sheet giving brief explanation and prices.

Ceresit Waterproofing Co.

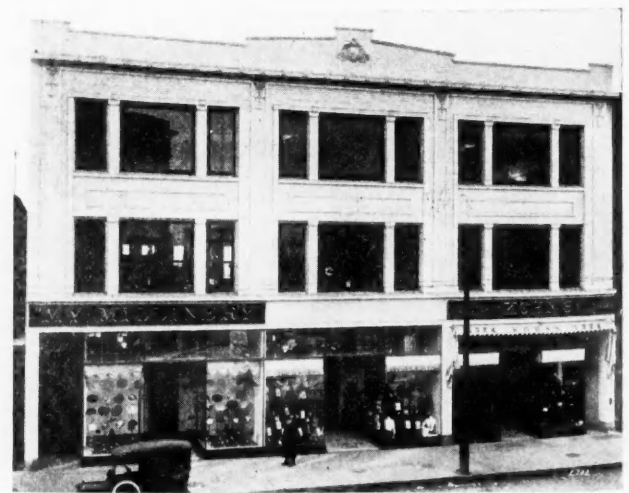
910 Westminster Bldg., Chicago



MIDLAND



GOING TO
BUILD OR
REMODEL
IN 1917?



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

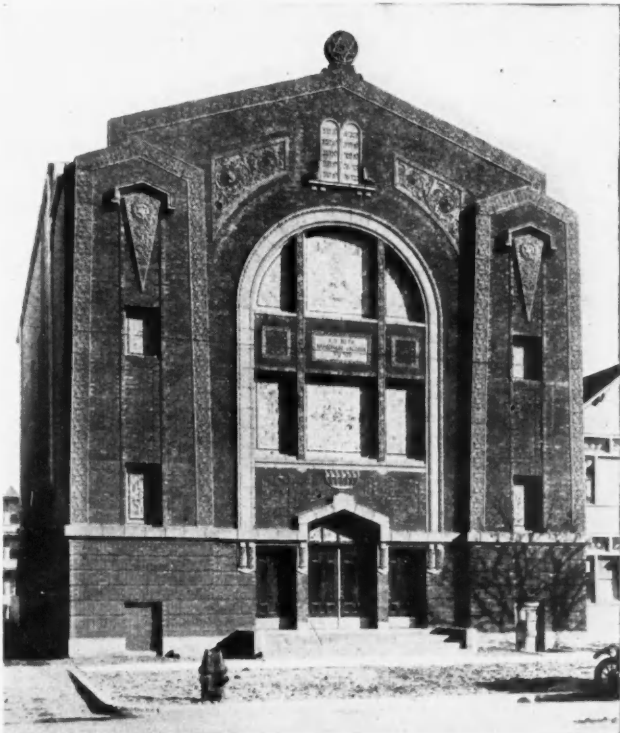
TERRA COTTA

USE

TERRA COTTA

Portfolio of attractive suggestions sent free to those interested.

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



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

$$\frac{l}{e} = 58.8$$

By the table this corresponds to a 15-inch steel I-beam weighing 42 pounds per foot of length. Deflections may be tested in a manner similar to that described for the roof members.

"Next time," said the Boss, "we will continue with the design of the cast iron columns which are to be used in this building."



Dealers' Building Plan Service

(Continued from page 84.)

above my comparison with the saving in price. My competitor that if they would furnish him with detailed plans as good as mine, he would close the deal. They replied that there were good architects in town and that they were not doing an architect's business.

About a week later I was out near Caldron's and dropped in on him.

"Mr. Caldron, I have come for my plans," I said. "If you are ready to go ahead, I will have three sets of blue prints made; one for you, one for your contractor, and one for my office, so if you need any material while building, you can 'phone me, I can check it on the plans, and send it right out."

He looked at me a minute and said:

"All right, Mr. Isherwood, you're on. You have done me a big service. I will write you a check for five hundred dollars now. Ship the material right away."

The bill was for eleven hundred dollars, and extras ordered later by Caldron ran four hundred more. The plans cost me thirty dollars and a little head work.

Right there an idea took hold of me. "Why," I asked myself, "not make a business of furnishing accurate working plans and specifications for any building free of charge to customers buying materials for the building from us? I can take their rough sketches or ideas, have them worked out in detail by the architect, write the specifications myself, which will give me the opportunity to specify (as I did in the barn), the best material for the right place. It will help other people just as it did Caldron. I told Caldron it was a part of our service, and, by jinks, from today on, it is."

I visited the architect and laid my plans before him. He was interested, and agreed to take charge of the work for a stated fee. He gave me innumerable files of house plans, ranging from a few hundred dollars up to twenty-five hundred dollars. Next, I wrote the manufacturers of the many different building materials I handled, outlined my general plan of operation and its purpose, and suggested that they send me samples of their materials, so that I might have everything pertaining to a building complete in a tangible form to present to the prospective builder.

I Had Little Trouble in Getting Valuable Samples for Nothing

The response from the manufacturers was immediate. Every mail and express for weeks brought

bricks, samples of stained varnish, painted wood for exterior and interior work, linoleums, wall boards, miniature barn equipment samples, cements; in short, samples of every practical material used in the construction of farm buildings. The manufacturers flooded me with their finest samples and literature. To display this material required a large room. To make the material valuable it had to be displayed attractively.

We were just building a new office. Our architect designed one room for our "service department," for the display of sample materials, and a drafting room. This room was turned over to contractors and prospective builders. A door, which visitors may close, opens into my private office. There is an outside entrance opening on the street for those not wishing to pass through our general offices.

I make it a point with every prospective customer or builder to assist with the plans and specifications. I endeavor to keep economy in sight all the time; in fact, I make the specifications for the builder. This is a great satisfaction to my customers. Not only has it brought me results that I could not have obtained in any other way, but it has also made my clients "satisfied customers."



Modern Water Supply System

(Continued from page 75.)

ply or creating additional. However, within the last decade the superiority of American-made pumping equipment has created an immense demand and the export market is now an important factor in every large business.

American creative genius has made it possible for the rural and suburban dweller to enjoy modern conveniences and luxuries hitherto unknown perhaps, the most important of which are running water under pressure and electric light. We aim in this article to plainly illustrate how best to analyze and solve the problem of an adequate water supply. In considering the requirement of our Model Farm we may make it our base solution from which practically any other average farm requirements may be determined by either increasing or deducting in accordance with the number of units to be served.

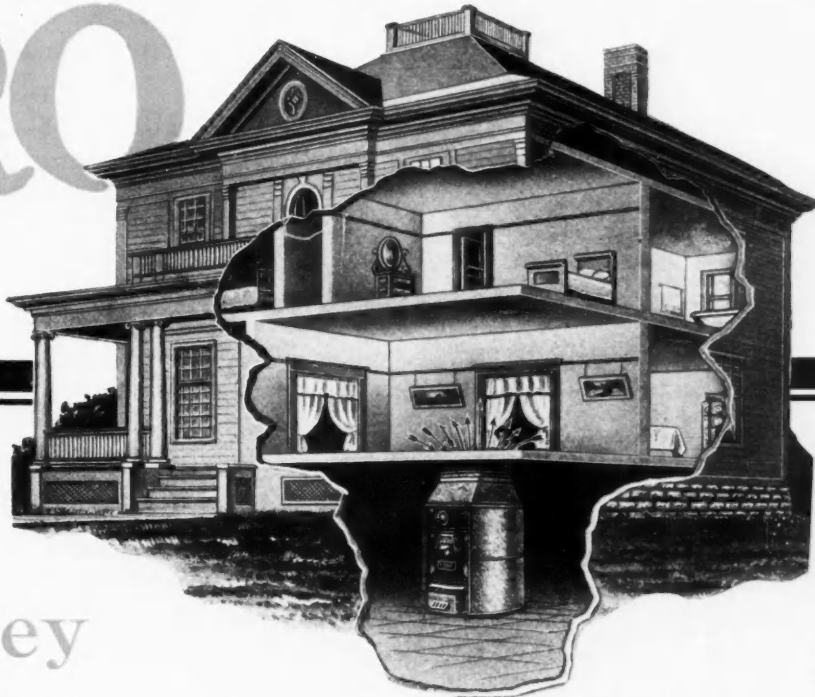
The complete supply system consists of (A) the deep well engine or motor-driven pump, which is the prime factor and of first importance. (B) The pumps to supply soft or cistern water for both the owner's and tenant dwellings.

When making our selections and recommendations here we have always endeavored to attain the owner's viewpoint, keeping him constantly in mind as a careful, conservative and discriminating buyer to whom the plausibility of the choice will appeal.

(Continued to page 132.)

HERO

pipeless furnace

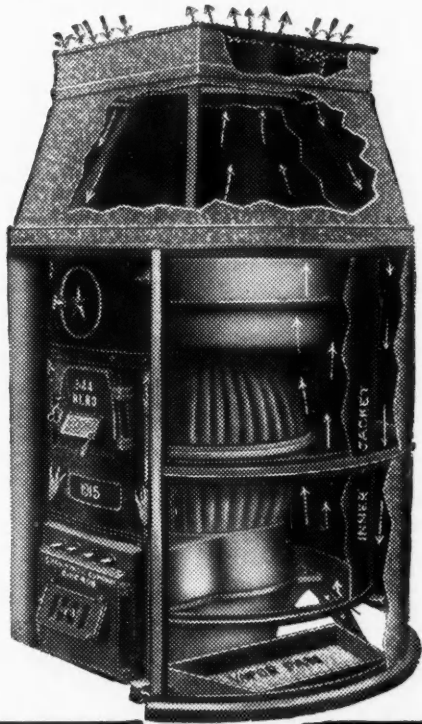


less work
and
more money

THERE is less work because you have one register instead of six or seven to install. You make more money because the furnace costs you less; it costs you less to install it and you have a satisfied client. He is always the best money maker you have.

YOU Can Install the Hero

Why divide you profits with another? All installation work on "Hero" furnaces can be done by you. It is *your* job. Get the habit of installing "Hero" furnaces. It's a habit that makes satisfied customers, brings you more heating contracts and is profitable to yourself.



There is a HERO For Every Job

No two heating jobs are alike. We are heating experts and our knowledge is yours. Send us your floor plans and we will send you a complete blueprint showing proper heating plant and best installation method. This work is done absolutely *free* and entails no obligation on your part.

Big Commissions to Contractors

We want YOU to represent us in your locality. We will give you exclusive territory and enough of it to make it profitable to handle. "Hero" furnaces have been manufactured for the past twenty-five years and their quality is recognized by the Heating fraternity. They will add to your prestige as an up to the minute builder.

Write Today for Catalog No. 1

CHARLES SMITH COMPANY
57 West Lake Street Chicago, Illinois

The Central Water Supply Plant

(Continued from page 130.)

We will first consider the central station or main water supply—"the heart of the farm without which nothing may be accomplished." For illustration we use a cased well, diameter, 5 5/8 inches; depth, 120 feet; water head or amount of standing water, 80 inches. Upon analyzing our requirement daily on a basis of seven gallons per day for each head of stock, we find we will need some 3,500 gallons per day apportioned as follows:

8 head horses	
26 head cattle (Milch)	
12 calves	
20 stockers and feeders	
80 head sheep	
40 head hogs	
<hr/>	
186 head cattle @ 7 gallons each.....	1302 daily
50% surplus.....	650 gal. daily
Owner's dwelling—required for all fresh water consumption, including lawn sprinkling, etc....	500 gal. daily
Tenant's dwelling, all service.....	200 gal. daily
Four watering tanks or hydrants @ 100 gallons each	400 gal. daily
For general irrigation, washing autos, wagons and surplus for emergency.....	500 gal. daily
<hr/>	
Total	3552 gal. daily

This estimate is ample for all purposes and where a greater or less amount of stock, etc., is served the figures may be increased or decreased proportionately. We can readily see the advantage gained by installing a pump of ample capacity, thus reducing the time required to pump the supply and lessen fuel consumption, etc. Having determined how much water is required, we are now to decide between the overhead tank or gravity system or the underground or pneumatic equipment and the most efficient and economical pumping apparatus to employ.

The present high costs of structural steel, labor, etc., weighs the cost balance in favor of the pneumatic storage tank. There are other favorable features, viz.: tanks placed underground are in no danger of freezing, can be thoroly drained and cleaned with safety, water instantly available under air pressure while introduction of air into tanks tends to aerate and purify supply.

Pneumatic tanks—these tanks should be secured from a manufacturer of established reputation and when installed should be provided with manhole in front head—tank should be capable of a daily working pressure of 75 pounds, altho a pressure of 40 to 50 pounds is considered ample for normal service. Either one large tank, 48 inches by 20 feet, storage capacity 1900 gallons, or two smaller tanks, size 42 inches by 14 feet, capacity 1000 gallons, may be used. We advocate use of two tanks wherever possible—the contents of one tank may be held as auxiliary or for emergency and is instantly available for fire service.

Approximate tank costs—48 in. by 20 ft. trimmed.....\$400.00
 Approximate tank costs—42 in. by 14 ft. trimmed..... 225.00

Term trimmed refers to water and pressure gauges, manholes and special tappings, no pipe or pipe fittings.

Hydro-Pneumatic Power Pump

Where electric power is available thru transmission lines, motors may be utilized and pump driven either by belt or direct connected by gears and pinion. However, since electric current is seldom available as compared with the general adaptability of the gasoline engine, we are using a 3 1/2-4 horse-power gasoline engine, standard speed 400 revolutions per minute, provided with automatic pressure control on spark device. The engine is hand-cranked in starting, and controller is arranged to cut off the spark where a predetermined tank pressure is reached, thus stopping the engine. In emergency, viz.: for heavy duty in case of fire or other maximum service, the spark control is released and pump driven at maximum pressure of, say, 60 to 75 pounds pressure. We advocate belt-driven pump equipped with idle pulley for convenience in starting engine and because of the flexibility of a belt as compared with the rigid gear connection which necessitates the use of a heavy metal or concrete subbase to insure accurate mesh of gears. Quite often a suitable engine is part of the farm equipment and may be used to handle the pump; here the belt is most economical in avoiding the necessity of procuring gearing, etc. It is claimed further that the belt connection lessens the strain on both pump and engine.

In the foregoing we have endorsed the Hydro-Pneumatic Deep Well Pumping Unit as best adapted for our Model Farm, and have outlined our reasons for the choice. The reader, however, should not entertain the idea that the gravity or overhead system is not to be recommended, since it is entirely practical and in general use today. Some authorities even go so far as to assert that the gravity system is the more reliable and economical.

Soft Water Supply

We have endeavored to explain the proposition as clearly and comprehensively as possible, but the field is broad and there may be some points upon which the reader would like further particulars. We will be glad to hear from those.

We now turn to the soft water supply for the owner's dwelling—cistern water should be available for laundry, bath and kitchen. For the average farm household of six persons an allowance of 25 gallons for each member should be made with liberal allowance for laundry and other domestic need. Lack of electric transmission lines is now no bar to the use of current for lighting and moderate pumping requirements. Inventive genius has solved this problem and developed the practical domestic generator and dynamo driven by gasoline power.

We recommend here an electrically driven hydro-pneumatic pump installed in basement or laundry in connection with a pneumatic storage tank.

Those **FREE PLANS**
are certainly worth having

They should be in the hands of every contractor and every farmer who expects to build a new crib or granary.

They are easy to understand and give complete instructions and working drawings showing how to get the greatest capacity with least expense by installing Meadows Stationary Inside Cup Elevator.

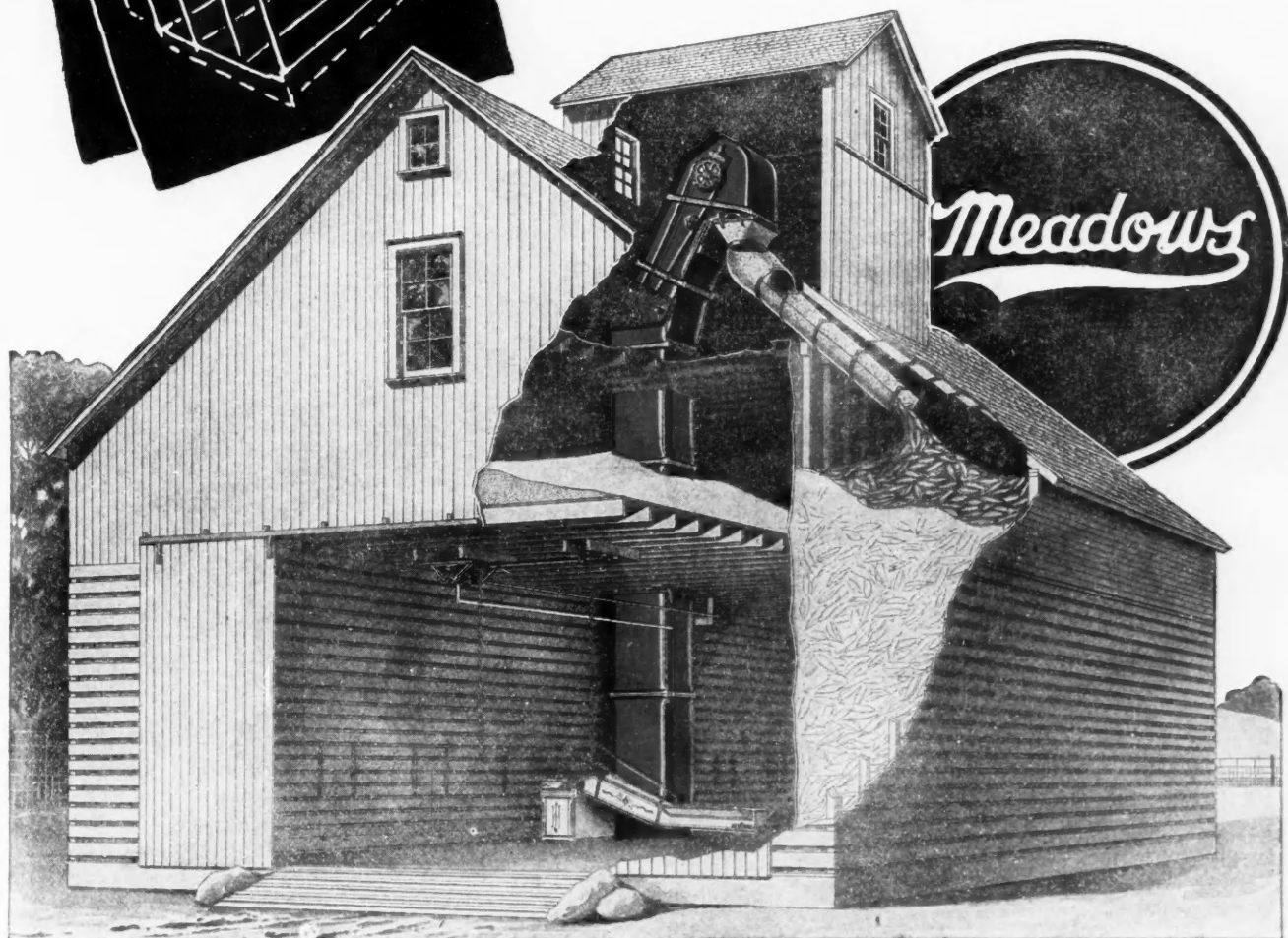


This Elevator can be set back in the crib entirely out of driveway if desired. Wagon jack is fastened to the joists overhead and entirely out of the way. No pit is necessary for dumping grain.

We shall be glad to send a copy of these "crib plans" and a copy of complete grain elevator catalog free to contractors and to farmers who are considering building new cribs or granaries.

Write today for these plans.

The Meadows Manufacturing Co.
PONTIAC, ILLINOIS

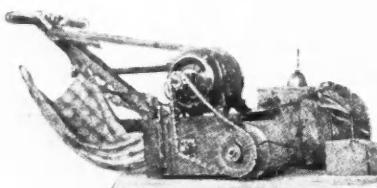


TRADE NOTES and ITEMS OF INTEREST

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

New Floor Surfacing Machine

The wood-floor surfacing machine shown in the accompanying illustration is manufactured by the Improved Floor Surfacing Machine Company, 40 Kilby Street, Boston, Mass. This machine is designed to surface all kinds of wood floors, new or old, and it will surface close up to the baseboard.



Improved Floor Surfacers.

The "Baby" machine carries an 8 by 8½-inch roller and a 1-horse-power motor. Other models carrying 12, 15 and 18-inch rollers with large motors are also manufactured by this company.

The main roller will sandpaper a floor within 2 inches of the baseboard and the side roller will finish it close up to the wall. The machines are sent out complete in every detail and are guaranteed for one year against any defects in material or workmanship.

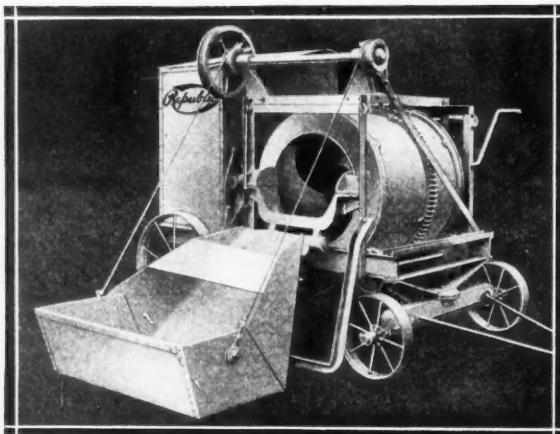
Readers may obtain a full description of the machines and the terms of the free trial offer from the company.



A New Light Weight Sack Size Mixer

The new 1917 model light weight sack size concrete batch mixer manufactured by the Republic Iron Works, Tecumseh, Mich., is illustrated herewith.

This mixer was designed to meet the requirements of both large and small contractors, for a light, easily moved machine, which has sufficient capacity to handle a full bag of cement with all average mixtures, at the same time supplying a machine which is light in weight and more easily transported



1917 Model Republic Sack-Size Mixer.

and placed on the job than the sack size mixers heretofore obtainable.

The popularity of this machine has prompted us to illustrate it in reading columns and call the attention of our readers to this special outfit, which has won its way into favor of both large and small contractors.

This machine is extremely well made, and has been on the market a sufficient length of time to fully develop it and the present model shows a number of labor-saving devices and improvements not ordinarily found on mixers of this type.

In addition to the sturdy construction, it is sold at extremely reasonable prices within the means of contractors and builders in general. Information about this machine also in regard to larger and smaller outfits, block machines, etc., may be obtained by addressing the Republic Iron Works, 112 Patterson Street, Tecumseh, Mich., who will furnish illustrated catalogs to readers free of charge, and without any obligation on their part.



Profits in Lighting and Ventilating Farm Buildings

The younger generation of farmers are being taught how to get more and more out of what nature has provided and one of the most important lessons deals with the value of plenty of fresh air and sunshine. Investigation has determined just how much fresh air is needed to keep live stock in a healthy condition, so that the fullest return may be



"Tip-Top" More Sun Windows.

realized from the money spent in feeding. The value of direct sunlight in promoting general health and in warding off certain diseases is fully realized.

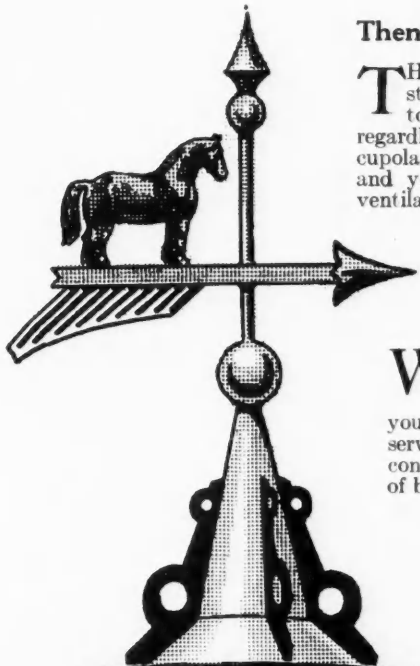
In order that there may be a sufficient supply of fresh air and direct sunlight, farm buildings must be equipped to supply these things. The man who builds these farm buildings should know how to select and install this equipment so that he may act as advisor to the farmer. The fact that a double profit is realized by the builder is all the more reason why he should interest himself in this work.

The Anderson Manufacturing Company of Des Moines, Iowa, manufacturers of "Tip-Top" ventilators and "Tip-Top" More Sun ventilating windows, can offer any contractor or builder who is interested a great many suggestions which will help him to work into a profitable business in the sale and installation of this equipment.

Put a BUCKEYE on every barn.

Then Every Barn Will Have the Best of Ventilation.

THE Buckeye Ventilating System is the result of expert work and study, and is the most scientific. It takes in fresh air at the bottom, and expels foul air at the top. It ventilates without draft, regardless of wind. Proof against rain, snow or nesting birds. The cupola is made of heavy galvanized steel and can't twist or buckle. You and your customers will be pleased with the Buckeye. It is the one ventilator that provides plenty of fresh air under all conditions.



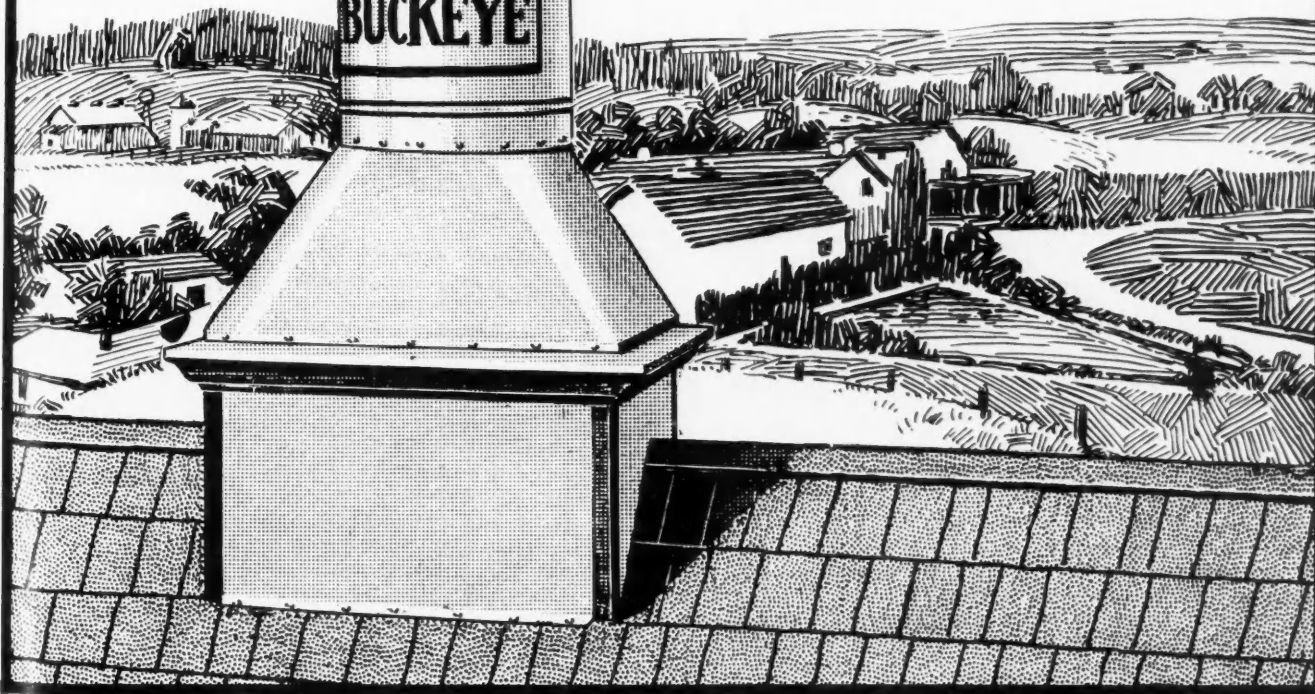
Here Is How We Will Help You

WE are advertising extensively, creating a demand among the farmers for the Buckeye. This means that your ventilator will be practically sold before you suggest it. We will furnish you complete plans, without cost to you, and will give you the expert service of our Engineering Department, which will often save you a considerable sum of money in planning for the adequate ventilation of barns.

And Here Are Two Profits You Can Make

YOU will profit by getting more barns to build, because you know how to ventilate them properly. You will profit on the installation of the ventilating apparatus. It takes but a minute's time to write for our proposition, and that minute may save you hours of labor and bring you good business.

The Thomas & Armstrong Co.
122 Union Street London, Ohio



The Value of a Good Weather Vane

Country builders may profit by recommending good weather vanes for the farm structures which they build. E. G. Washburne and Company, 210 Fulton Street, New York City, have a catalog illustrating and describing a very complete line of copper weather vanes. They are making a special offer which will help any progressive builder to work up a profitable business in his vicinity.



Jahant Engineers Offer Consulting Service

The Jahant Scientific Down-Draft Furnace can now be had in either the pipe or the pipeless design. In any event, the heating and ventilating engineers of the Jahant Heating Co. are ready to assist contractors, builders and property owners in properly solving their heating problems.

Every furnace sold by the Jahant people, whether pipeless or a pipe furnace, is accompanied by a set of blueprints and drawings with the proper specifications as to heating pipes, location of furnace, registers and cold air shafts.

The Jahant down-draft principle of heating has been used for over 35 years. Semi-warmed air is drawn in over the fire box and the oxygen from the outside air is consumed with the gases from the coal.

The combustion chamber is so thoroly controlled by the drafts that the fire can be burned slowly and as the gases are freed they are mixed with the outside air, burning the oxygen with the gases and making a steady heat and making it possible to build fires once a day and have them hold and give out sufficient heat continually. Even in the severest weather, a Jahant furnace needs attention but twice a day.

The Jahant people will be glad to mail literature to anyone interested. Address them 102 Jahant Bldg., Akron, Ohio.

"Coulson Store Front Construction"

J. W. Coulson & Co., 95-107 W. Spring St., Columbus, Ohio, have a patented system of construction for large store fronts.

In this system the glass is always placed between wood, and no metal touches it. Other pieces of metal are then inserted in such a way that they cause the wooden pieces to tighten on the glass and hold it firmly.

A blue print of full-sized details and booklet will be sent free to readers of the AMERICAN BUILDER.



Sheet Metal Products and Roofing

The Thomas & Armstrong Co., 121 Union St., London, Ohio, has issued a 72-page general catalog called "Buckeye Sheet Metal Products." The standard gauges of open-hearth sheet steel as used by this company in their products described in the catalog are 26, 28 and 29.

Stamped sheet-metal shingles are shown with several different designs stamped in. Metal fixtures for covering roof ridges, corners and similar parts of a building are listed in several styles. Diverging from metal roofing, quite a number of different prepared roofings are described and these include the asphalt shingle. Ornamental fixtures, eave trough and conductor pipes, and metal siding stamped to imitate stone, brick, weatherboard, etc., are also included in the catalog.

The all-metal cupola ventilators for barns are described clearly and will be found of considerable interest to those interested in barn building. Metal silo roofs of several different types follow the text on cupolas, and together with a study of tanks, troughs, metal poultry buildings and other small buildings of metal for the farm will be found most interesting.

(Trade Notes Dept. Continued to page 140)



Cupolas

Put an
O. K.
on every job

O.K.



Windows

O-K Cupolas and Sun-Lite Hog House Windows on farm buildings mean greater satisfaction and service to your customers—as well as **bigger profits and more business for you.**

They are dividend paying investments for farmers—one provides scientific ventilation—the other lets in the sunshine so necessary to successful hog raising. They are efficient, neat in appearance, economical and durable.

Our proposition to Contractors and Builders will interest you.
Write for details.

PHILLIP BERNARD CO. 2400 FLOYD AVENUE
SIOUX CITY, IOWA



MONITOR CUPOLAS

SUPPLY the proper amount of fresh air, at all times and under all conditions. Circulate more air than wooden cupolas twice their size.

Proof against wind, weather and birds. Made of the best grade of galvanized steel. **Monitor Cupolas** offer no loop holes for obstructions of any kind; and they will not rust, crack or dry out.

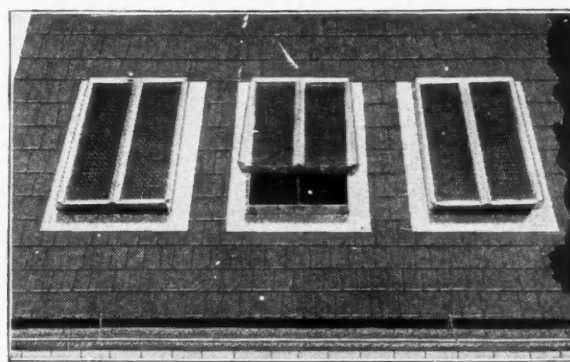
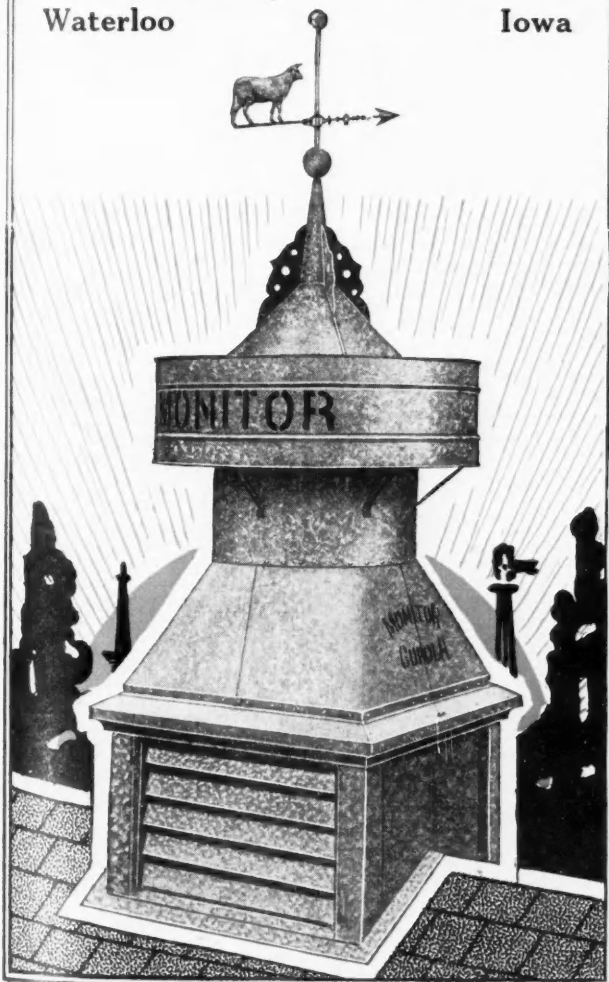
Your first thought is to please your customer. The farmer could ask for no better ventilating service than that effected by the Monitor. His satisfaction is your gain. Please him and you will please his neighbor.

Write for our special discounts to contractors. Get acquainted with the Cupola that is BUILT to ventilate—that is guaranteed to give lasting satisfaction—that will make the most money for you.

B. F. Lichty & Sons Co.

Waterloo

Iowa



"Tip Top" More Sun Windows

More Sun and Air

In buildings help make more money to build more buildings.

Contractors, Lumbermen and Hardware dealers should keep these facts before building owners.

There is no more efficient or economical way to provide these necessities than with

"Tip Top" More Sun Windows and "Tip Top" Ventilators

Their worth is being constantly proven by the additional profits resulting from their use.

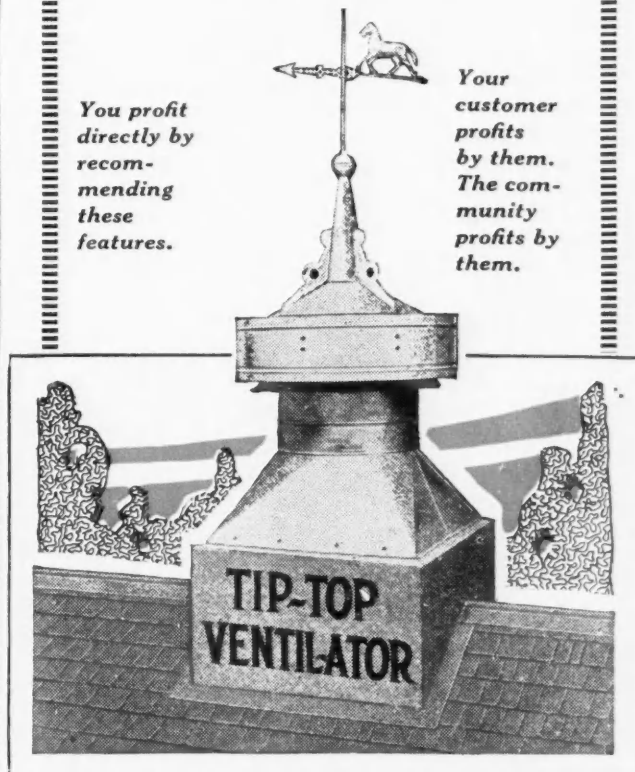
Let us send you convincing evidence of their profit making qualities, and our Co-operation Plan to Contractors, Lumbermen and Hardware Dealers.

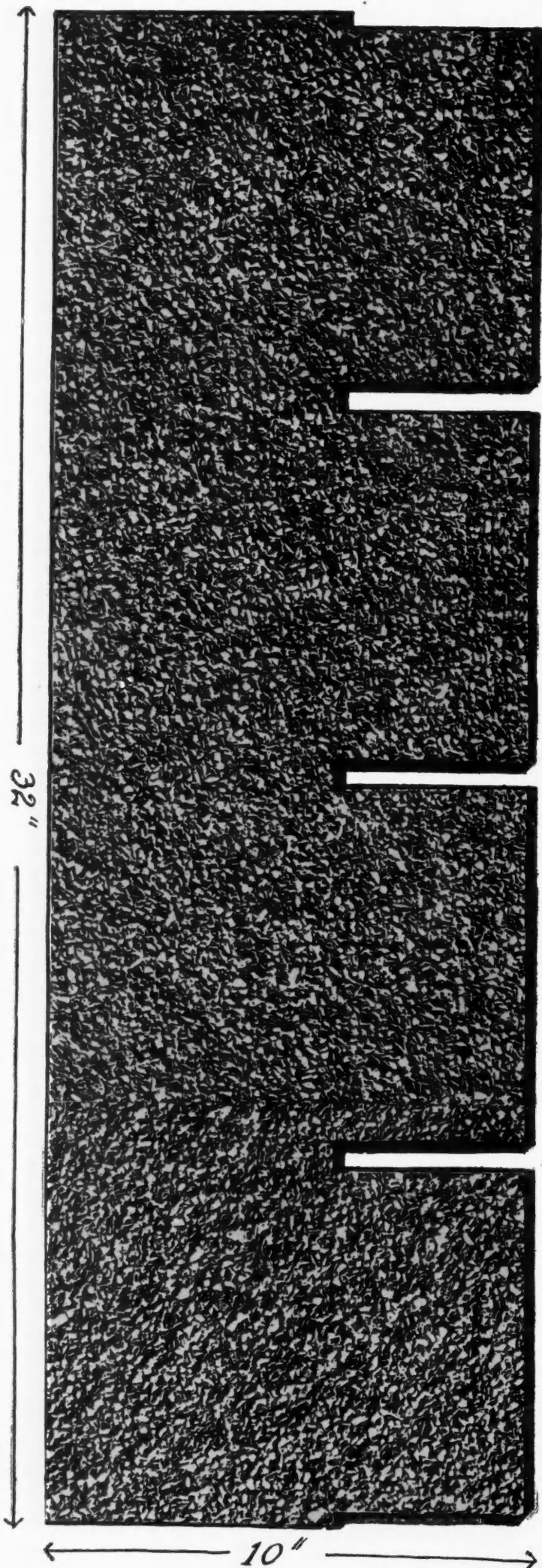
Anderson Mfg. Co.

Des Moines, Iowa

You profit directly by recommending these features.

Your customer profits by them. The community profits by them.





FLEX-A-TILE SLAB

The Standard Among Asphalt Shingles—"The Shingle of Enduring Fame"

FLEX-A-TILE Shingles in the new Slab form are *four in one*. They lay as one shingle—are self-spacing. And save over 50% in labor cost, 35% in freight and 38% in nails.

Three styles are made, Diamond Point, Style Four and Reversible. Coming in either deep red or emerald green natural stone surfacing, they allow of many attractive effects in design.

Flex-a-Tile Shingles *endure*—because quality is built into them. Strong thick wool felt, asphalt of high melt point, crushed granite surfacing—tested and combined and tested again—make FLEX-A-TILES *invariably* good.

For the roofing job you want to be *sure* of doing satisfactorily—for the job meaning *further* contracts—for the job on which you must cut labor and material costs—*use FLEX-A-TILES*.



FLEX-A-TILE Style 4 Slab
Laid in American Shingle Style

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A TILE B SHINGLES

Made Better Than Ever by
the New and Greater
Heppes-Nelson Roofing Co.

In this annual number we
want to record that 1916
was a record-breaking year for us
—that 1917 is already proving even
more wonderful.

With our new and greater organi-
zation, as the Heppes-Nelson Roofing
Company, we offer still broader
facilities for supplying the demand for
FLEX-A-TILE roofing. Three big fac-
tories—in Chicago, Minneapolis and New
Jersey—make immediate deliveries in any
part of the country a certainty.

The name FLEX-A-TILE will continue to signify
the highest grade of roofing made—a shingle that
does not crack, warp or curl, proof against broil-
ing heat and freezing cold, with natural stone
colors that only grow richer with age.

DEALERS

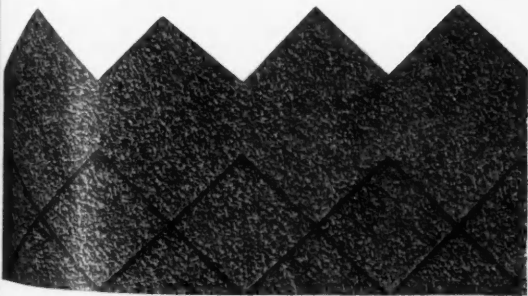
Some Territory Still Open

Some valuable agency territory remains to be allotted—
perhaps in your section. Write today for sample FLEX-
A-TILE Shingles, prices and full proposition.

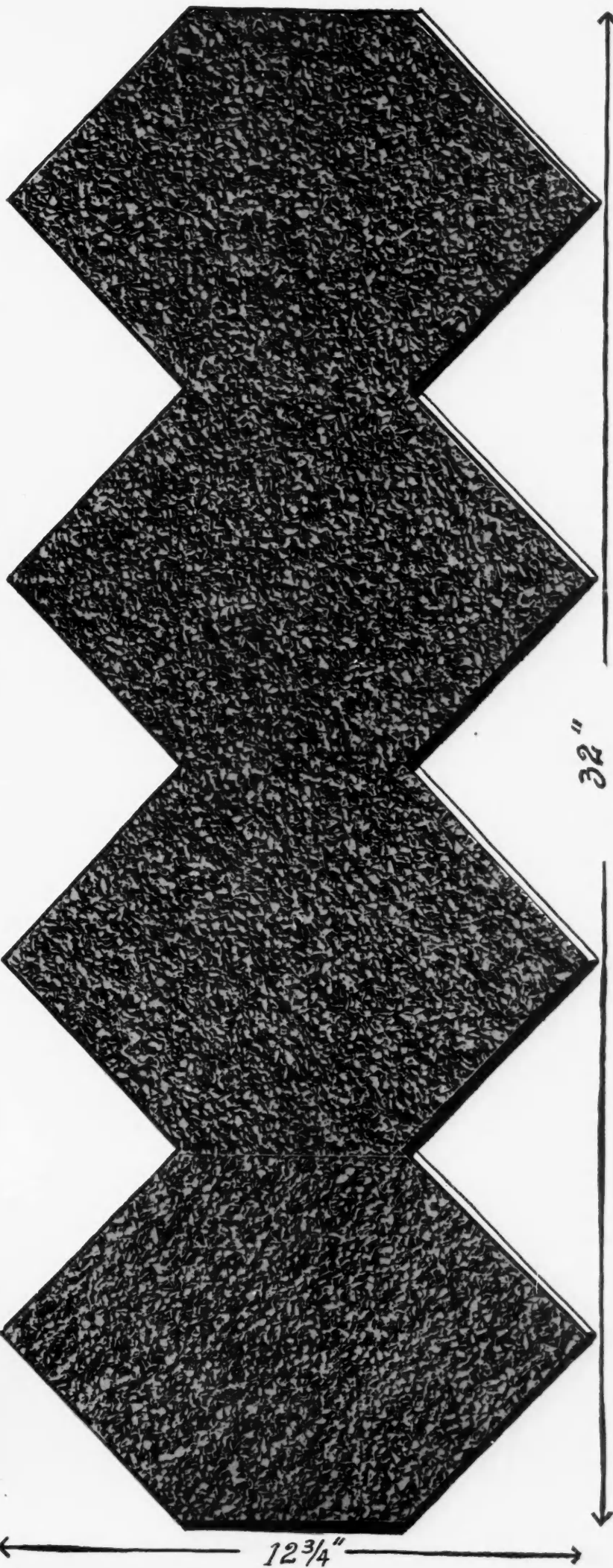
Prices must advance again. Buy now

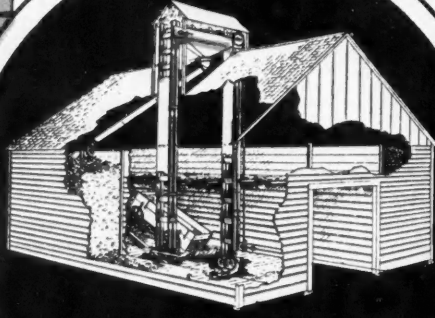
THE HEPPES-NELSON ROOFING COMPANY

Main Office: Dept. B, 1010 Kilbourn Avenue, Chicago
Factories: Chicago, Minneapolis and New Jersey



FLEX-A-TILE Diamond Point Slab,
Laid in American Diamond Style





Meyer

A name that means so much more than the ordinary on a CUP ELEVATOR. When your customers think of the best Elevator—the one that would elevate their grain fastest and best, that would please them most, it is a MEYER. That is why this machine is so much easier to sell them.

The 'MEYER' set the standard years ago and the perfect mechanical construction, with the extraordinary success they are giving, has kept it in the lead ever since.

Today, as then, it is the first choice because of its undisputed superiority. Model crib plans with illustrated catalog showing seven styles free. Better protect yourself on territory at once.

A. F. MEYER
MFG. CO.
 Department 301
MORTON, ILLINOIS

You Get What You Pay For

In studying the question of prepared roofing, it should be noted that the process is the same no matter what the quality of the final product is. The process being the same, the cost of operating it must be the same. Therefor the final cost can only be dependent on the cost of the materials entering into the makeup of the roofing. The final cost plus a profit is the selling price. The operating cost being the same, and all dealers demanding about the same profit, the only thing left to vary is the cost of the materials in the roofing. Hence quality governs the price you buy at. This, briefly, is the proof given by The Stowell Manufacturing Co., 300 Culver Ave., Jersey City, N. J., warning those who think they can get just as good for less money.

The booklet in which the above appears in the first pages is titled "Monarch Roofing." A considerable part of the booklet was written by Elbert Hubbard. After giving his proof that quality and selling price must go together, he talks on the points of why a good roof is always desirable. In the concluding pages brief descriptions of some of the company's roofing materials are given as: Monarch Roofing, Asphalt Slag, Asphalt Felspar, Asphalt Cork, Asphalt Asbestos and Asphalt Eagle prepared roofing.



The Reliable Folding Scaffold Bracket

Contractors and builders are rapidly becoming converted to the folding steel scaffold bracket. The cumbersome wood bracket has a great many disadvantages which are eliminated in the later type. The improvement is evident not only in the scaffold, as it is placed on the walls of the building, but also in storing, handling and moving the equipment from job to job.

The Reliable Folding Scaffold Brackets, shown installed on the barn in the illustration, are manufactured by the Elite Manufacturing Company, of Ashland, Ohio. They are constructed entirely of malleable iron and steel. They are quickly and easily attached to a building without the use of bolts or the boring of holes, four 10-d or 16-d nails holding them securely in place. The scaffold is sure to be rigid, strong and free from vibration.

The brackets are adapted to the use of carpenters, painters, tinner and brick masons and can be used for scaffolding on the roof for building chimneys. They are made in two sizes, with 36 and 48-inch extension. The spread of the members placed against the wall is adjustable so that the brackets may be used on different widths of studding. The brackets are applied direct to the studding, siding or roof, as desired. It is not necessary to leave off a board in applying the brackets to the siding.



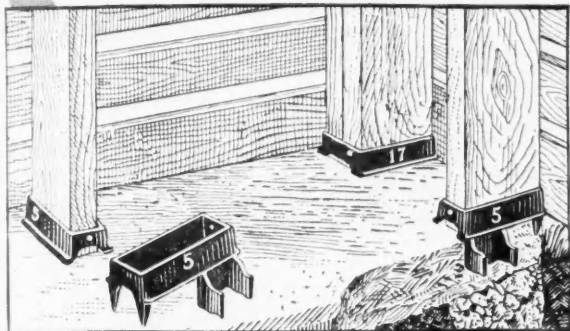
Reliable Brackets Installed on Barn.

Hold studding securely and permanently on concrete floors and foundations with

ROSS STUDDING SOCKETS

Low-cost permanent post supports for corncribs, granaries, barns, hoghouses, coalhouses, sheds, garages—any place where you want to fasten studding to concrete.

The strong heavy anchors get a solid hold in the concrete. Made of extra thick gray iron, they are built to last. Studding are always dry, because large openings let any possible moisture escape. No wooden



As Used in Concrete Floors

MAKE BIG MONEY SURFACING FLOORS THE "AMERICAN UNIVERSAL WAY"

The "American Universal Way" of floor surfacing offers you a wonderful opportunity of making money fast. Do you realize that right now there are floors all around you to be surfaced as well as old floors to be refinished? If these floors are scraped by hand it will be on account of there not being a better way available.

The "American Universal" will surface more floors than four or five men without leaving waves, chatter or vibration marks. The "American Universal Way" is altogether different than other methods, and gives you a clean sweep of the business.

Cleared \$162.40 in 85½ Hours

Mr. W. A. Risinger of Elwood, Ind., cleared \$162.40 above all expenses on the first job he surfaced the "American Universal Way," which required him only 85½ hours to complete.

Let us send you prices and full particulars regarding our five-day trial offer. Do not miss this opportunity but write NOW.



The American Floor Surfacing Machine Company

515 South St. Clair St., Toledo, Ohio

Page Auto Trailers

Serve the Contractor or Builder in every capacity afforded by a truck or wagon, and at much less expense.

They will lengthen the life of an auto and preserve its appearance as a pleasure car; or if the builder has a truck, the Page Trailer will increase its capacity 800 to 1500 pounds.

The Page Trailer is coupled to the car by a Universal Joint and Shock Absorber of special design, and will not disfigure the car. These trailers are built in three sizes, with or without ball bearings.

Send postal for complete information.

Page Bros. Buggy Co.

(Established 1869)

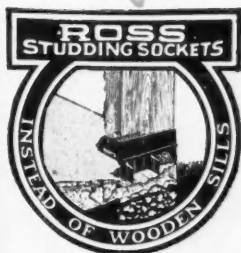
MARSHALL, MICHIGAN



sills to rot, or bothersome toenailing to rust. Sizes to fit any upright.

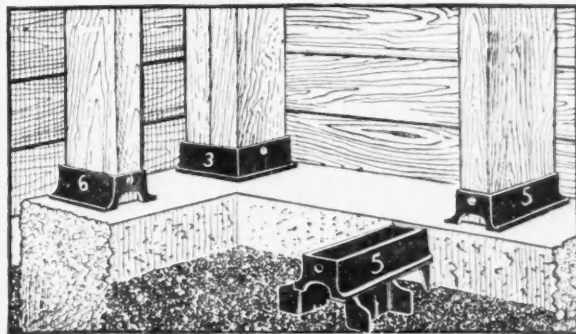
Our new catalog, beautifully illustrated, shows exactly why Ross Studding Sockets make

Good Profits for Contractors



It also gives many helpful suggestions for building concrete floors and foundations, placing Ross Studding Sockets, setting uprights, etc. It will be sent by return mail — yours for the asking.

G. M. Ross & Co.
1234 Park St. Grinnell, Ia.



As Used in Concrete Foundations

Grab's Automatic Foot Scraper

Most people are brought up from childhood to respect clean floors. The child who has not had the lesson on "tracking dirt into the house" forcibly impressed upon his mind, is indeed rare. Altho the desire to clean the shoes upon entering a house may become automatic, there is still the human tendency to overlook details, and the ordinary means of cleaning shoes by a common scraper is often not effective. There is, then, a demand for something better which will exist as long as housewives continue to wage war on dirt.

Some time ago the Security Manufacturing Company of Toledo, Ohio, realizing that this demand existed, thoroly investigated the proposition with the result that Grab's automatic foot scraper was placed on the market. Knowing that the demand was universal, the Security Company invested a large sum of money in telling the world that a really scientific foot scraper was available. The interest which the world displayed in this ingenious device, indicated by the large number of sales made, conclusively proved that the company had reasoned correctly.

What is this scientific foot scraper? The illustration below shows the principal features. There are ten parallel plates, all made of sheet metal rigidly kept in place. The mud drops in between plates and will not stick or clog. The scraper may be rotated and cleaned or swept under with ease. The brushes are clamped in place by a concealed double spring action movement which automatically adjusts itself to any size shoe. Brushes may be quickly replaced when worn out.

One movement cleans the sole and brushes the sides of the shoe. No chance to forget to clean the sides of the shoe. It is really fun to wipe the shoes in this scraper.

The manufacturers want representatives in all parts of the country to assist them in supplying the demand which has

been created for these scrapers. A card addressed to the Security Manufacturing Company, Department 286, Toledo, Ohio, will bring full particulars to anyone interested.



Permanent Ventilating Cupolas

A thoroly dependable steel ventilating cupola for barns and all buildings for which cupola ventilation is advantageous is manufactured by Shrauger & Johnson at Atlantic, Iowa.

This cupola—known as the "Chief" All-Steel Cupola—has many good points that recommend it to the consideration of thoughtful builders. It is very well designed and efficient as a ventilator and is practically indestructible in service. It is made of heavy galvanized steel thruout and made extra strong. It is storm-proof—will not blow off—and is rot, rust and fire-proof. Birds cannot nest in it. Outlasts wooden construction many times over.



The "Chief" All-Steel Cupola Ventilator.

Very little labor is necessary to install a "Chief" Cupola. The base—strongly braced with steel angle—sits right into the roof of the building and the cupola proper is bolted firmly to this base.

A large number of "Chief" Cupolas are in use and are highly recommended by the users for their handsome appearance, durability and efficiency.

The manufacturers will gladly send complete information, prices, etc., to any one interested.

\$80.00 Clear in Two Days

This money made by Arnold, a Carpenter, in North Dakota. Never sold goods of any kind before. If you want to make money fast—\$10 to \$30 daily from very start this is your chance.



Agents—No Experience is Required

To sell Grab's Scientific Shoe Cleaner. People everywhere are waiting for it—wonder why it was never invented before. Every family in the land needs one on their doorstep. It's new, wonderful, irresistible. Solves mighty home problem. Replaces unsightly, unsanitary, crude door-mat.

Automatically Removes Mud, Dirt, Dust, Snow

From shoes in one operation. Cleans sole, sides, heel—all in a jiffy. WORKS LIKE MAGIC—sells like "sixty." Saves drudgery, time, money, shoes—saves carpets, floors. For men, women, children. Attaches without screws, nuts, bolts. Rotates for sweeping. Has 7 patented features—10 steel blades—10 dirt outlets—twin adjustable and removable brushes—compound springs. Can't clog—can't get out of order—practically self-cleaning. Handsomely enamelled. Nothing else like it—nothing so popular—so easy to sell. Low selling price startling feature—only \$1.00. Satisfaction guaranteed. Tremendous rapid sale staggers country. Over half million sold in no time. Remarkable demonstrations going on everywhere. Agents happy—banking enormous earnings daily.

Write Quick—Get this Easy Money

Hurry—get this agency. Make as much money as others are making. Wright, a contractor, sold 160 in 2 days; Hagen 100 same time; Mielke 72 first day; Williams, a carpenter, 33 in 5 hours; Roberts 41 in 4 hours. Ramsey writes: "Only 45 families in town—have sold all." Lindsay: "It's the seller. Best ever found. Like getting money from home." Hundreds tell the same story—many better. You too can make this money. Think what this invention does. Write quick for the best money-making plan ever offered. Exclusive territory free but going fast—worth fortune—get yours today. We have what you are looking for. Get the proof. Write now.

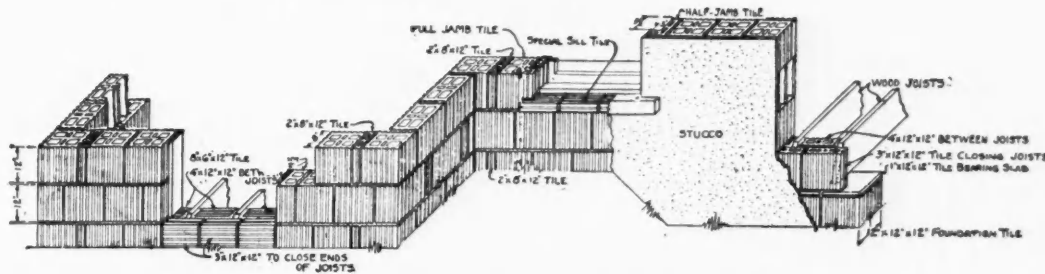
Every Home
Needs One

Security Mfg. Co., Dept. 286, Toledo, Ohio

Mr. Builder:

When designing in hollow tile do you ever encounter problems not covered by your data on this material?

The following section will give you a general idea of how Natco XXX Hollow Tile lays up in the wall. The corner tile, jambs, sill tile and fractional sizes that we furnish facilitate the quick erection of Natco buildings.



Wall of 8"x12"x12" Natco XXX Tile with Stucco Exterior.

THE HOUSE BOOK AND
THE BUILDERS' HANDBOOK OF

NATCO·HOLLOW·TILE

fully answer many other building problems, such as pipe chases, bay window, chimney and fire place construction; hollow tile gables, water tables, methods of applying flashing, etc.

If you do not have copies of both of these books, shall we send them to you?

←Note—Patented design bringing every shell and web in direct compression throughout the wall.

←Note—Deep dovetail scoring which provides unyielding mechanical bond for stucco.

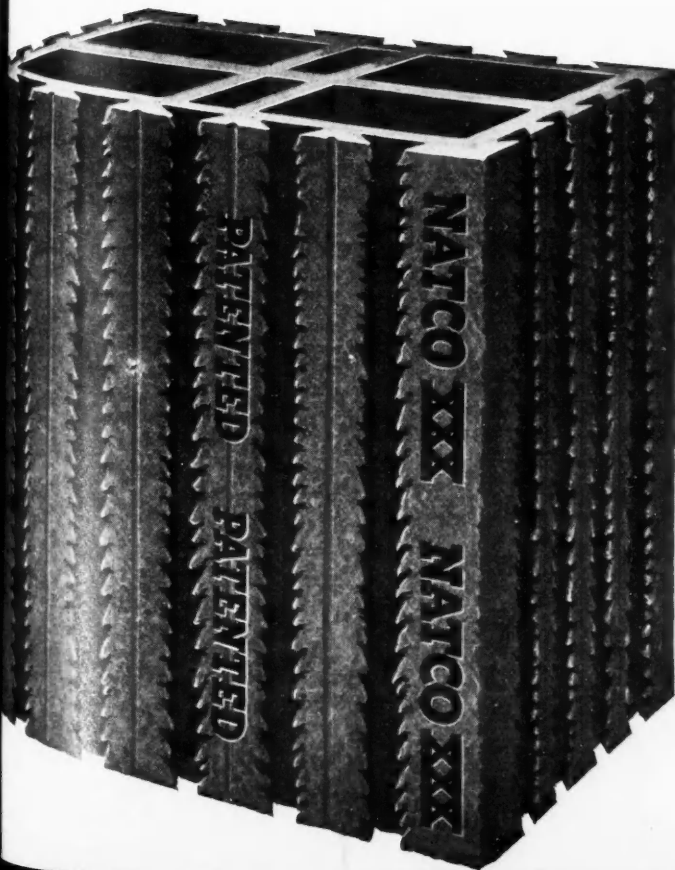
NATIONAL FIRE PROOFING COMPANY

558 Federal Street, Pittsburgh, Pa.

Other Offices:

New York	Boston	Philadelphia	Washington
Chicago	Canton	Detroit	Syracuse
	Toronto, Ontario, Canada		

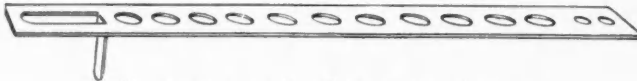
23 factories in the United States, and also at Hamilton, Ontario, Canada



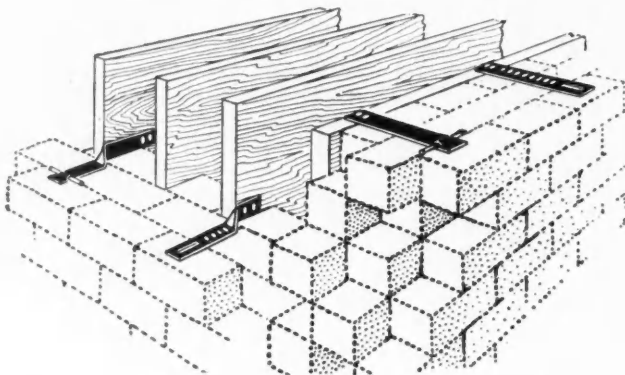
FINGER CLING BOND ANCHORS



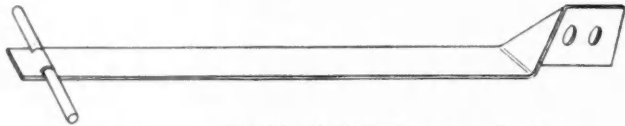
No. 1—For application to side of joists



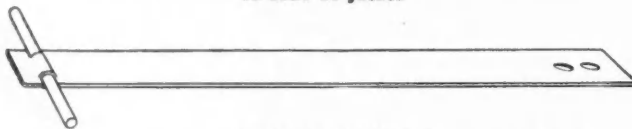
No. 2—For application to top of joists



Section of Brick Wall showing application of FINGER-CLING BOND ANCHORS and IMPROVED PIN ANCHORS



No. 5—Improved PIN ANCHORS for application to side of joists



No. 6—Improved PIN ANCHORS for application to top of joists

The Finger-Cling Bond and Improved Pin Anchors are light and easily handled, but have enormous tensile strength, being made of fine steel. They are much cheaper than any other bond, and more effective, because they bind every course. They fit flat between courses, the fingers clinging to the heart of the wall. Only ANCHORS made that bond the different courses of brick through the wall. Bend them double, they will not break.

Send for Prices and Samples

American 3-Way Prism Co.

LICENSEES AND MANUFACTURERS
STEEL SECURITY BOND ANCHORS

MAIN OFFICE AND PLANT:

La Porte, Indiana

EASTERN BRANCH: Spring and Wooster Streets, NEW YORK

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Heppes Company Expands

One of the big romances of modern commerce that fittingly deserves a high place in the annals of America's commercial success is the story that is now revealed in the announcement recently made of the incorporation of The Heppes-Nelson Company of Chicago, Minneapolis and New Jersey.



O. A. Heppes.

It is the story of the rise of a bright young roofing salesman to an outstanding position first as the executive head of one of the best known roofing establishments in the United States—The Heppes Company of Chicago, and later as the directing genius behind the new Heppes-Nelson Roofing Company of Chicago, Minneapolis and New Jersey.

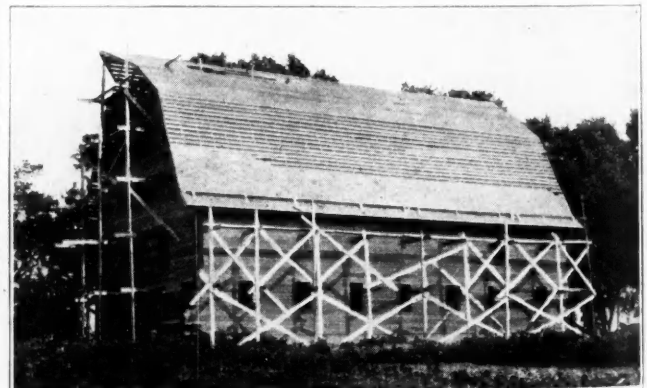
If O. A. Heppes had not had the go-do-it-and-do-it-big inspiration years ago his first dream, The Heppes Company, would never have been realized. Thru the thick of keen competition that would have discouraged many less hardy-hearted, he brought the Heppes Company and the Heppes Company's famous Flex-a-Tile Asphalt Roofings to a position of commanding influence in the roofing world. Of course, the unescapable elements for every great business success—a right idea rightly executed and a meritorious product—were present in an abundant degree. And with Mr. Heppes' big, broad, thoroughgoing experience in the roofing business, there is no question but that the new Heppes-Nelson Roofing Company will achieve the success it so well deserves.



To Fasten Studs to Concrete

The accompanying illustration shows a large barn on a middle western farm. The builder used great care in the building of this barn, and one of the features of it is that all the studding are held in place on the concrete floor by Ross Studding Sockets.

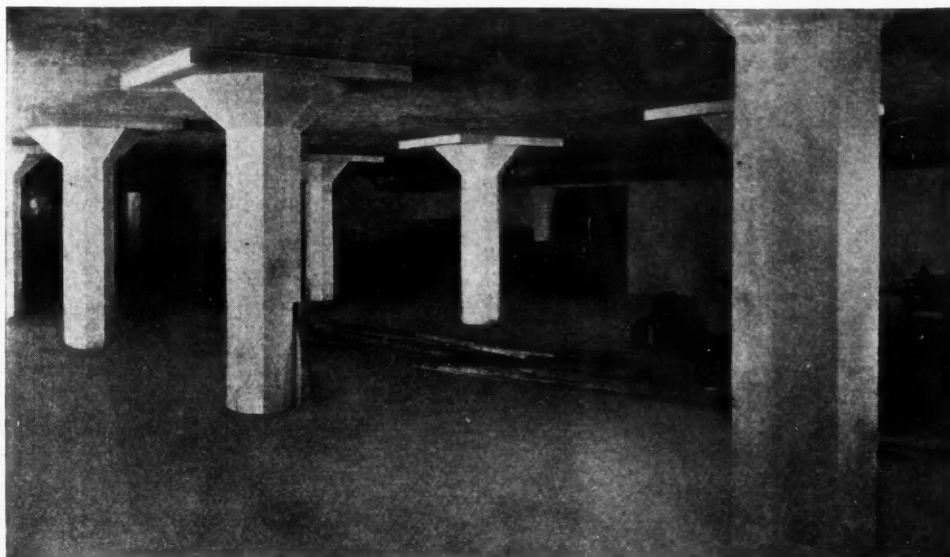
These post supports fill a big want in farm building construction, and contractors who have used Ross Studding Sockets are quick to recognize their sterling qualities. They use them in



Barn in the Middle West. Studdings Are Made Fast to Concrete Floor With Ross Studding Sockets.

almost every type of farm building, from corncribs down to the smallest shed, wherever studding are to be fastened to concrete. Long life, convenience and low cost are points every builder strives for, and all of them are found in Ross Studding Sockets.

The manufacturers, G. M. Ross & Co., 1234 Park St., Grinnell, Iowa, in their advertisement on another page, call attention to their new catalog, which they send on request of any readers of the American Builder.



BASEMENT OF TRELEVEN BLDG., FOND DU LAC, WIS., WATERPROOFED WITH MEDUSA

You could strike a match

anywhere *inside* these basement walls—while *outside* water stood against them for three weeks.

The basement of the Treleven department store building, Fond du Lac, Wis., was waterproofed with Medusa Waterproofed Cement. Mr. H. T. Liebert, architect, says of it:

"Our basement is below the level of Lake Winnebago and also below the sewer line and the soil is a clay constantly saturated with water below this lake level. We used your Medusa Waterproofed Cement in walls and basement floor.

"We had very severe continuous rains during the summer and the water stood against walls to top of grade for about three weeks, which was a good test, and we could strike a match on any portion of inside basement walls as no moisture came through them."

This is one of the many cases where almost seemingly impossible results were obtained with

Medusa Waterproofing

Medusa is the original integral waterproofing that becomes an inseparable part of the Portland Cement and makes concrete *permanently* waterproof—and *damp-proof*. It does *not* affect the strength, setting or color of Portland cement. It prevents efflorescence—the cause of discoloration in cement and this makes it especially adaptable for exterior work where looks and finish count. Its cost is surprisingly low—in fact 2% Medusa Waterproofing makes a concrete or stucco absolutely waterproof *for all time*.

Medusa Waterproofing is made in both powder and paste forms, or we can supply it already mixed with Medusa Gray or Medusa White Cement.

Our illustrated booklets "Medusa Waterproofing" and "Make Your Basements Dry and Sanitary" contain data and photos of installations that will interest you. They also cite the experiences of many contractors who have made their concrete waterproof and damp-proof *when* they built—with Medusa Waterproofing.

Your copy of these booklets are ready; write for them today.

The Sandusky Cement Company

Manufacturers of Medusa Waterproofing
(paste and powder)



Medusa Cement Gray and White
(plain and waterproofed)

Department L

Cleveland, O., U. S. A.



Holly's Barn and Hay Track Support is Simple in Construction and Easy to Install.

Holly's Barn and Hay Track Support

During the last twenty years C. M. Hollowell, of Norwalk, Iowa, has been called on many times to repair hay tracks. With his extensive experience to guide him he has, for several years, been making supports for hay tracks which have proved successful in ridding their owners of hay-track troubles. His support has been so successful, in the limited field where it has been tried, that a few months ago he further improved his support and secured a patent on it and is now planning to widen the field of its application.

The improved supports are so constructed that they can be attached by anyone in ten to fifteen minutes to any make of track and any kind of barn roof—hip, 10 and 12 pitch, half pitch or flat. They also can be used on barns with hoods, tho hoods are not at all necessary. The supports prevent end motion but permit the track to tilt and swing the same as ever, so the carrier cannot possibly bind. The device weighs about 13 pounds when wrapped for shipping and is

ready to put up without the addition of bolts or other attachments.

The illustration shows clearly the details of Holly's Barn and Hay Track Support. This photograph also shows how simple the installation of the device is. It is important that the hay track should hang at least two feet from where the clevis-bolt is attached in the peak, measuring vertically. It will be seen in the illustration that the device may be installed on a barn having a hood over the door without difficulty. When the support is used, however, the hood is not necessary and the expense of its construction may be eliminated.

There is surely a right and a wrong way to hang hay tracks and every farmer wants to get the best possible for his money. The long experience which C. M. Hollowell has had in this work places him in a position to give some excellent advice on hay track installation. He offers his full fund of information to readers of AMERICAN BUILDER who are interested and who will address him at Norwalk, Iowa.



Northwestern Mixer on Panama Canal

The deserved popularity and working efficiency of Northwestern Mixers, manufactured by the Northwestern Steel and Iron Works, Eau Claire, Wisconsin, was demonstrated by the action of the United States Government, Panama Canal Division, which purchased for work at Colon four No. 610 Northwestern Mixers with a capacity of 10 cubic feet, May 2, 1916. So well satisfied have the Panama Canal engineers been with the purchase of last May that they recently ordered four more of the same size and capacity for work on the other end of the Canal Zone, exactly seven months later.

Known!



Proved!

In the retarding of corrosion, the remarkable influence of Copper when *properly alloyed* with steel has become a recognized and well established fact.

KEYSTONE COPPER STEEL Sheets and Terne Plates

are better for both buyer and user. It is performance that proves quality. *KEYSTONE Copper Steel* products give the greatest measure of surface under actual weather conditions.

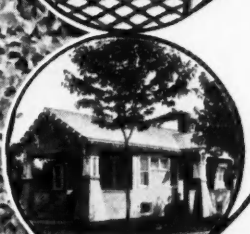
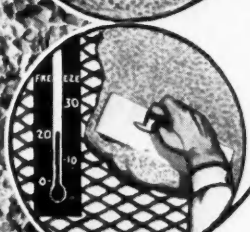
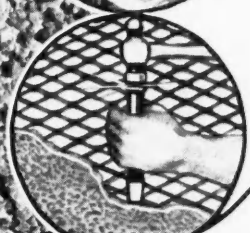
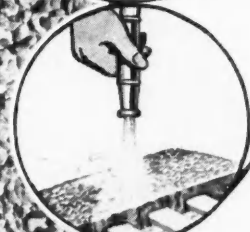
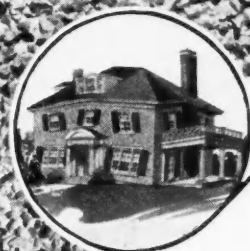
Keystone Copper Steel Roofing Tin—highest quality plates obtainable for residences and public buildings. *Apollo-Keystone Copper Steel Galvanized Sheets*—unequaled for cornices, skylights, spouting, and all forms of exposed sheet metal work. Every architect and builder should have our latest *Keystone* booklets showing results of actual weather tests. Demand *Keystone* for service.

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



Remember, Please, These Five Things:

IN selecting the stucco material for your home, tie a string around a finger for each of these five points—*you want them all.* You want a stucco which is *Elastic*—to meet the inevitable settling of your building. You want a stucco which is *Water-proof, Fire-proof and Weather-proof.* You want a stucco which *Bonds perfectly* with the lath you use, wood or metal, or any surface. You want a stucco which may be applied *when you want it applied*, even in freezing weather. You want *the most beautiful stucco surface* you can secure.

Yet in all the world there is but one stucco material which meets *all* these requirements.

KELLASTONE IMPERISHABLE STUCCO

It contains no Portland Cement—hence it is free from all the faults of any stucco of which you may have heard.

Kellastone is so *Elastic* that no normal settling of walls can ever make it crack or even check. It may be deflected one and one-half inches in seven feet without cracking. Kellastone is *Water-proof*—a rain driving for hours or days could not permeate its surface. Whatever it covers it *keeps dry.* It is *Fire-proof* and *Weather-proof.* Neither summer sun nor winter cold can affect it—it will not shrink or expand, hence you will find no yawning cracks about door or window frames ever. It is a non-conductor—cool in summer, warm in winter.

It *bonds* so perfectly with wood, metal, stone or brick that the surface to which it is applied actually becomes an indivisible part of the Kellastone itself. *Kellastone sticks.* It may be applied any time in any weather—even in below zero temperatures.

Kellastone will give you practically any surface or color effect you wish—beautiful, individual—everlasting. Any practical plasterer can apply it and you may rest assured that its beautiful surface will be uniform and not only without cracks, but may be applied without “leaving off” marks or blemish.

We have prepared a new book which tells all about this wonderful material and why you should insist upon its use for any building, big or little, new or when remodeling. We will gladly send you a copy.

This book tells also of *Kellastone Composition Flooring*, which resists abrasion, deadens noise and is without seam or joint and never cracks or shrinks. It's ideal for hospitals, factory floors, office buildings, hotels, railroad stations, etc.

**Let Us Send You Your
Copy of This Book NOW**

The National Kellastone Company

504 Association Building

Chicago, Illinois



The Whole Family is Interested

The bath tubs and lavatories that are to beautify the bathrooms of the modern home or apartment command the interest of every member of the family.

Attractive bathroom fixtures add materially to the renting and selling values of houses and apartments.

KOHLER WARE

—always of one quality—the highest

Experienced builders are selecting KOHLER WARE for new and remodeled houses because it meets the demands of people who are particular.

Manufacturing economies enable us to keep our high-quality products within reach of builders of moderate priced homes and apartments.

It is important to consider the hygienic designs of KOHLER WARE. *One-piece* construction and the absence of corners make cleansing easy.

Ask any plumber to show you the "Viceroy," our beautiful *one-piece* built-in bath. The low price will interest you.

Write for free copy of our interesting book, "KOHLER OF KOHLER." It describes the "Viceroy" fully.

"It's in the Kohler Enamel"

KOHLER CO.

Founded 1873

Kohler, Wis. U.S.A.

BRANCHES

- | | | | | |
|---------|---------------|--------------|----------|------------|
| Boston | New York | Philadelphia | Atlanta | Pittsburgh |
| Detroit | Chicago | Indianapolis | St. Paul | St. Louis |
| Houston | San Francisco | Los Angeles | | |
| Seattle | London | | | |

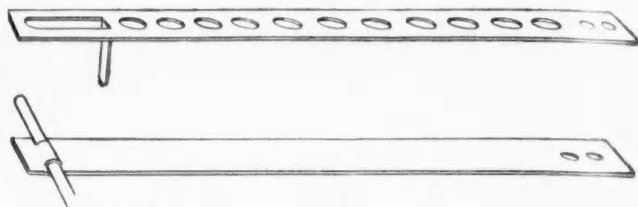
The "Viceroy," Plate V-14 (Patent Applied For)



Steel Security Bond Anchors

The illustrations show the Finger-Cling Bond and Improved Pin Anchors which are being marketed by the American 3-Way Prism Company, licensees and manufacturers of Steel Security Bond Anchors.

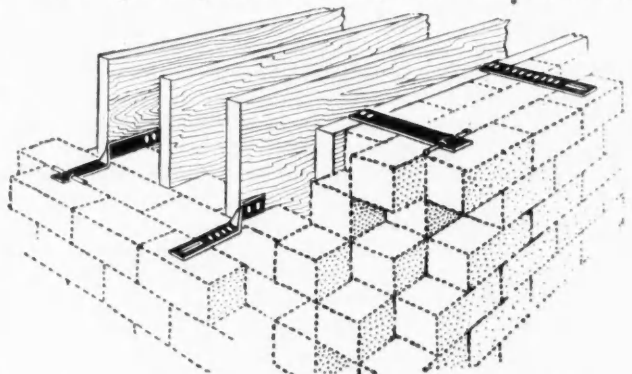
The Finger-Cling Anchor takes the place of the old style



The Finger-Cling Bond and Improved Pin Anchor.

pin anchor and binds every course of brick, including the outside face brick, firmly together. It fits flat between courses, the fingers clinging to the heart of the wall. The mortar hardens in the loops, making the bond part of the wall.

The Finger-Cling Bond and Improved Pin Anchors are



Showing How the Right Angle Twist Finger-Cling Bond and Improved Pin Anchors Are Installed.

light and easily handled, but they have enormous tensile strength, being made of a fine grade of steel. Both are made in two styles, flat and with right angle twist, to be used respectively on top and sides of joists. The Finger-Cling Bond is shown in the flat style; and the Improved Pin Anchor is shown in the flat style. The detail view shows how each style is placed in the wall.

Among the advantages which are credited these bond anchors are the ease of handling and adjusting, no clipping of brick, saving of time and bond of different courses of brick thru the wall. They may be bent double without breaking. Sizes are made for 12-inch and 16-inch walls.

Complete information may be obtained from the American 3-Way Prism Company, La Porte, Indiana.



Topping's Folding Garage Door Hanger

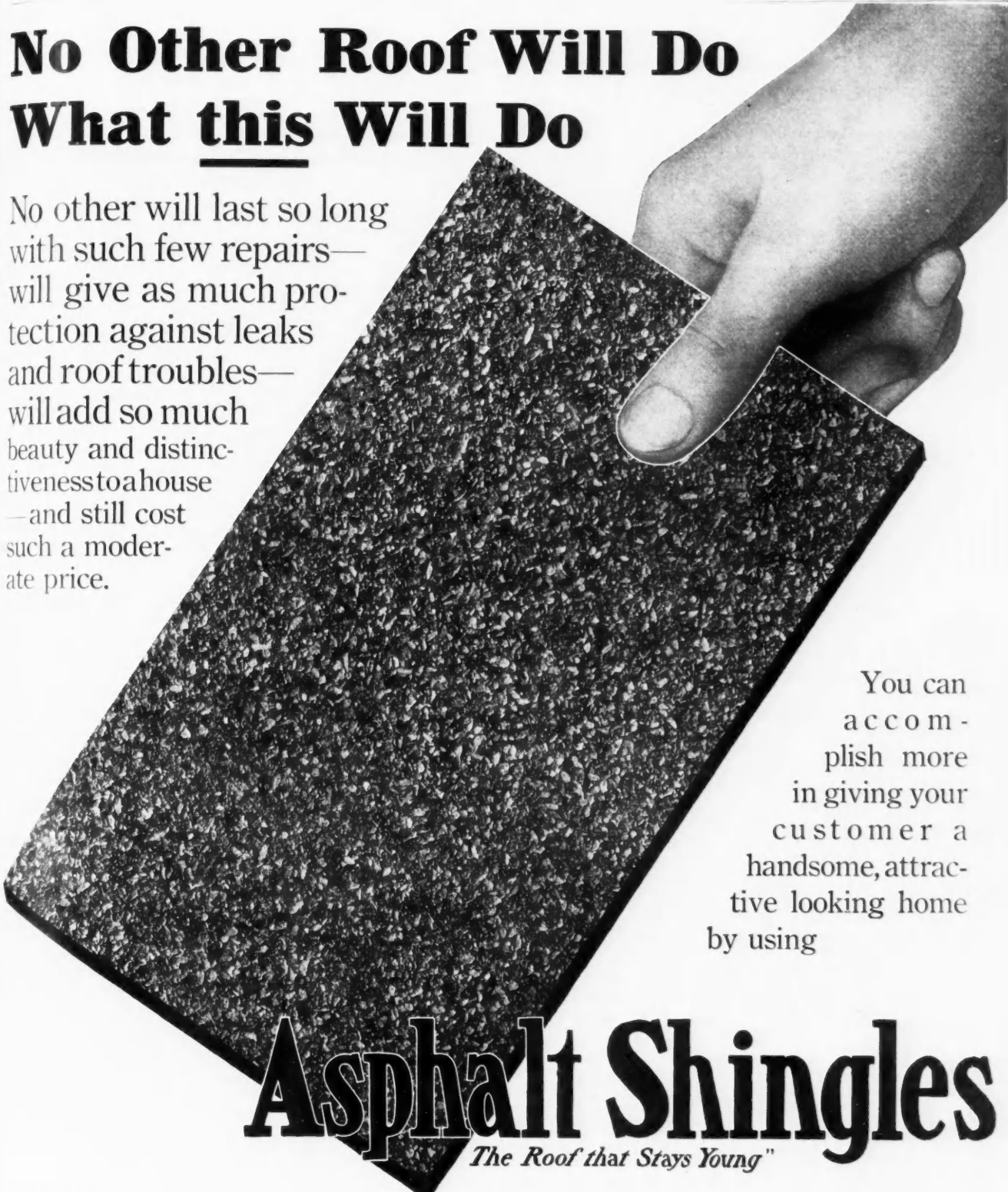
There are several requirements which any garage door must comply with in order that it may serve its purpose in the most satisfactory manner. It must allow the use of the full width of door without interference with cars passing in or out. It must not swing shut when left wide open and should stay open without being propped. It must not require a run-way which extends beyond the building on either side. When closed the doors must be properly weathertight. The doors must be easily and quickly opened and closed and must not stick or refuse to operate even when subjected to rough usage.

The accompanying illustration indicates the operation of Topping's folding garage door hanger which is manufactured by the

(Continued to page 150.)

No Other Roof Will Do What this Will Do

No other will last so long with such few repairs—will give as much protection against leaks and roof troubles—will add so much beauty and distinctiveness to a house—and still cost such a moderate price.



You can accomplish more in giving your customer a handsome, attractive looking home by using

Asphalt Shingles

"The Roof that Stays Young"

Few other building materials, and no other roofing, will enable you to give your customers as much *value* at so low a relative cost, as with Asphalt Shingles. All of our advertising refers the buyer to his *Contractor* and *Dealer*.

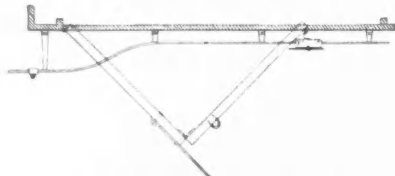
Asphalt Shingle Publicity Bureau, 955 Marquette Bldg., Chicago

Safety Door Hanger Company of Ashland, Ohio. The design of this hanger was based upon the requirements named. The hanger is used on two doors, two hanger sets being used with four doors on a double garage.

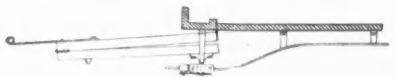
The top view in the illustration shows the doors in the closed position. There is no chance for rain or snow to get into the garage when the doors are closed. The door opening may be made the entire width of the building if desired. The center view shows the doors partially opened. Since these doors operate very easily it is not necessary to



Section Thru Doors, Closed.



Doors Swung Out Partly Open.



Doors Fully Open and Out of Way.

have a separate small door which can be used instead of the large doors. The bottom view in the illustration shows the doors entirely opened. The door opening is absolutely free and clear and no space is required on the inside of the garage. The doors do not require any space inside of the garage at any time during the opening

and closing process. By means of an automatic catch the doors are held firmly in both the wide open and entirely closed positions.

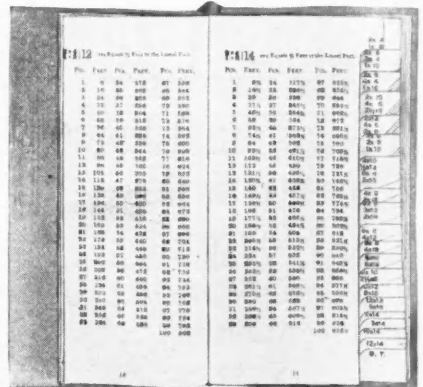
The hanger sets are furnished complete with all necessary hardware and instructions for fitting. More complete information may be obtained from the Safety Door Hanger Company, Ashland, Ohio.

Lumber Users' "Short-Cut"

The accompanying illustration below shows page 11 of the latest edition of the Perry Lumber Reckoner, a 10-page pocket-size "rapid fire" method of figuring lumber. The owner of a Perry Reckoner avoids the risk of a costly error in one of the steps of computing board feet by pencil. Instead he merely opens the book to the page showing the size he is figuring, runs down the column to the correct number of pieces and copies off the final result. In this way it not only avoids many hours of pencil figuring every year, but also avoids expensive mistakes.

Any number of pieces of any size may be figured in this way, which makes the book an invaluable companion to the contractor.

The story is told of an Ohio user who, a few years ago, when he found that the edition of that year was exhausted, chained his copy to his desk rather than take the slightest risk of losing it.



Marginal Index is a Helpful Feature of Perry Lumber Reckoner.

Any person interested may give the book a 5-day trial by writing Benjamin L. Jenks, Publisher, 1202 Marshall Bldg., Cleveland.

(Trade Notes Dept. continued to page 154)

SYKES

EXPANDED CUP METAL LATH

A Backbone of Strength For the Stucco House

Self-Furring—Saves 5 to 10 cents a square yard

This is the lath with the cup that holds the plaster or stucco and makes a solid backbone of everlasting strength. Also it saves the price and labor cost of furring strips. Extra weight—because Sykes strands are wider than those of other laths of same gauge—gives extra strength. And that makes it easier to work over. Can't be applied wrong. Best lath for interior as well as for exterior work. Approved by architects and by U. S. Government.

Free Sample and Booklet. Specifications for Stucco on Metal Lath. Write

Sykes Metal Lath and Roofing Co.

504 River Road Warren, Ohio

Alliance Multi-Color Ruff Brick

Manufactured by The Alliance Brick Co. Alliance, Ohio

Alliance Multi-Color Ruff Brick excel all other brick as to beauty of coloring. The chromatic scale of colors runs through the beautiful Rough-texture faces, most of the individual brick showing on the face of each brick three or four or more of the seven primary colors or their shades--gun metals, wines, chocolates, browns, ox-blood reds, buff tones and multi-colors.

These brick are made of Ohio Shale of the highest grade. They are thoroughly vitrified, permanent in color, standard in size--right in every characteristic. They are being used in many of the finest buildings in America.

Mr. Dealer, these brick will get you business. If they are not represented in your territory, write for agency terms, both on the brick for buildings and for fireplace designs.



Alliance Multi-Color Ruff Brick Fireplace No. 2--Price, \$30

Height 4' 11"; Width 5' 5"---Opening 2' 4½" High, 2' 6" Wide---Projection from Wall 13" Shelf 16"

These dimensions can be varied somewhat, to meet requirements.

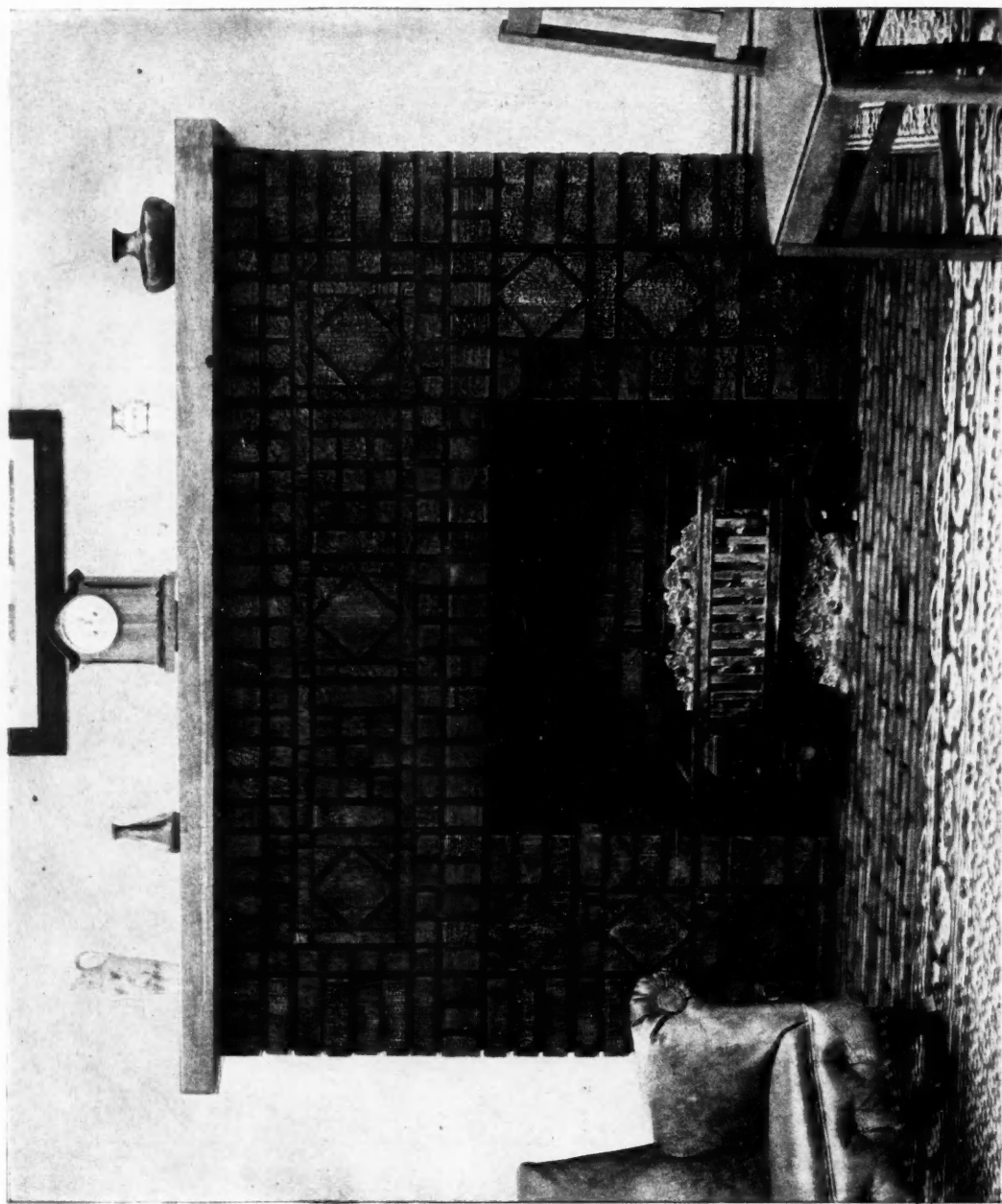
Price includes all plain and special brick for facing and for backwall and sides of opening, all brickettes for hearth and underfire (no wood shelf or ironwork), all properly packed and delivered f. o. b., Alliance, Ohio.

Brick are rough-face, 2¼x4x8¼ inches. "Brickettes" in hearth are smooth-face, 1x2¼x8¼ inches.

A "Setting Drawing," showing floor plan, elevations, correct flue design, and complete and definite scaled drawings for erection, is furnished with each fireplace.

Sample brick will be sent if desired.

To make a happy fireside clime
For rooms and wife—
That is the true pathos and sublime
Of Human Life.—Burns.



Alliance Multi-Color Ruff Brick Fireplace No. 3--Price, \$50

Height 5' 7"; Width 7' 5"---Opening 3' High, 3' 5" Wide---Projection from Wall 13", Shelf 17". Dimensions can be varied somewhat, to meet requirements.

Brick are rough-face, 2 1/4 x 4 x 8 1/2 inches. "Brickettes" in hearth are smooth-face, 1 x 2 1/4 x 8 1/4 inches.

Price includes all plain and special brick for facing and for backwall and sides of opening, all brickettes for hearth and underfire (no wood shelf or ironwork), all properly packed and delivered f. o. b., Alliance, Ohio. A "Setting Drawing," showing floor plan, elevations, correct flue design, and complete and definite scaled drawings for erection, is furnished with each fireplace. Sample brick will be sent if desired.

THE ALLIANCE BRICK CO., ALLIANCE, OHIO

Dealers wanted in all territory.



“I Roofed That House

—and let me tell you that it was the beginning of big things for me. It was my first sale of Neponset Twin Shingles—and after that I had pretty easy sailing. You see there are so many points of superiority in Neponset Twin Shingles that I don't have to argue about their good qualities to my customers.”

A roof of Neponset red or green shingles is about the finest advertisement a dealer can have.

NEPONSET TWIN SHINGLES

are pleasing to the eye — you can't imagine more handsome shingles. They sell on appearance and *stay* sold on everlasting wear and fire-resistance.

If you want to know how to make more money — if you're not satisfied with your present business, just fill out and mail the coupon on this page. The information it will bring will open your eyes to a new and bigger opportunity. Be curious and send in the coupon.



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

Please send me information about Neponset Twin Shingles and Neponset Wall Board. Also a copy of your book, "Repairing and Building." This request does not obligate me in any way.

Name.....

Address.....

The Willis Line of Sheet Metal Products

We are informed that the Willis Manufacturing Company, Galesburg, Illinois, have recently placed on the market a hog-house skylight which is meeting with wonderful success.

These skylights have many advantages, being strongly constructed, low priced and are such that very little work is required in setting them in place.

Builders that do not have the Willis Catalog should write for it. It is a most complete reference book, its 170 pages are full of illustrations and information of particular interest to every progressive builder. This catalog illustrates metal windows, fire doors, metal ceilings, skylights and ventilators and numerous other building products, in fact everything in sheet metal building materials. The line is so complete that this catalog is of great value as a reference book and buying guide and should be in your files.

The Willis Manufacturing Company is located on the main lines of two great railroads. Their central location means low freight rates and good service to every part of the country.

Any reader wishing a copy of this catalog, should write for it now and have it where they can make use of it for the beginning of this year's building season.



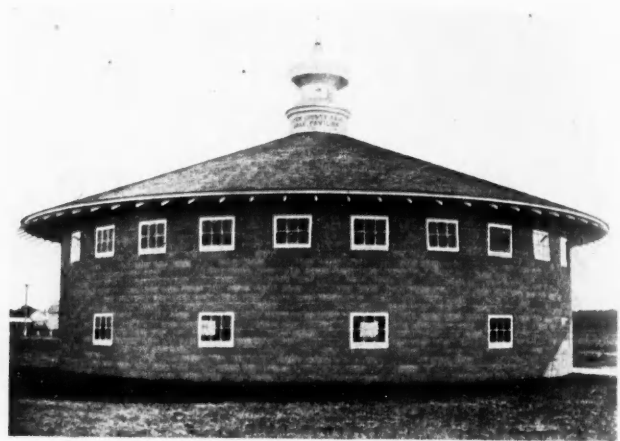
Concrete Block Sale Pavilion

One of the permanent buildings on the Lyon County Fair grounds at Rock Rapids, Iowa, is the concrete block sale pavilion shown in the accompanying illustration. The building is circular and is well adapted to its use, as well as being solidly constructed, well ventilated and well lighted.

The outside diameter is 53 feet 6 inches and the walls are built from Anchor continuous air space blocks reinforced with $\frac{1}{4}$ -inch rods running continuously in each course of blocks. The reinforcing rods are placed in the grooves in the blocks.

The height of the wall is 16 feet, projection of the roof is 4 feet and pitch of the roof is 5 inches to the foot.

The building is floored with concrete and is fitted with portable seats on both sides of a central driveway 16 feet by 53 feet. The photograph shows the pavilion from the side. There are two roller doors 8 feet by 8 feet at the ends of the driveway, not shown in the illustration. The roof board-



Sale Pavillion of Anchor Blocks at the Lyon County Fair Grounds.

are made from common sheathing cut into strips $1\frac{1}{2}$ inches in width and laid on continuously, giving a finished appearance to the inside of the building. The total cost of the building, including seats and all fixtures and materials, was \$1960.

Machines for making the continuous air space blocks are manufactured by the Anchor Concrete Stone Company, Rock Rapids, Iowa.

"The One Asphalt Shingle Roof That Can Be Depended Upon"

SEE WHAT THEY SAY IN ARKANSAS

G. M. Patterson, builder, Heber Springs, Ark., writes Dec. 29, 1916: "In July of this year I sent you an order for Winthrop Tapered Asphalt Shingles to roof a bungalow for F. R. Cline of this place. My specifications called for an asphalt shingled roof

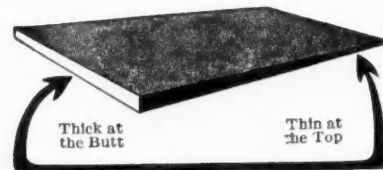
"There were several roofs in this town laid with Asphalt Shingles, and I examined each roof and found many warped and buckled shingles, especially up valleys where metal was used for the valley, and on each roof there were some leaks. I about decided that Asphalt Shingles were a failure and tried to talk my client out of the notion of laying an Asphalt Shingle roof. As a last resort (having your literature) I sent to you for a sample and later decided to try your roof. I laid some of this roof in the hottest weather in August, and before passing judgment on it I have waited until we have had weather eight degrees below zero (as cold as it ever gets here) and I find that there is not a warped nor buckled shingle on the roof, and I now believe it is the one Asphalt Shingle roof that can be depended upon. I also used your Asphalt Valley.

"In laying the above mentioned roof, I used $1 \times 4\frac{1}{2}$ kiln dried material for sheeting and nailed each course into a separate run of sheeting."

Winthrop Tapered Asphalt Shingle

These are the modern Asphalt Shingles. They are the only Asphalt Shingles made like a wood shingle—thick at one end and thin at the other. They lay easily and naturally. Come in red, gray-green and slate-black. Builders prefer them because they do not rot, rust, crumble, absorb moisture, rattle, discolor rainwater or attract lightning and are fire-resisting.

Do not lay another roof until you send for a sample of Winthrop.



THE BECKMAN-DAWSON COMPANY

Factory: Argo, Ill.

ASPHALT SHINGLES

1413 Y. M. C. A. Bldg., Chicago, Ill.

"Not a Warped Nor Buckled Shingle"



Country Home of Major F. B. Barrett, Riverside Drive, near Red Bank, New Jersey. Roofed with 50 squares of red Rex Wide Space Shingles.

A Modern Parable

The Big Barn is afire!!!!

The Master of the House frantically telephones the Village Fire Department!

A strong Wind is blowing, and the Fire rapidly gains headway while the Firemen cover the Four Miles!

The House is less than two hundred Feet from the Big Barn, and a hail of Sparks is being driven with the Wind toward it!

There has been no rain for two weeks, and the Roof is dry as tinder!

There is no adequate Water Supply for the Fire Fighters!

"It's caught!"

"It's afire!"

"The House is going!"

Tomorrow the Newspapers will carry detailed items..... "Hillcrest, the beautiful Country Home of _____ wealthy manufacturer, was burned to the ground late yesterday afternoon while its Owner helplessly watched the Destruction."

Moral:

The Wise Man builds for Protection.

Rex Products

Protect your Home from Fire

The following REX PRODUCTS, as listed in our General Catalog No. 20 now bear the Class "C" label of the Underwriters' Laboratories, Inc., by direction of the National Board of Fire Underwriters.

Class "C" is the highest class to which Asphalt Shingles and Prepared Roofings in rolls (rag-felt type), single thickness, are admitted. REX PRODUCTS which have received this classification are:

- Rex Strip Shingles, Slate Surfaced.
- Rex Wide Space Shingles, Slate Surfaced.
- Rex Shingles (Individual), Slate Surfaced.
- Rex Roofing, in rolls, Slate Surfaced.
- Rex-tile Shingles, styles A, D, G.
- Rex Flintkote Roofing, 2 and 3 ply, in rolls.
- Zarex Roofing, 2 and 3 ply, in rolls.
- Mikado Roofing, 2 and 3 ply, in rolls.
- Rex Valley and Ridge Strip, in rolls.
- Rex Red Roofing, in rolls.
- Regular Paradux (Rex Canvas Roofing), in rolls.

Catalog No. 20, Samples and Prices submitted on request

It contains valuable information about all kinds of Roofing Materials

FLINTKOTE MANUFACTURING COMPANY, INC.

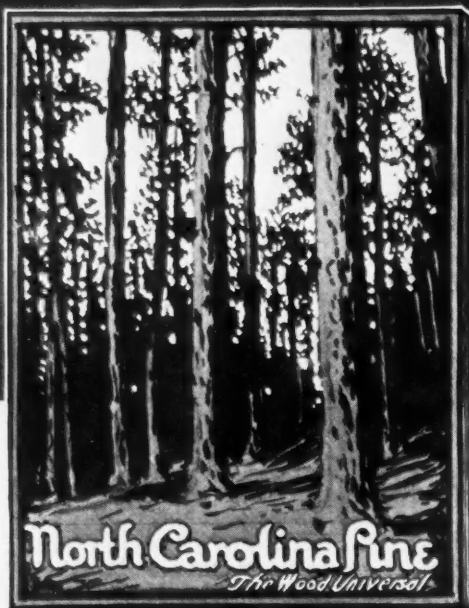
90 Pearl Street, Boston, Massachusetts

NEW YORK
1102 Equitable Building

CHICAGO
659 Peoples Gas Building

NEW ORLEANS
709 Hennen Building

We cheerfully credit the idea for the above advertisement to an article which appeared in the December issue of "CONSTRUCTION"



This Valuable Book FREE to You

If you have not already secured your copy of our excellent Reference Book for Contractors and Architects we want you to send for yours today. It's free for the asking, and of such practical value that every contractor, carpenter or builder should have a copy. Besides discussing general building subjects, it acquaints you with the merits of

NORTH CAROLINA PINE

"The Wood Universal"

Without exaggeration of facts, no other wood will impress your customers more favorably or open up to you so many avenues of trade and profit.

North Carolina Pine possesses every desirable quality, particularly when used as interior trim or flooring. Being free from resin to a high degree, it takes stains and enamels in splendid shape. Its cost, moreover, will satisfy the customer who wants economy without sacrificing quality.

Ask for Any or All of These Books

We also have other books, equally helpful, as follows: Home-Builders' Book, containing information on home-planning and building; A Book of Home-Interiors, with illustrations and facts on this subject.

Any or all free on request.

North Carolina Pine Association
72 Bank of Commerce Building
Norfolk, Va.

Good Concrete Mixer at Low Cost

The time has arrived when most contractors find it necessary to have a concrete mixer ready to place their foundations, footings and any number of other items in the average contract which they are awarded. From their own standpoint it is more satisfactory to place the concrete themselves because of the loss of profit and inconvenience of subletting a part of the work. From the standpoint of the owner, it is more satisfactory because it saves time and centers the responsibility in one contractor.

The best concrete mixer for the average contractor is the one which will mix a moderate quantity in a short time, in a thoro manner without delays due to mechanical difficulties. In order to meet these requirements, the mixer must be substantially constructed of good materials with few moving parts and well protected bearings.

The illustration shows a concrete mixer which is giving satisfaction in the hands of a great many general contractors. This mixer is manufactured by the Frank Manufacturing Company, 241 Century Building, Des Moines, Iowa. The design embraces the quality of simplicity in a marked degree. There are few parts to wear out and all parts are so easily accessible that little difficulty is experienced in keeping the machine in good working order.



Showing the "Frank" Concrete Mixer and Housed Gasoline Engine Mounted on Truck.

The blades may be brought to rest, while the mixer is being loaded, by means of a friction clutch. The drum is emptied by means of the gate shown in the illustration. Any amount may be taken directly into a wheelbarrow without the use of a chute. The open drum makes it possible to tell the exact condition of the mix at any time. This drum has the further advantage that it is very easy to clean.

The company will furnish complete information to anyone interested.



The Guernsey Silo

The value of a silo or a number of silos on the farm is well known. The government, state agricultural departments, university and college agricultural departments and successful raisers of stock have adopted the silo and are enthusiastic advocates of this method of feeding. It stands for safety from unexpected weather difficulties, better regulation of feeding and more certain profits.

A booklet is being distributed by the Guernsey Clay Company of Indianapolis, Indiana, which illustrates and describes a type of silo which is finding wide favor among farmers. The cover design of this booklet is shown in the illustration.

(Continued to page 158.)

1866 CURTIS WOODWORK

"The Permanent Furniture for Your Home"



The contractor on this house found profit and satisfaction in CURTIS Woodwork

Worth Its Price

CURTIS Woodwork comes to you just as near ready to put in place as it is possible to make it. The home builder may pay a little more for having it so, of course. But the machining and fitting that we do is worth far more than this moderate difference in cost. Somebody has to get your woodwork ready, and our equipment enables us to do it *cheaper* and *better* than if you hired labor for the purpose. Hence, the cost to the owner is probably less in the end and your work is faster and more profitable to you.

Everything combines in Curtis Service to make jobs easier for you and to make your profit more sure. On-time deliveries, for which Curtis is famous, reduce to a minimum the risk of loss through delay. A Curtis dealer will tell you of other ways in which Curtis Service will help you solve your particular problems. Let us put you in touch with him. Address

The Curtis Companies, Service Bureau

1634-1734 S. Second Street, Clinton, Iowa

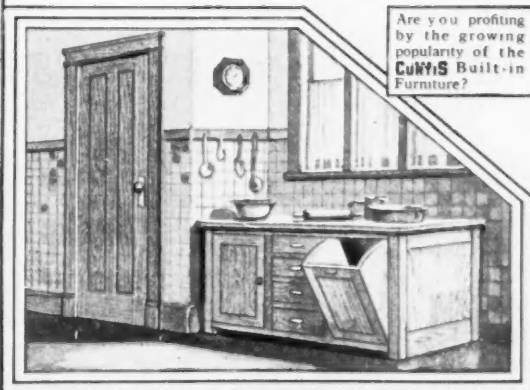
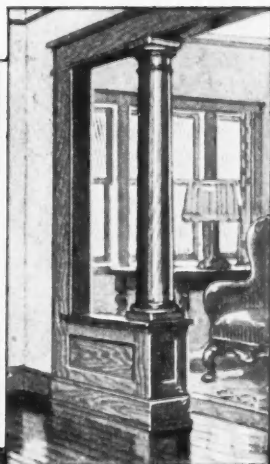
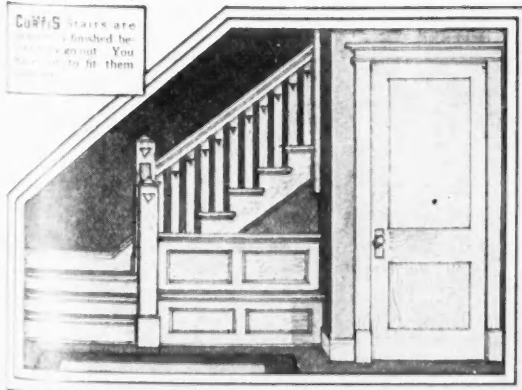
Manufacturing and Distributing Plants at

Clinton, Iowa Lincoln, Neb. Minneapolis Wausau, Wis. Chicago Eastern Offices at
Oklahoma City Sioux City, Iowa Detroit Topeka, Kan. Pittsburgh and Washington

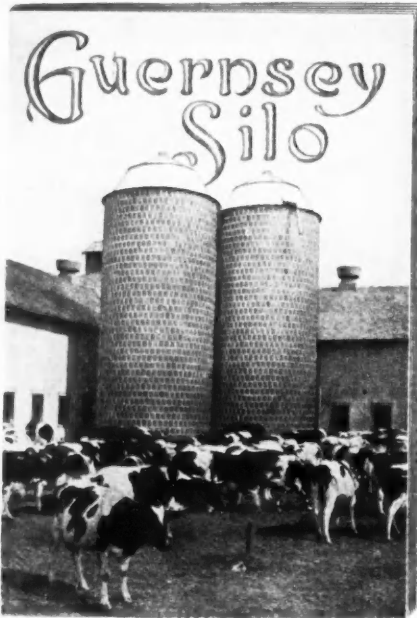
The Makers of CURTIS Woodwork guarantee complete satisfaction to its users.
"We're not satisfied unless you are."

- Doors
- Windows
- Window & Door Frames
- Storm Doors & Windows
- Screen Doors & Windows
- Stairways
- Newels
- Sideboards
- Colonnades
- Bookcases
- Mantels
- Window Seats
- Wall Panels
- Ceiling Beams
- Mouldings
- Porch Columns
- Porch Rail
- Porch Balusters
- Everything in Woodwork

CURTIS stairs are always finished before they are set. You can't fit them in.



Are you profiting by the growing popularity of the CURTIS Built-in Furniture?



Cover of Guernsey Silo Booklet Showing Silos at the National Military Home, Dayton, Ohio.

The two silos are those erected for the Government at the National Military Home at Dayton, Ohio. Each of these silos is 16 by 40 feet, constructed of Guernsey rock face hollow tile.

The tile blocks for the Guernsey silo come in two styles of finish, the smooth face and the new rock face. There are three different forms of blocks, the regular wall block and two sizes of end blocks for the door of the silo. The two

forms of door blocks are necessitated by the arrangement of joints between blocks. The inner surface of the blocks is a plain finish, giving the smooth wall surface so necessary for the proper packing of the silage. The wall blocks are twelve inches high and nine inches wide on the outside. They are eight inches in thickness with an air space of six full inches.

Twisted steel is used to reinforce the Guernsey silo. The steel rods are embedded in cement in a slight depression just

inside the outer edge of the tile. The steel does not stop at the door, but runs across the door itself, just under the angle-iron door bar. Every joint between tile blocks is reinforced by a tile clamp. The tile are placed with the air space vertical, which makes it possible to secure a perfectly tight joint between tile.

Only a very few of the interesting features of Guernsey silos have been mentioned. This booklet contains a great deal of important information written in an interesting way and well illustrated. Builders interested in farm construction work will find a great deal that is valuable in it. Write the Guernsey Clay Company at Indianapolis, Indiana, for a copy of the booklet.



The "Contractor's Atlas"

Prosperity for the contractor means the same for the materials manufacturer. This has been realized by the Atlas Portland Cement Co., 30 Broad St., New York, and in order to promote prosperity for the contractor the company issues its "Contractor's Atlas" every month. It gives many practical pointers on the uses of cement and methods of handling the work.

In the December issue illustrated notes are given on various devices for loading and unloading motor trucks.

A method which can be used for accurately estimating concrete work is also given.

"Methods Employed in Waterproofing Concrete" is the title of one article.

Several good drawings, accompanied with description, are shown of small-form structures of concrete, also a concrete block garage. On the concluding page of this issue is a table, "Quantities of Cement, Sand and Stone Required to Make One

(Continued to page 160.)



Owner's dining room in 2-flat building of Wm. J. Strom, 7616 Rogers Ave., Chicago. An attractive example of the wise use of **birch**.

Permanent Satisfaction

Intrimming with "Beautiful **birch**" there is not only the satisfaction of giving your customer what he ought to have and of doing a good and profitable job in a wood which ranks with the imported hardwoods; there is also the satisfaction of making a permanently satisfied owner who will be a standing advertisement for YOU. For "Beautiful **birch**" has a beauty that wears well. The longer you live with it the better you like it.

FREE: For your convenience in showing the stunning effects possible in "Beautiful **birch**" we will gladly send you a set of finished panels and a handsome illustrated book.

The Northern Hemlock & Hardwood Manufacturers' Association

Offices, 201 F. R. A. Building

Oshkosh, Wisconsin

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Woods and Their Uses

ALL woods have certain uses for which they are especially adapted by reason of the peculiar qualities and characteristics which nature has given them; and on their proper selection for these uses, hinges the whole problem of economy in wood construction.

Three centuries of experience in this country have demonstrated that no other wood lasts so long or gives such satisfactory service as

WHITE PINE

for outside finish lumber—siding and corner boards; window sash, frames and casings; outside doors, door frames and casings; outside blinds; all exposed porch and balcony lumber; cornice boards, brackets, ornaments and mouldings; and other outside requirements, *not* including shingles.

If the lumber dealers supplying your clients are at any time unable to furnish it, we should appreciate the opportunity of being helpful to you in securing it.

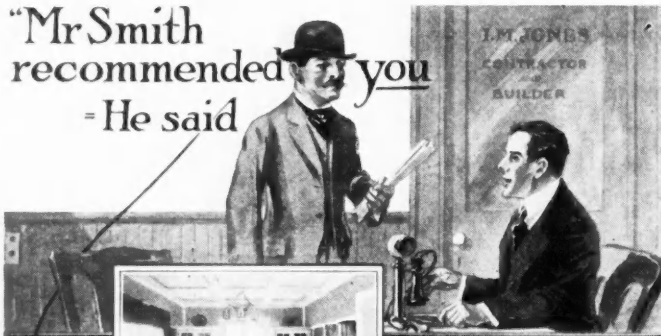
A Free Magazine for Contractors

We are now publishing a bi-monthly architectural magazine, every issue of which is 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.

*WHITE PINE BUREAU,
1235 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

**"Mr Smith
recommended you
- He said**



"That room was done by Jones - he used BLACK ROCK WALLBOARD"



The only way to get ahead in the world is to build well — whether you build a house or build a business.

If you are in the building business, the only way you can build your business in a big way is to do each day's building so well, that when you build for Mr. Smith—he will go to Mr. Brown — and he will say to Mr. Brown:



"If you want your building done right go see Jones" — (or whatever your name may be).

That sort of mouth-to-mouth advertising will come your way if you use Black Rock Wallboard. Ask us to send you a stock-sample of Black Rock Wallboard.

When you get this, look at the black center. Examine this "backbone" of the board. Take your knife and cut the board in pieces.

Notice the veneer process by which the board has been built up. Then you will see why Black Rock is staunch. Each of the 4 piles are made by the compression of six separate sheets of tough fibre, carefully selected for its high meshing quality.

You will find in Black Rock Wallboard a board that "handles like lumber." Its moisture-repellent black center makes it (in some ways) better than lumber.

Send now for a sample of Black Rock and you will soon find how to build your business by doing your building with the kind of a wallboard which makes your customers practical salesmen for you.

MAIL THIS COUPON TODAY

**The Black Rock Wallboard Co.
1510 Ontario Pl., Black Rock, N. Y.**

Please send me stock sample of Black Rock Wallboard and booklet showing Black Rock jobs.

Signed
Your name

.....
Your address

Cubic Yard of Rammed Concrete." It will be found handy by all contractors and builders.

"Contractor's Atlas" will be sent free on request. Write for it. You will find it interesting as well as instructive.



**Best Chicago Cement Show
Coliseum, Feb. 7-15**

With the Coliseum main floor, balcony and annex filled with exhibits of concrete products and concreting equipment, the Tenth Chicago Cement Show offers architects, engineers, contractors and dealers the best opportunity the show has yet offered to study materials, machines and products which are representative of the best and latest in the cement industry. The exhibits, occupying 289 spaces, are more representative of standard and novel concreting equipment and the products are more illustrative of the possibilities of concrete than heretofore. The use of the balcony instead of the Armory should enable visitors to make comparisons with greater facility.

The joint exhibit of cement companies at the coming show will be a comprehensive demonstration of the uses of concrete, and particular attention will be given products in the making.

Mrs. George M. Fabyan of Geneva, Ill., will exhibit many specimens of ornamental concrete from her Riverbank Studio. Mario Silvestri and his associates have produced concrete which is remarkable for its minuteness of detail and beauty of surface finish. The Etruscan vases and Russian wolf hounds which Mrs. Fabyan will exhibit, cast as they are in many-piece molds, typify the artistic side of concrete, and the work is certain to be appreciated as representative of the best of its kind.

Among the more novel of the machinery exhibits is the display of the Pneumatic Concrete Placing Co. By means of this equipment concrete has been placed in forms more than a half mile distant from the place of mixing. In this exhibit concrete will be driven fully 200 feet thru pipes.



Mrs. George M. Fabyan of Geneva, Ill., Whose Exhibit of Ornamental Concrete Will be One of the Interesting Features of the Coming Chicago Cement Show.

Cornell-Wood-Board

(GUARANTEED)



Easy to Buy and Apply

You Can Nail New Business

with Cornell-Wood-Board for walls, ceilings and partitions of *Homes, Stores, Offices, Schools, Churches, Theaters, Garages, Farm Buildings, Repairs and Alterations and for a Hundred Different Out-of-the-Ordinary Uses.*

The building public is learning the marked superiority of Cornell-Wood-Board over the ordinary wall-boards.

Recommend Cornell for prospective work and show the builder distinctive Panel Suggestions (which we draw up on request) and *you will land the job nine times in ten.*

Cornell-Wood-Board nails direct to the studding or right over old walls. Decorates perfectly with paint or kalsomine. Lasts as long as the building. A remarkable resistant of cold, moisture and fire.

Cornell Department of Design will draw up distinctive Panel Suggestions with Cost Estimate for any room or rooms if you will send dimension sketches or blueprints. You are not obligated by this service. In writing mention American Builder.

CORNELL WOOD PRODUCTS COMPANY

C. O. FRISBIE, President

173-175 West Jackson Boulevard, CHICAGO.

Mills: Cornell, Wis.

-----COUPON-----

CORNELL WOOD PRODUCTS CO., Dept. T-3, CHICAGO, ILL.

Please send me sample and complete information—or—send Panel Suggestions as per dimensions enclosed. I am placed under no obligation by this service.

Name _____ Address _____

Modern Farm Lighting

The farm home, above all others, should be equipped with an adequate and efficient lighting system. Where the family interests are varied, in the city, and the different members of the family spend the evening hours largely away from home, the lighting of the home is given more consideration than in the country where the farm home is the center of interest and the family is more likely to spend their evenings reading or in other ways using their eyes under artificial light. This is not logical and it is gratifying to see that there is a tendency in operation to correct the fault.

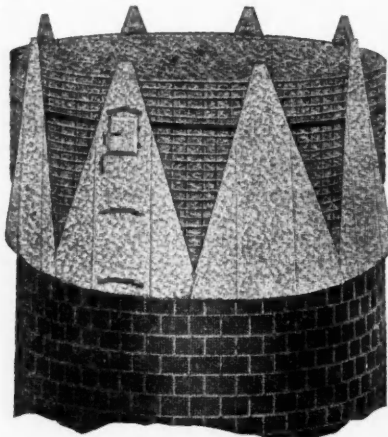
There was a time when the old kerosene lamp had no competition in farm lighting. That time has now passed and the farm home may be lighted just as effectively as any city house. Aside from the primary result—more and better light—there has come a greater convenience together with less danger from fire. The advantage of the new system is felt, not only in the house, but also in the other buildings. Imagine the difference in working in the barns by the feeble light of a lantern and by the brilliant light of incandescent lamps placed where they are most needed and ready always at a finger's touch.

The contractor or builder engaged in farm building is the logical man to install modern lighting systems on the farms in his vicinity. The facts concerning the installation of lighting plants are available and a little study will fit the average builder for the work, which will be found at the same time interesting and profitable.

The United Engine Company, of Lansing, Mich., wishes to interest contractors and builders in the sale and installation of United Electric Lighting Plants. These plants are made in three sizes, capable of furnishing 20, 40 and 60 16-candle-power lights, respectively. The company will cooperate in every way to start contractors and builders in this work. Full particulars may be obtained by addressing the United Engine Company at Lansing, Mich.

Metal Roofs for Silos

In their folder the Silo Specialty Manufacturing Company, Box 497, Clinton, Iowa, describe several types of sheet-metal silo roofs besides a number of differently designed feed door chutes for silos.



The Winner Roof Opened. It Is Filled Above the Walls. This Will Make a Full Silo When Settled.

The Winner opening silo roof is one thing to which special attention is paid. This roof, as all others made by this company, is made from No. 26 gauge galvanized iron and is furnished with a ventilator.

The roofs are easily put on any silo, whether old or new. A wrench is the only tool that is needed; and the roof will fit the silo which is oval as well as the ones which have not been erected so long and for that reason are still round.

The illustration shows the silo roof open. The wire cribbing is put in place and the silo filled from 5 to 8 feet higher than its walls extend. After the silage has settled it comes just about to the top of the walls. The hinged sections of the roof are then closed and form a pyramid roof with eight sides.

Improve your knowledge on silo-construction and write for details regarding this and other silo specialties.

(Trade Notes Dept. continued to page 166)

WATERPROOF PLASTERGON WALL-BOARD

(See how this 10-foot panel stands straight without bending. Send for actual photo.)



Certain Satisfaction

Time has proved Plastergon to be the most scientific wall board. The price of Plastergon, its low cost to apply and paint, is its proof of better profits to you. Be safe. Use Plastergon. Our users say: Plastergon has no equal at any price.

Your Safeguard in buying (No. 8)

"Our last order arrived in good shape. We think it the best board on the market for the money."
W. H. KING, Geneva, O."

Samples and our "Contractors' Practical Working Guide" sent free. Send the name of your Lumber or Builders' Supply Dealer.

Plastergon Wall Board Co.
1 Philadelphia Ave., Buffalo, N. Y.



Dollars for **you**, Mr. Carpenter! Ceil-Board has the call for interior finish in attics and basement rooms, offices and factories, garages, cottages, and all kinds of modern buildings, and buildings that are to be modernized.

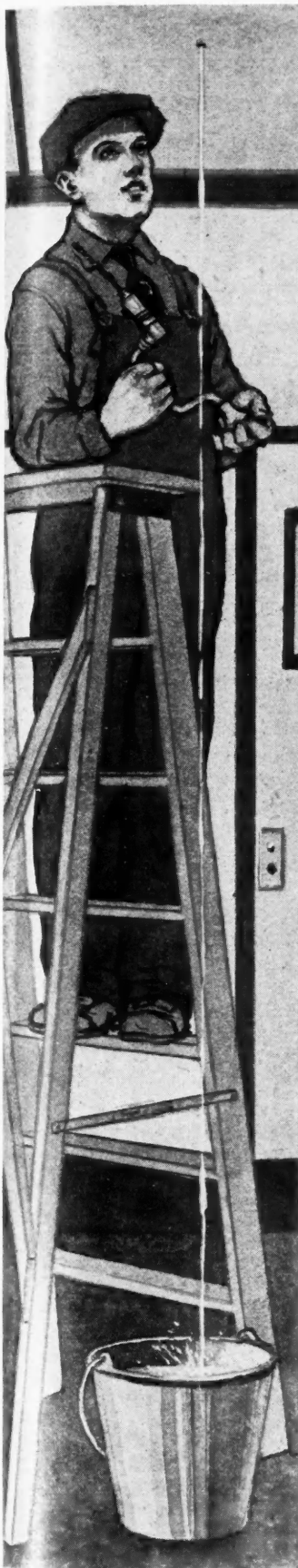
The price is attractive to your clients and the margin for you is big. Your cheapest help can apply Ceil-Board with no tools but hammer and nails.

Write for samples, prices, etc.

The Philip Carey Co.

1021 Wayne Ave., Lockland,
Cincinnati, Ohio





This is a photograph showing the Beaver Board ceiling which was flooded. In the Store of Mel Moorhead, McDonald, Pa.

Bursting Water Pipes Did Not Damage this Beaver Board Ceiling

Patent *Sealtite* Moisture Proofing Causes Beaver Board to Withstand Unusually Severe Test

What better proof of the moisture resisting quality of Beaver Board could anyone ask than this.

Here's an instance in which a Beaver Board ceiling stood up under a flood of water from a bursted pipe. The water was drained off and the ceiling remained uninjured.

"Today," says the owner of the store, "you wouldn't know it had happened."

A lath and plaster ceiling would have fallen under such a severe test, possibly inflicting costly damage to the dealer's stock.

The splendid performance of Beaver Board under this and other equally unusual conditions testifies to the practical value of the patented *Sealtite* process of moisture proofing which is applied only to the original Beaver Board.

Here is the story just as told by the owner of the store:

McDonald, Pa.

The Beaver Board Companies,
Buffalo, N. Y.

Gentlemen:

In regard to our being satisfied with the Beaver Board, we are more than pleased, in fact it is much better than we expected. Shortly after we moved into our new building, a water

pipe from an adjoining building burst in such a way that it flooded one section of our first floor ceiling, the water lying on this ceiling 24 hours before it was discovered. We then made a small hole and drained the water off. We never had to repair it and today you wouldn't know it had happened. We have Beaver Board on every floor and in the basement, which sometimes gets exceedingly damp, but the Beaver Board shows no sign of being affected.

We had Beaver Board specified on our building on account of economy, and before it was completed I was almost persuaded by a metal ceiling salesman to change it to metal at an additional cost of about \$750.00. I have been congratulating myself ever since that I did not, as I would not exchange it today if they would give me \$750.00. It is not only durable, but more artistic and much more easily taken care of, cleaned and painted. It would be a pleasure for me to recommend your product to any one interested.

Beaver Board is the original wall board. Made only from pure spruce fibre in sturdy panels, ready for the wall and ceiling. Easy to apply by strictly following directions printed on the back of every panel. Makes a clean, permanent, durable job.

Carpenters and contractors may learn more about Beaver Board opportunities by writing for free literature. Ask about the free design and decoration service.

THE BEAVER BOARD COMPANIES
132 Beaver Road BUFFALO, N. Y.

Branches in Boston, New York, Baltimore, Cleveland, Detroit, Chicago, Minneapolis, Kansas City, San Francisco, Los Angeles.

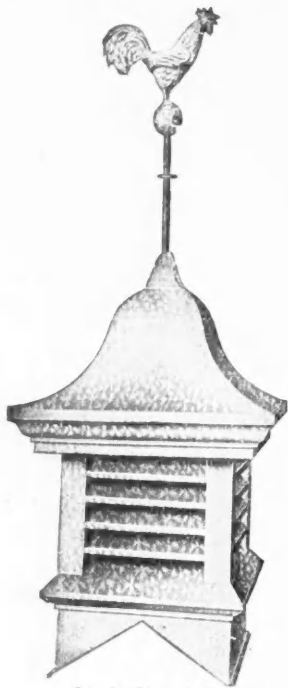


"You can't expect Beaver Board results unless this trademark is on the back of the board you buy."

BEAVER BOARD

FOR BETTER WALLS & CEILINGS

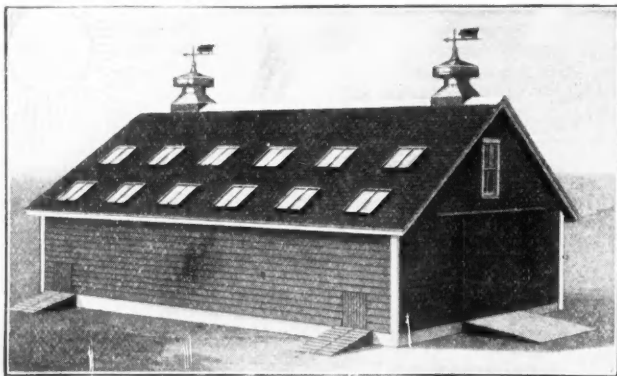
WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



Style No. 100



Style No. 264



Hoghouse Skylights

Easy to Put Up

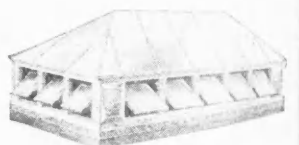
Willis Ventilators

Wherever fresh air is needed on any type of building, the Willis will do the work in the most effective manner, in the easiest way and at the lowest price. All vanes are full bodied animals.

Willis Skylights

Easy to put up and put up to stay. Greatest possible glass area for the space allowed. Guaranteed not to buckle or sag. — require no putty or solder — are absolutely watertight. Any of your men can erect the Willis; all the tools needed is a hammer and screw driver.

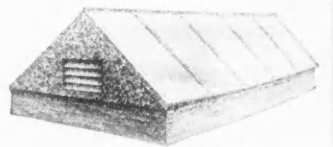
Hog and chicken house skylights make every farmer a prospective customer for yourself. Easy to set in place and very profitable. Plans of a complete hoghouse will be sent to you entirely free upon request.



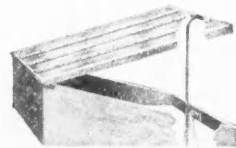
Style No. 70S



Style No. 50S



Style No. 30S



Style No. 90S

You should buy from Willis; it is convenient; our large stock saves you from ordering from several

individual manufacturers, and means immediate shipment. Our central location means low freight rates and good service to any point in the country.

DEPT.

Willis

Galesburg

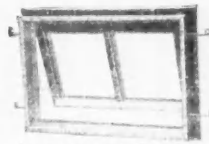


Put Up to Stay

Willis Fireproof Windows

Tested Inspected Approved
By the Underwriters' Laboratories

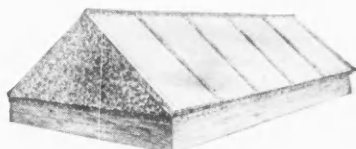
The simplest, easiest operating, and best
Fireproof Metal Windows on the market.
Available in all sizes. Made in all stand-
ard sizes. Get
acquainted with them,
they are a big talking
point in modern fireproof
construction.



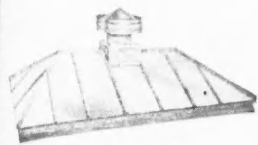
Basement Sash
and Frames



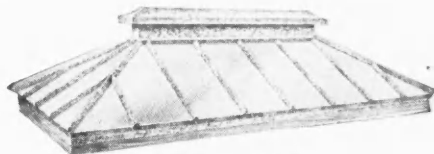
Fireproof Metal
Windows



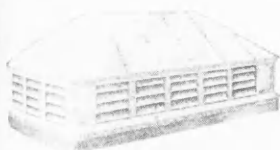
Style No. 40S



Style No. 20S



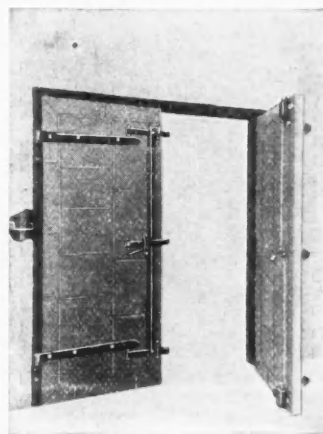
Style No. 60S



Style No. 80S

Tin Clad Fire Doors

Made in all sizes to care for all re-
quirements—bear the Underwriters'
Label. Are furnished with or without Hardware or Frames.



Swinging and
Sliding Type
Fire Doors

Write for Catalog No. 7

Get the most complete Architectural Sheet Metal Handbook. One hundred
and twenty pages full of information and illustrations of particular interest to
every progressive Builder. This book should be in your files as your buying
guide for every kind of Sheet Metal Product used in building construction.

Write today on your business stationery for your
copy of this big catalog; it's ready for you

"B"

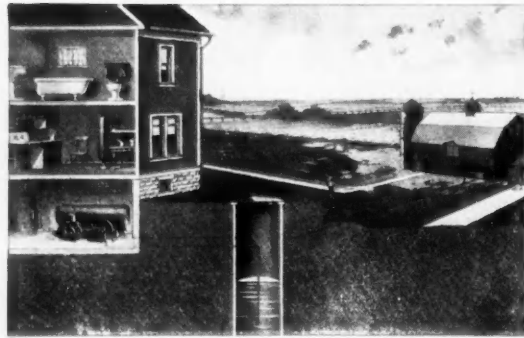


Mfg. Co.

Illinois



Convenience is the Chief Argument



Your customers will gladly "OK" DEMING

NO town or farm house today is complete without a steady, assured supply of running water, delivered under pressure to kitchen, bathroom and barn. When you can install a system you can guarantee your customers satisfaction by recommending any of the well known

DEMING

Hydro-Pneumatic Water Supply Systems

The best reference book for your own use and to show your customers is the DEMING CATALOG, a handbook completely describing the systems and illustrating their simplicity and wide usefulness. With "more than 1000 types and sizes" of hand and power pumps and water supply systems from which to choose, the DEMING line is a time-saving convenience to the busy contractor. Write today.

THE DEMING COMPANY

99 Depot Street, Salem, Ohio

Backed by 35 years' experience in pump design and construction



Fire protection is an advantage not to be overlooked
USE THE COUPON

Please send Water System Catalog to

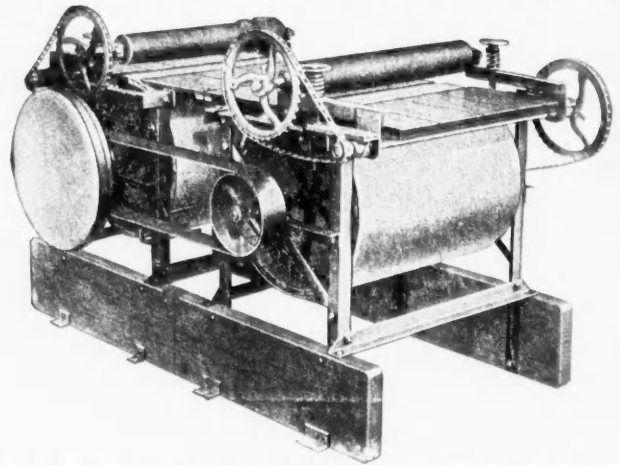


Name _____
Address _____
Town _____
State _____

[99]

Double Drum Sander

Among the new machines shown in Parks Ball Bearing Machine Company's new catalog, which is just out, is a double drum sander which meets the demands of a great many carpenter shops for a cheap, serviceable sanding machine. The machine shown is made in two sizes, 24 and 36-inches wide, and has feed rolls for carrying the material over the sand drums. Each drum is covered with Brussels carpet and



The "Parks" Double Drum Sander, Showing the Two Drums Which Insure a Perfect Job.

sand paper. Two speeds are furnished and by fitting drums with desired grade of sand paper, the machine will meet the requirements of almost any shop which does not have work to justify the installation of a high-priced sander.

Catalog No. 10, showing this machine, will be sent to any of our readers upon request by the above company, who are located at Fergus St. and C. H. & D. tracks, Cincinnati, Ohio.

❖ Ideal Service

The careful buyer of concrete products machinery today investigates the service offered by the firm he intends to deal with before investing his money, for in the service is reflected the firm's responsibility, its interest in its customers' success and its confidence in the machinery that it sells.

If the prospective purchaser would investigate the service offered by the Ideal Concrete Machinery Company, Cincinnati, Ohio, he could not fail to be convinced that Ideal Concrete Machinery is a good investment, even tho he had never seen the machinery itself.

Ideal service begins with the prospect's first inquiry. He receives information on concrete block construction, tables of materials required, and, in fact, full data on the manufacture of blocks. Then, if he wants it, the Engineering Department submits a drawing of his plant so arranged that concrete products can be manufactured economically. He also receives an estimate of the cost of the equipment required. When he orders Ideal equipment he receives full instructions for installing and operating it.

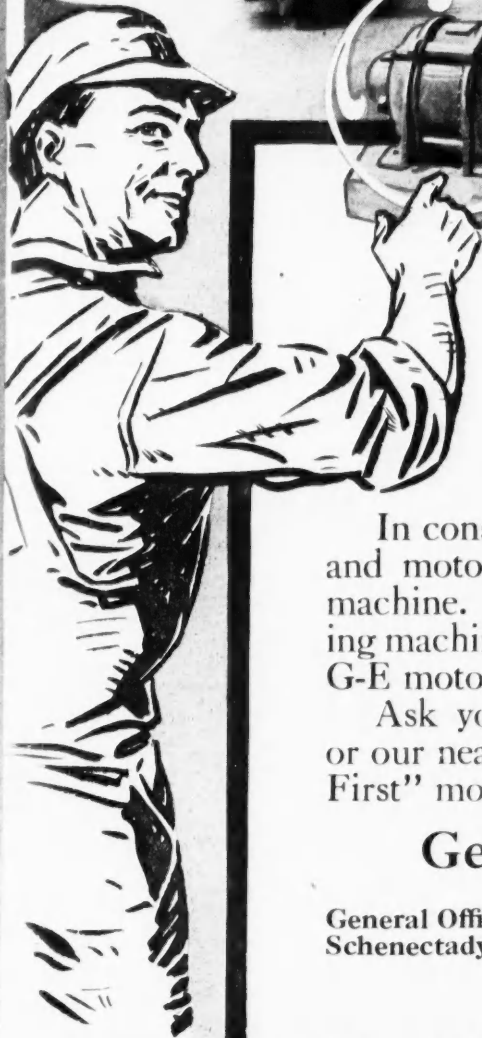
If the customer orders power machinery, the Ideal Concrete Machinery Co. install it themselves and instruct the customer in its operation. This installing service is free to purchasers of Ideal Power Machinery within a radius of 300 miles of Cincinnati. Beyond that distance the company only makes a charge for the extra time and expense in covering the distance beyond the 300-mile limit.

Ideal service does not, however, end with the sale of the machinery. They assist the customer in handling the problems that will naturally arise in manufacturing blocks and will also help him to market his product successfully thru practical suggestions.

(Continued to page 168)



You can place G-E Motors anywhere



THIS illustration shows two G-E motor drives used in woodworking shops. The glue jointer is operated by a G-E motor on the ceiling, and the edging machine is driven by a G-E motor on the floor.

In considering new equipment, have the motor and motor control made a "built-in" part of the machine. You will find that progressive wood-working machinery manufacturers are prepared to furnish G-E motors as a part of direct-driven combinations.

Ask your manufacturer, your power company, or our nearest office about G-E motors and "Safety First" motor control.

General Electric Company

General Office,
Schenectady, N. Y.



Sales Offices in
All Large Cities

2500 G-E Motor Agencies

6432

The Ideal Concrete Machinery Company feels that the expense of maintaining this service is justified as it has convinced the trade that the Ideal Company stands behind its machinery, makes a reliable product and is interested in the success of its customers.



The "Chesley" Stock Door

One of the most important accessories in the later day building construction is the fireproof door.

The A. C. Chesley Company of New York are manufacturers of a door of the improved kind, having a well equipped plant which enables them to manufacture at a minimum cost. They are producing the "Chesley" stock doors in standard sizes at prices much lower than it is possible to manufacture otherwise. This well established method has proved advantageous; orders are filled at very short notice, and with their system of establishing sizes there is no possibility of delay. Since this door has been placed on the market it has given entire satisfaction. Repeat orders are the rule.

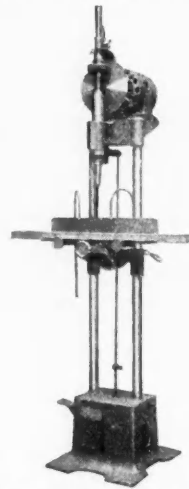
The door is made of metal covered wood, having no bolts, nails, rivets, or screws used in its construction. All metal used has a non-corrosive coating. It is made in designs to suit any condition, using plain paneling or glass insertions; this gives a great diversity of selection, and it will not fail to appeal to the well trained and experienced in building construction, as it is a light, strong, and substantially made door of very attractive appearance. This door has no crude pressed work, but every part is cleanly and mechanically made.

As it is sold to the building trade in competition with wood doors shows that it is within the reach of all.

Catalogs will be furnished upon request by A. C. Chesley Company, 277 Rider Avenue, New York City.

Superior Hollow Chisel Electric Mortisers

The Superior line of mortising and boring machines, marketed by Warren W. Morse of Hopkins, Minnesota, includes three different styles designated as style "C. V.," style "C. F." and style "C. B." In the first of these machines the hollow chisel bit is directly connected to a high-speed, heavy-duty vertical motor. The rotor of the motor turns on high-grade ball bearings of the radial thrust type and the thrust load of the bit does not bear on the rotor shaft. The high speed of the bit rapidly clears the chisel of all chips and discharges them thru ample auxiliary openings in the chisel socket. Trouble from "burnt" bits and "split" chisels is overcome.



"Superior" Mortising and Boring Machine.

Any size mortise may be obtained by moving the work on the table and repeating the cut. The bit and chisel cut and clean a square hole at every stroke of the foot lever. The table may be tilted to an angle of 45 degrees and it has a vertical adjustment range of over 15 inches. The length of the regular chisel cut is 3½ inches and mortises may be cut thru 7-inch stock by reversing the work and cutting from both sides. The over-hang of the bit is sufficient to enable one to mortise to the center of 11-inch stock. A large number of adjustments may be quickly and accurately made.

Style "C. F." is the Superior hollow chisel electric mortiser and multiple speed boring machine shown in the illustration. The bit shaft is driven by a friction pulley from the disk

(Continued to page 170.)



BULLETIN No. 1 covers the possibilities of Drain Tile as a business. This includes materials required, complete costs, selling prices and profits. It tells what others are doing in this business. How the demand is rapidly increasing and why cement tile are preferred by users.

BULLETIN No. 2 covers manufacturing. How to successfully start and operate a tile plant. Points to consider regarding location and building. Arrangement of equipment for best production. Describes different curing methods and relative costs. Tells what proportions of materials should be used and how mixed.

BULLETIN No. 3 deals with selling the product. Best methods to use for securing local business. How to get business from nearby towns. It also illustrates advertisements for use in local newspapers.

The Tile Business Fully Described

This instructive book on cement tile completely covers the three big subjects: Possibilities of the Business, Manufacturing and Selling.

It also describes suitable equipment for both large and small plants. For small plants as well as general cement products plants we recommend the Dunn No. 1 Machine, because it can be easily installed, occupying little space and can be operated successfully and profitably by 1, 2 or 3 men.

For large plants we have the Dunn Automatic, which makes a larger tile and has a larger capacity.

We Want Only Successful Plants. We investigate local conditions for any prospective purchaser. If not right, we advise you not to buy. If right, we go the limit with you. We try to eliminate failures. They are not necessary. We cannot afford that risk any more than you can, as every sale we make is absolutely on our 15 days' free trial offer—your money back if not satisfied.

Write today for this tile book. We send it absolutely free.

W. E. DUNN MFG. CO.

415 24th Street

HOLLAND, MICH.

DELCO-LIGHT



ELECTRICITY FOR EVERY FARM

Delco-Light Has Made Electricity Universal

The conveniences and economies of Electricity are no longer confined to those who live in towns and cities.

Delco-Light makes electric light and power available for farm or summer home—for rural store or church, for school, garage or factory, no matter where located.

This makes it important that every new building that is put up should be wired for electricity.

Delco-Light is a complete electric plant—gas engine and dynamo combined in one compact unit.

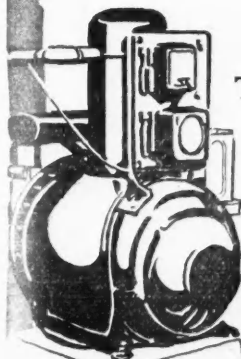
It is highly efficient, and so simple a child can care for it—starts on pressing of a switch and stops automatically when batteries are fully charged—ample lighting capacity for house and outbuildings, and will furnish power for such light machines as pump, washing machine, churn, cream separator, vacuum cleaner, sewing machine, etc.

The price complete with batteries— **\$275** F. O. B. Dayton

Be sure to send for descriptive literature

The Domestic Engineering Company, Dayton, Ohio

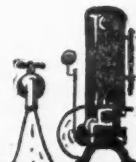
Offices in all Principal Cities



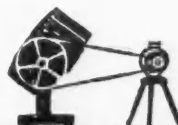
DELCO-LIGHT →



LIGHTS HOME



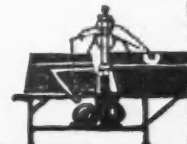
PUMPS WATER



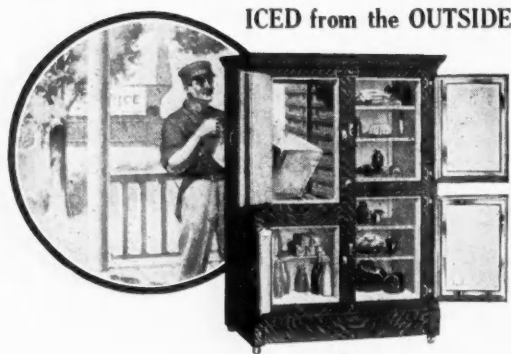
CHURNS BUTTER



SEPARATES CREAM



WASHES CLOTHES



Complete Your Plans

The plans for any building are not complete unless you have provided for scientific refrigeration. It is just as important as the heating and plumbing systems and means much to the comfort and satisfaction of the owner and occupants. Your buildings will be equipped with the most efficient refrigerating system if you specify

MCCRAY SANITARY Refrigerators

There is a McCray—either in stock sizes or made to order for every type of building from the finest hotel or public building to the smallest bungalow. When you put them in your plans, arrange for outside icing and specify the finish that will match the interior trim.

They may be arranged for either ice or mechanical refrigeration. The linings of white opal glass, enamel or odorless wood are the cleanest and most sanitary known. Food is kept fresh, cool and free from spoiling by the McCray patented system of refrigeration. All odors and impurities are carried away through the water-sealed drain and trap.

McCray refrigerators are recognized as the standard for refrigerator efficiency.

Free Plan Service

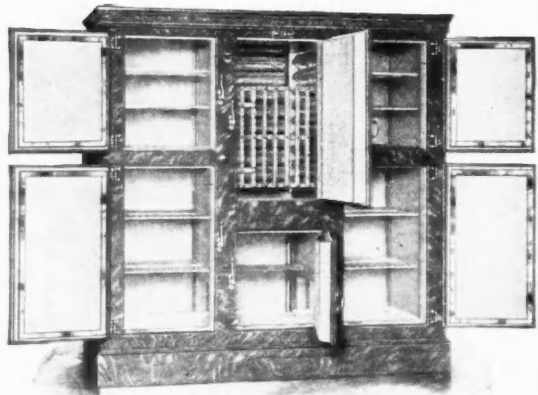
We will be glad to furnish you with suggestions, blue prints and specifications of refrigerators for any style or size building. We maintain trained architectural draftsmen and give you this service without cost.

Get these catalogs and complete your files.

No. 92 for Residences. No. 51 for Hotels, Clubs, Institutions. No. 70 for Grocers. No. 62 for Meat Markets and General Storage. No. 74 for Florists.

McCray Refrigerator Co.
760 Lake Street Kendallville, Indiana

Agencies in all principal cities



which is directly connected to a horizontal motor. Any speed of the bit shaft may be obtained up to 3750 R. P. M. This machine will handle hollow chisels up to 3/4-inch, regular boring augers up to 1 1/4-inch and special cutting tools. It is possible to do routing, gaining, milling, cutting out of core boxes and several other special operations on the machine.

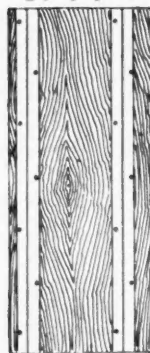
The style "C. B." machine is exactly the same as the one just described except that it is provided with pulleys for belt drive instead of the electric motor.

Complete data on these machines may be obtained from Warren W. Morse, Hopkins, Minn.



Metal Battens Prevent Open Cracks

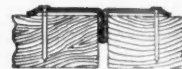
Progressive builders are now giving the metal batten strip the recognition and favor it deserves. It is becoming increasingly popular wherever known because it offers the most



Metal Battens Installed.

workmanlike solution of the problem of eliminating cracks caused by the expansion and contraction of wood.

Metal Battens of the type shown here—made by Shrauger & Johnson, Atlantic, Iowa, — have many advantages. They fill cracks between boards and produce neat-looking, strong joints that are permanently weather-proof. Being made of



When Joint Contracts.



Showing How Metal Battens Take Care of Expanding Joints.

galvanized steel, they cannot rot, rust, warp, twist or split. They always fit—are flexible enough to allow for all possible contraction and expansion of the boards without loosening the nails.

These Steel Battens have interlocking joints and are furnished in 6, 7, 8, 9, 10-ft. lengths as desired. They are easy to put on and will make any building vermin-proof. Address the manufacturers for complete information if you are interested in this modern substitute for the old-time wooden batten.

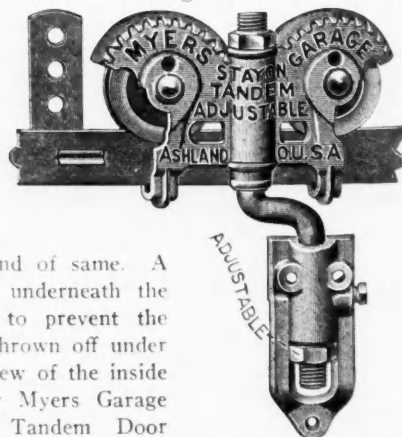


New Garage Door Hanger

A new adjustable tandem garage door hanger has recently been placed on the market by F. E. Myers and Bro. of Ashland, Ohio. The details of the hanger are clearly shown in one of the illustrations. The hanger is fitted with both

horizontal and vertical adjustments. The crank-shaped stem permits the hanger to be used in connection with any thickness of door. The vertical adjustment is made by the

nut on the lower end of same. A stayon device locks underneath the edge of the track to prevent the hanger from being thrown off under any condition. A view of the inside of a garage having Myers Garage Patent Adjustable Tandem Door Hangers installed is also shown. It will be noticed that the door passes around the corner and opens the entire front of the garage. In addition to this, an ordinary 30-inch width door is used in connection with the main door.



The Cranked Stem and Vertical Adjustments of the "Myers" Hanger.

(Continued to page 172.)

Every Country Home You Build Needs Electricity

HERE is a chance for carpenters and builders to cash in on the big, growing demand for electricity in rural districts. The up-to-date prosperous farmer is thoroughly sold on the idea of having city conveniences.

The Uni-Lectric Lighting Outfit is fulfilling one of the greatest needs in the farm home today. It is furnishing the farmer, his wife and their family with thoroughly efficient electric current—current which can be used for lights as well as for operating electric irons, vacuum cleaners, electric fans and small motors for power purposes.

The Uni-Lectric system is in reality a central service station in home size. It is a compact, complete unit and the first thing of its kind ever devised.

No Belts—No Batteries—No Complications

The Uni-Lectric outfit generates standard 110 volt direct current, exactly the same as city central service stations. The outfit comprises a small high-speed, perfectly governed, four-cycle engine and a very efficient generator, direct connected.

The whole outfit is simple and very easy to understand and operate, requiring the very minimum of care and attention. The wiring is very easily done and, if our directions are carefully followed, it is not even necessary to get the assistance of an electrician.

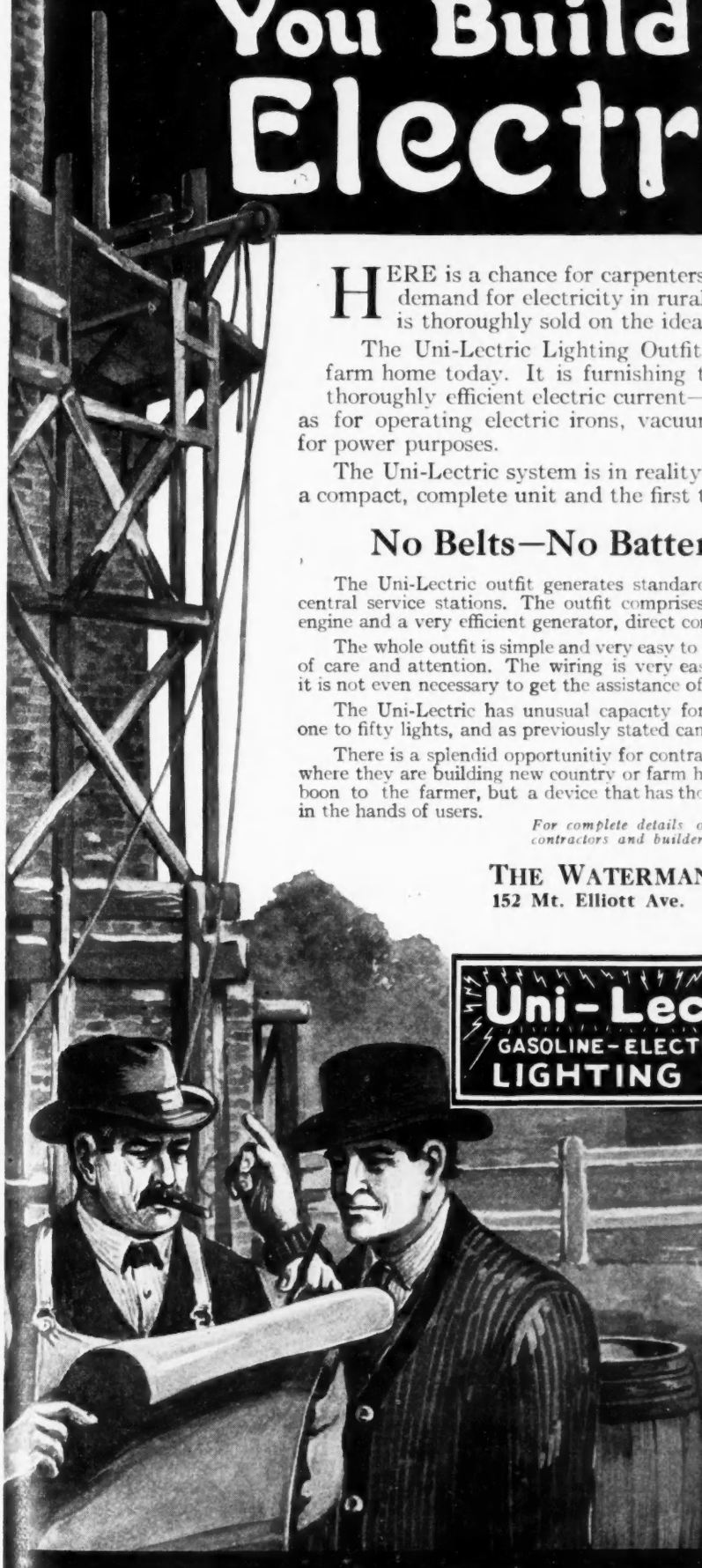
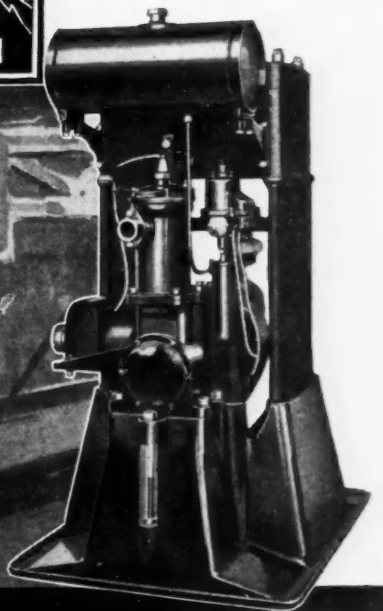
The Uni-Lectric has unusual capacity for a home-size plant. It will operate all the way from one to fifty lights, and as previously stated can be used for other power and heating devices.

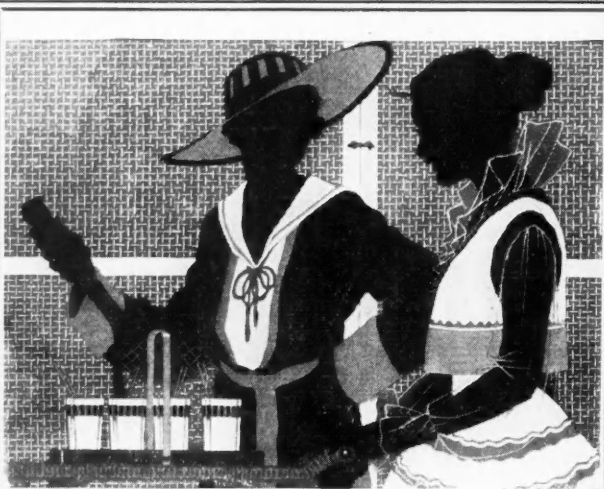
There is a splendid opportunity for contractors and builders to introduce Uni-Lectric machines where they are building new country or farm homes. You will not only be pushing a device that is a boon to the farmer, but a device that has thoroughly demonstrated its efficiency and practicability in the hands of users.

For complete details of our special proposition to contractors and builders, write us at once, addressing

THE WATERMAN MOTOR COMPANY
152 Mt. Elliott Ave. Detroit, Michigan

Uni-Lectric
GASOLINE-ELECTRIC UNIT
LIGHTING SYSTEM





Beware of Imitations of G & B PEARL Wire Cloth—

THE great demand G & B PEARL Wire Cloth has created through its remarkable wear-qualities, has brought a flood of imitations and substitutes on the market. These other screen materials may *look* a little like PEARL—at first—but they don't, can't and won't stand up in use or wear anywhere near as long as genuine G & B PEARL screens.

Spend a little time making sure you're getting genuine G & B PEARL so as to avoid spending a lot of time later in painting and repairing screens. Look for the two Copper Wires in the Selvage and the Round Tag which appear on every roll of real G & B PEARL.

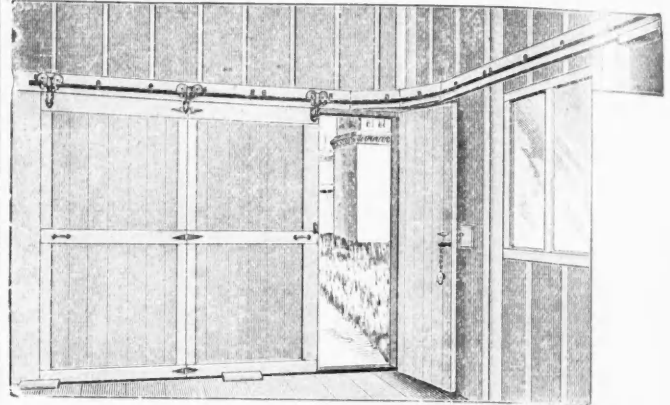
There never was a better looking—better wearing screen material made than G & B PEARL Wire Cloth. It's cheapest in the long run because it lasts and does away with everlasting repairs and requires no painting.



There's a retailer near you who sells and recommends G & B PEARL for permanently screening doors, windows and porches. See him or write us direct for samples and literature. Address Dep. A.

The Gilbert & Bennett Mfg. Co.
New York Georgetown, Conn. Chicago Kansas City

*Pearl is made in two weights—regular and extra heavy
The best Hardware Dealer in your city sells PEARL*



Myers Garage Patent Adjustable Tandem Door Hangers as Installed in a Garage.

which permits the user to enter the garage without moving the larger doors. These hangers may also be used with doors 30, 36 and 42 inches in width, using three doors hinged together instead of two as shown.

Since the doors roll back along the side of the building, they are entirely out of the way when the doorway is open. Their operation is not effected by the freezing and thawing of the ground as they are entirely inside of the building. High winds do not effect the operation of the doors. The hangers are used in connection with regular O. K. door hanger track.

Complete information may be obtained from F. E. Myers and Bro. at Ashland, Ohio.



Finds Miami Trailer Satisfactory

Some time ago Mr. C. A. Weber, who lives in Detroit, Mich., decided that he needed a trailer to improve his transportation facilities. Mr. Weber had been watching the advertisements in this publication and was already familiar with what was being offered contractors and builders in its pages. He finally gave an order to the Miami Trailer Company of Troy, Ohio, for one of their Model No. 2 trailers and when it had been delivered he immediately put it on the job. The following letter was sent by him soon after to the Miami Trailer Company:

Detroit, Mich.

MIAMI TRAILER COMPANY:

Gentlemen: The trailer which I purchased from your firm has been received. I have tried same and find it to be very satisfactory. Complimenting you on the manufacture of such an excellent machine and assuring you that when I am again in the market you will hear from me, I am

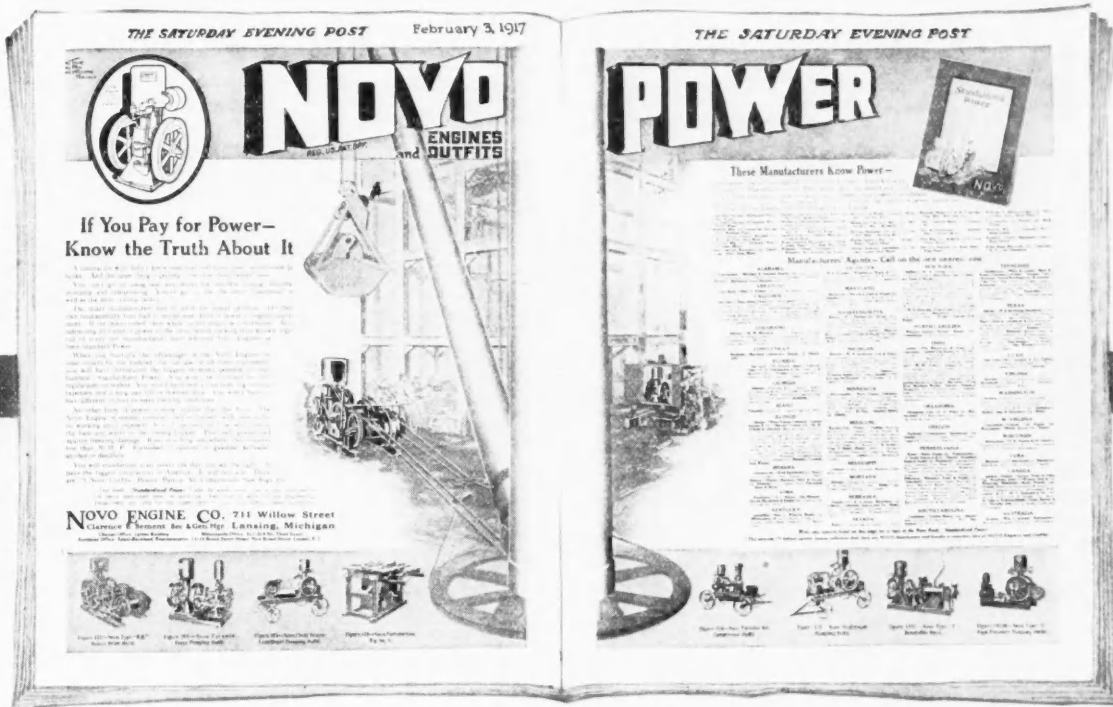
Yours very truly,

C. A. WEBER.

Mr. Weber is only one of a large number of builders who find that a trailer is just the thing for them. It helps to assure "value received" for the money spent in an automobile and cuts out the added expense of an extra motor-driven or horse-drawn vehicle for transportation of materials and equipment. Altho expense is probably the first thing to be considered, there are other important advantages of the trailer method of transportation. Convenience is an important item. Independence is desirable and in many cases necessary. Special arrangement of the body of the vehicle is often helpful.

The Miami Trailer Company has a great deal of information which will be helpful to builders who are planning a change in their transportation facilities.

(Trade Notes continued to page 176)



They wonder how we do it

Here is just one advertisement of Novo Engines and Outfits. It cost a lot of money to run it—once—across two pages of the Saturday Evening Post, just as you see it here.

It is without doubt the most powerful and most costly piece of advertising ever given any gasoline engine. But for that matter, all Novo advertising is far beyond anything that has ever been done in the gas engine field. Competitors profess to be unable to understand how such publicity as we give Novo Engines is possible—it keeps them guessing.

Yet the answer is simple. Novo advertising is nothing but the logical outgrowth of the success of Novo Engines. From the beginning we have had the most implicit confidence in the reliability of our product and its ability to meet the needs of power users everywhere. If it were not for this confidence such an investment as shown above would be foolhardy. We know there is a demand for the best in engines and we are doing our best to supply that demand.

The first Novo Engine made good. And every Novo Engine since has made good—has gone on creating good-will among power users everywhere, until today all over the country the word Novo is a

by-word for dependability, economy, all-round efficiency in engine power.

Users of Novo Engines and Outfits know the advantages of Standardized Power. They know the saving that results from having one man look after all the outfits on a job. They know how moving costs are reduced through having only light Novo Outfits to move, instead of heavy boilers, engines, etc. They know the meaning of freedom from city regulations on steam boilers.

We advertise to tell power users who have not yet learned of Novo advantages the facts which have meant money saved to the thousands who do know about them.

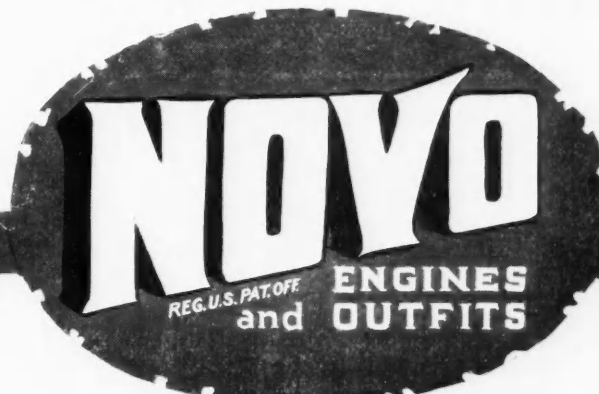
If you are one of those who as yet do not know, or if you are inclined to doubt the ability of Novo Power to reduce your power costs, you owe it to yourself and to your business to at least give Novo Power a hearing. We have a book that will tell you the facts clearly and concisely.

Send for "Standardized Power" which shows you how Novo has been adopted as a power standard the country over.

NOVO ENGINE CO.
 Clarence E. Bement, Sec. & Gen. Mgr.
 700 WILLOW STREET LANSING, MICH.
 Chicago Office: Lytton Building

Novo Engines can be furnished to operate on gasoline, kerosene, alcohol or distillate.

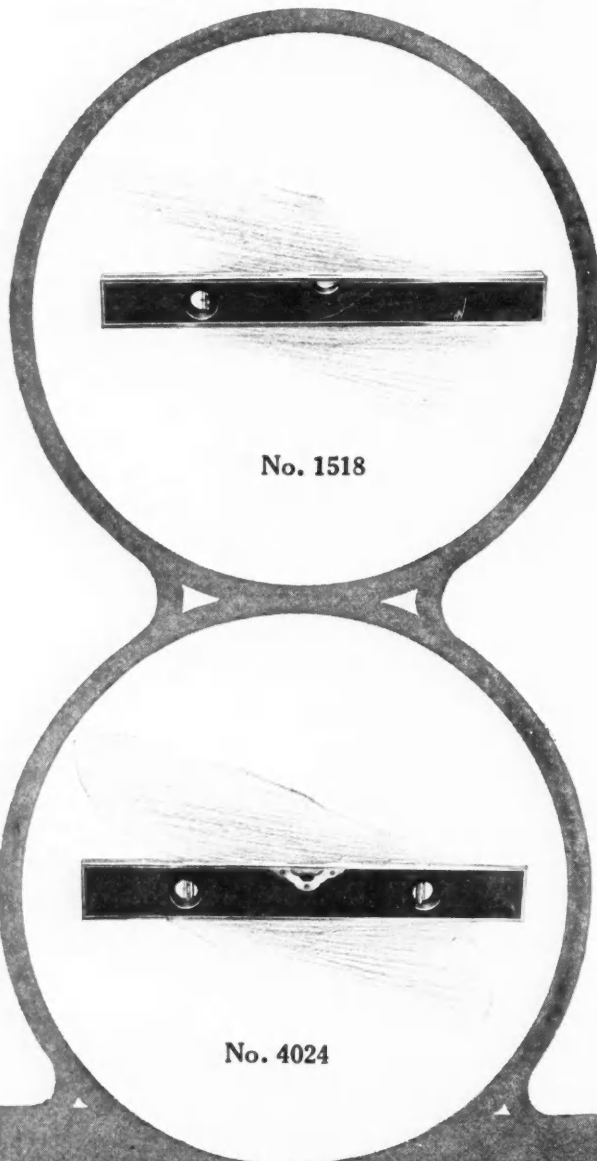
Novo will be exhibited at the Tenth Chicago Cement Show, Coliseum, February 7-15.



Every Kind of Level

Partial List of Goodell-Pratt Tools

Hacksaws	Micrometers	Levels
Screw Drivers	Bit Braces	Lathes
Gages	Vises	Calipers
Punches	Drills—Grinders	Squares



No. 1518

No. 4024

There is a Goodell-Pratt Level for every possible purpose, of every size, of every price. These Levels comprise the Stratton and Richardson lines, with a few additions, but are now all made in the Goodell-Pratt factory. The same high standard of materials and workmanship that distinguished the Stratton Level and that has always been a feature of Goodell-Pratt tools has been maintained in making these levels.

This very complete line gives an opportunity to select exactly the size and type of level best suited to the work. For carpenters no finer instrument can be found than the built-up, brass-bound, double plumb, rosewood level No. 4024 shown in the lower circle. The sectional construction practically insures it against climatic changes. The vials are ground to a true curve from end to end, and set solid in the stock, with the simple Stratton movable bar adjustment. The brass binding is dovetailed its entire length and doweled to heavy brass end plates. There are four lengths in this style—24 to 30 inches.

No. 1518 is one of the narrow series, running from 8 to 30 inches in length,

GOODSELL

1 5 0 0

For Every Kind of Job

made of a solid stick of selected mahogany, fully brass bound. The vials are sensitive and accurate, set solid, and have the regular movable bar adjustment. This level is specially designed for machinists, and is sold at a very attractive price.

There is a wide variety of other wooden levels, of rosewood, mahogany and imitation mahogany, suitable for every trade and every pocket.

The aluminum level, No. 924, is a new member of the family, put out in response to popular demand. It is very light—made completely of aluminum—has double plumb and is 24 inches long.

No. 509, at the right, is an iron level 18 inches long, double plumb, milled face and ends, sold at a popular price. It is only one of many types and sizes of iron levels for machinists and engineers, low-priced, but accurate and strong.

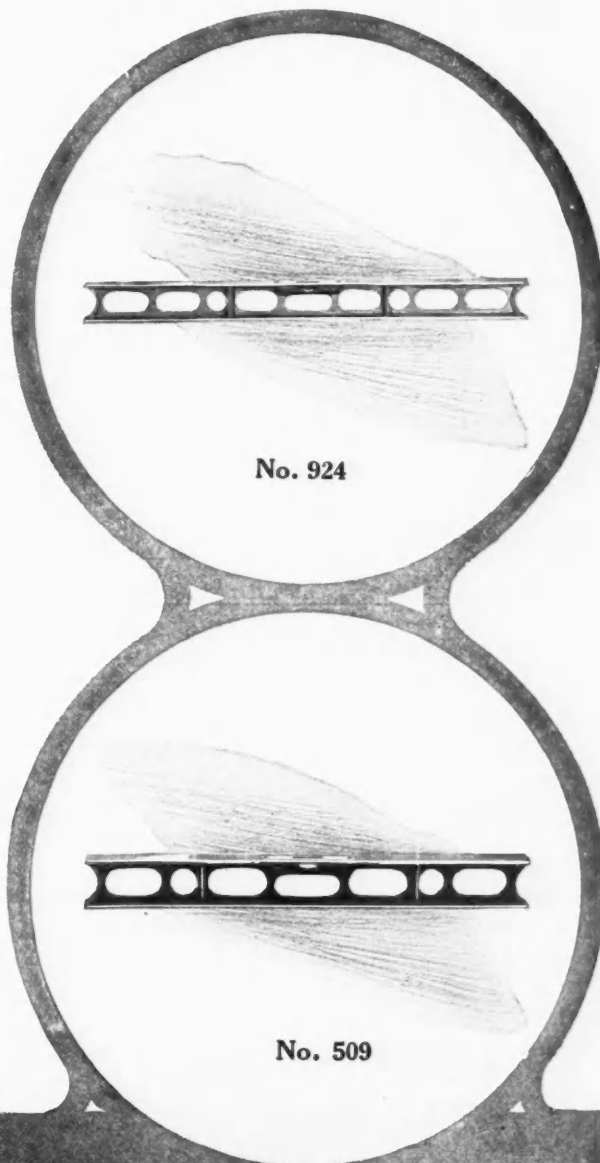
The name Goodell-Pratt on a tool always means a good tool, the best possible at the price.

GOODELL-PRATT COMPANY

Toolsmiths

Greenfield, Mass.

Send for the Complete Catalog, showing all the levels, and the other Goodell-Pratt Good Tools.



No. 924

No. 509

PRATT

GOOD TOOLS

D. M. Kagay Now With Bowser Company

D. M. Kagay, who has for the past three years held the position of advertising manager and editor of the two house organs published by Richards-Wilcox Manufacturing Company, of Aurora, Ill., has accepted a position as manager of publication department with S. F. Bowser & Co., Inc., of Fort Wayne, Ind.



Concrete Burial Vaults Popular

The rapid growth of the Chicago Cement Burial Vault and Casket Company is an indication of the ready market which is being found for concrete products of this kind. This company started business in a very small way in 1914. The smaller of the two buildings illustrated was occupied by the company for two years, when it was found necessary, because of the growth in business, to erect the larger building shown.

Aside from the ready market which is being found for concrete burial vaults and caskets, there are other features of the business which recommend it strongly to the builder. In the first place, it does not require a large investment to start in this business. The plant is simple and the overhead expense is practically nothing. One man, equipped with a high-grade set of molds, can turn out enough work to assure a good income on his investment. The work can be carried on at any time and is therefore desirable to fill in the slack hours or the dull season, in case the builder does not feel inclined to give his entire time to this part of his business.

The Chicago Cement Burial Vault and Casket Com-

pany's mold has several points of special interest. It turns out a perfect vault at a minimum cost for labor and material. There are no loose parts to be lost or mislaid. The mold is made entirely from sheet steel and malleable iron castings and cannot warp. Its weight is not excessive, yet it is strong enough to stand all strain put upon it without bulging. It enables the builder to give his customers a high grade vault without sacrificing his own profits.

Between January 1 and 23, 1917, the Chicago Cement Burial Vault and Casket Company, from their own factory in Chicago, sold 65 vaults. These vaults were made entirely by one man. This shows an average of almost



Original Home of the Chicago Cement Burial Vault and Casket Co.



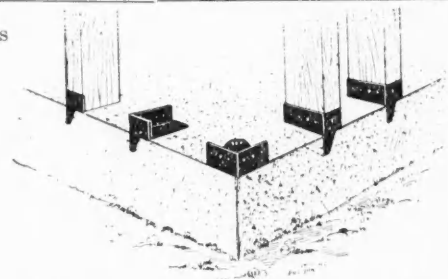
The New Factory of the Chicago Cement Burial Vault and Casket Co.

3 vaults a day, indicating the low labor cost which may be expected.

This proposition should be attractive to readers of AMERICAN BUILDER. The company will explain fully the possibilities of the business to anyone who will address them at 5301 Ravenswood Avenue, Chicago, Ill.

THE "BEST" LINE

- Hog Waterer
- Stud Sockets
- Coal Chutes
- Cesspools
- Pump Stand
- Foot Scrapers
- Revolving Chimney Tops
- Chimney Caps
- Cleanout Doors
- Stock Salter
- Cistern Covers
- Tank Heaters



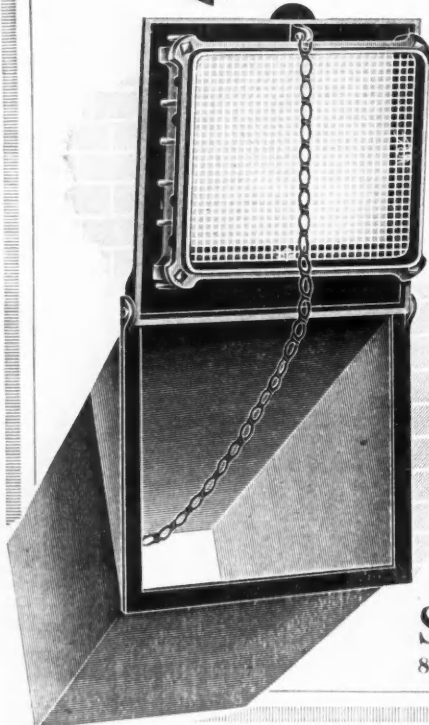
"BEST" Coal Chutes

are well constructed throughout, have a neat appearance in the building, and the cost is moderate. It locks automatically both when open and when closed. Furnished in two sizes and two styles—Glass Door or Solid Cast-Iron Door.

"BEST" Stud Socket

is of very simple pattern. Made in one size and one style—fits all size timbers. Construction is so that when placed in wet concrete it firmly anchors itself. Hole in back permits the placing of reinforcing, such as a bolt, rod or wire if desired. Studding can be fastened with either a bolt in the large hole at the side or by nails at the side or end. We also make a special corner socket.

Write us for circulars on the above "BEST" articles which give fuller information and details. Kindly give us your dealer's name.



Sterling Foundry Co.
8 Avenue A - STERLING, ILL.

The Right Heating System for Health, Economy

In deciding which heating plant to specify for the new home or for replacement, remember the *health value* of a system that *humidifies*. Recommend a



Makers of Good Goods Only

Recommended and specified by experienced architects and builders everywhere. The fruit of over 46 years of specialization. More than 60,000 in use.

ROUND OAK MOISTAIR HEATING SYSTEM

—the one heating system that automatically ventilates and HUMIDIFIES

Durable, Dependable Easy to Operate, Fuel Saving

Note in the panel at the right a few predominating features of this more **practical** system. Reflect that every satisfied owner means another business booster for you. Then

Write at Once for
"Worth-While" Catalog

illustrating and proving every claim.

This system is now being backed by a comprehensive, demand-creating National Advertising Campaign which involves a special form of co-operation with architects, contractors and dealers. Ask for full particulars with catalog. Write now.

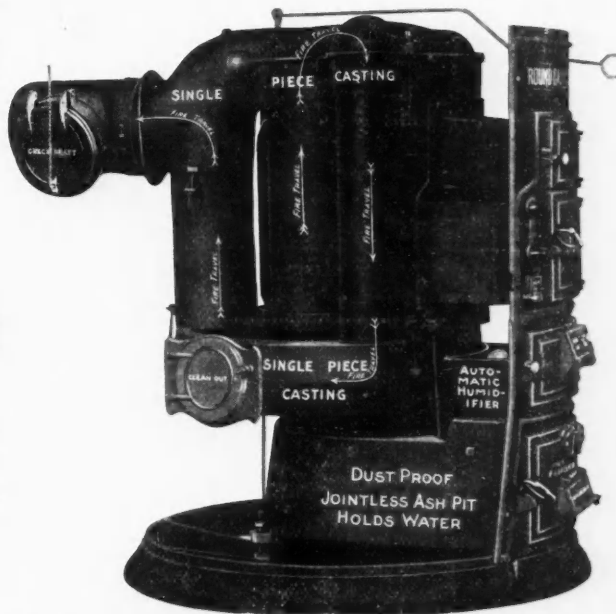
The Beckwith Company

Round Oak Folks

Makers of the Genuine Oak Stoves

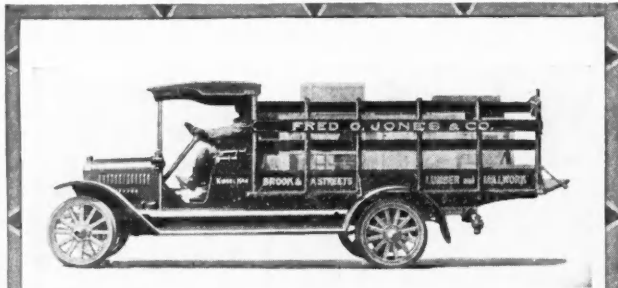
38 Front Street Dowagiac, Mich.

Established 1871



Five Star Points of Round Oak Supremacy

- * **Health** Only Heating System that automatically ventilates and HUMIDIFIES.
- * **Comfort** Delivers pure, warm, ever-changing moist air, free from dust, gas, smoke—fitted with gas-tight doors and dampers.
- * **Economy** Longest fire travel all inside casing; improved hot blast Ring; extra deep fire pot; extra large combustion chamber affords perfect combustion; most heat on minimum of fuel.
- * **Convenience** Simple regulator controls entire system. Self-cleaning. Ash pit dust-proof—seamless; fitted with sprinkler. Non-leak door frames cast on—not bolted. Easy to operate.
- * **Durability** Materials used stand highest physical tests. All hinge pieces drilled, not cast. Never a bolt, where a rivet will do! Tight fittings guaranteed. Good for generation of service.



"THE market's most solid truck value at the price," is the opinion of carpenters, contractors and builders in every part of the country who purchased KesselKar Trucks after a rigid investigation.

The Kessel-built, **stand-up-no-matter-what-the-work-may-be** qualities, the **power resiliency** of the reliable Kessel-built engine, insure **continuous** and **uninterrupted** service at a **minimum cost per ton per mile.**

Every KesselKar Truck has the same **Kessel-built features and proved structural superiorities** that have for the past ten years made KesselKar Trucks highly efficient in every line of business in America.

There is a KesselKar Truck built in the exact size that will meet your requirements. Send for specifications and photos.

Kissel Motor Car Company

Hartford, Wis., U. S. A.

The matchless Kissel-built motor, and perfect worm drive rear axle are guaranteed with every KisselKar Truck.

KisselKar Truck branches, display rooms and service stations in all principal cities and towns.

Six sizes--from 1500 lb. Delivery up. Chassis prices \$950 to \$3350.

KISSELKAR TRUCKS

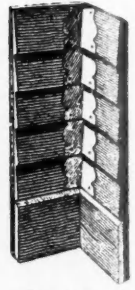
WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Better Corners—Less Work

"Chief" Metal Building Corners will kill two birds with one stone. They make stronger, better corners and smoother, better looking corners on any building where they are used.



A "Chief" Corner of Metal.



A neat and Durable Inside Corner.

They are specially made, heavy galvanized steel corner pieces to take the place of corner boards for weather boarding or lap siding jobs. They make a corner that is as smooth and neat looking as the best mitred corners and save all the time and labor of beveling down the siding. Fit any corner—either inside or out—and leave no pockets for dust or moisture.

"Chief" corners protect buildings. They cannot rot, warp or split and will hold the siding flat and prevent it from warping. They are almost indestructible and are easily and quickly put on. Furnished ready perforated for nailing—all the carpenter has to do is drive the nails that hold them.

These Metal Building Corners are made by Shrauger & Johnson, Atlantic, Iowa. Full information about them can be had by writing to the manufacturers.

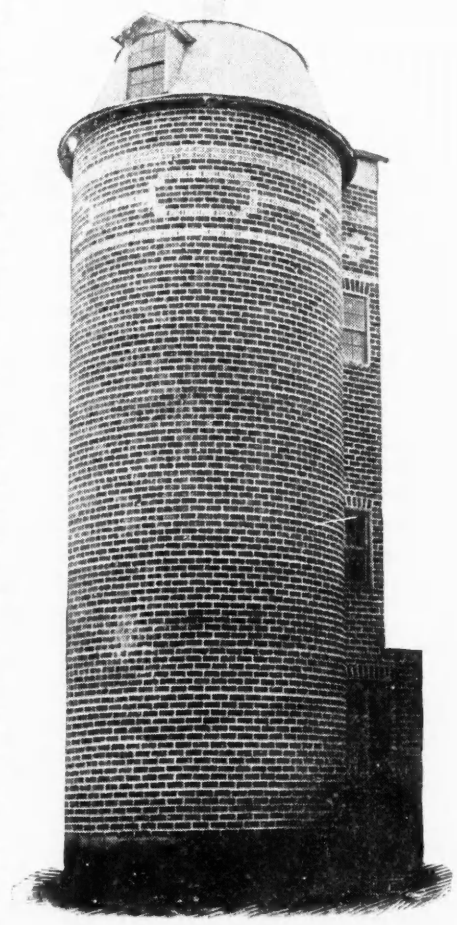


Build Brick Silos

The accompanying illustration shows a reinforced brick silo such as may frequently be seen almost anywhere in Wisconsin and Northern Illinois where they appear to be very popular. They may be built either of common or paving brick and being reinforced with a corrugated inlaid steel band at intervals of about two feet, cracking is made impossible.

This equipment is made by the James P. Christensen Silo Company, at Racine, Wis., who have demonstrated its practicability by erecting thousands of silos covering a period of many years. As the silo industry is yet in its infancy it would seem that a splendid opportunity would be offered to the contractor even of limited means to take up this work and make it into a profitable and ever-increasing business, as the demand for permanent silos is unlimited. The proposition is certainly worth investigating.

Christensen Reinforcing Bands Are Used in This Brick Silo. The Walls Can't Crack.





*from Office
to Lumberyard
----to the Job,*

Often times a long way around,
and you may have to travel the
same route many times a day.
You can make the trip quickly
and cheaply in the

New Case "40"--\$1190

Justly called the "100,000-Mile Car"

One generation after another has found in the name CASE a standard of good workmanship and efficient service. You who particularly need a *faithful* car will find in the CASE a wonder for your use---comfort, power, endurance, speed---in abundance.

When it comes to a long, *hard* pull, or to a *steep* climb, you will realize just how faithful this car is. And then after you have owned it a *long* time, and have driven it 100,000 miles, you will appreciate the CASE standards of construction.

Consider what you want a car for and what you want it to do. Then write in for our illustrated description, and see if the CASE does not fill the bill in every particular. We can tell you of other Contractors' experiences at the same time.



The Sign of
Mechanical
Excellence
the World Over

J. I. Case T. M. Company, Inc.

719 Liberty Street

Racine, Wisconsin



The Sign of
Mechanical
Excellence
the World Over

New Quick Convertible Discharge Mixer

Isn't it so that at times and during certain seasons of the year the particular work you specialize in is not quite so abundant? A hustler knows he can't loaf until something that he specializes in turns up. He immediately looks for other contracts which, tho they vary a little from his specialty, still are along his line. He has both the knowledge and general equipment to handle these other fill-in contracts. Suppose the fill-in job is for a house builder who uses a side-discharge concrete mixer for foundation and other concrete work affiliated with house building.

The fill-in job is in a narrow alley where you can't have the width necessary for operating a side-discharge mixer. What are you going to do about it? There are three solutions to this problem: First is to bring the concrete in with a wheelbarrow and place the mixer where you can have width. Second buy an end-discharge mixer, which you can bring into the alley and operate. Third have a mixer which you can quickly convert from a side to an end-discharge machine.

A machine meeting the requirements of the third solution to the problem is to be exhibited at the Chicago Cement Show by the Waterloo Cement Machinery Corporation, 103 Vinton St., Waterloo, Iowa.

A representative view of this mixer is herewith reproduced. As noted in this illustration, the mixing drum, motive power



The Wonder Mixer Mounted in the Frame on a Turntable. It Can be Revolved to Discharge from Either Side or the End.

and other allied parts of the mixer are all assembled to the vertical steel frame. This frame is mounted on a turntable on the truck. By loosening four bolts the frame, carrying the engine and mixer drum, can be revolved into any position by two men and made ready for action in 10 minutes.

If you can not get to the Cement show and see the machine for yourself, don't neglect writing for information immediately and learn its possibilities.



Please the Housewife!

When a married man builds a home it is certain that he has spent a good many evenings and Sunday afternoons talking over the details with his wife. What she says and what she wants cannot be neglected. No man wants to spend his good money on a house only to have his wife constantly pointing out how much better things would have been if she had had her way. She spends a great deal of time in the home and she notices a great many little details that the average busy man cannot hope to discover. Don't miss a chance to please the housewife. It pays!

Of course the kitchen and its attached pantry, rear porch, or whatever comprises that part of the house most intimately connected with the preparation of meals, is the best place for the builder to work into the good graces of the housewife. Let her know that you are giving your personal attention to the kitchen. Show her that you have made a special study of kitchen construction and equipment. No doubt you already know considerable about kitchen construction, but how about the equipment? For instance, what do you know about refrigerators?

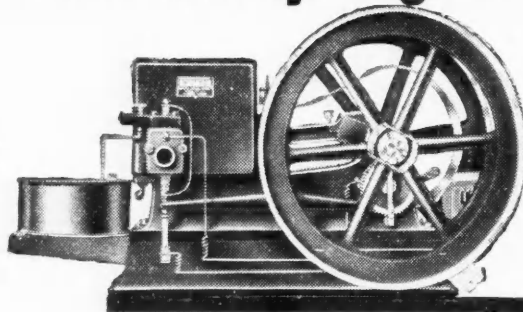
A good refrigerator is a very necessary thing. The builder who can offer some sound advice on refrigerators, by way of a little extra service thrown in for good

Continued to page 182



ED. H. WITTE
Says:

Why Pay Double My Price for any Engine?



Put a WITTE Engine on your floor. It will do your work and do it well—I guarantee it. You can have a WITTE, Easy-to-Start Gasoline or Kerosene Engine—plenty of power, low operating expense and a big saving in first cost by ordering from Witte—who operates the largest exclusive engine factory in the world selling direct to the user. Capacity 12,000 perfect engines yearly, or at the rate of 1,000 a month—about 40 a day. WITTE Engines are built by experts, using the latest improved engine machinery. My prices are based on low cost of manufacture, using high grade materials.

WITTE ENGINES

are built in sizes 2, 3, 4, 6, 8, 12, 16 and 22 H-P.—all sold direct to the user at a big saving—no middlemen or jobbers' profits. I have four definite and easy plans of payment:

1st. ALL CASH
2nd. PART CASH

3rd. BANK DEPOSIT
4th. NO MONEY DOWN

I can accommodate any worthy, creditable man as to terms. I allow 90 days trial, and guarantee 5 years. I ship brand new engines, shop tested for power, and crate tested before shipping.

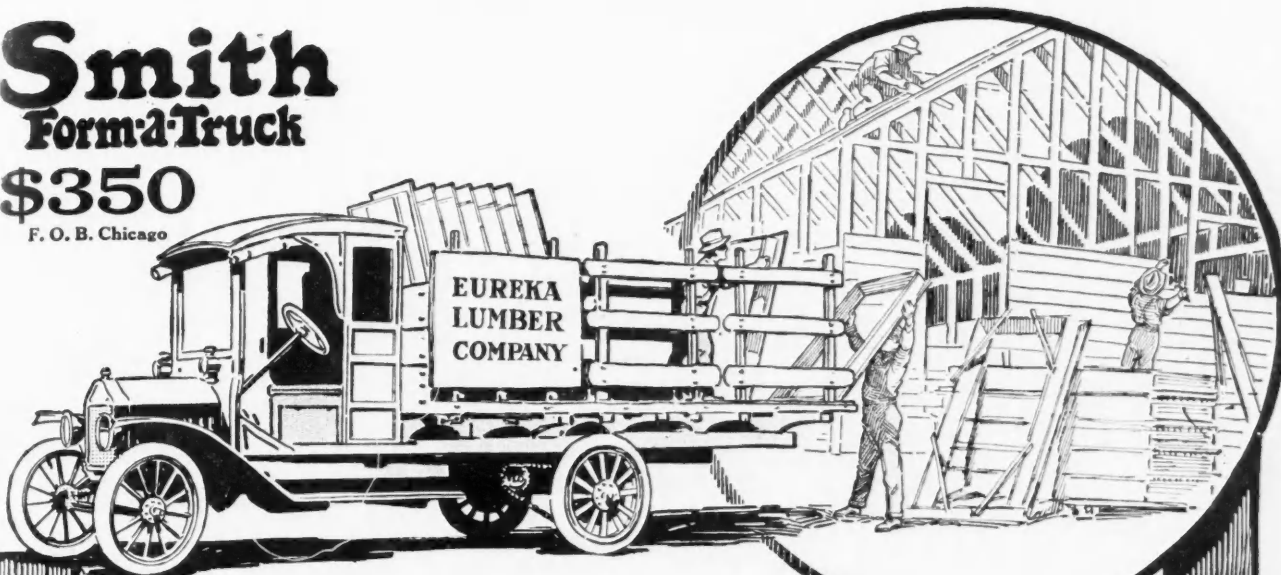
MY FREE BOOK tells all about how WITTE Engines are made, why I sell direct, and why you should own a Witte Engine. Write for Free Book, telling me what size engine you will likely use, or need, if interested in better shop power.—ED. H. WITTE, Pres.

WITTE ENGINE WORKS 1778 Oakland Avenue
Kansas City, Mo.
1778 Empire Building, Pittsburgh, Pa.

Smith Form-a-Truck

\$350

F. O. B. Chicago



Save 74%—Haul Heavy Loads

BUILDING supply houses all over America are proving every day that the wonderful Smith Form-a-Truck is 300% more efficient than horses for delivery. A Smith Form-a-Truck will do the work of four teams. And at half the price. Yet it costs no more than a good team and harness—\$350.

It will haul the same loads as heavier trucks costing several times its price. It will haul those loads just as far. And for at least two-thirds less cost.

Lowest Hauling Cost

Less than 8c per ton mile, exclusive of drivers' wages. Think of it!

- 6000 to 8000 miles per set of tires.
- 12 to 18 miles per gallon of gasoline.
- 12 to 15 miles per hour.
- and practically no repair expense.

The first Smith Form-a-Truck made traveled 20,000 miles, carrying an average load of 2050 pounds. And its total repair cost was only \$8.

Install Smith Form-a-Truck—get rid of slow, inefficient horses. Make quick deliveries—save drivers' wages—reduce your investment in equipment. Cut overhead expense by quick getaways, quick deliveries, frequent returns for reloading.

Sturdy—Dependable

The Smith Form-a-Truck is a big, substantial one-ton truck, protected by the same guarantee as high priced trucks. A Ford, Maxwell, Dodge Bros., Chevrolet, Buick or Overland chassis, combined with the Smith Form-a-Truck attachment makes a guaranteed one-ton truck. 90% of the load is carried by the big Smith Form-a-Truck rear axle. The Ford axle is merely the jackshaft. The Smith Form-a-Truck regular frame telescopes the other frame, making double reinforcement.

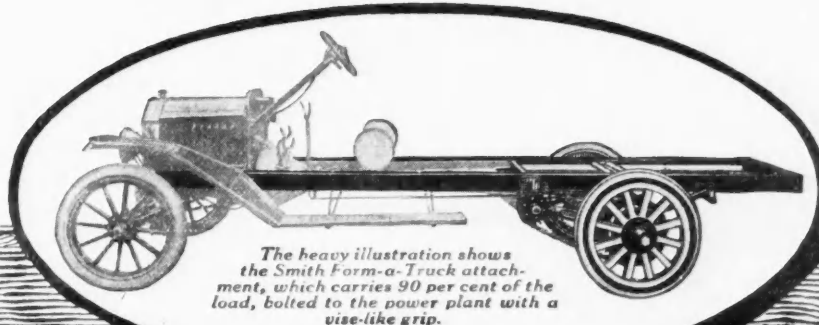
Records Prove Efficiency

Write us at once for records of how Smith Form-a-Trucks are cutting other builders' and supply houses' hauling costs in half—increasing their hauling efficiency—dispensing with profit-devouring, slow-hauling, inefficient horse service.

"A lumber dealer who would give the Smith Form-a-Truck a trial would not do without one. We put a platform on our truck and load same up to 3500 lbs. and haul this load wherever we want to go. In unloading lumber from the car we attach a wagon to the rear axle of this truck. This gives us a chance to haul any length of lumber. In this way we have hauled four tons and over, easily."
J. E. WIESS LUMBER CO., Sioux City, Iowa

Smith Motor Truck Corporation, Mnfrs. of Smith Form-a-Trucks

Executive Offices and Salesroom: Suite 908, Smith Form-a-Truck Bldg., 1470 Michigan Ave., Chicago



The heavy illustration shows the Smith Form-a-Truck attachment, which carries 90 per cent of the load, bolted to the power plant with a vise-like grip.

measure, has a good start on the right idea. But first he must get some really worth-while information on refrigerators. Here's a tip: The Herrick Refrigerator Company of Waterloo, Iowa, know the refrigerator game from A to Z. Ask this company for their plans and specifications for Herrick Outside Icing Refrigerators. No doubt they will send along information to keep you busy for some time. Study over this material and select what may be used to please the housewife. It will pay.



Proper Flooring for Stables, Cow Barns, Hog and Sheep Pens

One of the principal ideas in building a stable for live stock is to make the floors on which the stock must stand as comfortable and as sanitary as possible.

Wherever possible, the barn builder should get samples of materials which are good.

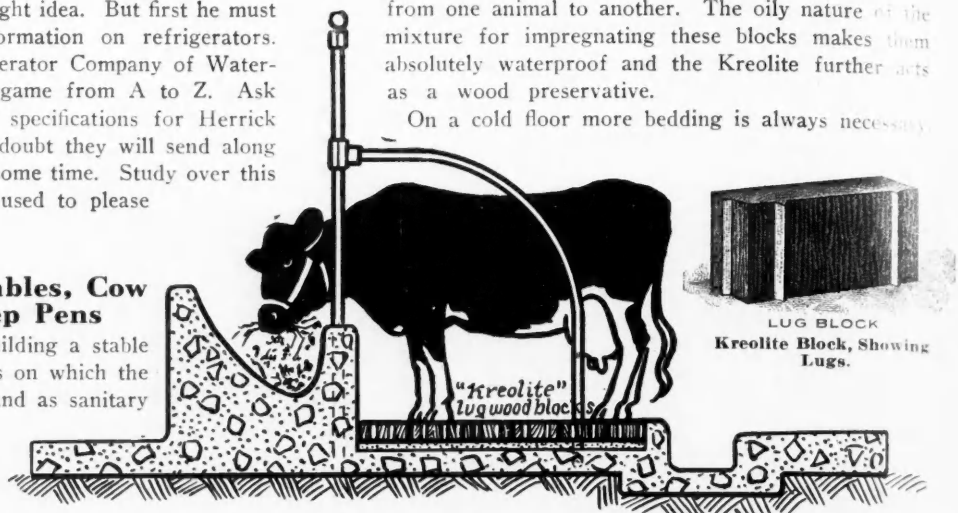
Kreolite wood blocks are very good for floors in cow barns, horse stables and hog and sheep pens. Samples of this block may be obtained by writing the Jennison-Wright Company, Toledo, Ohio.

The construction of a cow stall, as shown in the accompanying view, has many good points. The general floor of the barn, mangers, etc., are of concrete and the floor of the stall proper on which the cow stands is made of Kreolite wood blocks. This makes the stall sanitary; easy under foot; warm and restful; gives a good foothold whether wet or dry; is extremely durable and easy to install.

The blocks are impregnated with Kreolite oil, which is a thoro disinfectant and will kill the germ which carries disease

from one animal to another. The oily nature of the mixture for impregnating these blocks makes them absolutely waterproof and the Kreolite further acts as a wood preservative.

On a cold floor more bedding is always necessary.



Section of Stall in Cow Barn. Kreolite Blocks are Used for Stall Floor. Stall is Disease-Proof.

Wood is an excellent non-conductor of heat, and for that reason these blocks retain the warmth of the animal's body, and less bedding is required.

The blocks are made from the best grade of Southern Yellow Pine and cut so that the exposed surface of the block is across the grain. This makes the block very resisting to wear.

On either side of the block there are two lugs and on the end there is one. These lugs hold the blocks apart from each other.

(Continued to page 184.)



DEPENDABLE PAINT

WHEN you turn your buildings over to owners after painting them with pure paint mixed from linseed oil, pure Carter White Lead, turpentine and colors their appearance is always beautiful beyond their expectations. That places them in the right mood to accept other details about the building as being done up also in a first class manner. Your white jobs are noticeably whiter than the usual white paint. Colors made on this very white base come out with surprisingly clear and pleasing tones. Your jobs look distinctively well painted.

Time was when farmers painted only for protection. Now they regard appearances too. Witness the passing of the red barn and the red school house. Now there are more white barns than red ones, and still more that are painted some shade of gray or drab or cream and trimmed with white. This has added wonderfully to the attractiveness of country places and perhaps has had a good deal to do with making farms so much more saleable.

It is equally evident that paint used by the builder ought to be the most serviceable kind to save him annoyance and avoid the detrimental advertising of a paint failure. Cracking and scaling paint is quite like the unwelcome cat that comes back. Just when you are about to close on a nice new job up bobs that paint failure again. You have to explain that the paint was supposed to be first class but was not.

You will never hear anything about Carter Lead jobs except compliments. The advertising it does helps to get many a job and you have no fear of scaling paint. It cannot scale because it is elastic, and so expands and contracts with the wood when the temperature changes.

CARTER WHITE LEAD CO. CHICAGO, ILLINOIS

The MAN who Applies it



“When it’s left to me,
I paint DEVOE paint.
Takes fewer gallons
and wears longer. I
know DEVOE is pure
—the guarantee formu-
la on the can proves it.”

(Signed) *Every Painter*

DEVOE

The oldest manufacturing concern in the United States
Founded in New York in 1754

F.W.DEVOE & C.T.RAYNOLDS^{CO} NEW YORK
DEVOE & RAYNOLDS CO. CHICAGO





**This Is a Circular
We Want to Set
to Work for You**

There are a great many Farmers and Dairymen in your vicinity whose Farm Buildings need better ventilation who will pay you to install

**"GLOBE"
VENTILATORS**

Every ventilator you install gives you a **DOUBLE** profit—a profit on the **JOB**, and an attractive profit on **THE VENTILATOR ITSELF**.

All we want is a chance to tell you **HOW** you can make "GLOBE" ventilators pay you a profit—how **WE HELP YOU GET THE BUSINESS**.

Write us TODAY. Address Department F.

Globe Ventilator Company
Troy, N. Y.

The lugs make it impossible to do anything but lay the blocks with the right spacing between. There is no chance for the floor to buckle when the blocks expand for there has been sufficient space left between the blocks to allow for this expansion. At the same time when the blocks contract the lugs act so that there is still a firm bearing between each of the blocks.

Many good builders fail to include excellent things in their buildings because they have not seen the material and only know of it by hearing it briefly spoken of by some fellow builder.

Send for a sample of the Kreolite Wood Block and see for yourself what it is. The company will gladly send you samples of the block as well as their literature which gives valuable information on the way to make good barn floors.



Modern Cribs and Granaries

The time has come when every farmer wants modern improvements on his farm and what he wants he will strive to attain. There is no farmer that does not admire a well-improved farm. Show him a photograph of some modern farm buildings and at once he becomes interested and will give you his undivided attention. If you can give him some useful information regarding the construction of such buildings, he is naturally grateful.

Grain is the most important farm product and every farmer is interested in the way grain should be handled and stored. He knows that with poor cribs and granaries he loses many dollars worth of grain from mould and rotting in damp weather, and also because it can be easily reached by stock or poultry. Good cribs and granaries are just as necessary as good houses and barns. Rail pens and the old-fashioned open cribs are rapidly becoming things of the past.

Most farmers who build new cribs and granaries install an inside elevator. This is really the best way to handle grain, for it can all be stored in one building and the elevator is always inside and out of the weather. The building can be constructed to hold ear corn and small grain, using the space over the driveway to store the small grain. In this way all the space will be used and many dollars will be saved on building material. Considering grain capacity, many cribs have been built according to certain plans and the saving in materials alone paid for the inside elevator. Any one knows that it is much cheaper and more convenient to build one large crib than to build three or four small ones.

There are free catalogs and plans advertised in this paper that will give good, useful information regarding the construction of cribs and granaries and show how to save money in building. They are practical and easy to understand and

(Continued to page 186.)

**The ROYAL
VENTILATOR
AND BASE**

Royal Ventilators For Farm Buildings

Ventilation for farm buildings is a necessity. Actual tests have shown that live stock kept in well ventilated buildings thrive and are healthier all around than stock kept in ill-ventilated buildings.

Talk ventilation to your farmer customers. All good barns are well ventilated. Ever notice some of the large dairy barns? They all have ventilators and most of them are Royal Ventilators.

Let us send our catalog. It illustrates and describes our farm building ventilators and other ventilators we make. Write for it.

ROYAL VENTILATOR CO.
417 Locust Street, Philadelphia, Penna.

Gale Ventilators

For Barns, Chicken Houses, Creameries, Granaries or any other buildings that need perfect ventilation.

Made of the best material on scientific principles, pays for itself in a short time by preserving property.

Your customer wants the best ventilator for his money. Suggest the Gale and he'll get it.

Write for our New Catalog and Special Contractors' Offer

Galesburg Sheet Metal Works
Galesburg, Illinois



Don't You Think That the Wooden Cupola Has Had Its Day?

YOU can see in this photograph what the wooden cupola did to one barn. It not only failed to ventilate the building, but sagged the roof with its weight. Note the owner's answer in his new barn just finished. The efficient farmer of today knows the money-saving and money-making reasons for using King Aerators instead of old-style cupolas. They not only beautify the barn, but help to keep it properly ventilated every hour of the day. They make the barn a better-looking building, keep it in good condition longer, and a lasting credit to the man who built it. King Aerators are the first unit of the

KING SYSTEM OF VENTILATION



KING AERATORS
are ready to go in place the minute they arrive. Use them and save yourself the hard work of building wooden cupolas.

Recommend King Aerators with a King System of Ventilation on your barn jobs. It's to your interest. They give a barn a finished appearance that makes you proud to say that you built it.

Each King System is planned for the building it goes into. Put your barn ventilation problems in our hands. Let us draw the plans of the ventilating system to fit the actual conditions of the building.

Write for This Book

and learn more about this service. Incidentally, this book is filled with photographs of many types of barns. It can be a great help in telling your prospect the kind of barn he wants. We are glad to send it free. Write today.



KING VENTILATING CO.
1120 Cedar Street Owatonna, Minnesota



give the contractor and farmer the principal points in constructing cribs and granaries for installing inside elevators. Don't fail to get a copy of these plans.



Hogs Require Direct Sunlight

It has been conclusively proved that direct sunlight is absolutely necessary to obtain the best results in raising hogs. If hogs are bathed in sunshine every day that the sun shines, they will be healthier, hardier and faster-growing than under other conditions. Their vitality will be increased, they will resist disease better and yield greater profits in market.

Experts in hog house design and construction have found that the best results are obtained by erecting the hog house with the long way running east and west, using two rows of windows in the south roof. The roof should be one-half pitch and the side walls seven feet or less high. The lower row of windows is placed as near the south wall as possible, and the upper one half way between the tops of the lower row and the peak of the roof. If the hog house runs north and south the best results are obtained by using two rows of windows in each side of the roof. This construction provides sunshine all over the interior of the hog house in January, February and March, when it is most needed.

The illustration shows the exterior view of the hog house of W. I. Isgreg, of Tekamah, Nebraska. This hog house was built about a year ago and was equipped with Chief Sunshine Roof Windows and Chief Ventilators, manufactured by Shrauger and Johnson, of Atlantic, Iowa. The interior, even

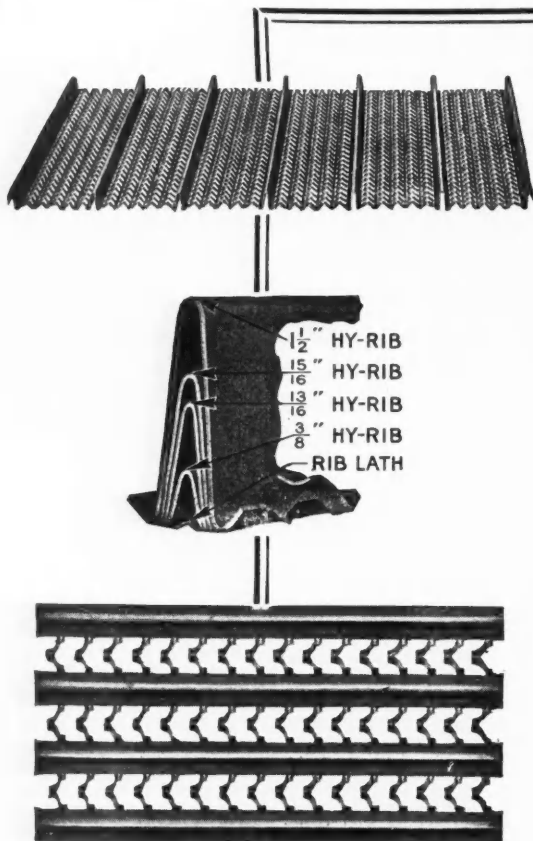


Hog House of W. I. Isgreg, Kekamah, Neb. It's for Prize Winners and Has Chief Sunshine Roof Windows.

on a cold winter day shows an abundance of sunshine coming down from the Sunshine windows in the roof.

The construction of these windows provides for a permanent, solidly built frame which is built into the roof so that leakage is impossible, two lights set without putty and easily replaced, troughs which take off any moisture collecting on the glass and a heavy galvanized netting to protect the glass from breakage.

Builders interested in farm construction work should know the complete details which Shrauger and Johnson will furnish anyone who addresses them at 430 Walnut Street, Atlantic, Iowa.



Build Everything Quicker and Better

The demand for metal lath and reinforcing products for plaster, stucco and concrete buildings is constantly on the increase. Everywhere this type of construction is taking the place of brick and wood—not only because of its greater beauty, but because of its permanence, fireproofness—and chiefly its **economy**.

You can build better structures—give your customers greater satisfaction—and still save money in every stage of the erection—by using

HY-RIB and RIB LATH

HY-RIB—for use in roofs, floors, walls, sidings, partitions, ceilings, furring, curved construction, etc.—is a steel sheathing, stiffened by rigid deep ribs, manufactured from a single sheet of steel. Its use is very simple. The easily handled sheets are fastened to the supports and the plaster or concrete applied. No forms, stiffening channels, wiring or special work is required.

RIB LATH is a superior metal lath with beaded ribs that span between the studs, making it exceptionally stiff and rigid and permitting the wider spacing of studs. Provides a perfect clench for plaster and will not crack or streak.

Our catalog on the complete line of Hy-Rib Products, together with specifications, tables and illustrations, will be sent FREE on request. Every builder should have a copy.

Trussed Concrete Steel Co.
Dept. H-44 Youngstown, Ohio



Make \$1,500 to \$3,000 This Winter

Work Right in Your Own County---All or Spare Time

Profits Start First Day---Success Assured

Wonderful new business—a golden opportunity for one good hustler in every county. **No experience required.** No risk. Samples furnished—just follow easy instructions and work honestly—for yourself. If you want a high class position—if you want to make the winter months count—if you want **\$1,500 to \$3,000 cash** for five months, **write today.**

Amazing New Home Invention

The Shafer Ventilated Chemical Indoor Closet

No plumbing—no waterworks or cesspool. **Banishes the outdoor privy.** Revolutionizes living conditions in country and village homes. Solves the one humiliating and perplexing country home problem. An imperative necessity to health, comfort and convenience. Perfected by heating and ventilating engineer. **Tested in 2,000 homes for three years.** Gives positive satisfaction. **Demanded everywhere.** A sale at every home. **Thirty days' free trial guarantee.** Low priced—warranted for ten years. Illustrated book free, showing pictures of homes and rooms containing this wonderful device, complete description, letters of endorsement from health authorities, doctors, editors, and scores of users with full names and addresses. This book is free—send for it today—**investigate!**

\$112.00 in Eight Hours

That's the record of one man in a single day. **The same man has never sold less than five closets for any half day's work.** Every home a prospect. Every sale makes **dollars**—not pennies—of profit. **Biggest money-making opportunity** ever offered. Liberal commission. Permanent business. **Exclusive agency contract.** Territory free. Co-operation, advertising, assistance. Business supplies the capital.

Agents Outfit FREE

Send no money. No order required to start. We start you **FREE.** We teach you how to make amazing success. Write now. Secure your county under exclusive contract. **Don't delay.** Write a letter or card giving name of your county and mail it today. Risk a stamp to get complete free information. **Do it right now on your part.**

The Shafer Mfg. Co.
459 Colton Bldg., Toledo, Ohio



Chemicals, which are furnished with the closet, and air currents do the work, automatically.

Price Complete Only \$15

Cost of "Squeaks and Shakes" on 10 Cheap Wheelbarrows---



Squeaks — \$18 a week, 52 weeks... \$ 936
Shakes — \$12 a week, 52 weeks... 624

Total for 10 barrows \$1,560
or, per Barrow... 156

Says Tim:

"Before sendin' you these figures on the cost o' squeaks an' shakes I showed 'em to some o' my old pals, and they sez, sez they, 'why, Tim, ye ain't made 'em half strong enough.'"

"Let's take the squeaks first, becuz they advertise their own cussedness the loudest:

"No matter how many cheap barrows they is on any job— one in ten is squeakin' all the time. That's 10%. An' every squeaker makes at least 10 other workmen on the job so nervous they lose at least 10% of their workin' capacity. That's a day's work gone fer one man out o' ten an' the higher paid man the wuss his nerves is flammerasted. That's \$18.00 a week or \$936.00 a year, w'ch, countin' the time it takes the boss to order supplies with his ol' can, ner the slowin'-down o' the husky tim's pushin' his sumpner agin' the laws o' friction.

"An' shakes is wuss'n squeaks, 'cause all the 'bargin' barrows shake all the time—all bad, but some a hull lot wuss.

"Take the same gang o' ten barrows—stumpy little stove bolts in the legs always comin' out an' gotten lost; nuts from wheel axles gittin' loose or turnin' up missin'—gang boss wastin' his dollar-a-hour time keepin' 'em goin'—say 20c a cripple every day—two dollars a day, \$12.00 a week—\$6.24 a year. Add that to the \$936 squeak loss and you get a total loss of \$1560 a year for ten barrows or \$156.00 apiece—dumb loss, not to mention the fact that the squeakers an' shakers do less work every day and last less than half as long as Sterlings.

"Can you beat it? Buy STERLING WHEELBARROWS

"They can't squeak, 'cause wheel bearings are wood fibre bushes, one in each end of hub, and these bushes are self-lubricating. The older they get, the easier they wheel.

"The leg chains is, forged and shoes are all riveted together, so ther's no bells to get loose.

"The wheel axle is keyed to brackets, so ther's no nuts to come off.

"Buy STERLINGS and save the cost of squeaks and shakes."

—TIM TRUNDLE

Write for Catalogue No. 19

STERLING WHEELBARROW CO.
6207 Shenners Ave. - Milwaukee, Wis.

Sterling
Concrete Barrow No. 32



Fire Protection

The Flintkote Manufacturing Company, 90 Pearl Street, Boston, Mass., announces the listings of its products in the "C" classification of the Underwriters' Laboratories by direction of the National Board of Fire Underwriters. Many of the Rex products manufactured by this company have long been approved by the Underwriters, but this announcement makes the classification definite.

Until this classification was made, the buyer of prepared roofings of this type was forced to take the word of the dealer or of the salesman as his authority regarding the approval of the Underwriters. Of course he could write to the Underwriters' Laboratories and substantiate what had been told him, but this was seldom done. Hereafter Rex products carry their own authority in the form of the Underwriters' labels, which are pasted on each carton or roll.

Class "C" is the highest class to which asphalt shingles and prepared roofings in rolls (rag-felt type) are admitted. The following Rex products are now listed in Class "C":

Rex strip shingles, slate surfaced.

Rex wide space shingles, slate surfaced.

Rex shingles (individual), slate surfaced.

Rex roofing, in rolls, slate surface.

Rex - tile shingles, style A, D, G.

Rex flintkote roofing, 2 and 3 ply, in rolls.

Zarex roofing, 2 and 3 ply, in rolls. Mikado roofing, 2 and 3 ply, in rolls. Rex valley and ridge strip, in rolls. Rex red roofing, in rolls. Regular paradux (canvas top), in rolls.

The Flintkote Manufacturing Company will be glad to send catalog or further particulars describing any or all the above products.



Year 'Round Attention to Heating Apparatus

A successful carpenter or builder can usually trace much of his prestige to the little things he did for his clients, beyond specification or contract. It is often the kindly admonition to do this or that, in order to cut down a building's overhead; little suggestions as regards ways and means to get the most from the equipment—these things impress the client with the sincerity of the builder who, in this way, gives extra service.

As an example of such service, which costs little, and often means much to the owner, it may be pointed out to the owner that his heating apparatus is a matter of some attention the year 'round. Too many owners who are responsible for valuable heating equipment, are content to let equipment lie neglected throught the summer months.

With this idea in mind, the Williamson Heater Company, makers of Williamson Underfeed Furnaces and Boilers, Cincinnati, Ohio, has consistently campaigned for a consideration of heating problems the entire year instead of just at the beginning of the winter season.

As an instance of saving, which can be effected by proper precautions, the Williamson Company has pointed out in some of their interesting literature, that, as soot is one of the most efficient heat insulators known, frequent cleanings of furnace or boiler are in the nature of a real investment.

The Williamson Heater Company, by means of its bright little magazine, Williamson Underfeed News, has been ex-

(Continued to page 190.)

CARPENTERS AND BUILDERS



I Want 200 Exceptional Men

I Prefer Carpenters and Builders

A Nation-Wide Demand. I have openings right now for at least 200 men with mechanical ability—men who are ambitious—who have stick-to-it-iveness—determination, and a little money to invest in a proven money-making proposition. Through my six years of national advertising, I am creating a nation-wide demand for the Haywood Standardized Tire Repair Service, which I have demonstrated time and again is the best thing of its kind in the country. Right now there are at least two hundred important centers where autoists are demanding Haywood Service and can't get it, except at long ranges. It is for these centers that I want men. Haven't you often wished to get into the automobile business? The tire end is one of the biggest industries of the world today. Here is your chance.

Thirty Million Tires to Repair

The automobiles of 1917, both old and new cars, will need nearly thirty millions of tires. Every one will need repairing. 1917 will be, by far, the biggest year in the automobile business. Autos are common now. They are owned by people who have to economize in upkeep expense. They want to save their tires and demand tire repair service.

No Experience Necessary to start in this business. Not even a knowledge of tires, as we teach you thoroughly to handle this work successfully. You can start just anywhere, and with a little energy and ambition, make a success. You can open a small shop or start in your own home, if you prefer. One machine will take care of your work. In the Haywood shop there are machines of all sizes, at prices meeting the investment you wish to make. Write me today and get the particulars of this wonderful opportunity.

Enormous Profits There's almost no limit to the profits you can make when you get a Haywood Machine for repairing tires. That is only the first step that I have planned to put you in a profitable business of your own. The minute you are ready, I'll show you how to add accessories to your machine. I'll show you how to sell tires—the right tires—the kind that autoists like and that give them the best service. If you desire, I can fit you out with a complete stock of auto accessories—goods that will bring auto owners to you, not only for tire repairing, but other services they require. Every auto owner in your locality would welcome your step into this business—would welcome you and the Haywood Service. That's been proven hundreds of times by others whom I have started.

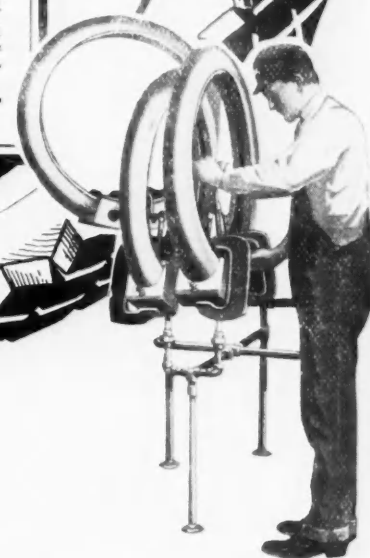
I'll Train You in Ten Days--Either by Mail or in My Free School

I'll teach you this business from A to Z absolutely free of charge. You can either come to Indianapolis to my free training school and learn this business first hand, or I will train you successfully by mail. I'll teach you how to secure the business—how to hold it—how to develop expert technical knowledge of tires and sell customers all their supplies. When you step out of my school you are an expert—you know the construction—the inner mechanism of a tire and tire building. This knowledge is worth dollars to every automobile owner who draws up to your door, and with a little selling ability, and by following the course which we so carefully teach, your success is assured.

Write Me Today--Mail The Coupon At the bottom of this page you will find a coupon which brings my special offer to carpenters and builders. Fill it out with your name and address and send it at once, or just mail a post card. I will send you a free book and tell you all about this wonderful proposition. I will send you positive proof of success—letters from men who are making big money in this business—who are giving Haywood Service in their various localities. What these men can do, you can, too. My Free Book "The Up-Grade Road To Wealth," is an inspiration to bigger and better undertakings. Don't Wait, But Write Now.

M. Haywood Haywood Tire and Equipment Company 660 N. Capitol Avenue Indianapolis, Ind.

MAKE \$3000 A YEAR



Here Is Your Opportunity— Sign and Mail Coupon NOW Special Coupon

M. Haywood, Haywood Tire & Equipment Co.
660 N. Capitol Ave., Indianapolis, Ind.

Dear Sir: Please send me full particulars of the special opportunity that you are now offering to carpenters and builders.

Name

Address

plaining to the army of over 4,000 Underfed dealers, the value of attention to furnaces throught the year. Any carpenter or builder would do well to look up the Williamson Underfed dealer in his vicinity. You will find him a heating man that it will pay to know. He will be able to co-operate with you in giving valuable heating suggestions to your clients. He will be glad to explain to you the famous "Underfed way" of heating.

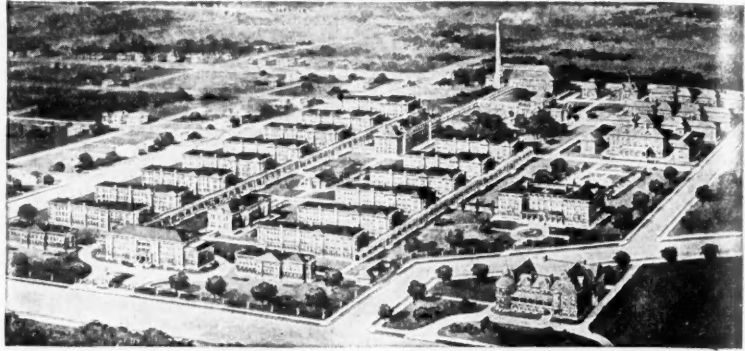
You will be interested to find out about the guaranteed saving of $\frac{1}{2}$ to $\frac{2}{3}$ coal cost wherever a Williamson Underfed Furnace or Boiler is installed. It will pay you to find out how Williamson Free Heating Plans help in successful furnace or boiler installation. So, see the nearest Williamson Underfed dealer, or drop a postal to the Williamson Heater Company, 217 Fifth Avenue, Cincinnati, Ohio. No obligation will be incurred.



"Percoproof" Damp-Proofing

"Percoproof" is the name given a damp-proofing compound manufactured by The Philip Carey Company, 136 Wayne Ave., Lockland, Cincinnati, Ohio. This compound is black in appearance and is made from the fusion of most select water-proof gums which have been worked into a uniform mass without pores. Great care is taken in the manufacture of this material, and as a result there is a uniformity maintained throught and the compound is always the same.

"Percoproof" comes to the consumer ready for use and requires no thinning agent. In cold weather, if the compound is found to be too heavy for application, a little heat is required. This may be applied by immersing the container in hot water, or by slightly heating same over a fire out of



New General Hospital, Cincinnati, Ohio. There Are 18 Buildings. Eight Thousand Gallons of "Percoproof" Were Used on These Buildings.

doors. The compound is not prepared with oils and it should not be mixed with such materials since the action of acids, alkalis and other destructive elements found in the soil breaks down the oils.

The illustration shows the New General Hospital at Cincinnati, Ohio. "Percoproof" was used exclusively on all exterior foundation walls, tunnels and areaways below grade line. The hospital comprises 18 large buildings and only the best of material and workmanship were accepted. Eight thousand gallons of the damp-proofing compound were applied on the buildings.

One gallon of "Percoproof" will cover approximately 100 square feet, one coat; the quantity used depending upon the surface. It is packed in all size containers for convenient use, from one-gallon cans to fifty-gallon barrels.

The Philip Carey Company will send complete information to those interested.

"Father of them All"



The
Great Bell

The Original Pipeless Furnace

We have thousands in use. Sizes, styles, and prices to suit all, \$38.00 to \$94.00.

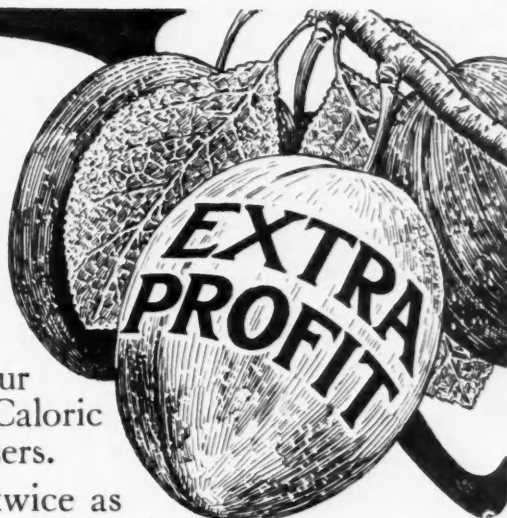
This furnace will heat any one or two-story building in the most efficient manner; with the least effort, and the lowest relative cost. It is made for the building where a furnace is needed, but where the cost has been prohibitive.

Our methods of production and sales have reduced the cost so low that no builder can afford to overlook our proposition.

Write for our catalogs, describing the various styles, prices and specifications of the Great Bell Furnace. We guarantee them to be and do all we claim for them in both catalog and correspondence.

American Bell & Foundry Company, Northville,
MICH.

SHAKE THIS PLUM TREE



Last year, from a factory but half the size of our present plant, there went—through dealers—Caloric Furnaces to many thousands of delighted users.

This year, from a factory twice as large, twice as many Calorics will go to twice as many people and more dealers will make more money selling them.

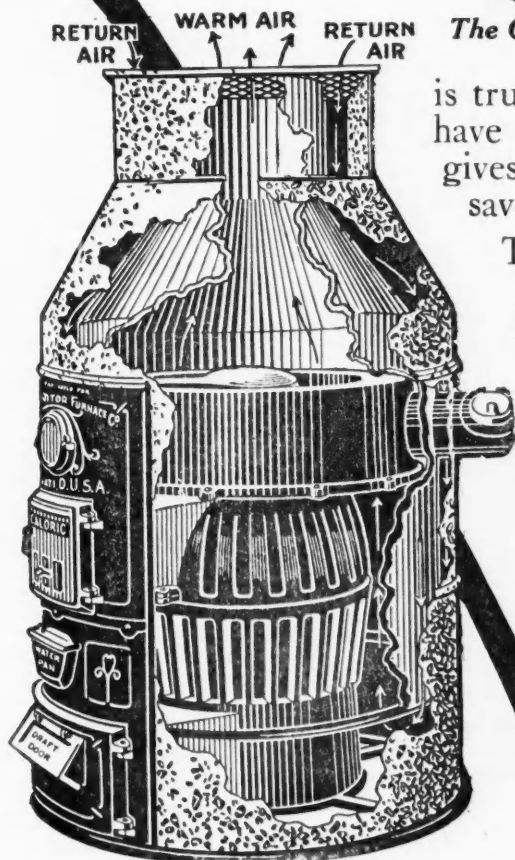
Are you going to shake this plum-tree?

Here are some excellent reasons why you should: The Caloric heats a house from *one register*—does it thoroughly and economically. You can install it easily in a day, and it delivers heat, not slowly through long, crooked pipes, but straight up into the house where it quickly circulates to the farthest corner.

This may seem new and revolutionary, but, remember, every great invention was once new; and, besides, *thousands of satisfied users* bear strong testimony that the

PIPELESS
TRADE MARK **CALORIC** TRADE MARK
FURNACE

The Original Patented Pipeless Furnace



is truly a wonderful house heater. Many hundreds, too, have written voluntary letters, saying that the Caloric gives greater comfort than they ever enjoyed before and saves a third of their fuel besides.

The secret of Caloric success is its patented triple casing and dead air space which prevents radiation into the cellar and sends all heat up through the register. Scientific investigation has proved this the most efficient and healthful way of heating, and every user finds it true.

We specialize in pipeless furnaces, and guarantee the Caloric to do what we say and save 35% of fuel. If your customers find the Caloric in any way unsatisfactory, we will adjust it to their satisfaction and yours or take it out.

We are helping you with a country-wide advertising campaign and are back of you to help push Calorics in every legitimate way. Write and get our proposition.

The Monitor Stove and Range Co.

100 GEST ST.

CINCINNATI, OHIO

VAUGHAN'S VANADIUM NAIL HAMMER



The Toughest, Strongest
Hammer Made

\$1.25
EACH

No. 41½ - 16 oz. Full polished
No. 42 - 13 oz. Full polished

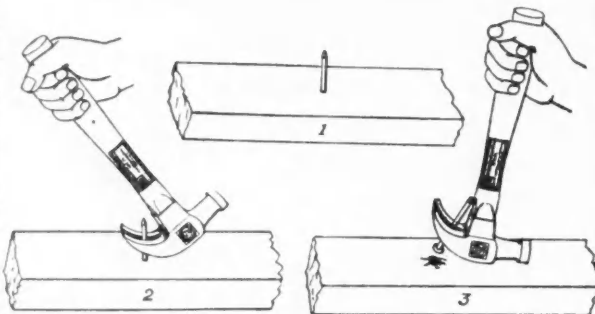
Vanadium is a purifier of steel.
Vaughan's Vanadium Nail Hammer is
made of the BEST Vanadium steel.

Every hammer is individually tempered
and tested.

The handle is hand-shaped and has a
WAX-HOLE in the end for waxing nails to
be driven in hard wood.

Our Non-Slip Claw

The Claw Grips -- It Never Slips



- No. 1. Shows nail driven into a two-by-four board.
No. 2. Shows how our non-slip claw will grip the
shank of a nail.
No. 3. Shows head and all pulled through the
board.

Your dealer should stock our hammer.

Buy one today. If he does not carry them, send us
\$1.25 and your dealer's name and we will send it to you
prepaid.

VAUGHAN & BUSHNELL

2114 Carroll Avenue, CHICAGO



Makers of Fine Tools



Motor Driving the Band Saw

There are three methods of motor driving a band saw: spur gear, direct connected, and belted. The first, because of gear breakage, has become practically obsolete.

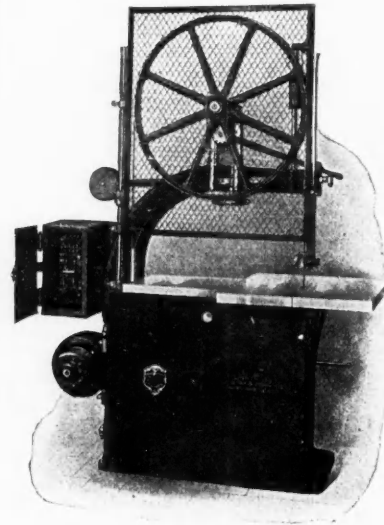


Fig. 1.

operating parts are enclosed by a guard of heavy wire mesh.

This arrangement makes machine entirely self-contained and requires, in one direction only, about 10 inches extra floor space.

When the motor is started there is a flexibility between the motor and machine, caused by a permissible and desirable belt slippage and the action of the idler, that permits the motor to pick up its load and start the solid lower wheel without undue strain.

Once brought up to speed, the solid lower wheel on an engine, runs on its own momentum, with a consequent low power cost.

Control may be mounted on columns just above motor, or if direct current is used, automatic control may be mounted in iron case at rear and a push button for stopping and starting mounted underneath the table, giving operator instantaneous control without changing his position, as shown in Fig. 1.

Further information on this subject may be obtained from J. A. Fay-Egan Co., 545-565 W. Front St., Cincinnati, O.



Revised estimates place the amount of standing merchantable timber in the United States at approximately 2,767 billion board feet. Of this amount 1,404 billion board feet, or 53 per cent of the total, is in California, Washington, Oregon, Idaho and Montana.

Fig. 3 shows the second method, which under some conditions is desirable and warrants the high cost of the slow speed motor.

For general all around satisfaction and operating efficiency, however, the Fay-Egan belted drive as shown in Figs. 1 and 2 is recommended by their engineers. A high-speed motor is mounted on back of column, belting to a large pulley on drive shaft. A gravity idler is mounted on column and rides on belt. All

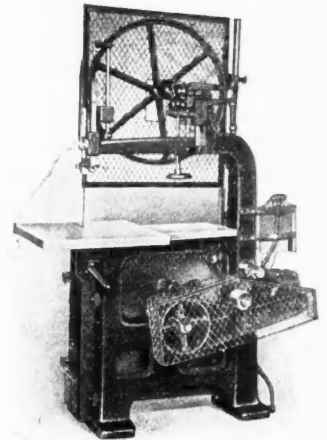


Fig. 2.

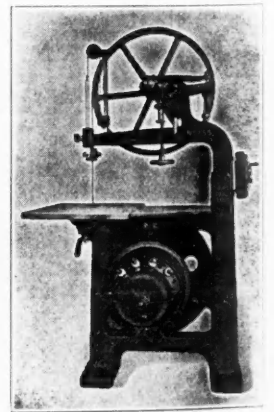
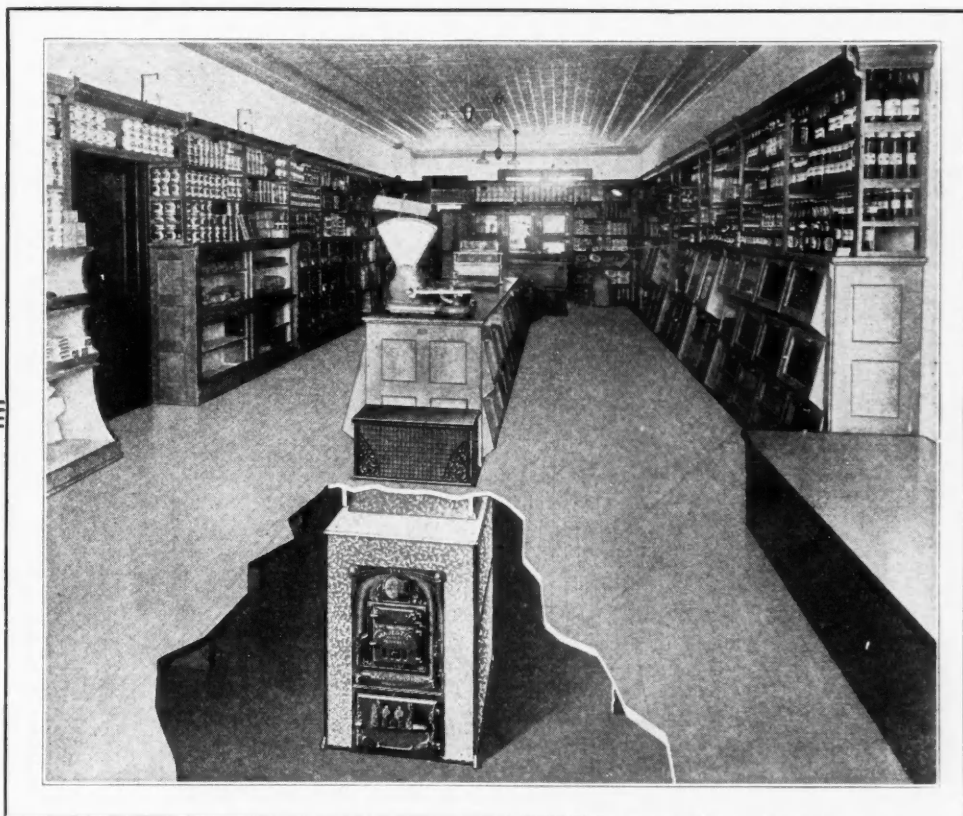


Fig. 3.



Majestic Duplex Heating System **Draws Cold Air Out—Forces Warm Air In**

The heating problems of every store can be quickly and easily solved with the "Majestic Duplex One-Register Heating System" for stores. No matter how cold the weather there will always be plenty of heat uniformly distributed.

The cold air is drawn from the floor through the cold air ducts, while pure warm air is discharged from the main face of the register. Perfect circulation is maintained and the far corners, usually cold and uncomfortable, get just as much heat as any other part of the store.

More Heat at Two-Thirds the Cost

The Majestic Duplex Heating System not only gives more heat, but it costs one-third less than old-fashioned methods. The furnace occupies space in the basement only four feet square. It has but one register which may be placed anywhere in the store for use as an extra counter or table. The Majestic comes to you all ready for use and is easily installed in one day.

Carpenters and Builders—Get the Agency

Our extensive advertising is making every store owner realize the value of this modern heating system. There are stores in your own locality that should be equipped with it. Get the agency and let us make money for you. Mail the coupon today for printed matter, complete information and terms.

There are other Majestic Specialties, too, including Coal Chutes, Underground and Built-in Garbage Receivers, Milk and Package Receivers, Rubbish Burners, Metal Plant Boxes, Pipe and Pipeless Furnaces, etc.

THE MAJESTIC COMPANY
 703 Erie Street Huntington, Ind.

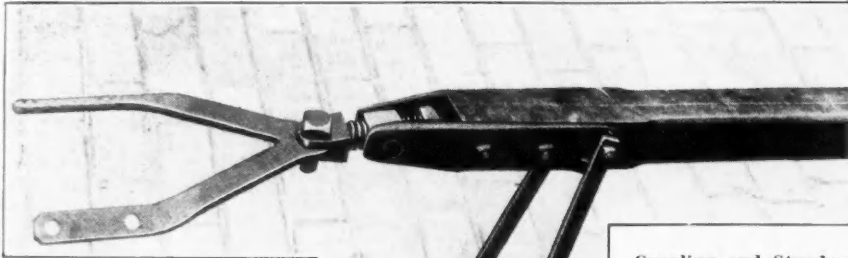
Mail This Coupon

THE MAJESTIC COMPANY,
 703 Erie Street, Huntington, Ind.
 Please send me printed matter, complete information, proposition and terms to carpenters and builders.

Name.....

Address.....

City..... State.....



Coupling and Standard of Page Trailer.

Profit Trails Behind

A relatively small additional investment will increase your haulage capacity without taking anything from the value of the automobile as a pleasure car. You should invest in an auto trailer.

The Page Bros. Buggy Company, of Marshall, Michigan, has been studying the possibility of utilizing auto trailers in the building field. There are a number of Page trailers being used very successfully by builders at the present time. All sorts of equipment and materials are hauled economically in this way.

One of the interesting features of the Page trailer is its attachment or hitch. This is illustrated in the accompanying photograph. It combines a universal joint and shock absorber, which takes up the shock of either starting or stopping the load. It is a simple, practical device which simply cannot

get out of order. The attachment shown is for a Ford car, and it bolts to the frame of the car, not to the rear axle. The yoke is practically hidden when in place. The trailer is quickly attached or detached by simply throwing the coupling pin. The standard holds the trailer level when not attached to the automobile.

Builders should be interested in what the Page Bros.' Buggy Company has to tell them about auto trailers in this field.

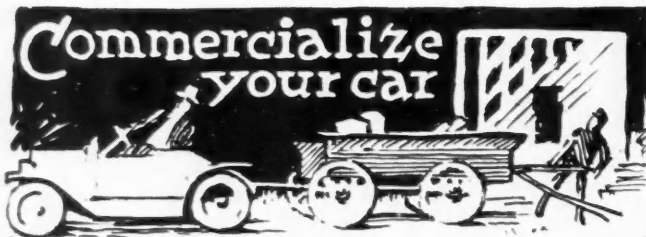


Useful Information on Dumb Waiters

A circular has recently been published by the Sedgwick Machine Works, 132 Liberty Street, New York City, which will be found very useful to anyone specifying or installing dumb waiters.

A complete form for dumb waiter specifications is given, including clauses covering special features. One side of the circular consists of a large detail sheet showing installation of single and double face hand power dumbwaiters, including construction details of five different types of well.

The Sedgwick Machine Works also conducts a special service department for the benefit of architects and contractors. This department works in co-operation with architects in selecting the proper equipment for special purposes and prepares drawings for the use of contractors installing the same. The Sedgwick line of hand power dumbwaiters and elevators is very complete in the stock sizes and they are prepared to turn out special equipment on short notice.



Commercialize your car
Use It on the Job
Make it a Valuable Asset as well as a Convenience

Miami Trailers

enable the carpenter or builder to solve his hauling problems without extra expense or injury to his car.

They are equipped with a special shock-absorbing draw bar, attached to the chassis (not the axle) of the car and which prevents any strain in starting or stopping the car. The axles and bearing of the Miami are of the same grade as is used in automobile construction.

The Miami Trailer is made in several designs and special bodies can be furnished to meet the requirements of your hauling propositions.

Write for prices and descriptions.

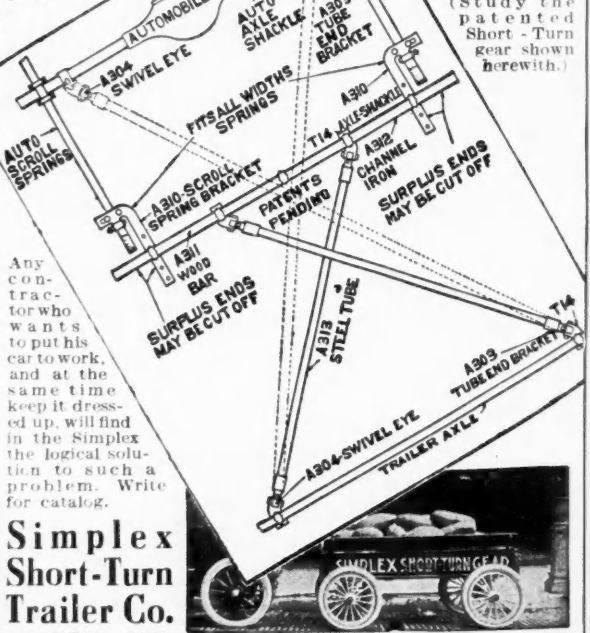
MIAMI TRAILER COMPANY
TROY, OHIO



Why the Simplex "trails"

IT follows the "trail" of the automobile absolutely — no swinging into curbs or bumping into other vehicles with the Simplex.

Street corners can be turned just as short with an automobile to which a Simplex is attached as they can when the car does not have a trailer attached. (Study the patented Short-Turn gear shown herewith.)

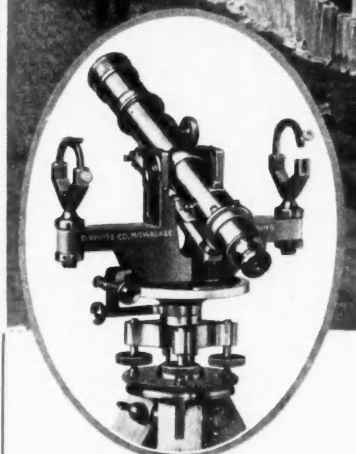


Any contractor who wants to put his car to work, and at the same time keep it dressed up, will find in the Simplex the logical solution to such a problem. Write for catalog.

Simplex Short-Turn Trailer Co.
AUBURN - IND.

White Convertible Level Used on Big Work

The
Up-to-date
Instrument
for the
Up-to-date
Contractor



\$1,000,000 Plankinton Arcade Building, Milwaukee. John H. Parker Co., Contractors, New York, N. Y.

as well as small work

This dependable level is used wherever exacting instrument service is demanded by progressive contractors. Whether it be laying out a simple barn site or controlling lines and levels on a lofty office building one of these *compact, durable, easily-used* instruments will serve you with *unvarying accuracy*.

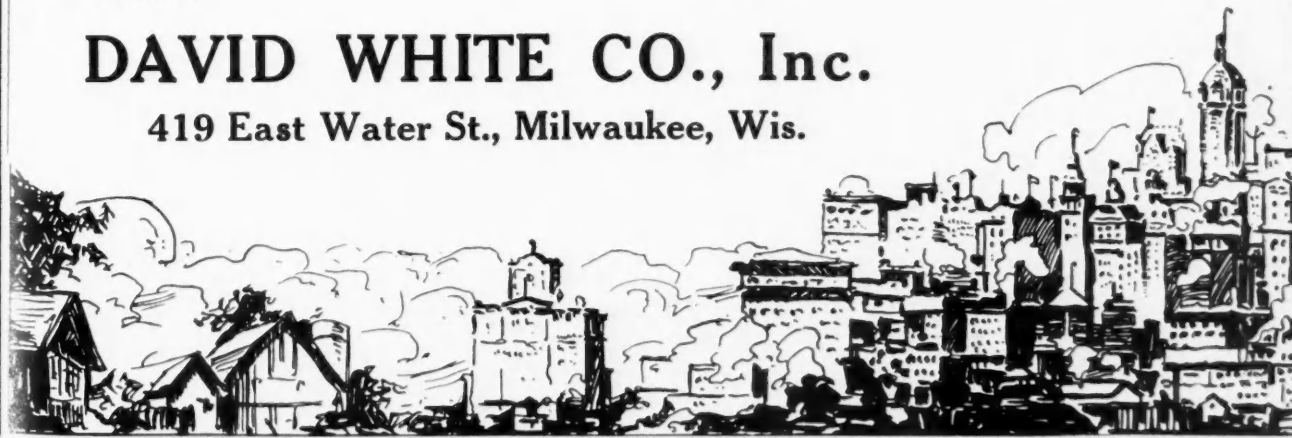
The handy feature about the "WHITE" is that it takes but a "Jiffy" (10 seconds) to change it from a level to a modified transit. But that isn't all; the delicate and sensitive spirit-level (the tell-tale of any instrument) *rests safely below the telescope* out of harm's way and the focusing nut is *always* on the right hand side of telescope accessible to the right hand. The cross-bar is *drop-centered* and *cast integral with standards*. No loose parts to lose. Always in adjustment. Always ready for instant use.

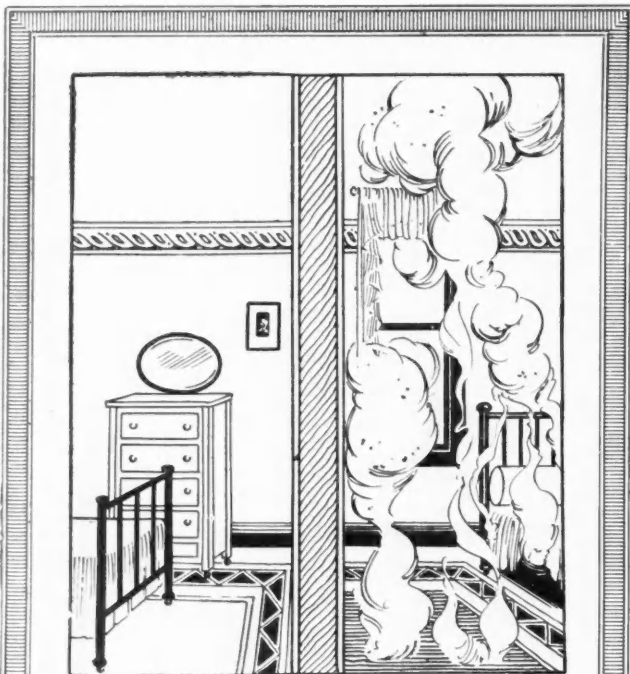
We shall be very glad to send a "WHITE" convertible level to any reliable contractor for a 10-day trial. After testing the instrument if you aren't just *more than delighted* with it we shall be equally glad to receive it back. The "WHITE" convertible level is sold on its own merits. It is being used on *thousands of important jobs* both large and small. It is *so accurate, so durable, so dependable* that contractors everywhere have come to recognize it as the *most practical and up-to-date* convertible level on the market today.

Drop us a postal card for full information regarding this wonderful instrument and our trial offer.

DAVID WHITE CO., Inc.

419 East Water St., Milwaukee, Wis.





You Sell Protection When You Recommend "Kno-Burn"

Plaster laid on a base of Kno-Burn Expanded Metal Lath makes a fire-proof wall. The protection to property and life in this one feature more than justifies you in recommending its use.



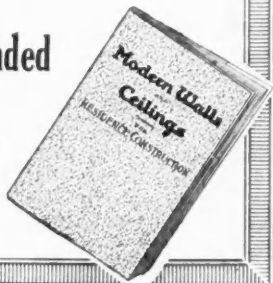
presents a smooth surface to the plasterer's trowel, requires a minimum amount of plaster to make a good even surface and absolutely assures you of a successful and permanent job of plastering or stucco work.

"Modern Walls and Ceilings," our latest book sent free on request. You will find it valuable and interesting. Ask for Booklet 32.

North Western Expanded Metal Company

903 Old Colony Building
Chicago, Ill.

Manufacturers of all Types of Expanded Metal



Change in General Fireproofing Organization

Paul R. Clark, who has for a number of years been sales manager of the General Fireproofing Company, Youngstown, Ohio, has left that organization to assume direct charge of the affairs of the Fireproof Products Company, the New York agents of the General Fireproofing Company, at New York City.

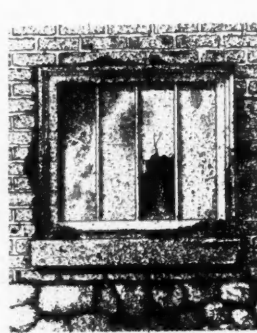
Mr. Clark came to the General Fireproofing Company ten years ago as a salesman, and by hard work and steady application worked his way into the managership of the sales department of the organization. He will be succeeded by William B. Turner, formerly advertising manager of the company.



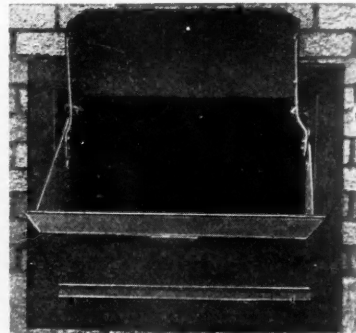
Don't Let Your Coal Windows Discredit You

Did you ever notice a broken basement window in an otherwise attractive house? It is usually the window where the coal is put into the basement. It detracts from the appearance of the entire house and leaves the building not quite such a credit to the builder as it might have been were it not for this unsightly coal window.

Of course, one way of avoiding the unsightly window is by the owner giving it considerable attention until it becomes a nuisance. But it is now up to the builder to see that the owner is not annoyed with such things. He should also guard his own interests against work which will discredit him simply because of a small item such as the coal window.



Unsightly Coal Window.



A Neat Kewanee Coal Chute.

The Kewanee Manufacturing Co., Kewanee, Ill., has come to the builders' aid with respect to this particular question of the coal window. They are making an all-steel coal chute which can be fitted in place of the unsightly window as well as included in the design of new houses. The larger sizes are made of 12-gauge blue annealed steel with a 2½-inch flange. The smaller sizes are of 14-gauge steel with 2-inch flanges. The flanges in a way are identical with the window casing and hold the chute in place. The chute is locked from the inside and is guaranteed for five years against breakage.

Get in touch and learn more of the chute. Start to install them in your buildings so that the unsightly coal window in the basement will not detract from your really good work.



A True Story With a Moral

Some years ago the proprietors of a hardware store at Morenci, Michigan, came to the conclusion that they could improve their store and in so doing better their business by making some noticeable changes, such as better show windows, more up-to-date shelving, counters and other fixtures, and above all, an up-to-date heating system.

The original store had been for years heated by a four-foot wood burning box stove with a large drum on top. It

(Continued to page 198.)

Dunn Wire-Cut-Lug Vitri-fied Clay Blocks are Best for Silos

A silo made of these blocks fills every silo requirement; it is frost-proof, moisture-proof, and permanent. The cost is no more than for common brick; and a material saving is effected in laying-up, because of their larger size. Thousands of these silos are now in use among farmers who have had experience with all kinds of silos, and they invariably say that this material gives the most satisfactory results of any they have ever used.

Made in 65 Plants in 12 States

Dunn wire-cut-lug vitri-fied clay silo blocks are easily obtained. They are made in 65 of the largest and best paving-block plants in the U. S. Due to certain conditions in these paving-block plants, they make a great amount of this wonderful silo material every year in addition to their regular output, and it is sold on a very favorable basis—let us tell you more about it.

If You Build Silos Get a List of These Plants

If you are building silos we want to send you a list of these plants. They are all prepared to give you valuable help in silo construction, and there isn't the slightest obligation so far as you are concerned. Won't you let us send you the list? A postal card will get it.

Dunn Wire-Cut-Lug Brick Co. - Conneaut, Ohio



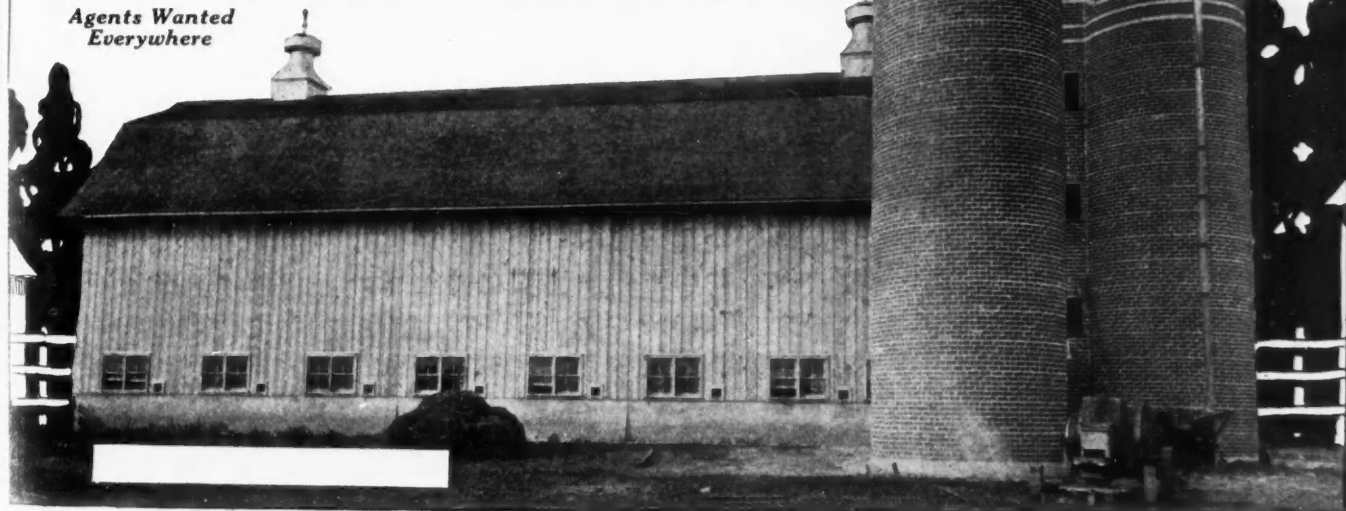
Guaranteed not to Crack The Christensen Brick Silo. A combination of brick, steel, and experience.

With the use of the Christensen corrugated steel re-inforcement band, brick silos may be built with a four-inch wall to any height and size desired, with absolute safety. Under actual test it has been demonstrated that a four-inch wall equipped with this re-inforcement will stand more pressure than will a twenty-inch wall not re-inforced.

Any contractor or mason with our complete blue print plans and specifications can build these modern silos—and you can make a profit on every one you build. We invite your investigation, and shall be glad to send our free book "Why and How" upon receipt of your postal.

The J. P. Christensen Silo Co., Racine, Wis.

Agents Wanted Everywhere



consumed so much fuel that the clerk was obliged to bring it in in a wheelbarrow. After filling up the stove it was necessary to do a general job of sweeping, cleaning up chips and dirt. The clerk frequently found it impossible to perform this duty owing to the number of elderly gentlemen "setters" and "spitters" being in the way, "setting around the fire." These old gentlemen had served their day and were not now patrons of the store, as they had come to that time in life where they needed nothing in particular but just heat and a place to exchange ideas. The floor around the stove had been unsanitary for years, and to put it mildly, the Red Cross workers would have found it a prominent place to hand out their card.

After the proprietors had decided to make improvements, the very first holiday found them busy carrying out the old stove and installing in the basement a modern up-to-date warm air heating system, which transferred all dirt, ashes and dust to the basement, as well as allowed them to heat their room an even temperature in all parts of the store.

In the past the heat near the old stove had been plenty, but where the counters were it was cold and uncomfortable. The only very real warm place in the building had been near the ceiling, which did no good, since people thus far had not accustomed themselves with walking on the ceiling.

Under the old system it was not possible to draw the cold air from the floor allowing the warm air to come down and so the floors were always cold until after the installation



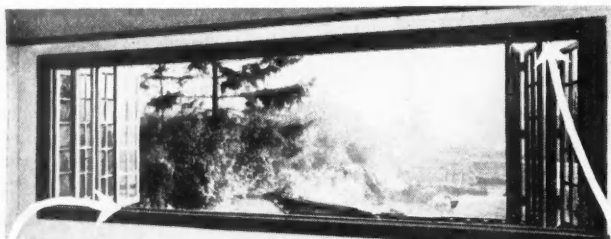
Well Heated Dry Goods Store. It Has a Majestic Pipeless Furnace.

of the new heating system. Here is the important part! With the change came a new cleanliness. The store was warm all over. The old "setters" found headquarters around another stove; new patrons came to the store; it became headquarters for a new and up-to-date body of young business men in the vicinity, such as the proprietor of the rolling mill, cashiers of the banks, manager of the brick yard, editor of the weekly paper and other hustling young men who were doing things in the town, and they did not "set around the fire," but what few moments they did find to spend in the store were spent at the front end where it was warm and cozy and where they could look out of the windows and see the activities outside.

The proprietors of that store, after having made a success in the mercantile business, became manufacturers, and now have a nation-wide reputation. These men will tell you today that they attribute their success as merchants to their being able to see the advantage of installing in their store modern equipment and a successful and satisfactory heating system.

The exodus of the stove as a store heating plant is every day becoming more evidently a reality. Experience is showing merchants that they cannot afford to carry on business in poorly heated stores. One firm doing a drug business in Huntington, Indiana, after installing a modern heating plant supplied by The Majestic Company of that city, was very

(Continued to page 200.)



Better Than Double-Hung Sliding Sash Windows

THIS new type of outswinging casement window—made possible by Whitney Casement Window-Hardware—is so much more practical—so absolutely different from other types of casement windows, that all types of houses and buildings from coast to coast are being **completely** equipped with it.

Not only is it the ideal window for porches and sun-parlors, but also for all other rooms. They are absolutely tight and storm-proof when closed, can be opened wide to afford a wide, unobstructed view, never leak, stick, rattle or slam shut. Use any style sash. We sell only the patented hardware.

Write for information and interesting portfolio

If west of Mississippi, address
Whitney Window Corp'n,
 309 Fifth St. S.,
 MINNEAPOLIS, MINN.

If east of Mississippi, address
H. E. Holbrook Co.,
 446 John Hancock Bldg.,
 BOSTON, MASS.



WHITNEY
 CASEMENT
 WINDOW HARDWARE



MERCHANT'S OLD METHOD



ROOFING TIN

has been the accepted standard quality roofing plate for the last quarter of a century.

DURABLE LASTING FIRE RESISTING.

Not only does it protect from fire in adjoining building but it prevents the spread of interior flames upward through the roof.

Open Hearth copper bearing base. Very heavy coating. Palm Oil Process.

Send for Booklet and Prices to Dept. B33.

Fire Retarding "Star" Ventilators
 Evans "Almet" Fire Doors.

MERCHANT & EVANS CO., Philadelphia Pa.

New York
 Baltimore
 Atlanta
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Wheeling
 Chicago
 St. Louis
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CARPENTERS!

Make Big Money During Dull Months

Here's a winter job for you—a job which will keep you busy and pays big profits. A new invention that's revolutionizing living conditions in the country and small town homes. It's a necessity to health—a preventative of disease and one of the greatest inventions of modern times for comfort and convenience.

The Great United Chemical Closet

No Water--No Sewer--No Odor
ABSOLUTELY SANITARY

Every home, every cottage, every school, every hotel, without running water and sewer conveniences needs the United Ventilated Indoor Closet. Price low—within reach of all—and big profits to Carpenter and Builder Agents. It's absolutely germ-proof and odorless. Needs no attention except to replace fresh chemicals (which we furnish) about twice a year. **Guaranteed unconditionally.**

Easy to Sell---Easy to Install

We furnish selling helps which get orders and profits for you. Circulars with your own name on them, letters, advertising illustrations, testimony of users, etc. To live wires we grant exclusive territory. Simply take orders and install according to simple directions, which we send you.

An Unusual Opportunity--Act Today

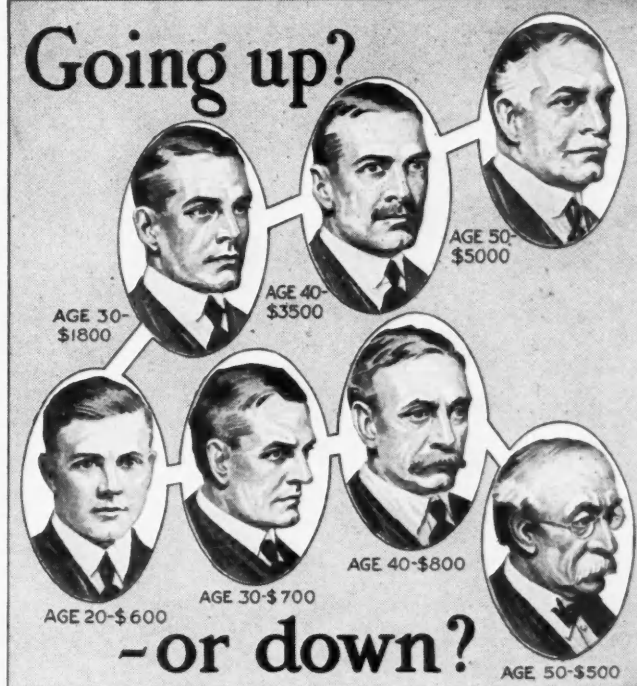
Carpenters and builders have never had an opportunity equal to this for quick big profits, right in the season when your work is slack. Reserve your territory by writing today. Ask for special offer to carpenters—now. A postal will do.

THE UNITED ENGINE CO.
Dept. C3 LANSING, MICH.



Write for Special Offer

Going up?



HERE is your future charted for you, based on the actual average earnings of trained and untrained men.

Which way will you go? You'll either go *up*, through *training*, to a position that means good money and more comforts as the years go by, or you'll go *down*, through *lack of training*, into the ranks of the poorly paid.

It rests entirely with you which way you go. You can make or break your own future. And *now* is the time to decide. Not next year, not next month, but *now*. You *can* go up if you want to. You can *get* the training that will command a trained man's salary. The International Correspondence Schools have helped hundreds of thousands of men to qualify for advancement. Let them show *you* how *you* can prepare yourself, in your own home, for the position you want in the work you like best.

At least, *find out* what the I. C. S. can do for you, by marking and mailing this coupon. It will be the first step upward. Choose your future from this list, then get this coupon into the mail today.

INTERNATIONAL CORRESPONDENCE SCHOOLS

Box 8139, SCRANTON, PA.

Explain, without obligating me, how I can qualify for the position, or in the subject, before which I mark X.

- | | |
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| <input type="checkbox"/> ARCHITECT | <input type="checkbox"/> Law for Contractors |
| <input type="checkbox"/> Architectural Draftsman | <input type="checkbox"/> BUSINESS (Complete) |
| <input type="checkbox"/> Contractor and Builder | <input type="checkbox"/> BOOKKEEPER |
| <input type="checkbox"/> Building Foreman | <input type="checkbox"/> Stenographer and Typist |
| <input type="checkbox"/> Concrete Builder | <input type="checkbox"/> Higher Accounting |
| <input type="checkbox"/> Plumber and Steam Fitter | <input type="checkbox"/> GOOD ENGLISH |
| <input type="checkbox"/> Heating and Ventilation | <input type="checkbox"/> Common School Subjects |
| <input type="checkbox"/> Plumbing Inspector | <input type="checkbox"/> Mathematics |
| <input type="checkbox"/> Foreman Plumber | <input type="checkbox"/> SALESMANSHIP |
| <input type="checkbox"/> CIVIL ENGINEER | <input type="checkbox"/> ADVERTISING MAN |
| <input type="checkbox"/> Surveying and Mapping | <input type="checkbox"/> Window Trimmer |
| <input type="checkbox"/> Structural Engineer | <input type="checkbox"/> Show Card Writer |
| <input type="checkbox"/> Structural Draftsman | <input type="checkbox"/> CIVIL SERVICE |
| <input type="checkbox"/> ELECTRICAL ENGINEER | <input type="checkbox"/> Railway Mail Clerk |
| <input type="checkbox"/> Electric Lighting | <input type="checkbox"/> AGRICULTURE |
| <input type="checkbox"/> Electric Wiring | <input type="checkbox"/> Poultry Raising |
| <input type="checkbox"/> Electric Car Running | <input type="checkbox"/> MINE FOREMAN OR ENGR |
| <input type="checkbox"/> MECHANICAL ENGINEER | <input type="checkbox"/> Metallurgist or Proprietor |
| <input type="checkbox"/> Mechanical Draftsman | <input type="checkbox"/> Chemical Eng'g <input type="checkbox"/> Spanish |
| <input type="checkbox"/> Shop Practice | <input type="checkbox"/> Gas Engineer <input type="checkbox"/> German |
| <input type="checkbox"/> Sheet Metal Worker | <input type="checkbox"/> AUTOMOBILES <input type="checkbox"/> French |
| <input type="checkbox"/> STATIONARY ENGINEER | <input type="checkbox"/> Auto Repairing <input type="checkbox"/> Italian |

Name _____
Occupation & Employer _____
Street and No. _____
City _____ State _____

name of Course you want is not in this list, write it below.

SELL - If - INSTALL

you are building in the suburbs, small towns or country districts you can quickly solve the problem of an inexpensive indoor toilet by installing the

WOLVERINE Chemical Toilet

The greatest sanitary invention ever offered. We guarantee it to be absolutely satisfactory in every way and can make you an attractive offer to act as our representative. Now is the time to get our proposition.

Dail Steel Products Co.
600 Main St.
Lansing, Mich.

Write For Particulars

Mr. Builder: Increase Your Income Right Now—This Month

Here's something right in your line—a Chemical Closet that you can sell to a home builder cheaper than a wooden privy and make a bigger profit for yourself. Here's something you can sell at odd times or turn over to your son or your foreman to sell.

RO-SAN Chemical Closet

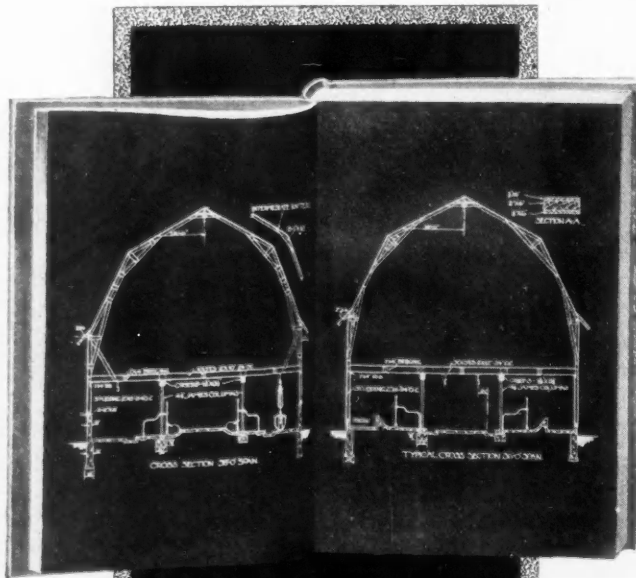
An absolutely sanitary, odorless indoor closet that may be placed anywhere in the house. Abolishes the germ breeding out-door vault. A comfort and a convenience when there is no sewer connection. Germs killed by chemical. Easily emptied as the ash pit of a stove.

AGENTS WANTED

We want one live carpenter contractor in each town to act as our agent. Hundreds of builders are selling these fixtures. Good profits for little work. We help you sell them. Write today for complete details.

ROWE SANITARY MFG. CO.
201 Sixth Street Detroit, Mich.
Ask about the Ro-San Washstand Hot and cold running water without plumbing.





Bigger Profits For Barn Builders

BACK your building skill with the scientific knowledge of our barn experts. "The James Way" Book gives the practical, helpful suggestions for better barns and barn equipment. It advises as to the best location. Basing its advice on drainage, ventilation and best distance from other buildings.

Complete Dairy Barn Information

From cover to cover "The James Way" is filled with the best, most modern dairy barn facts. Including blue print plans for complete barns, floors,

windows, ventilation, etc. Showing **James Barn Equipment** the equipment used by thousands of dairymen and installed by leading builders everywhere

Write for This Book TODAY!

Just send us the names of farmers who intend to build or remodel, and for how many cows. James reputation added to your skill will do more to increase your income. Dairymen everywhere know the

name "James" to stand for the **best** in barn equipment. Get in touch with us as quickly as possible. We have some barn information that will help you land jobs and **beat competition**. Write us **now**.

James Manufacturing Company

EB75 Cane Street, Ft. Atkinson, Wis.

Elmira, N. Y.

much pleased with the change which it brought about. A letter written by this firm said, in part:

"In making some changes in the interior of our store last summer and in order to gain some much needed space, we installed one of your 'Pipeless Store Furnaces,' and will say it certainly has done the work to our satisfaction.

"Besides doing away with an unsightly, dirty stove, it is a great fuel saver and distributes the heat so that the temperature is alike in any part of the store."

A book and stationery company in Lafayette, Indiana, say, in part:

"We must express our surprise at the fuel economy in heating this large building. During the most severe weather which we have had, five degrees below zero, our entire building was warmed to our utmost satisfaction.

"Our customers often remark how delightfully warm we keep our store."



A Store with Majestic Furnace and no Gossipers.

The satisfaction which is being found in the modern heating of stores formerly heated with stoves, opens a field for the active builder. The simplicity of the pipeless heater makes it easy for the man unacquainted with heating plants to rapidly become familiar with the installation of this system. This feature of the pipeless system is also important in buildings already erected, since few difficulties are encountered in locating and placing the plant.

The Majestic Company has studied the store heating problem very carefully and they are ready to take the matter up in a thoro manner with any contractor or builder who will address them at 703 Erie Street, Huntington, Indiana.



The 1917 Models of "The Standard" Low Charging Mixer

The new models for 1917 of "The Standard" Low Charging Mixer in the regular side-loading machines are the same in general design as those that have been built for several years. Minor changes have been made where it has been found possible to further develop and improve the important features which characterize this mixer.

All machines are furnished with the folding platform, which with the open drum and patent low-charging intake blade arrangement has always placed "The Standard" in an individual class among low charging mixers.

On account of the simplicity of construction and the small amount of power required to operate "The Standard" machine, gasoline engine drive has always been very popular with this mixer. The horsepower of the engine furnished is usually more than double that actually required.

A feature of "The Standard" machine that has been developed to a high degree of efficiency is the belt transmission between the engine and the mixer and the floating idler used on this belt. This transmission prevents all jar from

(Continued to page 202.)



The Correct Beginning

You who build barns can avoid delays and secure best results by consulting our experts who will gladly assist relative to the planning or equipping of such buildings. Better investigate this special service which is furnished without expense or obligation on the part of yourself or customers.

The book "Modern Barns" is one which you will frequently consult as it contains a quantity of data and blue prints pertinent to the

subject of new barns. Complete detailed drawings of a practical barn are included and reference is made to the method of calculating ventilation, etc. You may have a copy of this book by merely sending us the names of farmers and dairymen who will build or remodel barns, stating when each expects to begin operations. We will include new catalogue No. 62, which gives a comprehensive idea of the simple and practical equipment your customers will be interested in placing in the new buildings.

Write us today for the time is soon at hand when construction on new barns will begin. We co-operate with you in a way which enlarges your opportunities and results to our mutual advantage. Complete plans prepared for a nominal charge; detailed floor plans furnished free.

The Successful Finish



J. E. PORTER CO.
6201 Fremont St., Ottawa, Ill.
Manufacturers of
Barn Equipment, Hay Tools
& Barn Door Hangers



Make the most out of your barn jobs

The builder's opportunities are not limited to the construction of the barn. The installation of barn equipment means an added profit for him.

Harris' Barn Equipment

because of its profit-making possibilities and the ease of installation is popular with builders. Its simplicity, durability and its many labor-saving improvements have created a demand amongst farmers.

The Harris line includes the famous Harris Stanchion, several styles of stalls, Feed and Litter Carriers, Hay Tools, Ventilators and miscellaneous equipment.

Send for our catalog. It gives you a clear idea of what you can do with our products.

HARRIS MFG. CO., Box 224, Salem, Ohio



No builder can afford to be careless about the nails he uses because "no work can live longer than the nails that hold it." M. I. F. nails are thoroughly galvanized with a heavy coating of pure zinc and we will gladly mail samples and our booklet "Nail Knowledge" on request.

MALLEABLE IRON FITTINGS CO.
BRANFORD, CONNECTICUT

Carpenters, Builders, Attention!

You owe it to yourself, as well as to the property owner for whom you are working, to see that his buildings are adequately equipped with proper protection from loss by lightning.

His confidence in your judgment will make it easy for you to secure this additional work.

The Barnett System of Guaranteed Lightning Protection is the easy way to more profits on the same job. Our rods are in big demand and there is a big profit in selling them. They are made of pure copper cable, with attractive fixtures that are easily put on any building.

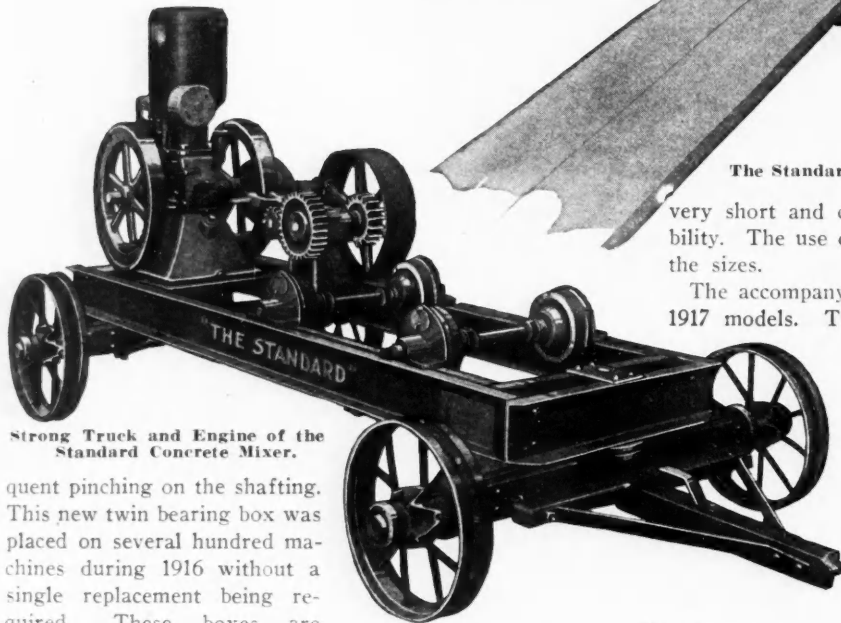


Why not equip yourself to take advantage of the opportunities for this work which are continuously arising? Let us show you the way to more profits on the same job.

FREE -- Cable Samples, Price List and Catalog. Write for them today.
JOS. L. A. BARNETT & CO.
RIVERSIDE, IOWA

the mixer from being carried back to the engine, and also provides for starting the engine or stopping the mixer independently.

The simplicity of the gasoline engine outfits is greatly enhanced by the new single-pedestal, twin bearing box which was first used in 1916 and which has proved of particular advantage since it avoids the difficulties of holding rotating shafts in separate bearing boxes on portable outfits where the trucks are liable to be out of level or in a skew with conse-



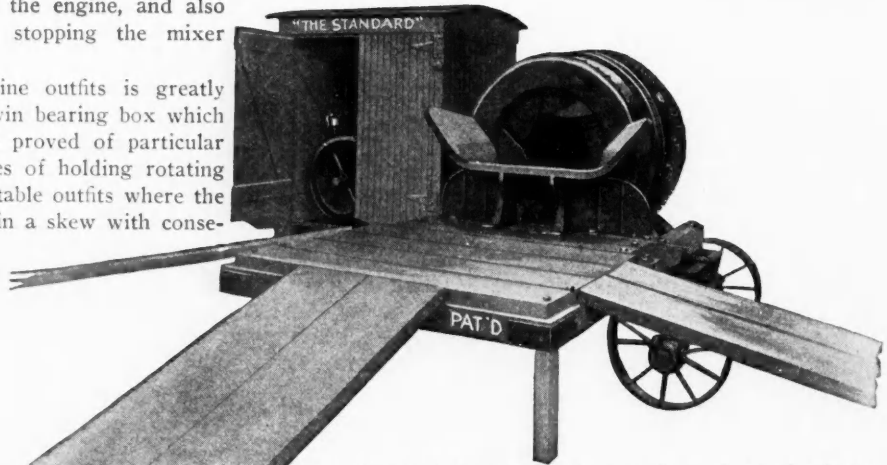
Strong Truck and Engine of the Standard Concrete Mixer.

quent pinching on the shafting. This new twin bearing box was placed on several hundred machines during 1916 without a single replacement being required. These boxes are equipped with either ring oiling bearings or grease cups to insure perfect lubrication.

The use of sprockets and chains on the smaller sizes has been abandoned in the new 1917 models. This has been done to secure greater simplicity of design, and it has been found that the new belt drive combines higher efficiency with greater simplicity of construction.

All sizes of "The Standard" mixers are furnished completely equipped, including high-grade engines.

In the general design of truck mounted outfits the trucks have been shortened and on some sizes the folding platform has been made larger. The new small size machines are made



The Standard Low Charge Concrete Mixer Ready for Action.

very short and compact, which greatly adds to their portability. The use of wood houses is retained on a majority of the sizes.

The accompanying illustrations show the general design of 1917 models. The views showing the truck complete with mountings and twin bearing box illustrate the simplicity of the new designs.

"The Standard" Low Charging Concrete Mixers are manufactured by The Standard Scale & Supply Company, with offices and warerooms at Pittsburgh, New York, Cleveland, Philadelphia, Chicago, Dallas, etc. New catalog No. 44, giving full description of these machines, will be mailed upon request.

You Can Lay
HUDSON STRIP SHINGLES
in less than half the time
that it takes to apply any other shingles

Send for Particulars to
Asphalt Ready Roofing Co.
Dept. 53 9 Church St. New York, N. Y.

BLUE VALLEY SLATE MFG. CO., Ltd.
Miners and Manufacturers of

Unfading Roofing
Clear Structural
Electrical

SLATE

World's Fair
Premium
Blackboards

SLATE SINK TOPS A SPECIALTY
Write for Prices. Address: Box 472, Slatington, Pa.

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.

SLATE WE HAVE WHAT YOU WANT

*In Roofing Slate, Slate Blackboards
Structural and Plumbers' Slate*

SATISFACTION GUARANTEED in QUALITY and PRICE

Ask for Delivered Prices

J. K. HOWER Station C Danielsville, Pa.

R. J. KICHLINE, Sales Agent

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

UNFADING ROOFING SLATE

and Slate Blackboards

Best to be had and made in
Slatington — Buy from us

Slatington-Bangor Slate Syndicate, Inc.
Slatington, Penna.



ROOFING SLATE

—“they were represented to be as good as G F T slate but after we used them we know POSITIVELY that they were NOT AS REPRESENTED. Hereafter we will use G F T slate. We are done with ‘Just as Good’ brands.” This is the experience of all who buy UNKNOWN brands of roofing. Insist on G F T slate. They are the best and cheapest in the end. Price List and Catalogue on request.

Sole Manufacturers
Slatington Slate Co.
Slatington, Pa.



THE ROCK OF AGES CLEFT FOR YOU


RED GREEN PURPLE BLACK SHELDON'S SLATE

THE ROOF FOR AGES ALWAYS NEW

ECONOMICAL—ARTISTIC—FIRE-PROOF

The ideal roofing for farm buildings. First cost, only cost. No expense for upkeep. Send postal for information on slate roofs.

F. C. SHELDON SLATE CO.
Granville, New York



Genuine Bangor Roofing Slate

Costs but little more than tin and asphalt shingles, about the same as metal shingles and good wooden shingles, and less than asbestos shingles and tile roofing.

It will wear five times as long as tin or asphalt shingles, three times as long as metal or wooden shingles, and will more than hold its own with tile and asbestos shingles.

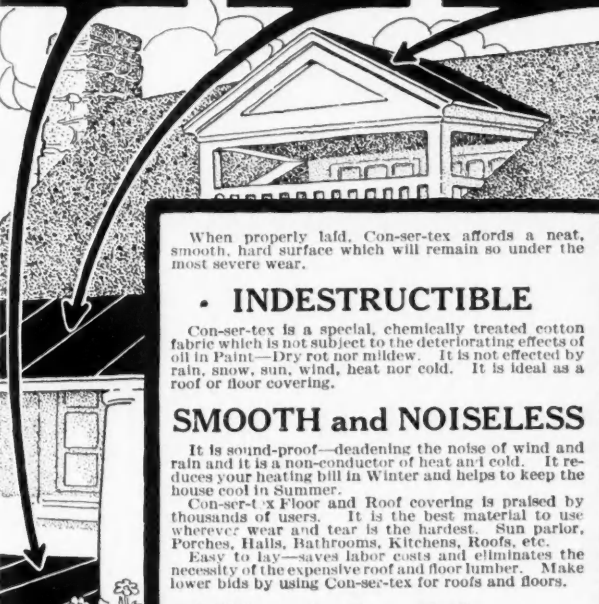
Made in three grades at prices averaging \$3.50, \$4.75 and \$6.00 per square at quarry. Can be shipped with nail holes punched, ready for laying.

Give your customers the best value for their money. Write for prices and freight cost to your station.

North Bangor Slate Company

Bangor, Pa.

CON-SER-TEX



When properly laid, Con-ser-tex affords a neat, smooth, hard surface which will remain so under the most severe wear.

- **INDESTRUCTIBLE**

Con-ser-tex is a special, chemically treated cotton fabric which is not subject to the deteriorating effects of oil in paint—Dry rot nor mildew. It is not effected by rain, snow, sun, wind, heat nor cold. It is ideal as a roof or floor covering.


- **SMOOTH and NOISELESS**

It is sound-proof—deadening the noise of wind and rain and it is a non-conductor of heat and cold. It reduces your heating bill in Winter and helps to keep the house cool in Summer.

Con-ser-tex Floor and Roof covering is praised by thousands of users. It is the best material to use wherever wear and tear is the hardest. Sun parlor, Porches, Halls, Bathrooms, Kitchens, Roofs, etc.

Easy to lay—saves labor costs and eliminates the necessity of the expensive roof and floor lumber. Make lower bids by using Con-ser-tex for roofs and floors.

William L. Barrell Company
8 Thomas Street, New York City.
CHICAGO DISTRIBUTOR
Geo. B. Carpenter & Co., 430-40 Wells St.
CALIFORNIA DISTRIBUTORS
Waterhouse & Price Co., Los Angeles.
The Pacific Building Material Co., San Francisco.




Contractors, Kniken Bros. Co., Fair Lawn, N. J., for L. F. Fangameryne, Great Notch, N. J.

You can create more artistic and economical results by using

“CREO-DIPT” STAINED SHINGLES

17 Grades 16, 18, 24-Inches 30 Colors

They come bundled ready to lay. Save expense, time, worry and muss of staining on the job. Preserved in Creosote and stained any color desired by our special process. Best earth pigments used. Only selected cedar shingles—no waste.

Write for our book of “Creo-Dipt” Homes and sample colors on wood, also ask about our “Thatched Effects.”

STANDARD STAINED SHINGLE CO.
1028 Oliver St., No. Tonawanda, N. Y.
Factory in Chicago for West



Scientific Hot Air Heating

The Home Furnace Company of Holland, Michigan, has given the subject of hot air heating a very thoro investigation upon which the design of their Home Hot Blast Furnace has been based. Features promoting health, comfort and economy have been carefully worked out and incorporated into the design. After preparing the design and manufacturing details of a furnace which they are ready to stand back of in every respect, a service and sales plan has been worked out which is particularly interesting to builders.

The company makes all furnace pipe and fittings used in installation, as well as all castings, and guarantees them against defects for the terms of five years. The engineering department of the company works in co-operation with contractors and builders who are appointed representatives in their local territories. The company designs and lays out each system to suit individual requirements and is not satisfied until the purchaser is satisfied.

There are two particularly noteworthy features of the Home Hot Blast Furnace. First, instead of taking all the air thru the coal or thru slots in the fire pot, part is taken in thru the hot blast opening in the feed door, superheated in the space between the door and door lining and fed by means of two channels around the combustion chamber to 65 one-quarter-inch jets opening into the combustion chamber ahead of the fire. The superheated air is mixed with the smoke and gases and complete combustion of the fuel is obtained. This effects a saving of fuel and eliminates smoke and soot. The second important feature mentioned is the automatic humidifier, which is a substantial cast iron double reservoir device made to sit in the hot air chamber of the furnace next to the heating surface. The device has an automatic water supply valve and humidity regulator which is controlled from some centrally located room by means of a chain.

Good Will Building That Increases Your Profits

No business is profitable unless it is built upon giving the customer satisfactory service and lasting satisfaction in the goods he purchases. Any article that will enable contractors and builders to do this will surely prove a big profit-maker for them.

These are the principles on which the articles manufactured by the Phillip Bernard Company, 2400 Floyd Ave., Sioux City, Iowa, are made. They realize that in order to build their business they must give the contractor and builder something that he can stand behind.

Contractors and builders everywhere realize this and that is why the Phillip Bernard Company is doing such a thriving business with them. This company wishes to follow a policy which will make each customer appreciate the value of doing business with an institution that looks after the welfare of their customers as well as themselves.

Their cupolas are O. K. in quality as well as in name. Hundreds of them are being put on barns by discriminating contractors and builders. Efficient ventilators should go on every farm building that you build, because they will pay big dividends to the farmer in increased profits from his stock. They will be healthier and consequently will thrive better. Fresh air is just as essential to live stock as it is to human beings. It does not require much effort to get any wide-awake farmer to see this and it simply remains for you to suggest it and get the job, thus getting the additional profit. Every O. K. cupola is guaranteed and you can stand back of them.

The O. K. Sun-Lite Hog House Window is another article for which the Phillip Bernard Company have created a big demand. Every up-to-date farmer realizes the importance of having skylight windows in his hog house and you can easily and quickly sell the O. K. Sun-Lite Window to him

Johns-Manville Opens Office in Des Moines

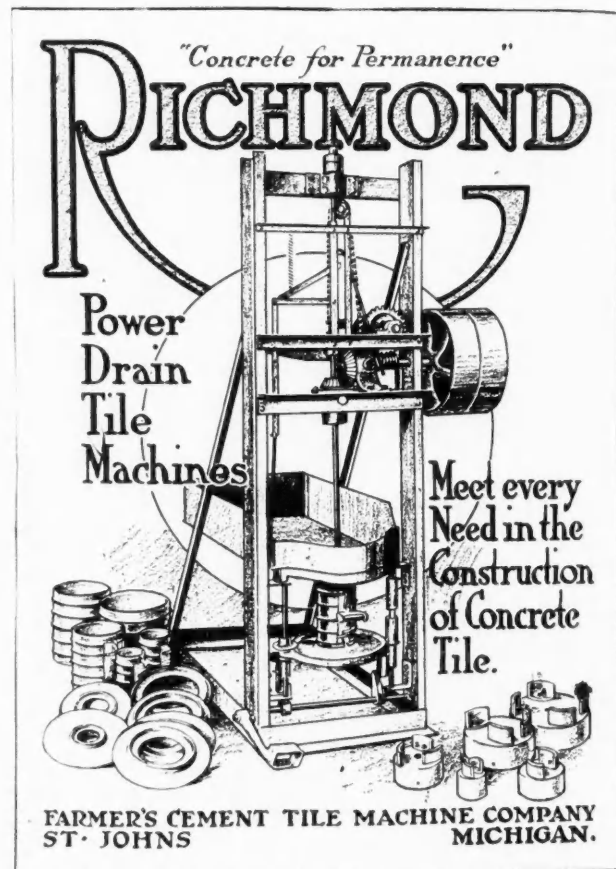
By opening their new office at 911 Walnut Street in Des Moines, Iowa, January 1st, the H. W. Johns-Manville Company brought the total number of their branches up to fifty-five. Practically every important city in North America now has a Johns-Manville branch.

Mr. Wm. B. Roberts, who has been with this organization for a number of years, caring for the Iowa sales, has been appointed manager of the new office, and will have under him a corps of salesmen and construction men to make "Johns-Manville Service" a man-to-man service throughout that section of the country.

Turn Time Into Money

The Richmond drain tile machine will be of great interest to builders who have some spare time. Drain tile are used by most all farmers and can be manufactured and sold at a reasonable price with a nice profit.

The machine is simple, takes up but little floor space and is operated by a gas engine or electric motor. The frame for the machine is very strong, it being made of steel channels and angle sections.



Catalog Cover of The Money Making Richmond, Showing Its Accessory Parts.

There are attachments for the machine which enable it to make tile varying from 4 to 12-inch sizes. Each of these attachments consists of two molds, top plate, bottom plate and packer head.

The illustration is a reproduction of the cover of the instructive folder issued by the Farmer's Cement Tile Company, Department 222, St. Johns, Mich., on their Richmond drain tile machine. It will be mailed to anyone interested.

Rotary screens for screening the material to be put into the concrete are described in this folder as well as a special design of mixer to be used in making cement tile or similar products.



On The Eaves

After all, the test of a good roof is to be found in its ability to withstand the attacks of weather. The nooks and corners on eaves and gables must be leak-proof, weather-proof, wear-proof.

BAYONNE ROOF AND DECK CLOTH

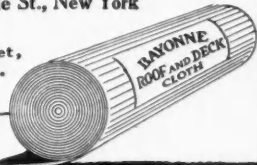
offers all these advantages. Easy to lay. Fits perfectly into the corners. Bayonne is economical, too. Costs less, wears longest. Unaffected by changing temperature. Cannot crack or corrode. Prepared by patented process.

Bayonne is especially adapted for roofs, sleeping porches, conservatories, piazzas, and other places receiving constant wear.

Sample Book N Gives Prices and Laying Instructions. Write for it

JOHN BOYLE & COMPANY, Inc.
112-114 Duane St., 70-72 Reade St., New York

Branch House:
202-204 Market Street,
St. Louis, Mo.



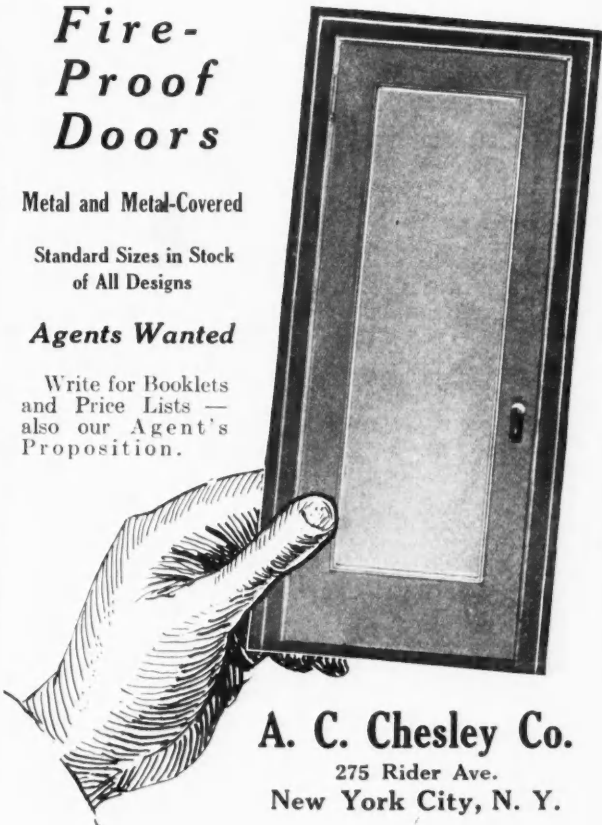
Fire-Proof Doors

Metal and Metal-Covered

Standard Sizes in Stock
of All Designs

Agents Wanted

Write for Booklets
and Price Lists —
also our Agent's
Proposition.



A. C. Chesley Co.
275 Rider Ave.
New York City, N. Y.



Architect:—

"Are you using genuine RU-BER-OID on the roof?"

Building Contractor:—

"Yes, it's the original RU-BER-OID. It has the 'Ru-ber-old Man' on every roll."

Real RU-BER-OID will outlast any of its 300 imitators because it contains no sand, tar, paper, wood fibre or any other substance that will crack, run, rot, warp, rust or leak. On many roofs for more than 20 years without repairs.

TRADE MARK REG. U.S. PAT. OFF.

RU-BER-OID SHINGLES

Made of the same material as RU-BER-OID Roofing. In Slate Gray and Tile Red, these shingles offer architectural effects equal to slate or tile, at a much lower cost.

THE STANDARD PAINT CO.
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RU-BER-OID
ROOFING
COSTS MORE - WEARS LONGER
MADE BY THE STANDARD PAINT COMPANY, NEW YORK BOSTON CHICAGO

Look for the "Ru-ber-old Man" on every roll of genuine Ru-ber-old

ASPHALT PREPARED ROOFING

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Granite, Rubber, Sanded, etc., in different weights to meet every requirement as to quality and price.

Red and Green
Asphalt Shingles



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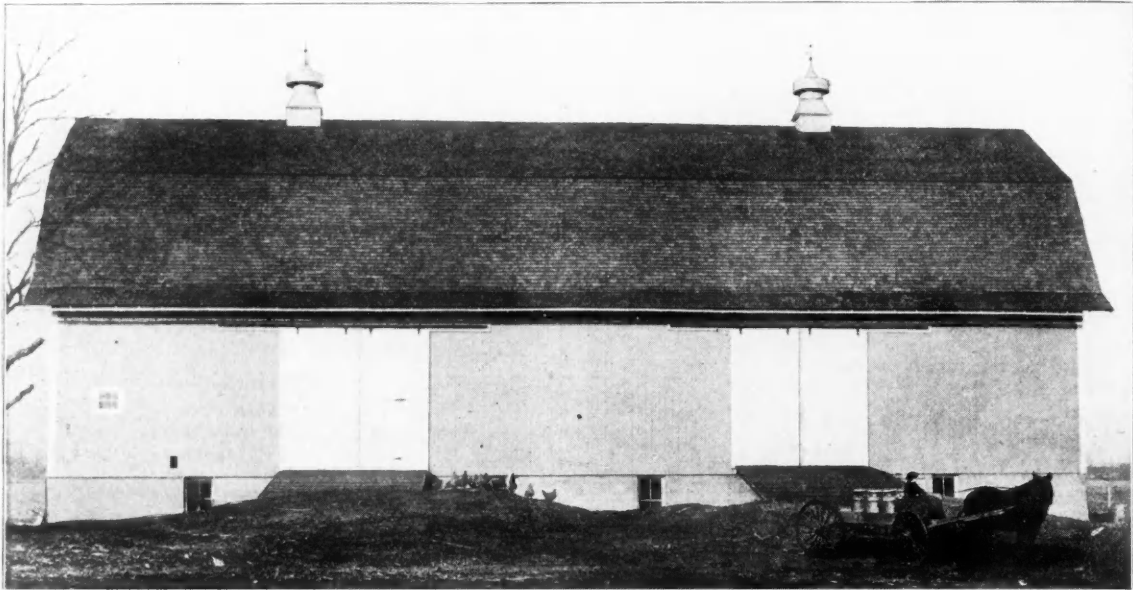
With the blue prints, instructions, finishing material, etc., we furnish, any handy man can build his own Grandfather's Clock. We sell you the works, dial, weights, pendulum, and everything you need at prices so low as to surprise you. Works complete, \$5.00 each; others with chimes, all prices.

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CLOCK COMPANY

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Two Monitor Cupolas Shipped from Waterloo, Iowa, to go on this New York Barn.

Modern Barn Ventilator

The up-to-date American farmer is rapidly becoming convinced that steel cupolas for barn buildings are more efficient than the old-style wooden cupolas. This fact has become known by the ever-increasing inquiries and sales of Monitor cupolas, thru the medium of the AMERICAN BUILDER.

A stock barn, today, is not modern without steel cupolas and the Monitor combines a most efficient ventilation unit with a greatly improved appearance over the wooden cupola.

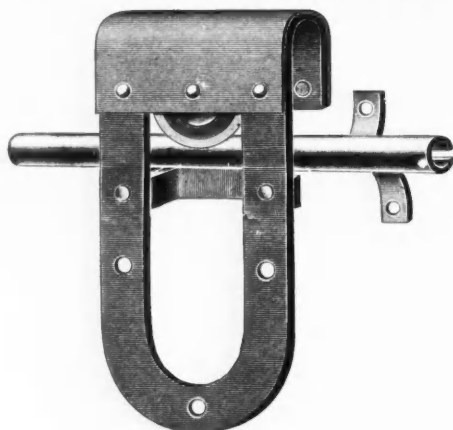
The barn, shown in the illustration, was built by Myron G.

Peebles, Oneida, New York. It is equipped with two No. 36 Monitor cupolas and is modern thruout. Mr. Peebles is very enthusiastic over the Monitor cupolas.

B. F. Lichty & Sons Company, Waterloo, Iowa, makers of the Monitor cupolas, have recently published a booklet showing the advantages and merits of this line; also information for dairymen in general, including tables showing amounts of air that stock requires and consumes.

They are establishing agents every day, and will be glad to take up agency proposition with the readers of the AMERICAN BUILDER.

Lane's Hangers for Heavy Doors



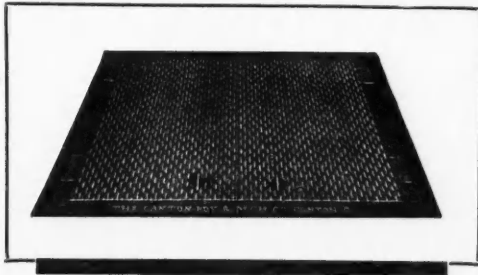
No. 400 Hanger

**CANNOT JUMP
THE TRACK**

Steel throughout—Even the
Track Brackets are Steel,
Riveted Solidly into the Track.

Write for Catalog Showing
Numerous Styles at
Various Prices.

LANE BROTHERS COMPANY
CHERRY STREET - - POUGHKEEPSIE, NEW YORK



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Built to comply with city regulations. You can't slip or trip on the Canton door?

The flush hinges, imbedded handle and corrugated surface are a positive protection against this nuisance.

The Canton Door is durably and attractively constructed of the best wrought steel and the entire frame is cast in one piece. A water drain carries the seepage to the curb.

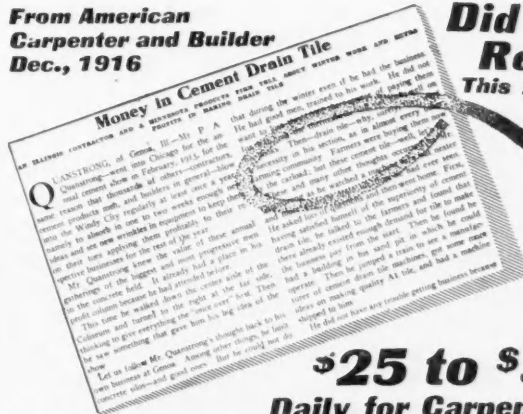
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Write for price and our catalogs of sidewalk doors, coal chutes and builder's ironwork.

Ask for Booklet No. B-4

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CANTON, OHIO

From American
Carpenter and Builder
Dec., 1916



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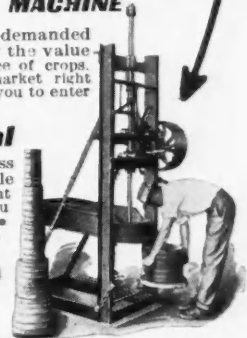
Makes a quality product—easy to sell—demanded when known. Farmers everywhere know the value of under-drainage. It's a necessity—an insurance of crops. Cement tile is always preferred. Enormous market right around you. Grab the opportunity this gives you to enter an independent, profitable business.

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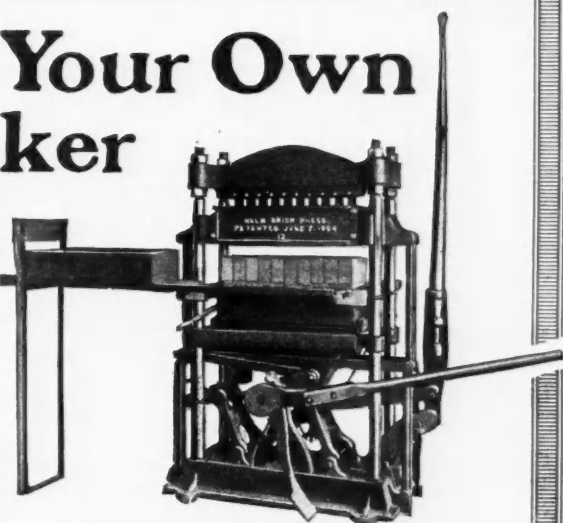
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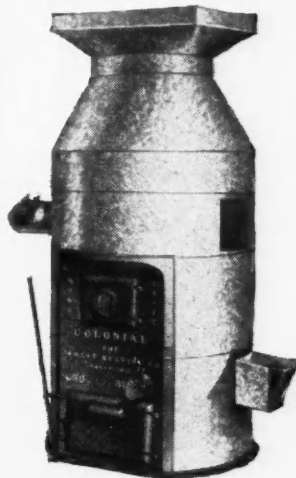
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The Home Hot Blast is a handsome furnace built on the correct principles of combustion and the carpenter or builder will find the selling and installing of them worth part or all of his time.

Below are some of the features that make the Home Hot Blast a distinctive and desirable furnace.

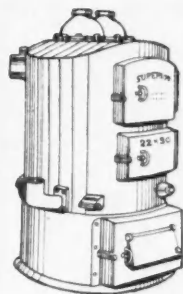
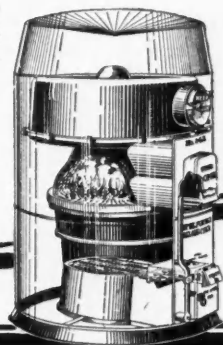
The Home Hot Blast Patented Combustion Chamber, which does away with the smoke, soot or clinker nuisance and effects a saving of 15 to 30% on fuel bills.

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A Book You Should Have

In the modern builder's office there should be as many helpful books and as much sound general information as it is possible to have without causing confusion. There should be a table upon which the most useful and most-used books, journals, pamphlets and circulars are constantly available. An office fitted in this way furnishes the right sort of place to talk over details with the prospective home builder. If he knows there is an interesting and helpful collection of information awaiting him, he will not require the second invitation to call and he will probably be back for a second visit.

One book that should be on the table in such an office is the beautiful publication of the North Carolina Pine Association dealing with "Planning the New Home." This will be one of the most-noticed books on the table. The cover is decidedly artistic and appropriate. The contents will be found interesting, helpful and forceful.

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One of the illustrations in the book. A Very Attractive House Built of North Carolina Pine. It Is Built to Last.

demonstrations of modern methods in dealing with the various problems the planning of a home involves." The accompanying illustration is the perspective view of one of the ten designs presented in the book.

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