

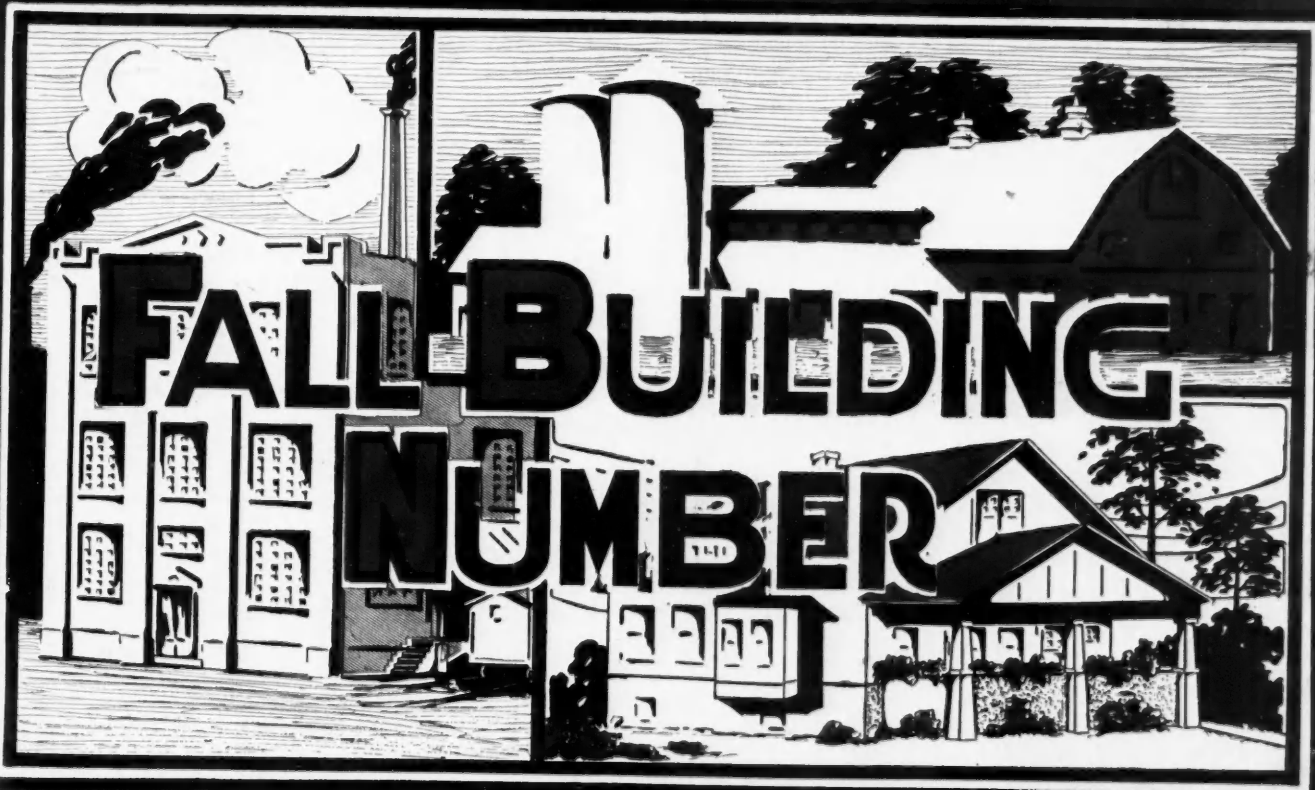
SEPTEMBER 1916

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AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER



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Bovee Furnaces

At Special Prices to Contractors

**The Pipeless Furnace With One Register
The Central Heating System With One
Warm Air and Two Cold Air Registers**

Regular Piping to Each Room

WE MANUFACTURE a full line of furnaces, both UPRIGHT AND HORIZONTAL, which we furnish with regular piping to every room where the buildings are not arranged to be properly heated by one register. We have had a very wide experience and can tell at once on receipt of a pencil sketch of the building to be heated the best style of furnace and piping to use. The BOVEE FURNACES are well made of the best heavy material and actually use very much less fuel than other furnaces.

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This style of furnace is especially adapted to houses having large openings between rooms and open stairway to allow free circulation of the warm air. Also for old houses where it is difficult to cut piping into the walls. We use only furnaces having ample capacity to heat the building as we make different sizes suitable to heat any building from a cottage to a large church. They are very easy to install as there is but one register to cut in the floor directly over the furnace and no piping in the basement. The heat is delivered instantly in the building and there is nothing more economical of fuel. With this system of piping the basement is always cool.

The Central Heating System

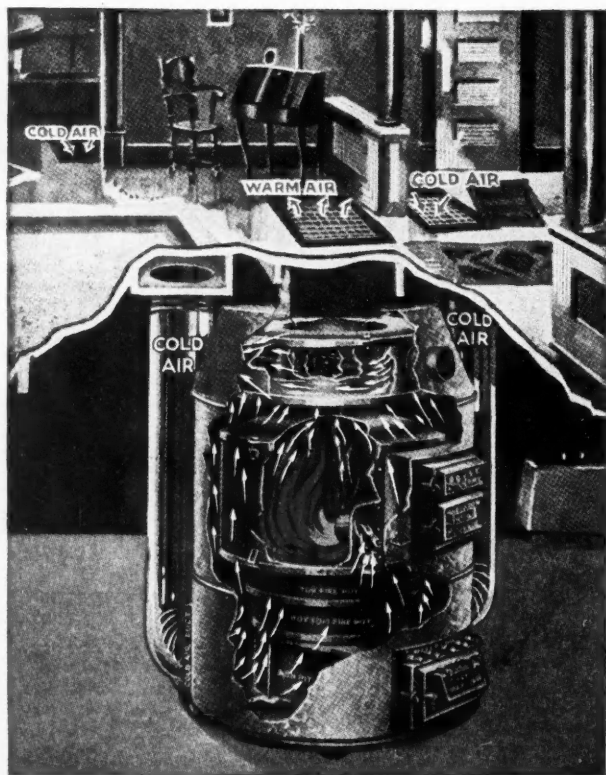
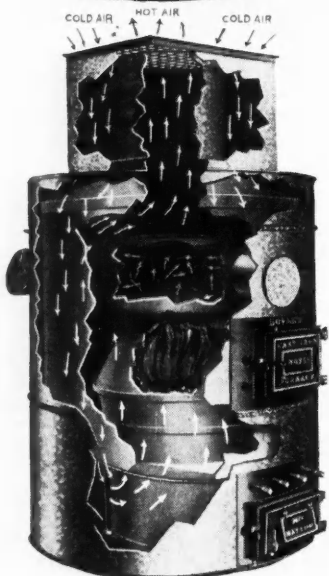
With this system of piping but one large warm air register is used directly over the furnace. It also has two cold air returns that may be taken from other rooms which greatly aids in the circulation of heat in the different rooms and also prevents the cold air moving over the floor to reach the one central register as used with the pipeless furnace. This also allows using a rug in the room as the openings in the floor are not as large as when both hot and cold air registers are one. With the CENTRAL HEATING SYSTEM we use any style of our furnaces and of suitable size to heat the building. With this system a separate pipe can easily be run to a bath room or to any other rooms, which is often very desirable.

We ship everything prepared so that any handy man can install any of the Bovee furnaces quickly and without the aid of a tinner.

Write us for catalogue and special prices.

Bovee Furnace Works

50 8th St., Waterloo, Iowa





Next Month a Power Shop Number

EVERY carpenter and builder will be figuring before long on getting into winter quarters.

A snug shop for work during the cold weather is a godsend to the carpenter; yet it is one that thousands do not seem to appreciate—otherwise every last woodworking mechanic and builder would have his winter shop—not matter how small—in which to busy himself in comfort during the cold weather and so keep the dollars coming in, in spite of the storm and cold outside.

Many who have shops will be putting in power this fall, a gasoline engine or an electric motor, and one or more small woodworking machines. Many others will be overhauling their machinery equipment and be adding to it.

The OCTOBER AMERICAN CARPENTER AND BUILDER will be a POWER SHOP NUMBER. A model layout will be presented for a good sized shop or planing mill, also for a two-man shop.

Many valuable shop kinks for the use of power woodworkers will be presented.

Practical ways and means for building up a power shop business in connection with general building work will be explained by those who have made a success of this proposition.

Don't miss this number. It's going to be a dandy. The Prize Winners in the four Power Shop Contests, as announced last month, will be featured in this October Power Shop Number.

Power Woodworkers for Lumber Dealers

MANY lumber yards are putting in a power saw rig, variety woodworkers or other light power equipment. In this way they are able to furnish lumber practically READY-CUT. They raise the grade of many pieces by cutting out imperfections, and there is no waste in the lumber yard or in the contractor's shop where a power woodworker is busy. Our many readers among the retail lumbermen will do well to take special note of these articles.

Send in Your Photographs

IF there is anyone who overlooked our request last month for power woodworker or shop photographs, we urge them now to send along a good picture and a letter telling how the machine is used.

If necessary, have a regular photographer come over and take a good picture of your outfit or shop in operation, AND SEND US THE PHOTOGRAPHER'S BILL.

Don't miss this powerful Power Shop Number. It will be out October 1st.

EDITOR AMERICAN CARPENTER AND BUILDER.

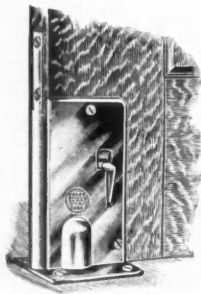
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REPUTATION**

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



**Chicago "Relax"
Spring Hinges**

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Chicago Spring Bull Company,

CHICAGO

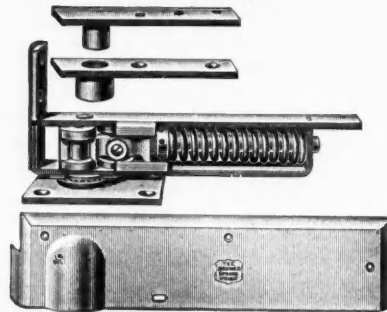


NEW YORK

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and make wrong cuts, when it is possible for you to be exactly right in figuring and cutting common rafters, hip or valley, jack or cripple rafters, projecting braces, bevels, stairs, towers, columns, circular tanks, silos, etc., with the

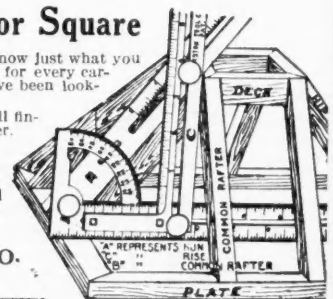
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Prevents mistakes because you know just what you are doing. It's a real necessity for every carpenter and is just what you have been looking for.

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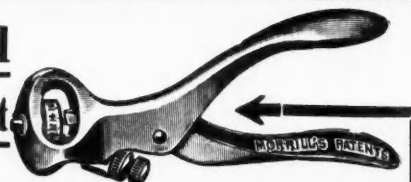
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CHAS. MORRILL

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NEW YORK

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VOL. XXI

September, 1916.

No. 6

THE energy wasted in postponing until tomorrow a duty of today will often do the work.

❖
WINTER WORKERS! Don't overlook the announcement on page 67. This is your chance to do a good turn and also make some money. Hop to this!

❖
Building for the Fall

CONSIDERABLE new building of all kinds will be undertaken during September. Work that was begun in the spring is now largely out of the way, and contractors and builders are taking on enough more at this time to carry them well into the winter.

In offering this Fall Building Number of the AMERICAN CARPENTER AND BUILDER we have aimed to be of real assistance by illustrating a wide variety of modern building designs, including bungalows and other residences, store buildings, garages, public buildings and farm buildings. A special array of advertising announcements is also presented, many of them

being of particular interest to builders in connection with their fall work.

We direct special attention to these features in this way, as we desire our readers, as far as possible, to take full advantage of these timely offerings.

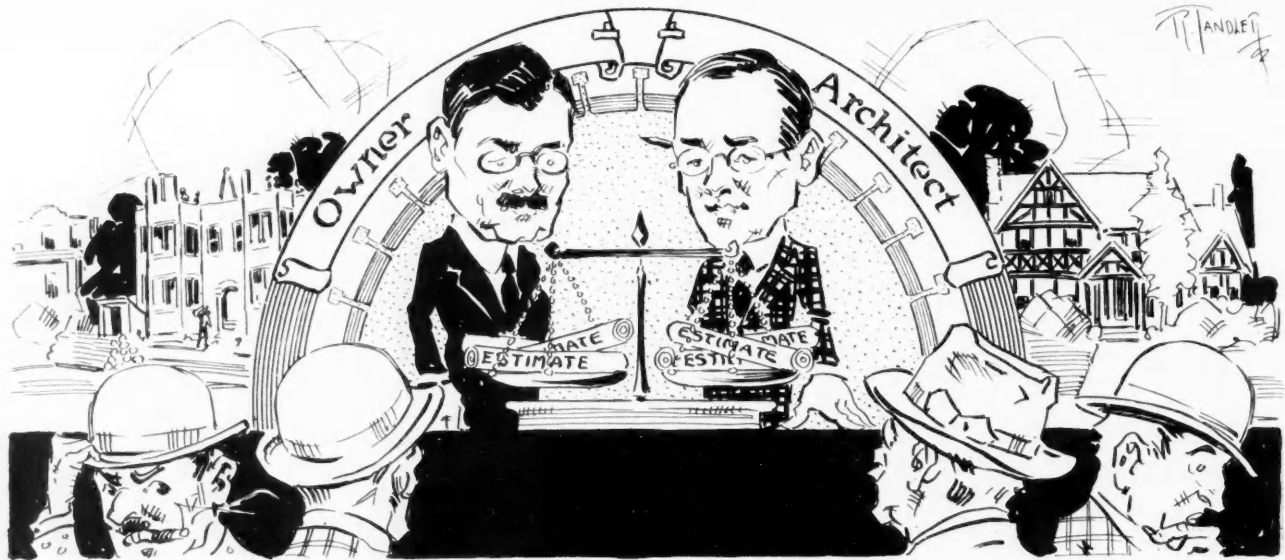
❖
The Man Who Wins

The man who wins is an average man,
Not built on any peculiar plan,
Not blessed with any peculiar luck,
Just steady and earnest and full of pluck.

When asked a question he does not "guess,"
He knows, and answers "No" or "Yes,"
When set a task that the rest can't do,
He buckles down till he's put it thru.

So he works and waits, till one fine day,
There's a better job with bigger pay;
And the men who shirked whenever they could
Are bossed by the man whose work made good.

—Selected.



What Is Competition?

A CIRCULAR LETTER ADDRESSED BY THE BOARD OF DIRECTORS TO THE MASTER BUILDERS' ASSOCIATION OF BOSTON, MASS.

Illustrations by Rudolph F. Tandler.

WHAT is competition? The use of other methods for handling or awarding building contracts, in preference to the badly misused competitive plan, seems to have gained most favor in the vicinity of New York. This is at first surprising to those who look upon New York as the natural home of the sharp-fanged wolf, the rare saber-toothed tiger, and of the original Wall Street—for among such fauna, they might say, does modern cut-throat competition in the business of building flourish like the proverbial green bay-tree. And yet, even should these prejudicial opinions stand the white light, it is natural enough that a district suffering most should seek relief the most diligently.

At West Point, where our National Government has been spending millions for building construction, the cut-throat competitive plan was used as long as possible—until altogether too many buildings were being completed by the bondsmen of the contractors. Then followed the plan of letting work on a cost and commission basis, with a maximum guaranteed, and with a further commission to the contractor on any savings effected, and bringing the final price under the named maximum. The percentages were so arranged that the contractor made more money by saving than by spending—a precaution found needful when dealing with—shall we say anybody in “rude business”?—yes, business ethics are peculiar.

This newer plan, or some modification of it, is growing in favor even around Boston—for any one by taking thought may see that to compare a half dozen contractors and their prices is like comparing a half dozen tailors. If the six are chosen very much at random, the suits they make may vary in price between \$20.00 and \$60.00—while a more careful selection will get a variation in price between \$45.00 and \$60.00.

But what is the use of doing it? And why does the \$60.00 man stay in business? Of course it is because he is not put into price competition with the others all of the time—and yet even the lowest-priced man has his place if he does honest work worth the price he charges. Owners realize this with a suit of clothes—for they have had the experience of buying such things every season. But building is different (?)—but the only difference in treatment is on account of the typical owner's lack of knowledge and experience.

Owner Does not Understand Plans, Specifications nor Bids

Owners, as a rule, are misled by three things. First of all, the plans and specifications of their architect are set up by them as a standard for what they want done in the way they consider proper, and they assume these documents, coupled with the architect's superintendence, to be sufficiently compelling to obtain these desired results *from any contractor at any price*. As stated, the last few words signify an extreme case; but to an extent this is the viewpoint of the typical owner. Architects do not believe it, for they know that words are not capable of expressing what is wanted for quality of result—and no standards are available for comparison. An architect's interpretation of desired and proper quality cannot be enforced on a contractor incapable of giving it, be he ever so willing to do so; and can still less be imposed upon a contractor not wanting to give it. If, perchance, the protest is carried as far as the courts, the contractor then wins—for a question of quality in building operations cannot be appreciated by a jury. (A review of scores of cases in several states shows the truth of this statement.) A jury recently declared that a plain maple floor was good enough, and satisfied a requirement calling for parquetry flooring.

The second point in the misleading of the owner is in the bids themselves. In spite of average care in the selection of bidders in a competition, the bids received will vary widely—the low being so far below the high that the typical owner feels sure that estimating is inexact, and that there is little about the price which will much affect the result he will get.

The Owner "Builds But Once" and That Time Makes a Mess of It

Then, as a third feature of his misleading, he gets no later opportunity to learn differently unless his work is very poorly done—for when he begins to spend, in dribbles perhaps, but yet to spend, for repairs and things he did not "expect to spend money on so soon, Heaven knows," but then "everybody's doing it"—even then Mr. Owner does not have an opportunity to learn that perhaps his neighbor's outlay for upkeep is one-quarter of his own, nor possess sufficient impartiality to see that his neighbor's property continues to look fresh and in good condition, while his own does not.

It would be foolish to allege that an owner, in accepting a low figure, expects, usually, to get what he does not pay for. He believes that variations in estimates are due to inaccuracies or to larger profits taken by the higher-priced men. Neither is true. Estimating is an exact science. A careful contractor, working on good plans and specifications by an architect with whose work he is familiar, gets his cost within two per cent on new work, and will average but little higher on alteration work. A low-priced man can easily make as much money on a contract as a high-priced one—unless the low price is due to inability. Many an owner, on small work, has been impressed with the argument put out by small contractors that they can work cheaper because they have not so much expense to carry. And yet the man assenting to this argument may himself be in an organization which knows by experience that up to a certain limit (?) the larger a business is the less it costs to do a thousand dollars' worth. The low-priced man is low, usually, because of a difference in quality of result. An owner who relies upon his architect to produce a proper result under all conditions is very often expecting the proverbial silk purse from a sow's ear. Good architects do not claim to do it—and the most successful among them aim for good contractors and shun those not doing the grade of work they want to get. A leading Boston architect voiced this opinion in saying, "Architect and contractor must both be good or the result is poor."

What is Competition?

Competition is the life of trade.
Competition is the death of trade.



(He knows it not)

The Result of Competition at Its Worst.

Your choice of phrases will vary as you are a buyer or a seller; as you have down a competitor or are being stifled; or, you may say, Competition is the other fellow after my job, the other man after my customers, the fierce struggle for life and means.

Competition! Unions will have none of it, neither will socialists nor capitalists!

What is competition?

It is the success of the strong, well-managed, and efficient over the shrewd, the tricky, and the deceitful? Obviously not,—when price is a large factor in the result,—altho the reverse may be true. One writer calls it a legalized form of struggle for annihilation in modern life. Any proposition that contractors, or any other producers, may be encouraged to ruin each other in order that the community may get something at cost or less is unworthy.

Trade has always had one meaning synonymous with trickery, and any business man need only recall personal experience and observation to know that business with its competition has been at best only a war of wits in a game the rules of which are business ethics. Business ethics—what are they? Certainly a very peculiar brand.

And what of competition at its worst? And who suffers from the results? In the business of building he is called the owner. Does he know this? No, not at the time; usually not at any time.

What is competition?

Some Typical Bids — Or Why Was the Owner Pleased?

On a bank alteration job, an alleged ambiguity in specifications led to one contractor's success. He found, after he had expended about one hundred dollars on the job, that the architect was expecting him to do things he had not estimated to do. Inquiries easily established the fact that four other bidders had all included the items in question—the successful one had not. Owner,



The Low Bid Being So Far Below the High, the Owner Feels that Estimating is Inexact Anyhow.

architect, and builder, each paid one-third of the cost of the error, about three hundred dollars each. But what of the unsuccessful bidders?

On a house some distance from Boston, about ten years ago, three bidders figuring about alike, were above the price set by the owner for his expenditure. The architects, a leading firm, told him he could cut his requirements, or could get another series of bids from men doing a lower grade of work. He chose the latter alternative, and his house was built within his price.

On a job of interior finish, some distance from Boston, three or four years ago, three Boston bidders doing a similar high grade of work were within one thousand dollars of \$137,000. The work was let for \$92,000 in another city, and, even after adding on an acknowledged error of \$25,000, the successful bidder would still have been 16 per cent under the Boston men. None of the Boston men would have made over \$15,000 on the job.

On a small job in a small town, five figures were \$9,500, \$9,300, \$9,000, \$8,900, and \$6,600. What is obviously within a few hundred dollars of the right price? The owner was delighted at the low price. Why should he have been?

Jockeying for Place by Means of Cuts

On a recent bank alteration job, with six bidders, four were eliminated after the bids were in because they were not local men. Refiguring of cuts was done by the other two, and one dropped one thousand dollars more than the value of the cuts (finding he had to do so), and altho still high was awarded the job because he was a depositor in that bank, while the other was not.

On a job in 1912, where cuts were figured, one competitor dropped five hundred dollars where twelve hundred dollars' worth of stone mason's foundation work was changed from stone to concrete in location where materials for either were easy to get. Cuts offer a splendid opportunity for one man to drop by another, and win by, in fact, submitting a second figure when he surmises his first one was a little too high.

Recently, subcontractors for painting figured so cleverly that the lowest on a job was \$650 and the highest \$2,180, with enough good men together around \$1,500 to show that probably there was the right price. Some contractors figuring would use the low figure, others not wanting to must do so, or risk their chances of winning. This element is a common feature of competitive bidding.

You Get Only What You Pay For

In September, 1915, a reputable Boston architect of a fairly large job stated that the owner had a fixed



Cut Throat Prices from a Cheap Man Who Will Skimp Where He Can.

price set for his work, and that he had purposely selected a list of bidders commonly varying widely in price and in quality of result. From them he had chosen as good a man as he could, and come within the price established; and he said that he regretted not being able to choose a better man.

Two or three years ago, an owner who formerly let a contract to a bidder about twenty per cent under a group of competitors, and who was not satisfied with the results obtained, strove to mend matters upon some further work by a most stringent three years' guarantee—the strongest document of the sort ever seen by Boston contractors who estimated the work. This document was the work of the owner, not of his architect. Here was a direct intent to make a silk purse out of a sow's ear by legal verbiage—followed, if needed, by legal procedure.

A few years ago a very hard-fought large job near Boston was awarded to the contractor fourth from the bottom in a list of six bidders. Later, he was told that the owner always intended him to do the work.

Recently, on a job a few miles from Boston, the owner told one bidder that he wanted him to do his work and that he would pay a preference, but not a large one. The job went to another man, who by the use of two subcontractors, whose bids the preferred man had but did not care to use, saved more than the difference between the two figures.

In 1915, a job near Boston had four bidders within a fifteen hundred dollar variation figuring around \$62,000, while a fifth was about \$50,000 and won the award. What will happen to the winner and to the work he does? What was the owner's reasoning?

"Time is of the essence of this contract." How often this is written! A year ago a large job was let to be completed August 15, 1915. On October 1, 1915, it was nearly done. A contractor's promises for time are commonly taken in preference to an examination of his performances.

Not long ago the wife of an owner told a friend about to build to put a forfeit clause into his contract, for the reason that it could always be collected, for some reason or other, and was a good way to save on a contract.

The Gentle Art of Skinning the Job

Recently an architect asked for two bids from general contractors. With one of these the architect was in league to the extent of giving him competitor's prices in order that he might bid under them—and the other contractor knew it—and knew the owner. After the bids were in, he approached the owner thus: "Now, Mr. Blank, I have a grudge against Smith, my com-

petitor, and I can work it out and show you how to make a thousand dollars if you will give me fifty dollars." Mr. Blank agreed. "I will go to your architect, claim I made a mistake, withdraw my bid, put in another one, one thousand dollars lower; your architect will tell his friend, who will do the same thing. You will make a thousand, and can then send me fifty." It was all done as planned.

On a job of plumbing worth \$750, a low bidder was awarded the work at \$475. Recently, two years later, alterations were made, and the hot and cold water piping, specified "iron-sized brass"—a good brass pipe—was found to be gilded iron. This meant that the architect was either ignorant, careless, or dishonest.

What is competition?

The above cases, excepting one or two, are typical instances of occurrences which are very common—so common that they would not be worth reciting were our readers only those familiar with building operations. The cases quoted are not garbled or exaggerated, but are normal, and are all actual happenings.

What is competition?

You Can't Be Sure Unless You Know the Architect

The statement that a careful contractor gets his estimate costs within two per cent was carefully qualified to apply to well-made plans and specifications, and to an architect with whose methods the bidder is familiar. Architects vary widely in their methods—not affecting the quality of the result—and in their requirements in developing scale drawings from which estimates are usually made. Contractors knowing the architects of Boston (for example) can vary their figures according to the personality or office practice involved. This variation may, on the average, amount to two per cent, and is something for which, of course, a contractor figuring for a strange architect cannot allow.

Beyond the personality of the architect lie the plans and specifications—varying widely in definiteness and accuracy from a very low limit amounting at times to guesswork upon many points, to a degree of perfection leaving no element indeterminate which affects the estimate—and this latter accomplishment means some knowledge of how an estimate is made up and of what features affect cost; for no plans and specifications issued for estimating can ordinarily tell everything needful for the execution of the work. Here, again, a contractor's general familiarity with the architect's personality and usual customs is a great help.

What is competition?

Both Good Guessers

The story is told of a contractor in Greece, who stood before a statue of a famous oracle, which—following a custom set by Galatea, Hermione, and others—"came off his perch" and walked up to the contractor. "Why this variation from proper statuesque practice?" said the contractor. "Are you not," replied the oracle, "the man considered dishonest until proven

honest; the man who has to know what is in an architect's mind when he draws a line; what 'suitable,' 'approved,' 'satisfactory,' and 'practicable' mean as he uses them; and how 'reasonable' he is going to be; and do you not have to forecast prices on materials, and particularly on labor with variations beyond your control?" "Certainly," said the contractor, "but that is my job, and I am used to it." "I am something of a prophet myself," said the oracle; "but your job is harder—here, get up on that pedestal, I resign in your favor." "No, thank you," and the contractor walked away; "contractors don't go on that kind of a bust."

The variations in estimates as commonly found, where in an average case the low figure may be twenty per cent under the high, are not due to lack of understanding of an architect and his plans and specifications where careful estimators are involved. The worst variations in such cases would probably not exceed six or eight per cent, and this variation would be in either direction. With a poor architect a good contractor would be too high, while with a good architect a poor contractor would be too low. The balance of the too large variation in bids is from other sources, largely the use of subcontractors and the quality of the result. These two points are related, but a good general contractor, doing good work for his own portion, may trade, squeeze, cajole, or drive sub-bidders down so low that only poor work from them is obtained. Of course in dull times profits will be cut, but in the best of times these are never half so large as the differences between figures. Probably any contractor in Boston would be glad to be assured of 12½ per cent gross or 7½ per cent net, and would gladly take all the work he could get at those figures.

The element of error in estimating, due to carelessness or other mistakes not arising from inability, is of course a recurring one; but among careful men this is far less frequent than is commonly supposed. Error due to bad judgment or downright incompetency in estimating always plays a part, and in an award based upon price alone such an estimate is obviously dangerous. The use of a bond to secure an owner puts a certain burden of investigating the contractor upon the bonding company. It has no particular result otherwise—contractors can get bonds.



They Cannot Ride in the Same Boat.

The Why of a Low Bid

An estimate far below a group of figures, a frequent happening, can only mean one of three things:

1. An error on the part of a man doing good work—and who will do the job properly and suffer by his error.
2. An honest price from an honest man who gives the best value of which he is capable, but whose work is low in quality.
3. A cut-throat price from a cheap man who will save or skimp where he can, trust more or less to luck to come out square, and who cares little for results if he can "get by."

The two latter are the usual low bidders, and the last is the man more commonly found surprising every one by his low figures until finally he is pushed to the wall and another of the same kind takes his place.

What is competition?

An architect who, thru carelessness or ignorance, allows work to be done in any respect differently, except as to quality which he cannot much control, from what is planned and specified, helps the low bidders and hurts the others—for the others may have figured to do work right, while the low man may "have to have" modifications made for him.

What is competition?

Here have been cited some of the things which make modern competition in the building business usually a farce. Here are laid down things architects are telling their clients—nothing herein stated is contrary to the general experience of architects and contractors.

What is competition?

Are Contractors Short on Integrity that They Alone Must Submit to Price Competition?

The architect, the doctor, the lawyer, any professional man—and the tailor, the dressmaker, the milliner—what do all of these know of competition? The first lot have no price competition, but success depends on opportunity and capability. The last lot, if they have any ability, quickly get out of the class where prices are compared. Why is all this? Why do not architects compete in prices charged? Because a large group of them—including most of the leading men—have agreed not to. Why did they agree not to? Because—but probably our readers are beyond the Rollo class—and won't need the Jonas and Rollo method carried further in this direction.

The Century Dictionary defines the word "Competition" as follows: "The act of seeking or endeavoring to gain what another is endeavoring to gain at the same time." This definition in itself seems sufficiently clear to be easily comprehended by all of us. But what has become the meaning of the word as applied to the building business; what is it as we really understand it?

To such extremes has the meaning of the word been distorted as to almost blot out its primary definition. Competition in feats of prowess or skill or art always

has and always will mean only strength, agility, perfection, excellence, and quality. Why should it not mean the same when applied to work?

Where Price Competition Is Quality Competition Can Not Survive

Unfortunately, we have grown to associate this word with one consideration only—that of price; and the word today often means the endeavoring to gain what another wants by the exercise of cupidity, without regard to perfection, excellence, or quality. Such competition is unfair and is based on the policy of "each one for himself and the devil take the hindmost." "Those conducting their business along these lines show an utter disregard for the rights of others. Competition in the form of mere price comparison is the most degrading form of competition to those who indulge in it." As has been said recently: "The only phase of competition which can benefit humanity is quality competition, and that is the exact antithesis of price competition. The two cannot ride in the same boat. When price competition begins, quality competition ceases." We all know that to be a fact. Why should it not be adopted as the fundamental principle of the building business?

Where did the practice of awarding the contract to the lowest bidder begin? What excuse has such a practice for existing? It is impossible to secure the best or even good work by such a method.

A Remedy Suggested—Award Contract to the "Average" Bidder

Why should not the master builders' associations take the initiative in an attempt to correct this method? Why should they not lead in an earnest endeavor to persuade architects and owners to abandon this practice and adopt a new one? Suppose, as another suggestion, they were to award the contract to the "average" bidder; would not this retain all the essentials of competitive bidding, eliminate all temptation on the part of the bidders to "skin the job," and secure for the owners better results in accordance with the true intent and meaning of the plans and specifications?

Mr. Owner, does all this mean nothing to you? Are you in the position of an interested listener to a Sunday morning sermon—which is a dandy and just fits the other fellow? If so, awake! The welfare of each of us helps us all, and in this case you as well as ourselves will benefit from these truths exacted from a burdensome experience.



Concrete Work at Platteville, Wis., Normal

By an unfortunate error, one of the photographs which illustrated Mr. H. Colin Campbell's article on "Concrete and Manual Training," published in the July AMERICAN CARPENTER AND BUILDER was wrongly accredited to the Plattsville, N. Y., Normal School. It should have been accredited to the Platteville, Wis., Normal School.



Why Not Plan a Breakfast Nook in Your Next Kitchen? Where the Housewife Does Her Own Work an Inviting, Appetizing Lunch Table Like This in the Kitchen Will Save Many Weary Steps. And Where Servants Are Kept They Deserve a Nice Place to Eat. This Alcove is Light and Airy. Like the Kitchen, It is Finished in White Enamel. The Two Seats Are Built-in Fast—Immovable; the Table, However, is Movable to Permit Easy Cleaning. Incidentally a Good Kitchen Cabinet is Also Illustrated.



An Ornate Five-Room Bungalow

The bungalow shown here is fitted out elaborately with all of the little details which characterize this type of construction. The sides are finished in wide clapboards, well broken up by windows, the massive outside-built chimney and the little bay with its neat canopy roof. There is nothing monotonous in the outside appearance of this little home, but the eye is caught at every point by some touch of the architect's art.

The interior is just as attractive and well designed. The front door opens into the living room which has a fireplace built in the center of the outside wall. A cased opening leads into the dining room. The three window bay furnishes this room with a great abundance of light. A china closet is set into the wall opposite.



Arrangement of Bungalow, Size 31 Feet 6 Inches by 34 Feet.



Attractive Five-room Home. Size, 31 feet 6 inches by 34 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$6.00 per set. Blueprints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections, and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6831.



Comfortable Six-room Home. Size, 35 feet by 28 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$8.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6834.

A Small House of Pleasing Design

Beveled siding, shingles and brick are used to finish the exterior of house design No. 6834, shown in the accompanying perspective and plan. The combination of these three materials does not produce a patchy finish, but they harmonize beautifully. The brick are used in the foundation walls from grade to the sills, and in the porch railing wall. The sides of the house are finished with beveled siding up to the second floor, and with shingles the rest of the way to the roof. If the shingles are stained some fairly dark tint and the beveled siding is painted some light color or white, with the window sash dark, the effect produced is very pleasing.

This house may be entered either from the little front porch, thru double doors of the French type, or from the stoop on the side of the house. A sidewalk may be laid from this stoop either to the sidewalk leading to the front porch, or directly to the street. The corners in the building, around the porch, furnish the possibility of an attractive arrangement of shrubs and vines. With the proper lawn to set off this house, a very pleasant home may be established.

The cozy interior arrangement is the

most interesting feature of the home lover. The large living room is an excellent place for the family to gather in the evenings. A fireplace with a book case on one side and a seat on the other is built at one end of the room. The stair to the second floor starts from one corner of the living room. A cased opening leads to the dining room. The buffet is built along the wall to the left of the opening from the living room. The kitchen and pantry occupy a part

of the house to themselves. Every convenience is included in the design of this part of the house. A special feature is the refrigerator iced from the little rear entry.

Two bedrooms and a bath are included in the second floor design. The bathroom is built into a dormer and is large and well lighted. The rooms are made independent without the loss of a foot of space by bringing the stairway up in the middle of the house.



First Floor Plan.

Second Floor Plan.

Arrangement of House, Size 35 Feet by 28 Feet.



Well designed seven-room house. Size 24 feet by 30 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$10.00 per set. Blueprints consist of basement plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6828.

A Frame House with Brick Porch

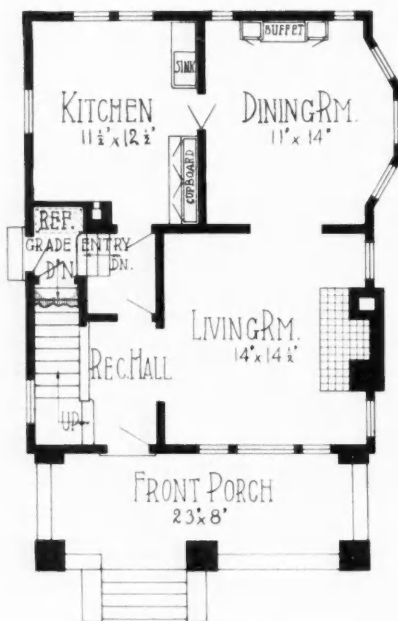
Very pleasing effects have been produced by adding brick porches to frame houses already built. In fact, some people rather favor this construction and like to see it in a new house. This design, No. 6828, is an interesting example of the pleasing effect which may be obtained by including a brick porch and out-built brick chimney in the design of a frame house.

In order to bring out the desired contrast in color effects, it is usually the custom to paint the body of the house white and use a white stone or concrete for the caps of columns and rails. The perspective shows the added touch which may be obtained by finishing the window sash in some dark color. The appearance of the hip roof is pleasing in this design and this roof has the added advantage that all of the upper floor rooms may be full height without carrying the roof to excessive height. The chimney is carried well up above the top of the roof, both for the increased draft which is obtained in this way, and for the effect in appearance which it produces.

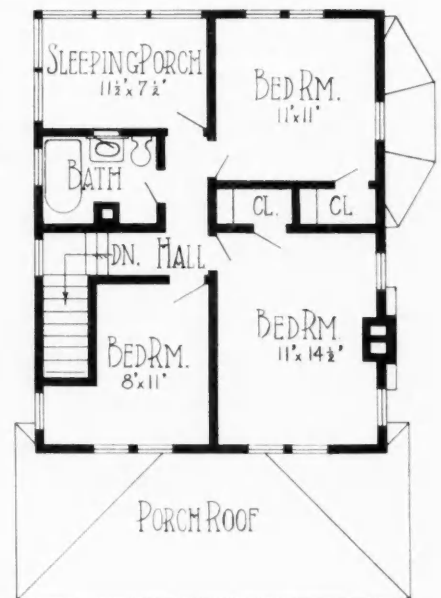
The interior of the house is divided up into three rooms on the first floor and four rooms on the second floor.

The entrance from the front porch leads into a reception hall. The living room is entered from this hall and the fireplace is directly opposite with a small window on either side. The dining room is entered thru the living room. This dining room is one of the pleasant features of the house. A bay is built

into the wall on the side of the house and three large windows are placed in it. In the back wall two small windows are set one on either side of the buffet. The room is very well lighted and is excellent for a dining room. The kitchen is handily arranged with sink and cupboards along the inside wall.



First Floor Plan.



Second Floor Plan.

Arrangement of House, Size 24 by 30 Feet.

A Pleasant Six-Room House

This neat little home is one of the kind that often calls forth the remark, "I should think you would want to stay at home all of the time." It has every convenience which is needed to make it an ideal home for a small family. The suggestion of a homelike atmosphere is sensed even before the house is entered. The bungalow idea is evident in the broad, low lines of the roof and several unique features have expressed themselves in the exterior design. The heavy exposed timbers arranged in pairs under the roof give an air of distinction to the house. The gable of the porch roof materially sets off the front of the house and the entire porch design is very effective. The rail is low and is carried out to extend the porch beyond the columns in line with the side of the house. Two posts are set at the outside corners of this extended portion of the porch. Flower baskets set upon these posts would produce a very artistic effect. The sides of the house are finished with beveled siding and the window trim is a little out of the ordinary, in keeping with other features of exterior design.

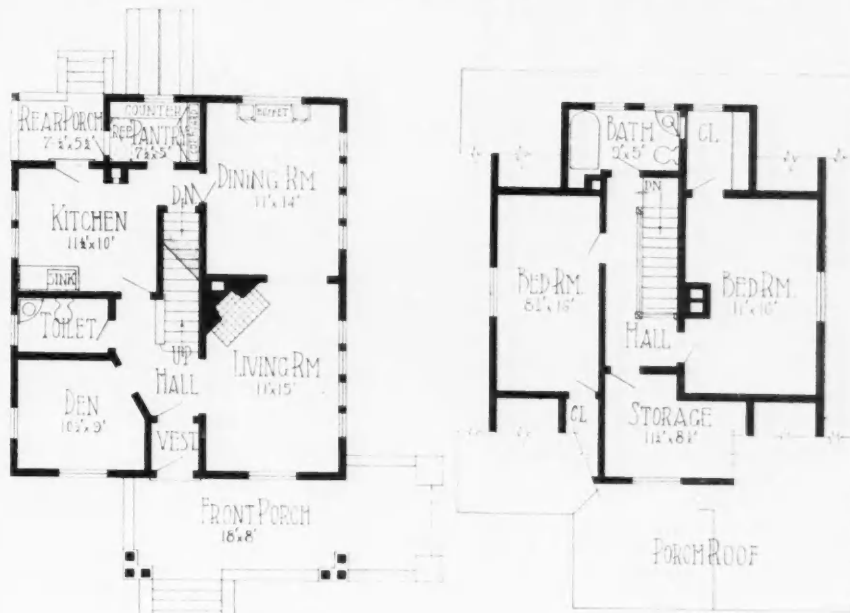
A small vestibule is entered from the front porch, and this leads into the hall from which the various rooms of the first floor and the stairs to the second floor are reached. The large living room has a fireplace set into one corner. Four windows are built into the side wall of the house in this room, and one large window is placed at the front.

The living room is always a pleasant room when the fireplace is set into one corner, but it is seldom that this is possible without interfering with the arrangement of some other part of the house.

The dining room is in the rear of the living room. The buffet is built against the rear wall with a wide window above it. Four windows occupy the side wall in this room, similar to the arrangement in the living room. A hall leads past the pantry to the kitchen. The kitchen

is fitted with a sink set into the corner opposite the hall. A chimney has an outlet, between the door to the rear porch and the pantry, for the kitchen stove. The pantry is an ideal one, with a counter and cupboard. The refrigerator is placed in the pantry and is iced from the rear porch. A little den and a toilet are also placed on the first floor.

Two bed rooms, a bath and a storage room occupy the second floor. A long hall extends parallel to the staircase.



First Floor Plan. Second Floor Plan.
Arrangement of House, Size 27 Feet 6 Inches by 31 Feet.



Six-room home with many special features. Size, 27 feet 6 inches by 31 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$10.00 per set. Blueprints consist of basement plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6833.



High Ceilnged Music Room with Balcony in a Los Angeles Bungalow Home; Arthur S. Heinemann, Architect. Floor is on Two Levels. All Trim and Timbering are of Redwood, Interestingly and Beautifully Finished. Note Unique Idea in Open Stair at the Right—Risers are Not Solid, but Consist of Three Slats.

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A Novel Design with Many Desirable Features

It is not very often that the combination of stone masonry and stucco is used in house construction, and it is a peculiar fact, for the appearance of a structure built in this way is altogether pleasing and satisfactory. The design shown here would attract favorable comment no matter what its surroundings. The massiveness of the masonry work fits well into the design and the stucco carries along the general idea to the smallest detail. Stone are used in building the porch wall and the chimney. The porch columns are built of wood with stucco finish and only two are used. The floor of the porch and the steps are made of concrete. The roof is of the gable type and triangular wooden brackets are set against the sides of the house where purlins project to support the rafters placed outside of the walls.

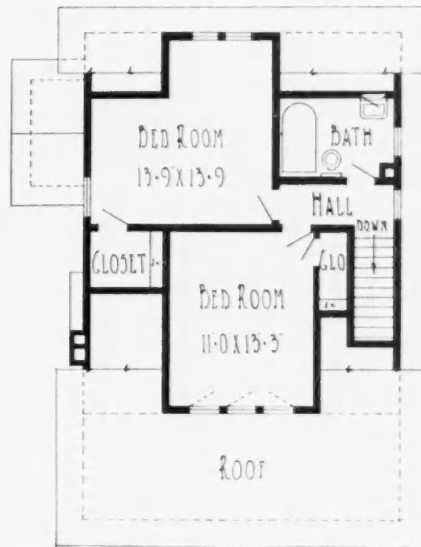
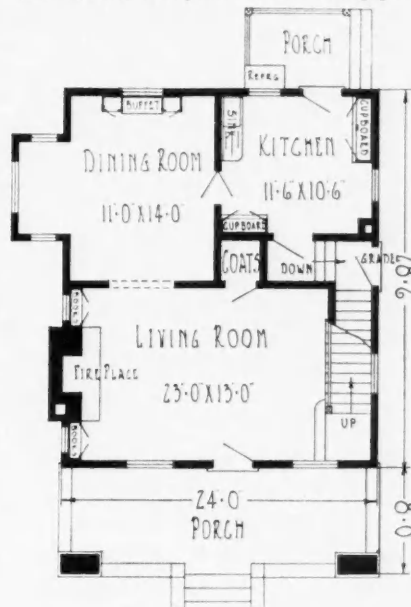
The most pleasing feature of this design is found upon entering thru the front door into the living room. This room occupies the entire forward one-half of the first floor. An open stair case is built along one end of the room. At the bottom of the stair is a landing which is two steps above the level of the living room floor. The first step is curved, at its inner end, back to the staircase. At the other end of the room

is a large fire place with a book case on each side. A small closet for wraps is placed directly in front of the door opening upon the porch. A cased opening leads to the dining room.

Upon entering the dining room, the buffet is directly in front, built under a window in the rear wall of the house. A three-window bay admits light into the room from the side of the house. The kitchen occupies the remaining por-

tion of the rear one-half of the first floor. Two cupboards are furnished in two corners of the room, and the other two corners are occupied by the chimney and sink. This arrangement results in great economy of space. The rear porch is of generous size and provision is made for the refrigerator here.

Two pleasant bed rooms and a bath occupy the second floor. Each bed room has a closet with shelves.



First Floor Plan. Second Floor Plan.
Arrangement of House, Size 24 Feet by 28 Feet 6 Inches.



Home-like Five Room Stucco House. Size, 24 feet by 28 feet 6 inches. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$8.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6835.



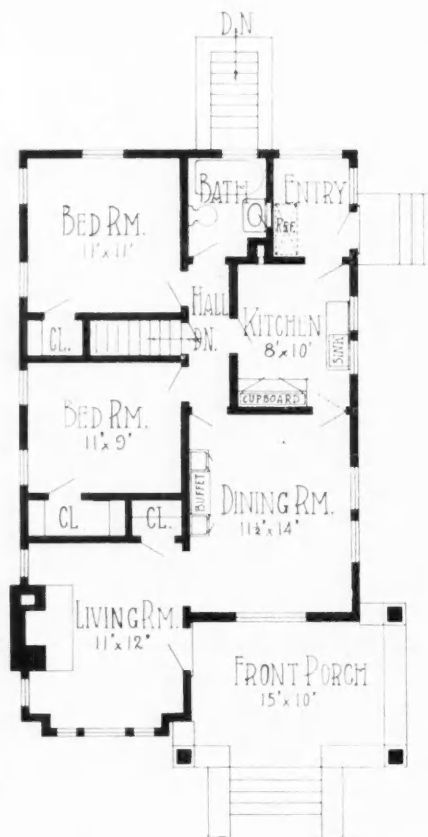
Attractive Five-room Home. Size, 24 feet by 40 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$6.00 per set. Blueprints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections, and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6830.

A Pleasant Five-Room Bungalow

The design shown in the accompanying perspective and floor plan is intended to carry out the bungalow type of construction with some variation in the usual external appearance. This is accomplished by the use of a roof design which is mainly of the hip type, when viewed from the front, but which is really a combination of both the hip and gable types. In order to balance the appearance and relieve the wide area of shingled surface, a little dormer is built in front.

The sides of the house are finished in beveled siding. The porch is built up of cobble stones capped with white stone or concrete slabs. The corner columns are carried part way up with the stone and are then relieved with tapering square wooden columns. The floor of the porch is of concrete. This house is preferably finished in some dark shade with white trim.

Since the railing of the front porch is carried quite high, this porch may be well utilized as another room during the months when the temperature will permit. The living room is entered from the porch, the door being at one side of the steps rather than in front of them, as is usually the case. The large fireplace is directly in front of the door



Floor Plan of Bungalow.
Size, 24 Feet by 40 Feet.

as the living room is entered. This living room is not an extremely large room, but it is very cozy and should furnish the family a great deal of pleasure. A bay is built into the front wall and has one large and two small windows in it. There are also two other windows in the room.

The dining room is a somewhat larger room than the living room and is fitted with a buffet in accordance with modern practice in house design. The kitchen has the cupboard handy to the dining room and the sink is placed under the two windows which furnish light for this room. The refrigerator is placed in the rear entry, where the iceman will not track dirt into the house.

A hall which leads back from the dining room makes the two bed rooms and the bath room accessible from the front of the house. The basement is also entered from this hall. Each bed room is provided with a large closet. All rooms are made pleasant with plenty of light, and there is no reason why any part of the house should ever be stuffy.

A large basement is provided which may be found to be of great service in that it not only provides for a laundry, furnace room and vegetable cellar, but it also furnishes a place to store any articles which might be in the way on the upper floor.

Bungalow with Concrete Block Porch

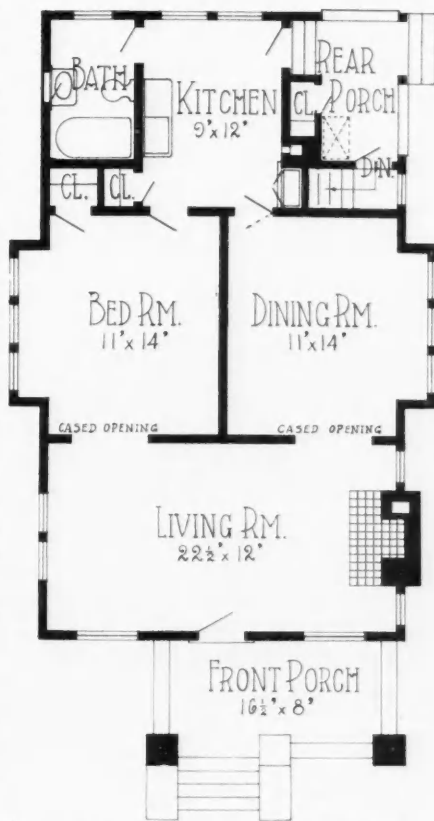
Since the advent of the concrete block industry, some rapid steps have been made in house construction. The special facings which it is possible to apply to the concrete blocks make them a solution of almost any problem in house building where something special is desired in finish. By the use of white cement in connection with suitable coloring material almost any shade or tint may be obtained and a very close imitation of highly expensive stone may be built at a reasonable cost. Marble, granite, sandstone and limestone may be imitated with such exactness that there is no advantage gained in the use of the true material.

The little bungalow shown here as design No. 6829, is an excellent example of the beautiful effect which may be obtained by the use of special face concrete blocks applied to the construction of the porch and chimney of a frame house. The facing used in this case is intended to imitate white marble. This facing consists of a mortar made of some brand of white cement and marble chippings. The stone is not polished, in this case, since the rough surface is more in harmony with the scheme of design than the polished surface would be. It is possible, however, to produce

a very high polish on the surface of these concrete blocks if it is desired.

Two sizes of blocks are used in the walls and special size blocks are cast for the porch rail. The work is laid up in alternate wide and narrow courses and is pointed with dark colored mortar. The design is capable of a very pleasing finish by properly selecting the color scheme in painting. A special feature is the flower box placed under the gable beneath the wide window.

The room arrangement of the bungalow is simple and effective. The living room extends from one side to the other of the front part of the house, and has a fireplace at one end. Six windows and the front door admit light to the room, assuring a pleasant place for the entertainment of afternoon guests. In the rear of the living room the dining room occupies one side of the house and the bedroom the other. A three window bay is built into the outside wall of each of these rooms. The kitchen is centrally located in the rear of the house with the bath room on one side and the rear porch on the other. The rear porch is really an additional room and may be used to supplement the kitchen. Closets are provided in the bed room, kitchen and rear porch and a cupboard is set into the wall in the kitchen.



Floor Plan of Bungalow. Size 23 Feet 6 Inches by 40 Feet.



Four-room bungalow of artistic design. Size 23 feet 6 inches by 40 feet. We can furnish complete set of blue-printed 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, and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6829.



A Comfortable Bungalow Sun Parlor with Shingle-Finished Walls, Outward Opening Casements, Full Length Screens and Awning Curtains.

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Attractive Seven-room Home. Size, 32 feet by 29 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$8.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear and 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. 6836.

A Cozy Stucco Home of Seven Rooms

The stucco finish which has become so popular during recent years lends itself well to almost any style of house design, but it is especially well adapted to houses having broad gable roofs. This design No. 6836 is a type of house which seems to have the inherent qualities which are required for the best stucco effects. The main roof is carried out to cover the front porch, which is large,

extending across the entire width of the house. Two massive columns support the roof over the porch and the entire front view is unobstructed by posts. The porch rail is solid and unbroken except for the steps at the front.

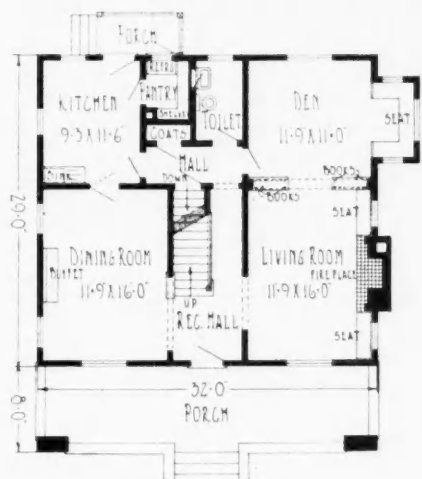
A small dormer with gable roof is placed near the center of the main roof in both the front and back of the house. These dormers are finished artistically with exposed rafter ends, purlin brackets and panel work. An attractive little

bay with gable roof is set near the rear of the house on one of the side walls.

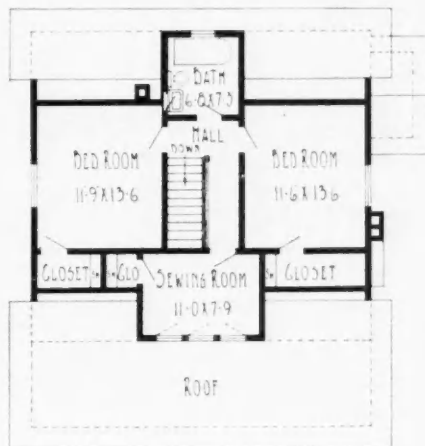
The interior arrangement is all that could be wished for in convenience and attractiveness. The entrance from the front porch is into a reception hall in which the staircase to the second floor is built. Cased openings lead to the living room and dining room. The former is a very comfortable room with its large fireplace and built-in seats. A double tier of bookcases occupy the sides of the cased opening into the den. This room has a pleasant little seat built into the bay. The dining room is large and has a buffet set against the outside wall. A swinging door leads to the kitchen, which is supplemented by a handy pantry in which the refrigerator and shelves furnish a place in which to store all of the foodstuffs together.

The second floor contains two large bed rooms, a bath and a sewing room. Each of these rooms open into the hall, which runs parallel to the staircase.

The bedrooms are good large rooms; and each has a clothes closet of generous size. The sewing room is smaller, but has more windows; in fact some would call this a "sleeping porch" because of its three casement windows.



First Floor Plan.



Second Floor Plan.

Arrangement of House, Size 32 Feet by 29 Feet.

"Quit Envyng the Other Fellow and Put the Thing You Envy in His Life Into Yours If It Is Worth While"

—THE MAN FROM THE LUMBER YARD.

Truth is truth, regardless of what you or we think or say. The big thing is to know what is true. The Man from the Lumber Yard gives several thoughts worth while in this letter. And by all means do not overlook the picture that talks. —EDITOR.

If there is one man that shows less sense than the one who expects special consideration because of his ancestors, it is the man who would excuse his weakness by reason of the frailties of his forebears. There are not many people around lumber yards (and those are the sort I associate with the most) that have the time, the disposition, and the money to climb family trees.

There is one man in the Northwest that made a very comfortable pile out of his yard and has made his ancestry his hobby.

None Hung as Horse Thieves

While he has many people of note among his progenitors, he is not puffed up over that fact. He says it would be very strange if there were not some worthy of special mention among the thousands of ancestors anyone has. I remarked to him that he seemed liberal with his ancestors. He thought he could afford to be when you consider the fact of his having had 482,048 that he could trace back for nineteen generations. He has been able to run the line back to the year 1066 A. D. and found in old French and English files clear records for ten generations up to 1626, when his people came over to New England.

He is proud of the fact that none of his people have been hung for horse thieves.

Every Tub Should Stand on its Own Bottom

Most folks like to shift responsibilities—to pass the buck. But you can't do it with nature. You are what you are. Throwing blame for deficiencies on a great-grand-dad will not butter any bread for you. Nor will the fact that a grand-dad was governor of a state lift any brick to the third floor. It is up to you to make YOU the best possible man. God gave you a body. Don't abuse it. He gave you a mind. Use it fully. It is really pathetic to see so many people of forty with minds of fourteen.

He gave you a heart. You can't afford to neglect it. All the gold and all the power in the universe will not compensate. Ask your wife as to which she prefers in you, an affectionate, kindly heart that beats truly for her alone, or a money bag.

Two Undesirables

While I am at it I want to get two other people off my chest. One is the self-satisfied, egotistical cuss who is just right—can't make mistakes, knows it all, is always butting in and has no consideration for the opinion of anyone else. The one redeeming feature

about cattle of this sort is that if they have plenty of rope they hang themselves. The other fellow is the chap that is filled with envy and is always wishing he were some one else.

If You Weren't You. Who Would You be?

Be honest. If I didn't hear you say of some one, "he has it pretty soft; I wish I were in his shoes," didn't someone else hear you? Really, who would you like to be if you weren't you? Remember you can't pick out the pleasant things only in this man's life, and the good things of that man's. You've got to take him from A to Z. What? You would like to be Banker X? Yes, he lives in a big house and has two machines. But you should see him eat. It is a joy to see the way you place corned beef and cabbage under your belt. I know one or two bankers that I wouldn't swap stomachs with if they threw in all the houses and automobiles in the state. Perhaps you feel that the grocer has it easier than you. I worked in a grocery store several years, and have observed a good many since. None of it for me, with their long hours and picayune sales. If you ever envied the hardware dealer, you should attend some of their meetings and learn of their fierce competition, small profits and substitution of shoddy goods by competing department and racket stores. Perhaps you would like to be a soldier until it came time to dig a trench, or be shot. You might like to be a sailor until the storm broke, or the submarine got you. Think it over. Who would you like to be if you weren't you. Quit envyng the other fellow and put the thing you envy in his life into yours, if it is worth while. Just as sure as nits make lice, envyng breeds weakness.

Used by the Ready Cut House People

It is the frailty of human nature that smoothes the way for the ready-cut house people. Far be it from me to slander the women—God bless 'em—but I believe the green-eyed god of envy is feminine gender.

Mary, more than John, looks with envy at the hat on another's head. She, more than he, is discontented with the clothing to be bought in the home stores. Regardless of who holds the pen, it is she who really makes the inquiry that brings the beautiful catalog with alluring pictures.

DOESN'T MATTER WHO MY DAD WAS I AM OLD GRIN



"Those who boast of ancestry are like hills of potatoes, the best are under ground."

She does dearly love to get a bargain, and if she can have a house plan different in front or back, with some fancy trimming over the portico, her mind is made up. If John expresses a doubt as to the quality of the material, she reads the unlimited guarantee that is given, and asks John, if not, why not.

Therefore, brethren, it behooves us to know the women of our community.

How to Get Full

I don't care who said it, but reading does make a full man and with safety. My father started me in the reading habit back in my early lumber yard experience. I remember that a Mr. Abbott conducted me on

a trip with Cortez from Vera Cruz to Chapultepec. Later Lew Wallace carried me over that same route from the coast up to the City of Mexico, and I saw the beauties and tragedies of that country from the eyes of a master student. Many of us made the trip three centuries later with that rugged soldier, General Scott, as he led his little band of Americans

Saw Dust

We salute the public spirited man who sees the thing to be done—and does it.

Do you know the fellow who never does today what he can put off until tomorrow? Watch him drop out of sight.

The man who does things today must take time not only by the forelock, but by the tail also.

Men wouldn't be as men are if they would pause—think and consider that every day they are sowing seeds of an endless existence.

The daily grind of life polishes some and wears out others, it depends on the stuff in you.

It is impossible for you or any one to be in a community and not add to or subtract from the sum total of its happiness.

"Sow an act and you reap a character, sow a character and you reap a destiny."

It isn't much of a man that will blame his parents for his failures.

Men make circumstances, not circumstances men.

When you are disposed to criticize every one, try standing to one side, and watching yourself for a while.

A new thing is better than an old thing, even if the old thing is as good as the new thing.

Get the joy out of every day's doing: for the fun of the thing is in the race, not the finish.

against tremendous odds.

With the shortening hours of actual toil, more and more people can have the delights of trips to the tropics or excursions up the Euphrates—all thru reading. Nor is it necessary to go to New York to learn to be an architect or an interior decorator.

I don't care whether you are weary from brain fag or muscle fag, there is no more restful thing than a good book, or a magazine full of up-to-date ideas, that gives a diversity of reading.

Spiced With Variety

All of us like mashed potatoes and chicken gravy, but all of us would kick on that as a steady diet. In fact, I have more of a hankering just now for roasting

ears, apple sauce, and peaches and cream. One reason the "A. C. & B." is so thoroly read is because it gives such a wholesome all-round diet. A constant reader can get a liberal education from it and be directed on the road to success by it alone. Reading helps the aimless man to have a plan. He who aims at nothing usually hits the mark.



What's the sense of scaring away Prosperity and Business Opportunity—what's the sense of scaring the family and depriving them of comforts that are due—what's the sense of ruining business for present and future? What's the answer? THE BUILDERS' CLUB.



Two Stores and Lodge Hall

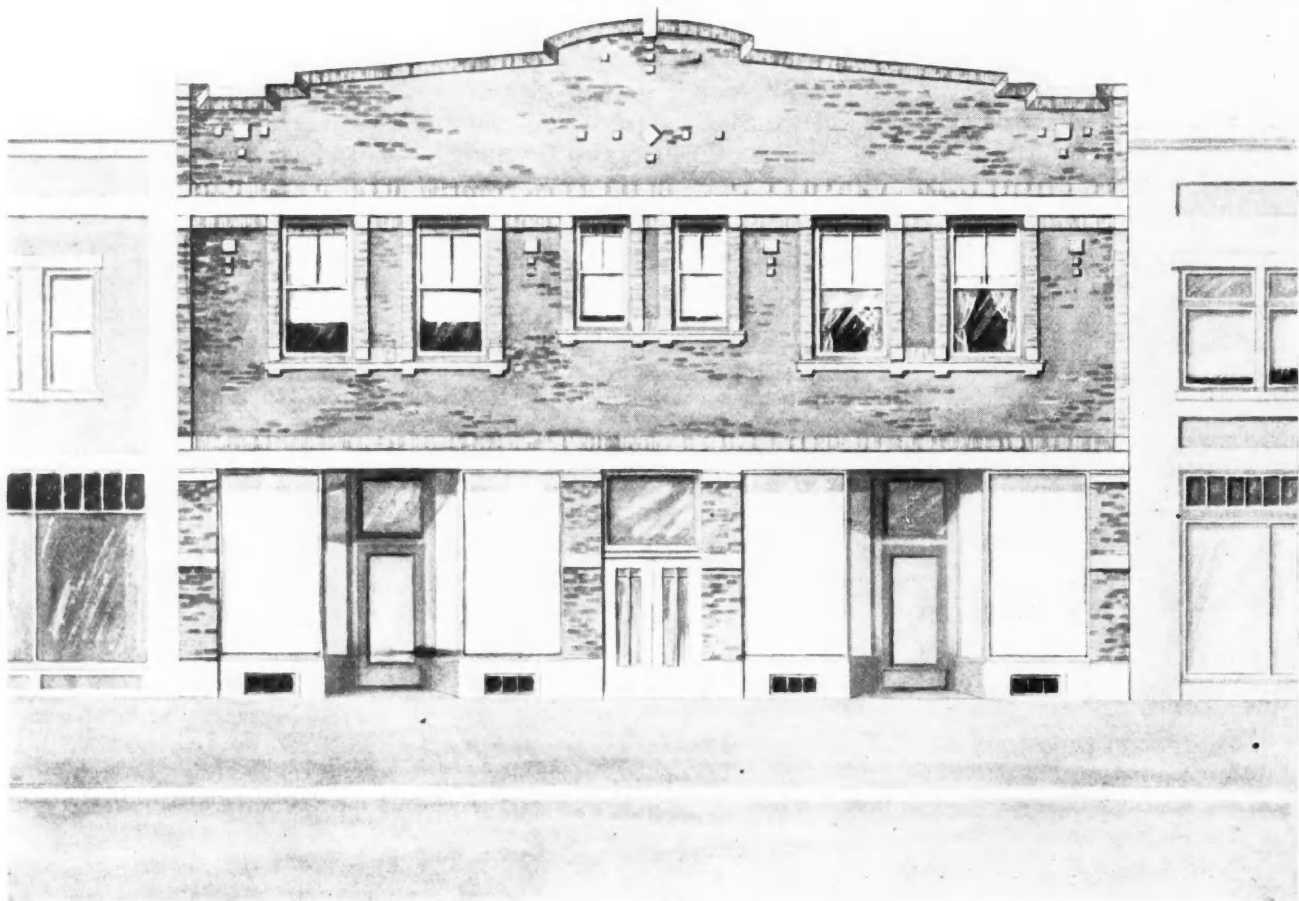
ELEVENTH OF A SERIES OF PUBLIC AND COMMERCIAL BUILDINGS—A POPULAR BUILDING FOR THE MAIN STREET OF ANY GROWING TOWN—A DOUBLE STORE BUILDING WITH LODGE HALL ABOVE

THE accompanying design shows a two-story brick and terra cotta building to occupy a 50 foot lot on a business street. Two good stores are provided on the ground floor, each 23 feet wide by 98 feet from front to rear. Modern show windows are provided at the front, and windows at the extreme rear of the stores light the back part. In some cities it would not be permitted to put in windows on the lot line in this way, building ordinances requiring at least

a 3 foot light shaft in case of adjacent property is built up.

The lighting of long store rooms is quite a problem. It is helped by putting in prism glass in transom spaces over the front door and above the show windows. These are not indicated in the front elevation sketch, but can be easily supplied in consultation with the store front man.

On the second floor a lodge hall of good size is



Good Looking Business Block Containing Two Large Stores with a Lodge Hall on the Upper Floor. Size 50 by 100 feet. Design No. 6837.

provided. This is 48 feet in width by 72 feet from front to rear. A desirable grouping of ante rooms, social rooms, toilets, etc., occupies the front of the building and makes this hall available for lodge work and for social functions.

The detail sheet shows the construction of the building, a standard method of construction for this type of work. There is a flat roof of tar and gravel construction carried by an 18-inch, 55-pound I-beam running the length of the hall, resting on 5-inch columns. The second floor is easily carried by two sets of 2 by 14-inch joists set 12 inches on centers. A concrete basement is provided, to reach from the back of each of the stores.

The lodge hall is reached by a wide stairway, double doors open out both at the street entrance and above out of the lodge hall.

In exterior construction this building is designed to make a striking appearance. Light colored face brick is used and the trim is terra cotta.

✦ The Man From the Lumber Yard

(Continued from page 55.)

Reading helps to tell what we know. It gives one more voltage. The printed page places in your reach the associate you want, the people who know what you want to learn, those who have that which you want to put in your life. There is no better way to get it than thru such associates.

Keep on Earth

But there is danger. With all else, be practical. If you emulate Caesar and Napoleon, and would conquer all, you may meet their fate. Co-operation is the slogan that produces under the stars and stripes.

I think it was about five years ago that my work kept me in a certain Iowa town for three or four days. There were three firms of builders. All had been making money and were well fixed financially. One had recently come into the hands of a young man thru the death of his father. I learned of his disposition from the older people before I met him.

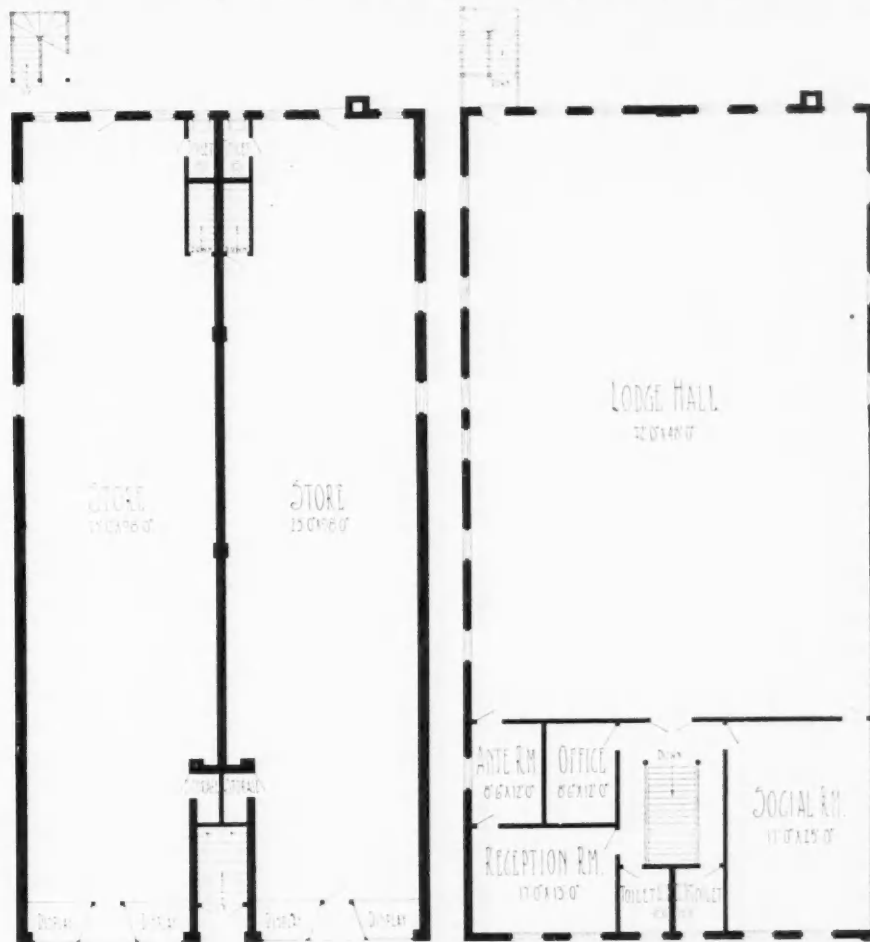
Meeting the Czar

He told me, as indeed he told every one who would listen, that one contracting firm would be sufficient, and that he proposed to put the other two out of business. He proposed to be the Czar of the building game.

The attitude of the other two was belligerent. In those days I enjoyed a dog fight or any other kind of

fight, and in common with every one else, cheered them on. The result was the old story of bull headedness—exit profit, exit quality, exit reputation, exit cause of the trouble.

Some two years ago the young man closed out the business that had been built up by his father "because there was no money in it," and took a clerkship in the post office. He is still learning the lesson of not cutting prices by selling postage stamps. A fool and his



First Floor Stores, Second Floor Hall, Design 6837.

money are respected only while they remain together.

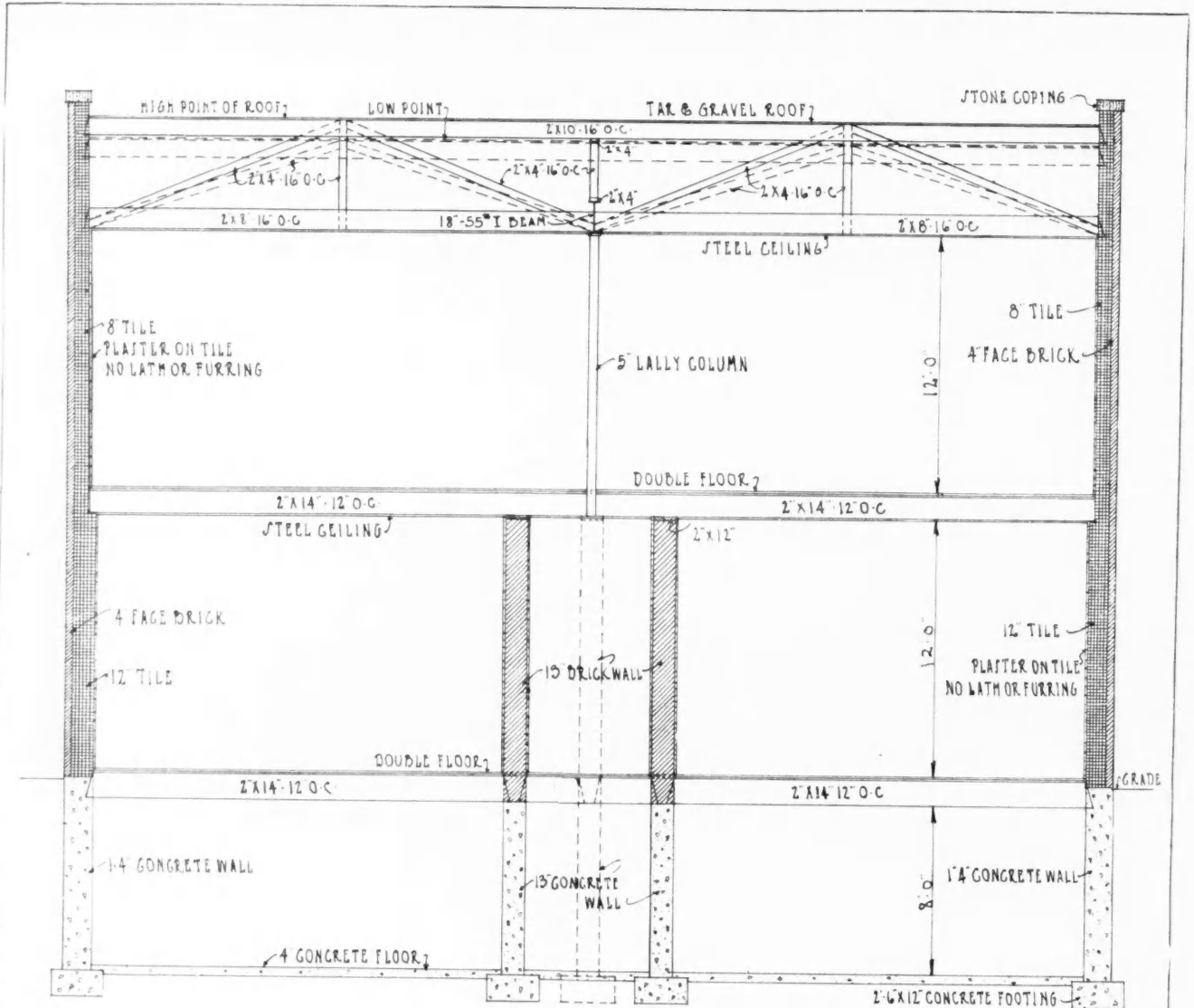
The other two firms were just hanging on by their eyelashes. A builder can get along without profit, but it is a heart-breaking job. The man that aims at nothing generally hits it. Have a plan. Get your competitors to join in. It will make it easier for all. Many are enjoying the benefits of Builders' Clubs; are you?

If you don't know how to bring it about, the "A. C. & B." will be DELIGHTED to help.

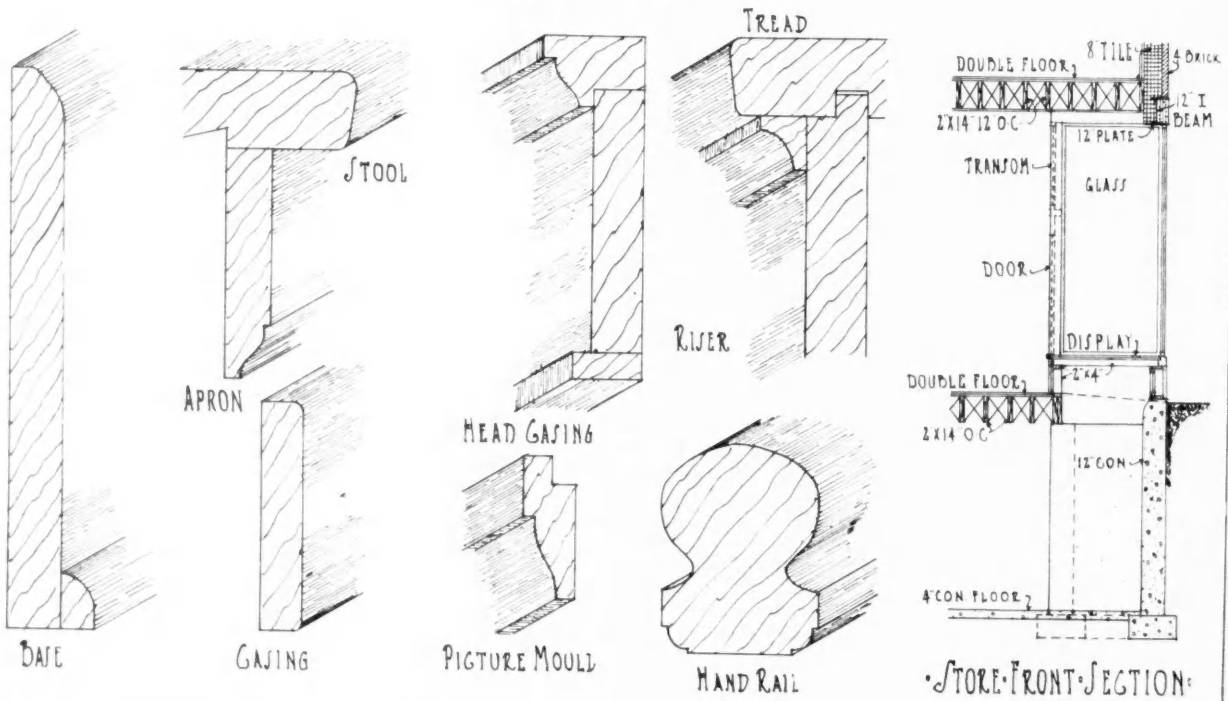
Yours for getting together,
THE MAN FROM THE LUMBER YARD.

✦ Time to Go

"Jane, what time is it?" called down the irate father.
"I don't know, pa. The clock isn't going."
"But I am," spoke up the young man, who could take a hint.



• HALF SECTION •



• STORE FRONT SECTION •

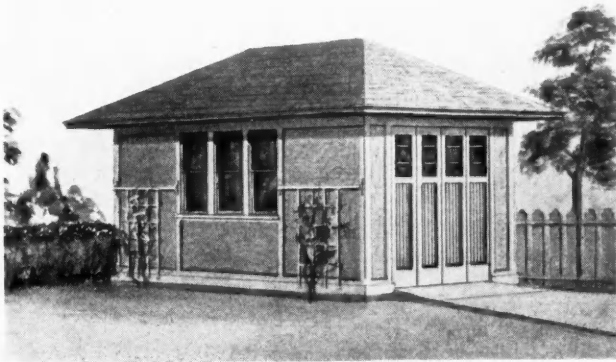
Two Artistic Private Garage Designs

THE two designs shown below offer excellent suggestions to the man who is looking for a place to house his automobile. Each provides generous space for one car and allows plenty of elbow-room for the man who takes pleasure in spending a little time now and then "puttering" around with an oil can and some metal polish.

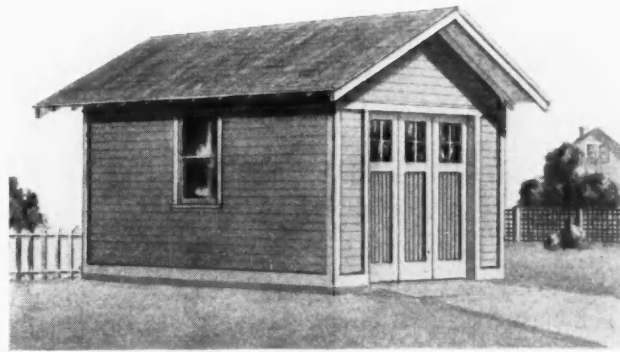
The design on the left is especially attractive in its stucco finish and hip roof. The windows, set high under the eaves, are well balanced by the lattice work covering the lower wall spaces. Double hinged doors break up the door space into four glass and four wooden panels, adding a finished appearance to the front of the garage.

The interior is nicely proportioned and especially well arranged with respect to convenience. The work bench extends across the back wall with a handy case at each end and two large windows directly above. The floor and foundation walls are combined in a solid piece of concrete with a floor drain at the center.

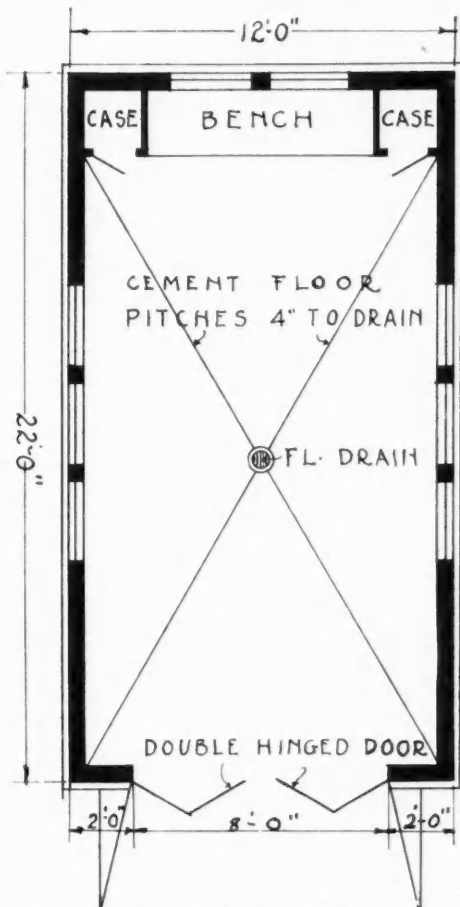
The design on the right is finished in beveled siding with gable roof. The ends of rafters are left exposed under the eaves and the slope of the roof is carefully selected to give the most artistic effect. One large window is set into the walls on the sides and back, and each of the three sections of the door has a small four-pane window in it. The door design is especially handy. It slides into this position on a curved track.



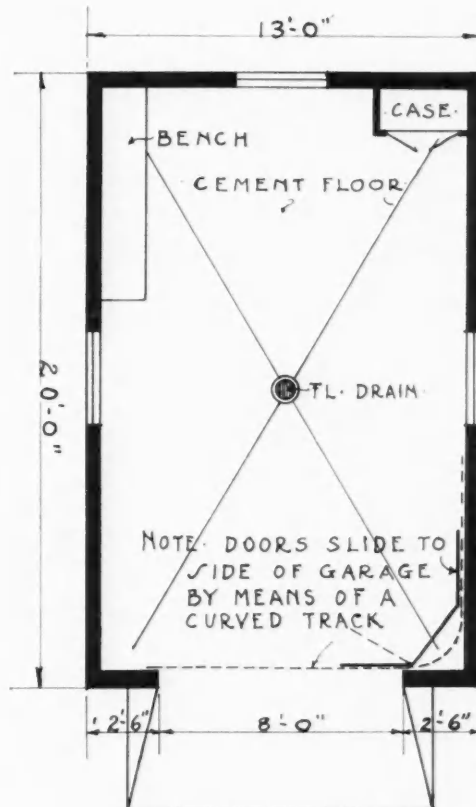
A Neat Stucco Garage, Design No. G169.



A Private Garage of All Wood Construction, Design No. G168.



Floor Plan of Garage No. G169.



Floor Plan of Garage No. G168.

Designs for Factory Office Buildings

MODERN BRICK AND CONCRETE OFFICE OF THE ILLINOIS GLASS CO., AT ALTON, ILL.
DESIGNED BY THEIR OWN ENGINEERING DEPARTMENT

Photo and Description by Herbert C. Crocker

THIS is the first of a series of three articles on new office buildings at Alton, Ill., where the manufacturers have taken up the idea of civic improvements to assist city officials and organizations of women to beautify their city.

Civic improvements have hit Alton, Ill., a prosperous Mississippi river town, a good square blow. The idea has been taken up by practically everybody in the town, and three of the large industries have gone so far as to erect office buildings which cause the stranger to believe them a public school, a library, or even the home of a wealthy resident.

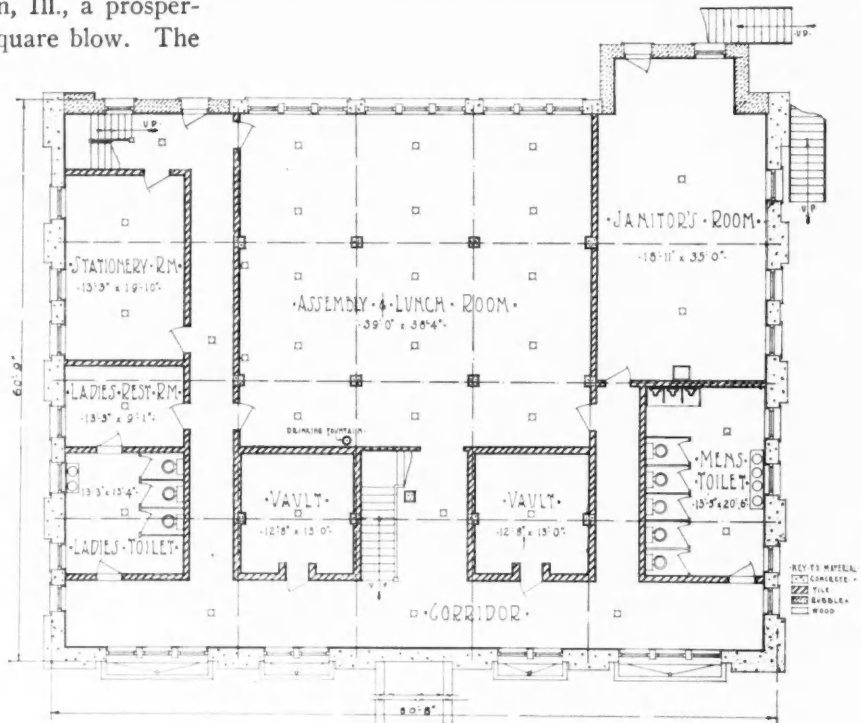
They are the Illinois Glass Company, Sparks Milling Company, and Standard Oil Company. Alton is truly proud of these three buildings and it is believed more will follow.

The business of the Illinois Glass Company was begun in 1873, and has grown to be the largest in the United States. After thirty years of service, an old frame building used for an office, was wrecked for the present structure.

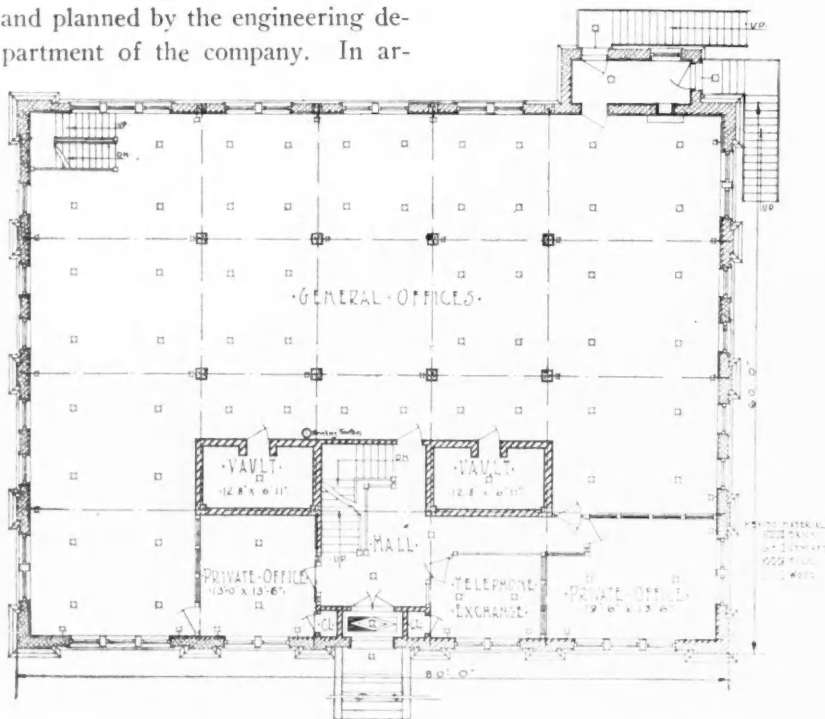
The building is of modern design and planned by the engineering department of the company. In ar-

ranging the building, the designers looked forward to the planting of shrubbery to give the most artistic effect.

It is a two-story building with outside dimensions of 60 feet 9 inches by 80 feet 8 inches. The outside



Basement Plan of Illinois Glass Co. Office Building.



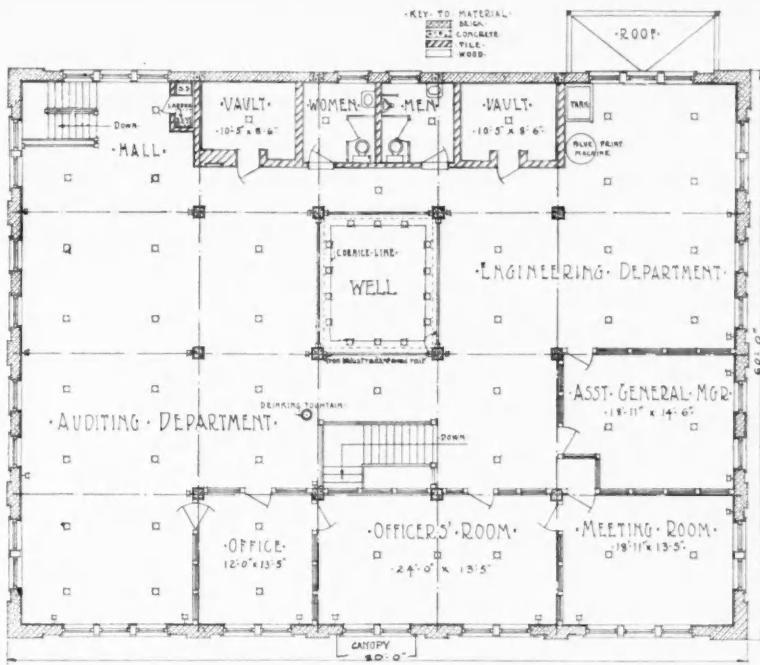
Main Floor Plan of Illinois Glass Co. Office Building.

construction is of brick and with concrete floor is considered absolutely fireproof. The approximate cost was \$30,000.

To secure the best possible ventilation and lighting were the principal aims of the architects. Both have proven to be far above the ordinary. All of the offices and work rooms are light and airy and a perfect ventilation is secured, partially thru a shaft or well near the center of the building.

There are several large vaults distributed over the building as a place of safety for the more valuable records. The building is heated by exhaust steam from the plant.

About 100 persons are employed in the office constantly. In the basement is a large assembly and lunch room where employes may congregate for exercise when the weather is too severe for them to leave the



Second Floor Plan of Illinois Glass Co. Office Building.

building. In one section is a rest room for the ladies. There is a room for the janitors, another for stationery, and two of the vaults are in the basement.



Who Am I?

I am more powerful than the combined armies of the world.

railroad crossings, and on the sea.

I bring sickness, degradation and death, and yet few seek to avoid me.

I destroy, crush or maim; I give nothing but take all.

I am your worst enemy.

I AM CARELESSNESS.—*National Fire Protection Association Quarterly.*

I have destroyed more men than all the wars of the world.

I am more deadly than bullets, and I have wrecked more homes than the mightiest of siege guns.

I steal in the United States alone over \$300,000,000 each year.

I spare no one, and find my victims among the rich and poor alike; the young and the old; the strong and the weak; widows and orphans know me.

I loom up to such proportions that I cast my shadow over every field of labor from the turning of the grindstone to the moving of every train.

I massacre thousands upon thousands of wage-earners in a year.

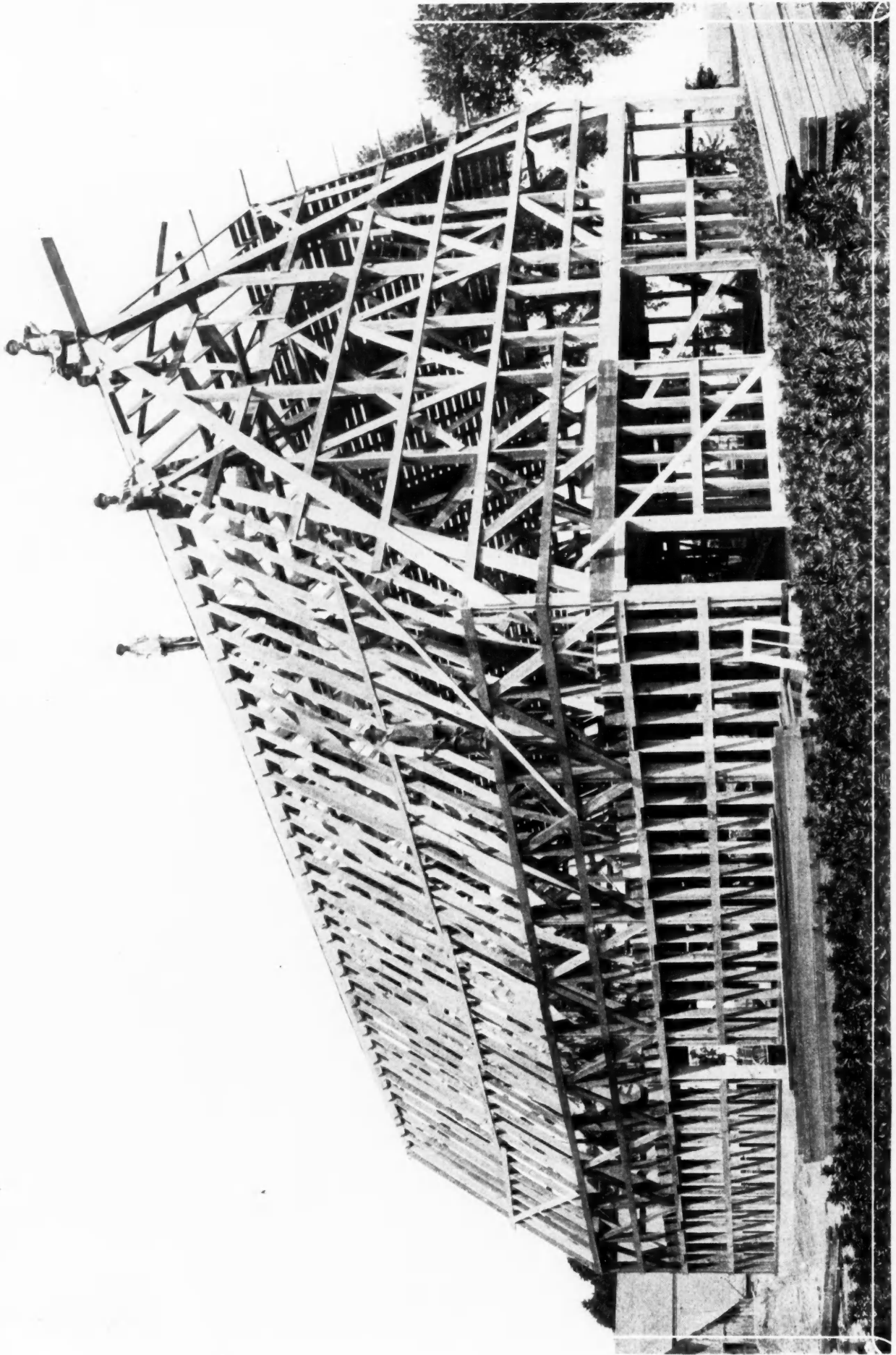
I lurk in unseen places, and do most of my work silently. You are warned against me, but you heed not.

I am relentless. I am everywhere; in the home, on the street, in the factory, at



Factory Office Building of the Illinois Glass Co., at Alton, Ill.

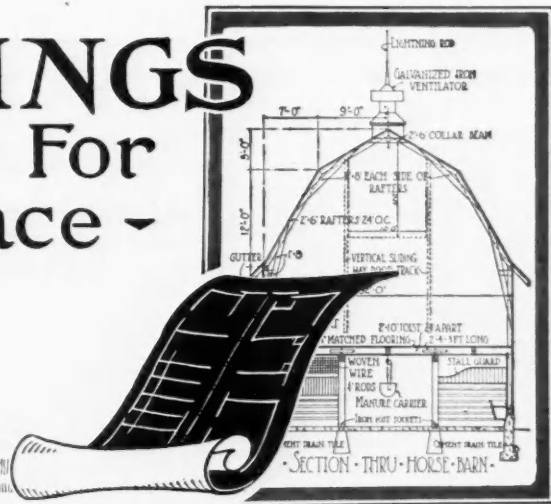
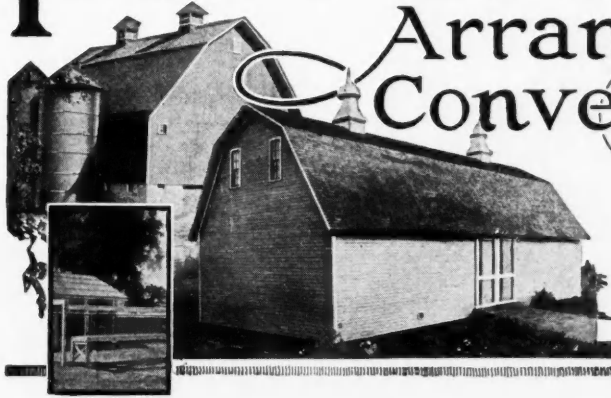
Radford's Standardized Plank Frame Construction



Did You Ever See a Finer Looking Barn Frame than This? It is an Example of "Radford's Standardized Plank Frame Construction," Erected by Raymond DeSutter, Carpenter and Builder, of Atkinson, Ill., Following Plans and Specifications Prepared by the Radford Architectural Company, Chicago, Design No. A368, and Furnished the Owner, Mr. Wm. Bentley, thru Paul D. Ransom & Son, Retail Lumber Dealers of Atkinson. For Photograph of Finished Barn, Dimension Floor Plan and Details of Construction see Pages 64 and 65.

FARM BUILDINGS

Arranged For Convenience



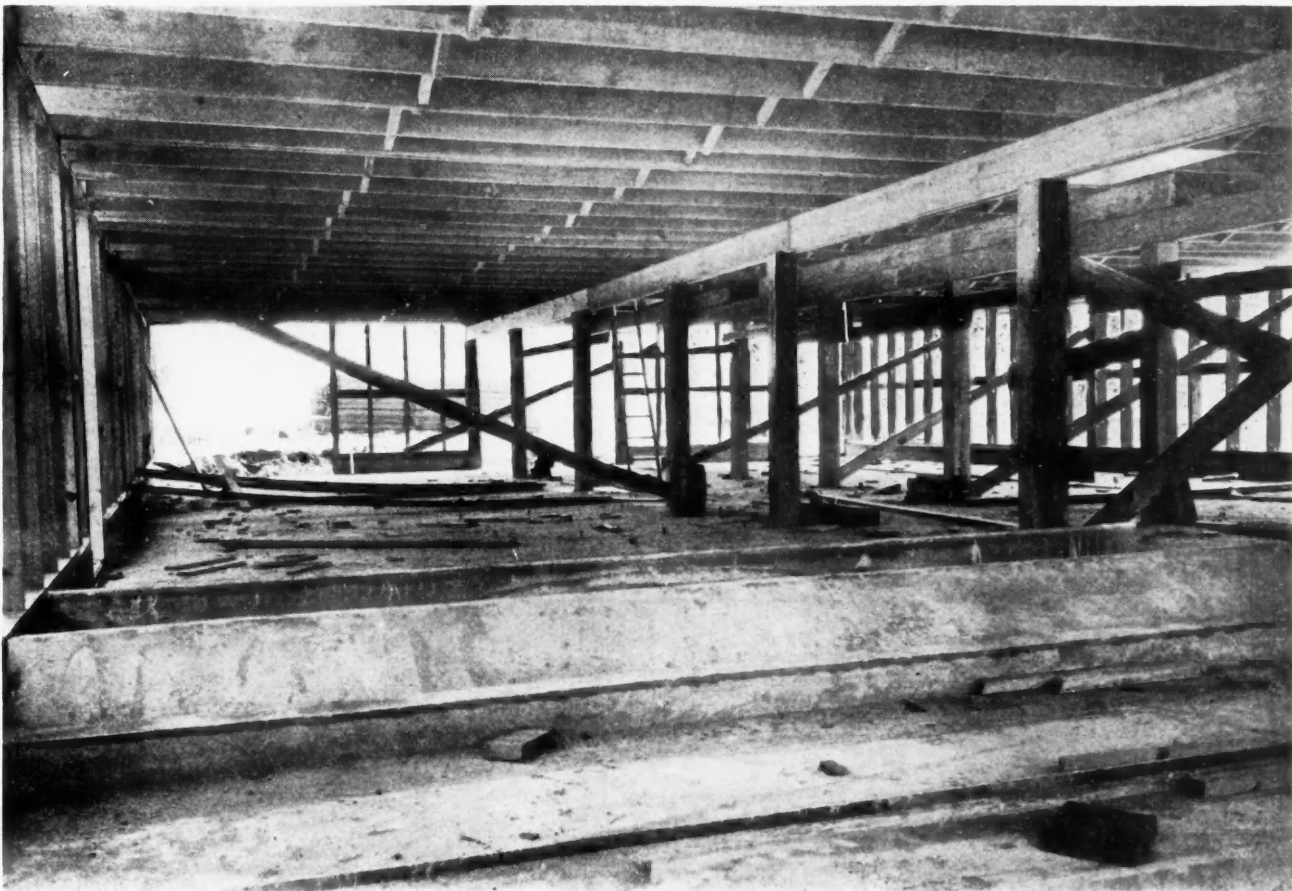
A Barn of Radford's Standardized Plank Frame Construction

COMBINED HORSE AND COW BARN, SIZE 72 BY 42 FEET, ERECTED NEAR ATKINSON, ILLINOIS—DETAILS OF FRAMING AND ARRANGEMENT PRESENTED

THE best of the plank framing methods for self-supporting barn roofs is illustrated in the accompanying photographs and working drawings. It is the result of a critical study and comparison of all the various "plank frame" or "joist frame" construction methods that have been offered in recent years. It has the advantage of simplicity, ease of con-

struction and well-balanced strength.

This style of barn framing has been given the name of "Radford's Standardized Plank Frame Construction" in recognition of the pioneer work that Mr. Wm. A. Radford has done in developing and standardizing modern barn architecture. Designed by the barn experts in Mr. Radford's organization this system is rap-



View of Basement Stable in the Bentley Barn During Construction. Concrete Cow Manger in the Foreground.



Photograph of Wm. Bentley's New Barn. Size 72 by 42 Feet. A Modern Barn in Every Respect, Completely Outfitted with the Best Barn Specialties and Sanitary Labor Saving Equipment. In Making Inquiry Regarding this Barn, Please Mention Design No. A368.

idly coming into use in the central west. It is not patented; any builder is privileged to use it.

The essential feature in Radford's Standardized Plank Frame Construction is the truss, built up out of 2 by 10's, 2 by 8's and 2 by 6's, all commercial sizes of timber carried in stock by every lumber dealer. These trusses are evenly spaced thruout the length of the barn, usually coming about 12 feet apart. Unlike some other systems of plank frame construction, these trusses extend down below the barn floor to the basement foundation, in this way preventing any weakness at the line of the floor joists. The means of accomplishing this is simply to run the wall studs at each

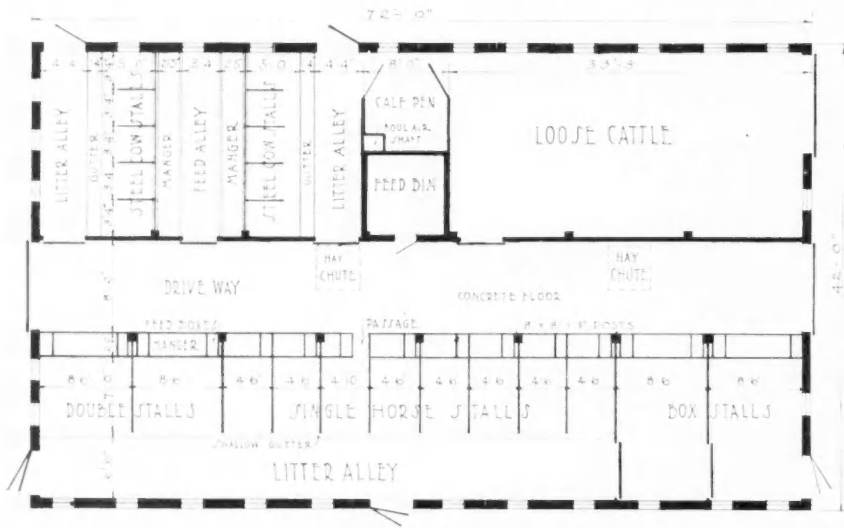
truss clear thru from foundation to roof plate. Two of these long studs, 2 by 8's, are used, and then they are further reinforced below by two short studs spiked fast to them.

This gives the roof trusses a good strong anchorage to the lower part of the barn frame, and puts the strength where it is needed.

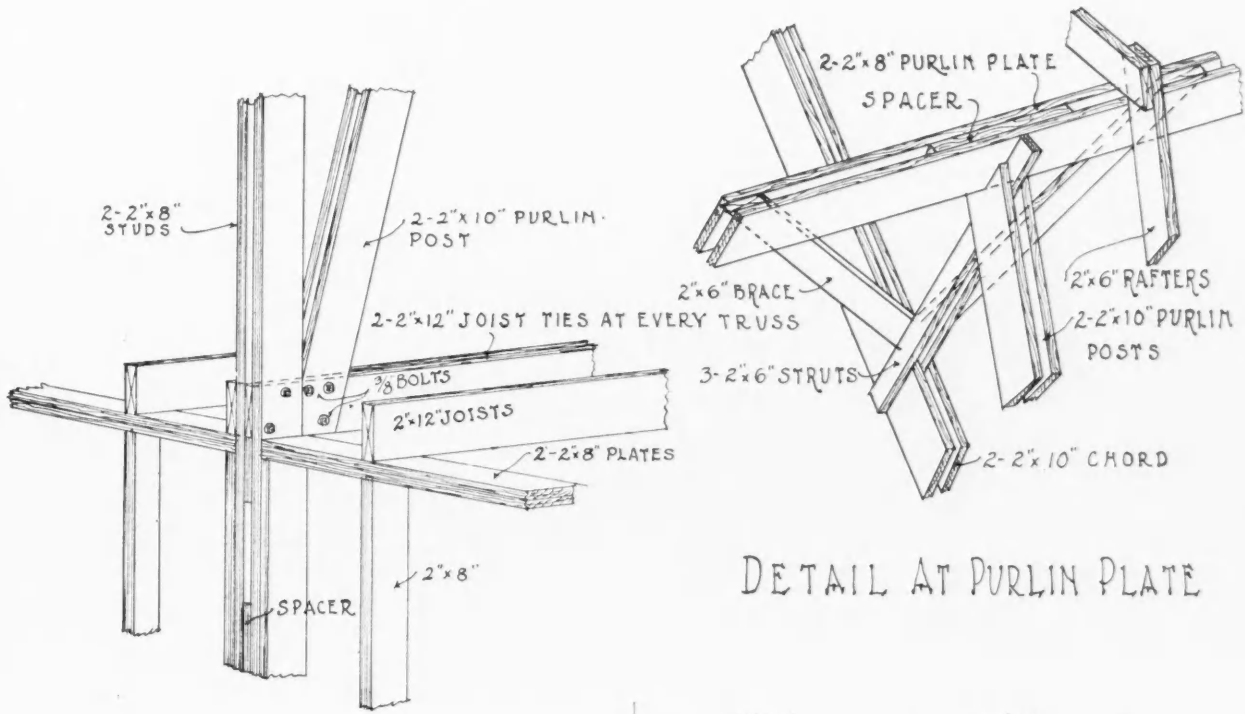
The purlin posts consist of two 2 by 10's, and run up on an angle from the floor plate to the brake of the roof, where the purlin plate is located. The truss chord is built up of two thicknesses of 2 by 10's, and runs from just below the roof plate up to the ridge. Three 2 by 6-inch struts run from the purlin plate down to the chord to stay it; 2 by 6-inch braces also come down from the purlin plate to the chord at a 45-degree angle to stay it laterally.

The ridge board is a 2 by 8, and there are 2 by 10-inch collar beams at the peak of each truss. Each truss is tied securely at the bottom by means of doubled 2 by 12-inch joists securely bolted and extending across thru the floor of the barn.

In this truss 3/8-inch carriage bolts with cut washers underneath all nuts are used for all connections and splices. No dependence should be placed on nails or spikes in building up a truss. Spikes will work loose

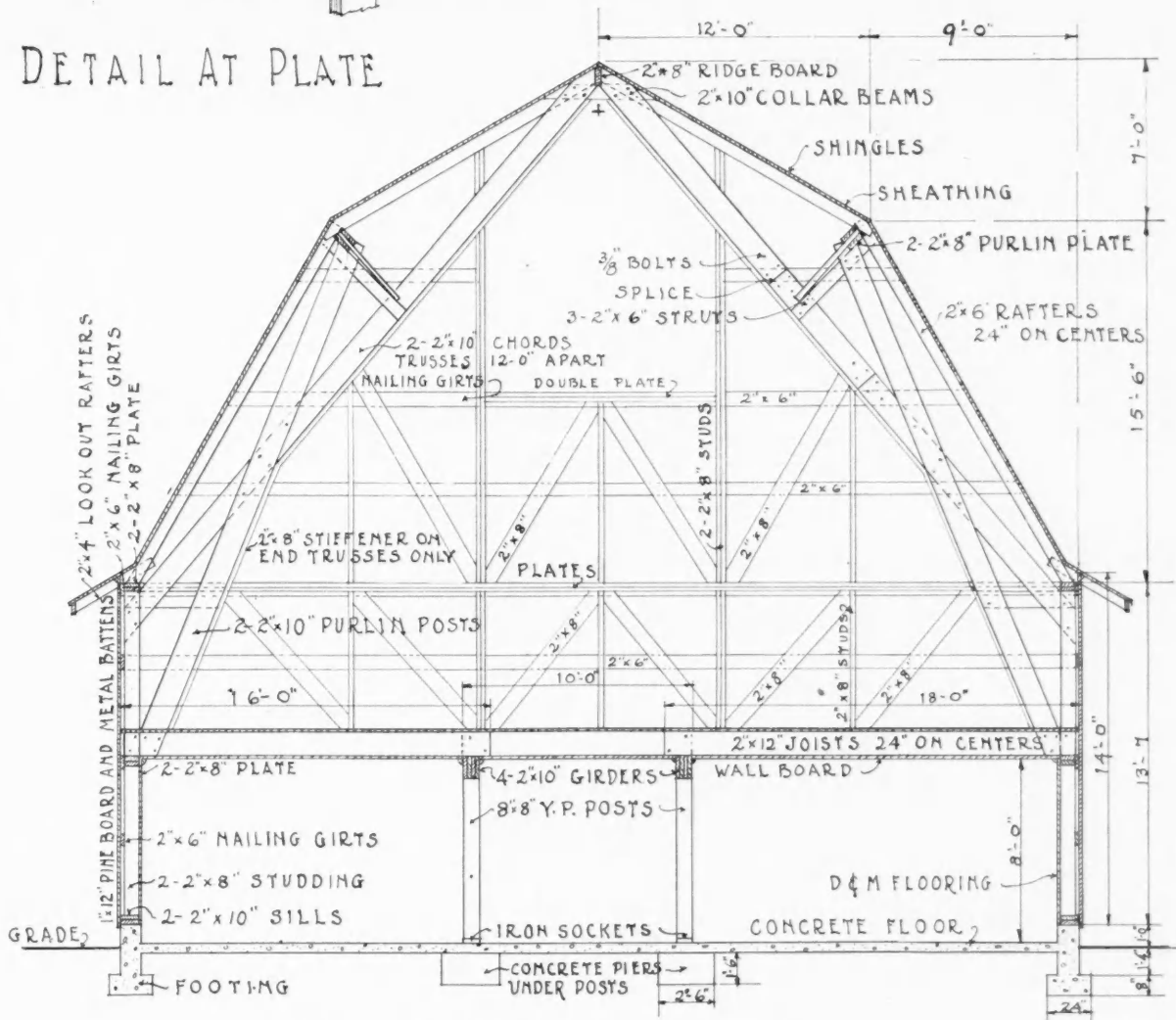


Arrangement of Ground Floor of the Bentley Barn Accommodating Ten Milch Cows, Twelve Horses, and Considerable Loose Stock.



DETAIL AT PURLIN PLATE

DETAIL AT PLATE



CROSS SECTION & END FRAMING

Detail Plate Showing How to Build "Radford's Standardized Plank Frame Construction" on a 42-Foot Span, 13-Foot Studs. For Photograph of This Barn Frame Erected see Page 62.

in time, whereas a bolted joint can be depended upon.

Barns of Radford's Standardized Plank Frame Construction are very easy to erect. The trusses are laid out and completely assembled on the ground; then when the concrete foundation is ready the end truss is raised and held plumb with braces and guy ropes. The next truss is then raised and immediately the section of 2 by 8-inch wall plate is slipped in and nailed fast, and that holds the second truss in position. So on with the others.

When all the trusses are up the roof plates are nailed on, and then the ridge board put in. A 2-inch block was laid in at the peak of each truss when it was assembled to prevent the ridge board space from pinching shut during the raising. These blocks are now knocked out and the ridge board driven in. The purlin plates are next placed and braced, and the rafters put on.

All of the work of building a barn of this type goes right ahead step by step, no part of it being so heavy as to require extra help. The old fashioned *raising bee* is a thing of the past with this type of barn framing.

The detail plate shows the end framing of this barn in addition to the typical truss that is illustrated. Notice that 2 by 8-inch stiffeners are specified for the end truss only. These are nailed on along the underside of the purlin post and chord, being placed at right angles to these timbers. In the photograph of this barn frame these stiffeners make these members appear as heavy square timbers. They are not, however. They are box girders open on two sides.

In the detail drawing all of the timbers indicated inside of the truss members are in the end of the barn. With this type of construction, the hay mow is entirely free and unobstructed, save for the purlin posts and the main truss chords; and these project only a few feet into the mow.

This present barn illustrated here was built by Raymond DeSutter, a young building contractor of Atkinson, Illinois, from plans and specifications prepared by the AMERICAN CARPENTER AND BUILDER architectural department, and furnished him thru Paul D. Ransom & Son, "The Atkinson Lumbermen," who also supplied the lumber bill for this barn. It is erected on the farm of Mr. Wm. Bentley, three and one-half miles north of Atkinson. The foundation walls and floor of the barn are built of concrete. The concrete wall is carried up one foot above grade to protect the wall sills from moisture. The interior of the barn is arranged very conveniently, one side being given over to ten milch cows in stanchions and to loose cattle in a large pen. The other side has stalls for twelve horses. A driveway extends thru the center of the barn on the stable floor. There is no driveway or "thrashing floor" above, as that is considered extravagant of space these days. All of the space above the stable is available for hay storage. The hay is taken in thru the big

door at the end of the barn in the peak, which is counterbalanced to slide up and down.

Provision is made in this barn for thoro ventilation; and a generous number of windows admit plenty of sunlight.

The publishers of the AMERICAN CARPENTER AND BUILDER feel a special interest in this barn because of the fact that when the plans were submitted to the lumber dealer and the owner a copy of the advertising section of this magazine was also presented, and it was studied to such good effect and made such a favorable impression, that the cow stanchions, litter and feed carrier, hay track and carrier, door hangers and track, iron studding sockets, metal battens, special metal framed windows, and cupola ventilators were all obtained from firms advertising these products in the AMERICAN CARPENTER AND BUILDER. The owner of the barn is very much pleased with all the equipment which he obtained in this way, and believes his barn is better than anything he has seen in his part of the country.



Unsafe

The editor in charge of the Personal Inquiry column opened his seventieth letter with a groan.

"I have lost three husbands," a lady reader had written, confidentially, "and now have the offer of a fourth. Shall I accept him?"

The editor dipped his pen in the ink. This was the last straw:

"If you've lost three husbands," he wrote, "I should say you are much too careless to be trusted with a fourth."



He Couldn't Understand

The engineer on the Southern drainage job always wore puttees. These were a source of great interest to George, the cookee. One day George went up to the engineer and said: "Say, boss, I wish you'd jus' explain how you git your laigs into them twisted pants."



Pat's Strategy

"Do moind yez don't git hur-rt, Pat!" said Bridget, as Pat started to work. "It's so dangerous a-working in that quarry."

"Tho't's ahl roight, Biddy," said Pat. "O'i've borroyed two dollars frim th' foreman, and he don't let me do anny dangerous work anny more."



Well-named

Salesman—"This is our new patent button-less tan boot, sir—'Banana Skin' brand."

Customer—"Whatever makes you give it such a peculiar name?"

Salesman—"Because, sir, it is yellow, and so easy to slip on."



The Judge of a Texas county was also cashier of the town bank. One day a stranger presented a check for payment and his evidence of identification was not satisfactory.

"Why, Judge," said the man, "I've known you to sentence men to prison for life on no better evidence than this!"

"That may be true," replied the Judge. "But when it comes to handing out cold cash we have to be mighty careful."

Announcement of Winter Work Contests

HERE is a new slogan, and it is a good one for everyone connected in any way with the building industry—"Every season a busy season for builders."

We believe that by UNITED EFFORTS the building industry can be largely rescued from the class of *seasonable* business. We believe that the winter months can be utilized to good advantage so that organizations can be kept together and the work of

building, together with all of the manufacturing and supply business depending on it, can be handled to advantage the year around.

We want the ideas and experiences of our readers on this subject. Therefore, we announce the following Prize Contests, and invite every one of our readers to think this winter work proposition over and write us along the line of one or more of these subjects.



Winter Building Work

\$10.00 prize for the best letter on subject, "How can the volume of winter building be increased?"

\$10.00 prize for the best letter Relating an Actual Experience in Handling a Winter Building Contract.

IN addition to these subjects relating to the carrying on of regular building activity thruout the winter, we are also interested in the many methods and ideas that carpenters and builders are using to *keep the dol-*

lars rolling in during the winter months. We want more than a hundred personal experience letters, photographs and drawings from our readers who have met and solved this slack time problem.

We, therefore, announce the following:

Winter Specialties and Side Lines for Builders

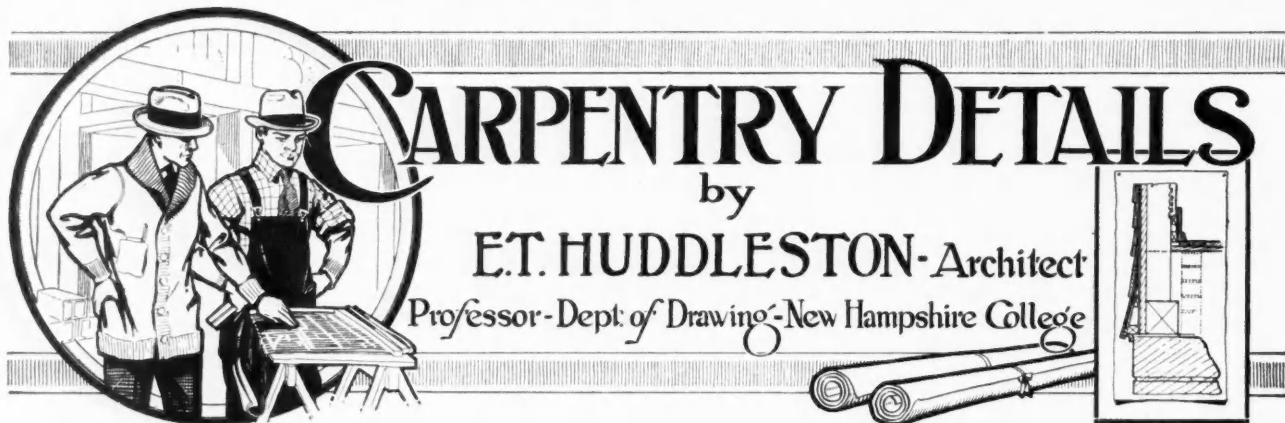
\$10.00 prize for the best letter with illustrations showing "How I use my spare time profitably during the winter months."

\$10.00 prize for the best letter telling about Extra Profits and How They Are Earned by Carpenter Sales Agents.

All of these Prize Winning Articles, and many more besides, will be published in the November AMERICAN CARPENTER AND BUILDER, our Fifth Annual Winter Work Number. Don't miss it!

This competition, or really these four competitions, close Monday, October 2. Address all contributions to the Winter Work Editor, AMERICAN CARPENTER AND BUILDER, 1827 Prairie Ave., Chicago.

"Every Season a Busy Season for BUILDERS"



Cornice and Gutter Details

THE SIXTH OF A SERIES OF ARTICLES WITH DETAIL DRAWINGS

A HOUSE without a cornice would present an appearance both sad and humorous; sad because of the trouble that is bound to follow when the rains find their way down inside the walls and begin their deadly work of disintegration; humorous because of that unfinished appearance that invariably brings a smile at the sight of a man without a collar, that connecting link between the hat and the coat. In other words, an appearance that is out of the ordinary or of something lacking; for we have become so used to seeing some kind of a cornice on every house that one without would indeed look strange.

So we come to the last of the main features which go to make up the frame or structural work of the house and find in it one of the most important duties we owe to the house in our endeavor to give it long life and beauty.

A cornice, to be beautiful, need not be fancy, heavy, ornate, full of gigsaw work or deeply carved mouldings. We have passed that period when the scroll saw was in its height of senseless activity, and have now come to realize that the plain and simple cornices wrought by hand in the colonial days are, after all, the most beautiful and worthy of our consideration if not of imitation.

Of course the type of cornice used is determined by the design of the house, and so it all comes back to the builder and to how well he uses his knowledge and good judgment. That, in a large measure, will make of the house a unit, complete and satisfying, or a patched quilt affair without name or reason.

To give a cornice long life, it must be built strong and tight and weather proof, for just as soon as water finds a way to the inside, just so soon does the cornice begin to go to pieces.

One of the great weaknesses, therefore, is found in the weakness of the cornice itself. The boards and mouldings are insufficiently nailed to the frame of the building, and in time they work loose and the weather soon finishes the job.

Another fault often found after the cornice begins

to go to pieces is in the joint made by the roof covering and the cornice mould. In every case the shingles should be doubled at the eaves and overhang at least one inch, one and a half inches being better. This will allow the water that goes over the eaves to drip down instead of following the cornice mouldings until it can work in at some joint and start the wood to decay.

In the plate opposite are shown two distinct types of cornices, the open and the box. Section A shows the section thru an open cornice with show rafters cut to a form that may vary with the design of the building. In this case, a galvanized iron hanging gutter is used, tin lined, and the lining pitched to drain to the leaders. Thus the face of the gutter showing from below remains horizontal and parallel to the lines of the cornice.

Section B shows the elevation of the verge-board which is used at the gable ends. Section M shows how it is built up and framed out from the building.

Sections C and D show box cornices, similar in design but with differently constructed gutters. Note that the tin lining in all cases is flashed well up under the shingles. This is the weak point and the one that should have the most careful attention. The gutters will fill up with snow and the following thaw will start the water seeking an outlet in every direction.

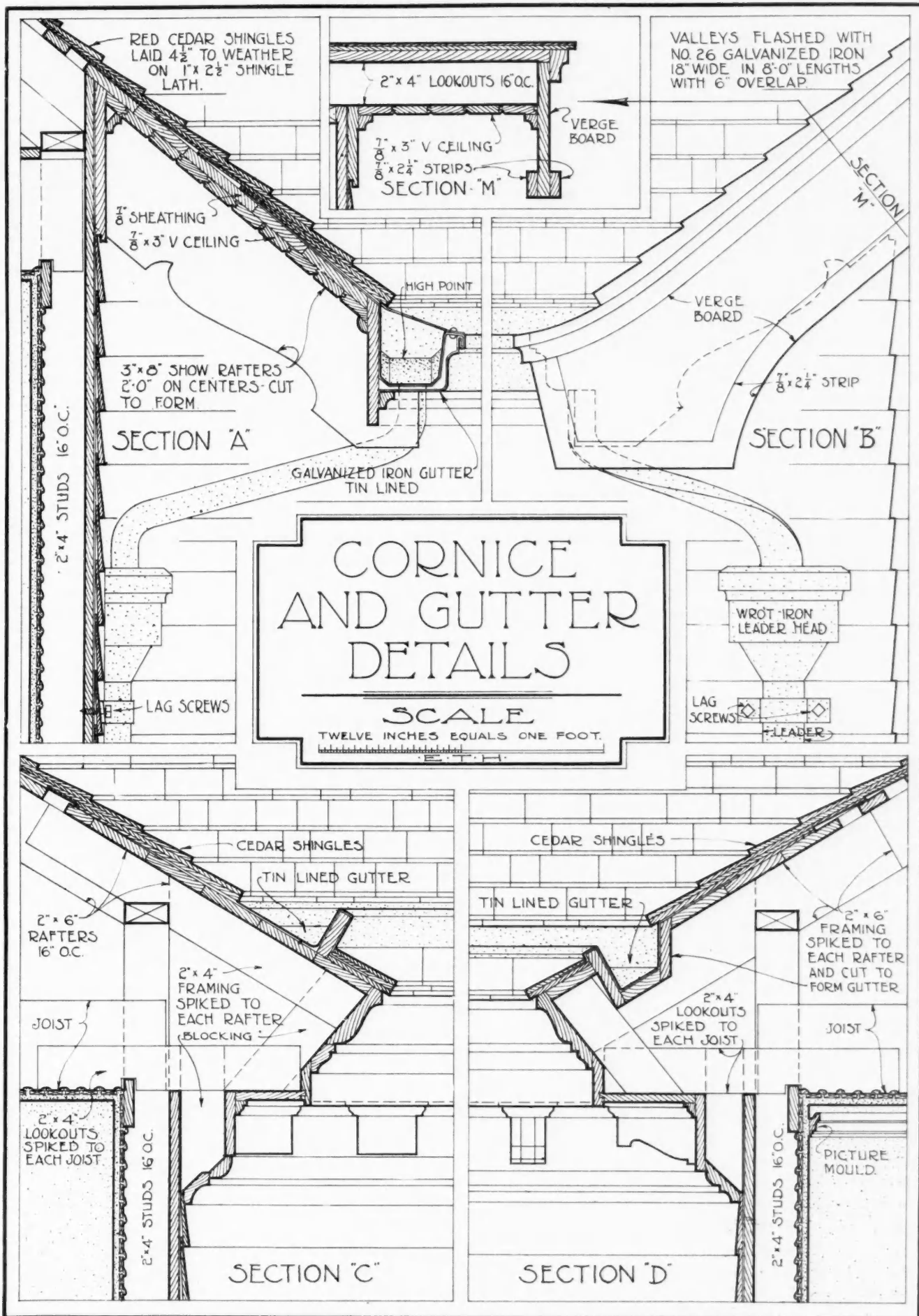
Also note that the two gutters in sections C and D are V-shaped. This is an advantage in that the flow of water in the gutter is accelerated along the lower edge and causes a flushing action that keeps the gutter free from dirt that might in time clog it up.

These details, which show plainly the manner of construction, may be applied to plaster or brick walls as well as those of frame. Box cornices will always work better for steep pitched roofs, while the open cornices are better adapted for roofs of low pitch.

E. T. HUDDLESTON, Architect,
Durham, New Hampshire.



THE clock is going, but it can't get away; you needn't watch it.



Details of Cornice and Gutter as Designed by E. T. Huddleston, Architect. Description and Explanation are on the Opposite Page.



Noon Hour Talks By the Boss Carpenter

Talk No. 50. Posts or Columns New Series No. 7

THE BOSS TELLS ABOUT LONG COLUMNS WITH ECCENTRIC LOADS AND COLUMNS WITH COMBINATION LOADING

“WHEN we finished our last talk,” said the Boss, “we had reached the case of long posts or columns which bear loads on side brackets, or in some manner so that the line of downward action of the load does not pass thru the center of gravity of the cross-section of the post. In the earlier part of that talk, we referred to this case as the second kind of loading which we would consider.

“This second case applies to posts or columns in which the length of the member is greater than ten to fifteen times the least side dimension, but commonly not over thirty times as great. Posts and columns in buildings with stories of ordinary height, porch supports, bridge timbers and compression members used in every day building will come under this classification. Care should be taken to use sections evenly balanced about the main center lines of the cross-section, since the least side dimension really controls the

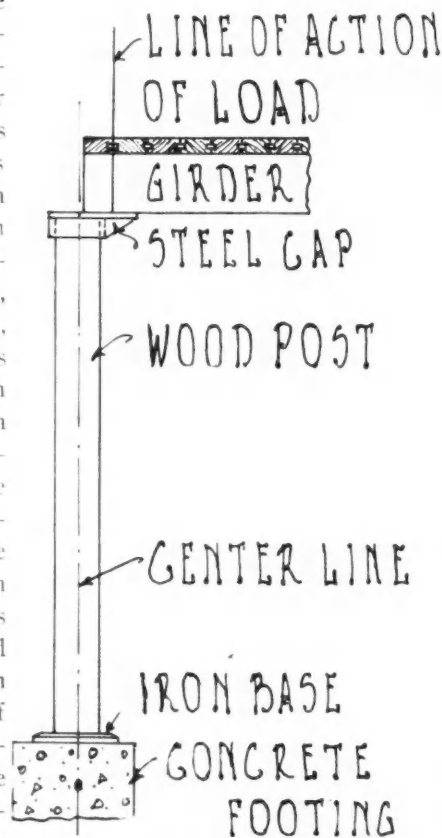


Fig. 7A. A Long Column or Post with an Eccentric Load on a Side Bracket.

strength of the member. In other words, use square, round, or symmetrically built-up sections for posts or columns.

“We showed the effect of an eccentric load in the graphical diagrams of Fig. 6B in our last talk. We also gave the following formula for finding the intensity of the unit compression stress on the side of the column directly under the load:

$$c = \frac{W}{A} + \frac{W_2 a e}{I}$$

The meaning of these letters has been given in our previous talk.

“In Talk No. 48, we considered the Rankine formula for long columns, and if you will turn back to the formula you will see that it contained a combination of letters $B \frac{L^2}{k^2}$.

“A very common formula for long columns of ordinary length carrying eccentric loads consists of a combination of $B \frac{L^2}{k^2}$ and the formula for c given above, or,

$$c = \frac{W_2}{A} \left[1 + B \frac{L^2}{k^2} \right] + \frac{W_2 a e}{I}$$

In this formula the W has been omitted and W_2 , the load on the side bracket, or eccentric load, has been used in its place.

“The object of this combination formula is to add the effect of length in a column to the formula which we have used for short columns with eccentric loads.

“We will apply this formula to two different problems using timber in the first case and cast iron in the second. The tables shown in Talk No. 48 will give us values for c in pounds per square inch, and formulas for area of section, least moment of inertia, and k^2 , all in inch units. The values of B for timber and cast iron may be found also in the same talk.

"For the first problem, we will see what load could be carried with ordinary safety by a timber post loaded on a side bracket as shown in Fig. 7A. Assume that the post is of yellow pine 10 in. by 10 in. in section and 12 ft. long with flat ends. A side bracket carries the line of application of the load at a distance of 7 in. from the center line of the column, assuming that the girder rests evenly over all parts of the support on the bracket. The table gives 1,200 pounds per square inch as the proper working value for c for yellow pine when quiet loads are to be carried. The

value for B for timber is—

$$\frac{1}{3,000}$$

"Filling in the formula given above, we have

$$c = \frac{W_2}{A} \left[1 + B \frac{L^2}{k^2} \right] + \frac{W_2 a e}{I}$$

$$1,200 = \frac{W_2}{10 \times 10} \left(1 + \frac{1}{3,000} \frac{(12 \times 12)(12 \times 12)}{10 \times 10} \right) + \frac{W_2 \times 7 \times 5}{10 \times 10 \times 10 \times 10}$$

$$1,200 = \frac{W_2}{100} (1 + .8) + \frac{35 W_2}{100}$$

$$1,200 = .018 W_2 + .042 W_2 = .05 W_2$$

$$W_2 = \frac{1,200}{.05} = 20,000 \text{ pounds.}$$

This is the allowable load on the bracket.

"For our problem on the cast iron column, we will consider that the column which we figured at the close of Talk No. 48 is to support an eccentric load 6 in. away from the center line of the member. What will be the allowable working load in such a case?"

"Again the tables of Talk No. 48 will give us our values to be used in the general formula. The value

$$\frac{1}{6,400}$$

of B in this case is — and c from the table is 10,000 pounds per square inch.

"A review of the statement of the problem shows that we are to find the allowable load located 6 in. away from the center of a cast iron column 12 ft. long, 6 in. outside diameter with metal $\frac{3}{4}$ -in. thick. Ends of column are turned off flat so that there is an even bearing all around.

"Filling in the general formula with the values from the table for a hollow circular section, we have

$$10,000 = \frac{W_2}{4} \left(1 + \frac{1}{6,400} \frac{(12 \times 12)(12 \times 12)}{16} \right) + \frac{W_2 \times 6 \times 3}{164}$$

$$10,000 = \frac{W_2}{12.3} (1 + .92) + \frac{18 W_2}{43.5}$$

$$= \frac{12.3}{1.92 W_2} + \frac{18 W_2}{43.5}$$

$$= .156 W_2 + .413 W_2 = .569 W_2$$

$$W_2 = \frac{10,000}{.569} = 17,600 \text{ pounds.}$$

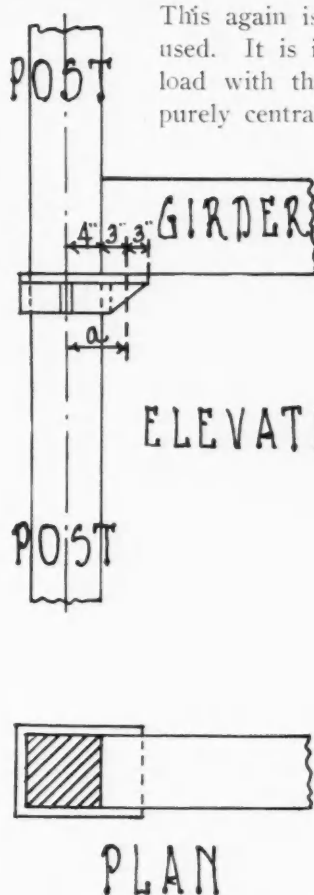


Fig. 7B. A Long Column with a Combination Loading.

This again is the allowable load to be used. It is interesting to compare this load with the value 64,050 pounds of purely central load which was obtained in our previous solution of this problem. It is a good illustration of the bad effects of having a central load on a given column shift its line of action.

"Another case which is of interest along this same line is that shown in Fig. 7B. A timber column is fitted at the top with an iron or steel side bracket which supports the end of a floor girder and also another post from the floor above. If we know the amount of the load from the upper post and the location of the line of action of the load on the side bracket, we can easily find the amount of load which may be allowed on the bracket for a lower post of a certain size.

"It will be necessary to change our formula slightly since we have two different loads to deal with in this case. We will let W_2 still represent the load

on the side bracket, but change the $\frac{W_2}{A}$ part of the

formula to read $\frac{W_1}{A}$, where W_1 is the total load on

the lower column or post in pounds.

"Our formula will now read

$$c = \frac{W_1}{A} \left[1 + B \frac{L^2}{k^2} \right] + \frac{W_2 a e}{I}$$

"The various letters have the same meaning as in the previous formula, with the exception of the changes noted above.

"To apply this formula to a case similar to that shown in Fig. 7B, we will see what load can be carried by a 10-in. by 10-in. yellow pine column 12 ft. long with flat ends and fitted with a side bracket as shown. The line of action of the load on the girder is assumed to pass thru the bracket at a point 7 inches from the center line of the column, and the load is supposed to bear uniformly over all parts of the bracket. In addition, we will consider that a central load of 9,000 pounds is supported on the lower post from the post above. A unit working stress of 1,200 pounds per square inch will be used for yellow pine

as shown in the table. We are to find the value of W_2 , and W_1 for use in the formula will be $(9,000 + W_2)$. The value of B is $\frac{1}{3,000}$ as before.

"Filling in the formula, we have

$$1,200 = \frac{(9,000 + W_2)}{10 \times 10} \left\{ 1 + \frac{1}{3,000} \times \frac{(12 \times 12)(12 \times 12)}{10 \times 10} \right\} + \frac{W_2 \times 7 \times 5}{10 \times 10 \times 10 \times 10}$$

$$1,200 = \frac{(9,000 + W_2)}{100} (1 + .8) + \frac{35 W_2}{834}$$

$$= \frac{16,200 + 1.8 W_2}{100} + .042 W_2$$

$$120,000 = 16,200 + 1.8 W_2 + 4.2 W_2$$

$$103,800 = 6 W_2$$

$$W_2 = 17,300 \text{ pounds.}$$

This is the allowable load on the side bracket alone.

"It will be seen by an inspection of the formula given above, and the equation which has been filled in, that other values may be solved for if desired. If the load on the side bracket and the load from the post above had been given, the value of the unit stress c might have been determined for such a condition. Or, the allowable load from the post above might have been found if all other quantities had been known.

"Next time," said the Boss, "we will take up another practical problem in building design and apply the principles which we have learned to use."



LEGAL NOTES—Injury by Swinging Doors

The Supreme Court, Massachusetts, in a recent case, rules that the owner or tenant of a building is not liable for any damage thru an accident caused by a swinging door when the door is in good condition and similar to those generally used, and furthermore, where there is no crowd as to require a doorman. In the case at issue, the party bringing action put out her hand to guard her face from a door swinging in her direction, and her hand was crushed between the door and the jamb.

Insurance Company Liable to Contractor

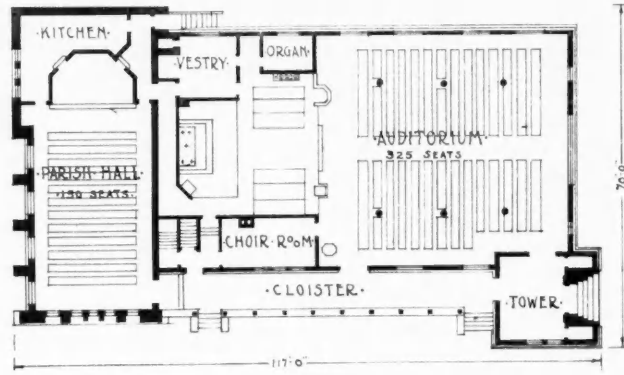
The Court of Errors and Appeals, New Jersey, has handed down a decision agreeing with a verdict of the State Supreme Court, holding that the Manufacturers' Liability Insurance Company should render an accounting, as sued for, to William F. Birch, contractor.

In this case the contractor had taken out a policy with the company to cover liability insurance for his employees. Two of the workmen were injured while in his employ, and damages were paid by the contractor. The insurance company denied the responsibility in this matter and would not repay the contractor, holding that the policy was delayed in forwarding to the contractor, during which time the accident occurred.

In its decision the Court says that the company's proposal to insure the contractor against liability for injuries to employes was the completion of the negotiations, and that this proposal indicated a completed contract upon which the insurance company become liable. It was not necessary for the contractor to have the actual policy after accepting the proposal. L. R. W. ALLISON.

An Episcopal Church Design

THE Church of the Epiphany, Los Angeles, as seen today, and representing an expenditure of \$20,000, is the outgrowth of a structure that was built in 1888 for \$3,000. What was then the entire church is now the Parish Hall, which is the portion that may be seen at the extreme left of the picture. The new and larger portion of the building was designed to more



Floor Plan of the Church of the Epiphany at Los Angeles, Cal., A. B. Benton, Architect.

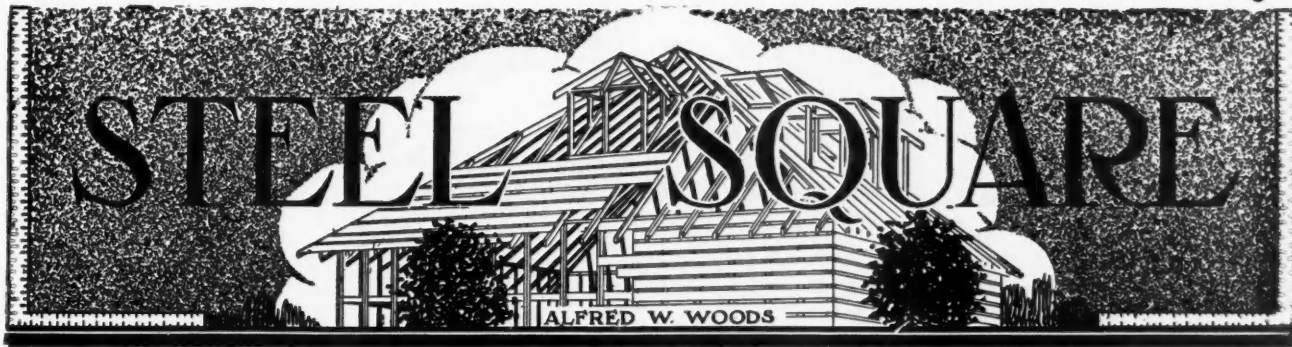
or less conform with the old portion, and the result is rather unique.

An especially interesting feature is a long veranda, or cloister, which extends from the entry tower to the Parish Hall, bordering upon the side street. The main auditorium has a seating capacity of 325, and the Parish Hall seats 150. At one side of the pulpit and choir stalls is the choir room, and at the other side the organ and vestry, and in the rear of the platform of the Parish Hall is a small kitchen.

The interior is attractively finished and furnished, and the exterior is especially interesting in both style of architecture and color scheme. The foundation is of split granite boulders, and the walls above are of cement plaster over metal lath. This cement work is of light buff color, and the trimming is done in soft brown. The building is heated thruout by a basement furnace. Arthur B. Benton of Los Angeles was the architect. CHARLES ALMA BYERS.



Church of the Epiphany, Los Angeles, Cal. This Church Has Long Veranda or Cloister. Arthur B. Benton, Architect.



Possibilities of the Steel Square

ILLUSTRATING CIRCULAR AND STANDARD MEASURE, AND THE CO-RELATIVE PARTS AS DETERMINING FACTORS IN ROOF FRAMING, AS APPLIED TO THE STEEL SQUARE

By A. W. Woods

TO get the full benefit of this article, it is necessary that the three previous articles should be kept in mind, as they are largely a part of this article, in forming a basis upon which to build. Leading up to this, we have come along by degrees (circular measure), showing how regular polygonal angles are determined, and thus forming the governing points in laying out the plan. We say governing points because there is no open way of getting away from what is determined by circular measure, tho the manipulator, in a limited way may, by some "*modus operandi*" arrive at a correct result. Yet back of it all there is the real determining factor by which the angles are solvable, and to fully understand the subject of roof framing, one should know the relation between circular and standard measure, because the two are inseparably linked together, especially as far as laying the foundation is concerned. In saying this we do not have reference to the common square cornered building only, but for any conceivable angle the building may have.

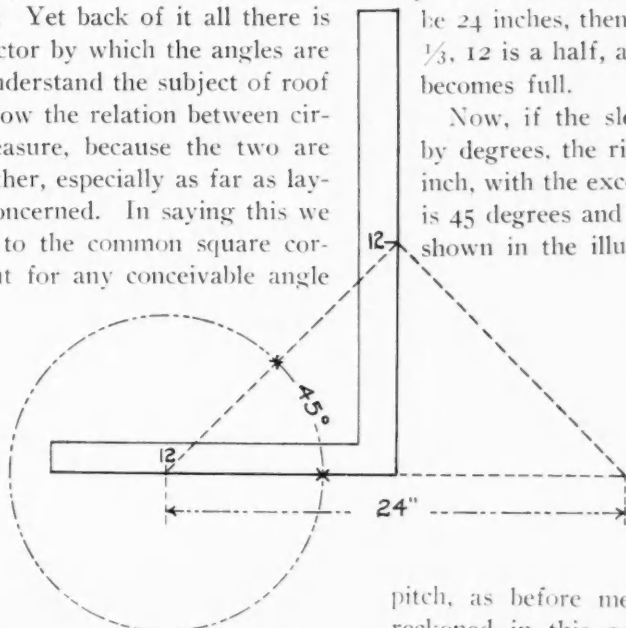
There are plenty of fellows, in fact, too plenty, who can readily frame a hip and valley roof, with the aid of the Steel Square, for a building with square angles; but put them on something else and they are lost, simply because they do not understand the true principle involved. So all depends in getting started right, to know what parts are governed by circular measure and its connection with standard measure, where the two enter jointly, or where one lets loose and the other begins—and in this we can do no better than refer to the July article.

We come now to the subject of pitch, and incidentally to an abrupt change, since custom, in this country at least, has decreed that standard measure be used in determining the shape given the roof instead

of by degrees—that is, so many inches rise per foot run of the common rafter. Consequently, the degrees, as far as the pitch of the roof is concerned, are lost sight of; but still circular measure cannot be entirely ignored, even in this, as the run and rise must be based upon the right angle (90 degrees), and so we have it in some form or other all the way thru, and therefore may be considered inseparable. But, going back to the pitch, as we said before, it is reckoned in proportion to the span, that is, if 12 inches is made to represent the run of the common rafter, the span must be 24 inches, then a 6-inch rise is a $\frac{1}{4}$ pitch, 8 is a $\frac{1}{3}$, 12 is a half, and so on up to 24, when the pitch becomes full.

Now, if the slope given the roof was reckoned by degrees, the rise would result in fractions of an inch, with the exception of the one-half pitch, which is 45 degrees and is at 12, and 12 on the square, as shown in the illustration. So, between degrees in the pitch and fractions in standard measure in the rise, custom has settled on a rise in proportion to the span, which is usually in inches, and pays no attention to the slope given the roof in reference to its base, as far as the degrees are concerned. This necessarily causes fractions in the degrees, save for the half pitch, as before mentioned, and since they are not reckoned in this connection as a factor anyway, it makes no difference.

However, it might be of interest to some of the readers to know what the degrees of pitch are in reference to standard measurement, in the rise up to the full pitch. We give it as follows:



The Steel Square and Circular Measure.

RISE.	DEGREES.	RISE.	DEGREES.	RISE.	DEGREES.	RISE.	DEGREES.
1"	4° 46"	7"	30° 15"	13"	47° 18"	19"	57° 44"
2"	9° 28"	8"	33° 41"	14"	49° 24"	20"	59° 2 "
3"	14° 2 "	9"	36° 53"	15"	51° 21"	21"	60° 17"
4"	18° 26"	10"	39° 48"	16"	53° 8 "	22"	61° 23"
5"	22° 37"	11"	42° 31"	17"	54° 47"	23"	62° 27"
6"	26° 34"	12"	45°	18"	56° 19"	24"	63° 26"



EASY LESSONS IN STAIR BUILDING

Hand Railing Explained



How to Lay Out a Turn-out Curve at the Bottom of a Stairway

Lesson 3.

By Morris Williams

HAVING shown in the first lesson how to construct a single flight stairway, and in the second a combination of three flights returning upon two platforms, with handrails to each flight containing easement and gooseneck, arranged to align at the newels, etc., thus covering all the straight work construction in stairbuilding, I am in this lesson entering upon another type, one that makes stairbuilding really difficult and impossible to accomplish without a knowledge of some geometric system of lines that will accurately produce the development of all the plan lines upon an oblique plane. This is due to the fact that rails in this type are winding or twisting in ascending over and above some part of a cylindrical plan curve.

In Fig. 12 is shown a plan curve for what is known as a turn-out, the curve being a segment of a circle less than a quadrant. In open hallways, the turn-out

is usually made on both sides of the stairway for the double purpose of having extra width entrance and more imposing appearance.

The part of rail that will have to be twisted is indicated in the figure from A to C, because it includes all of the plan curve, but owing to the advisability of having a small part of the straight rail added to it, as shown from C to D, for the purpose of facilitating the construction of the joint, this part also will be included.

In Fig. 13 is shown the elevation of the steps and pitch of the rail over and above the plan. The need for this figure is to determine the length of the tangents of the face mold, which is a template used to cut out the twisted rail material from the plank. The tangents are shown in the figure at A' B' and B' C'; the last inclined in agreement with the inclination of the connecting straight rail of the flight, and the first level, so that the twisted rail will have an easement at

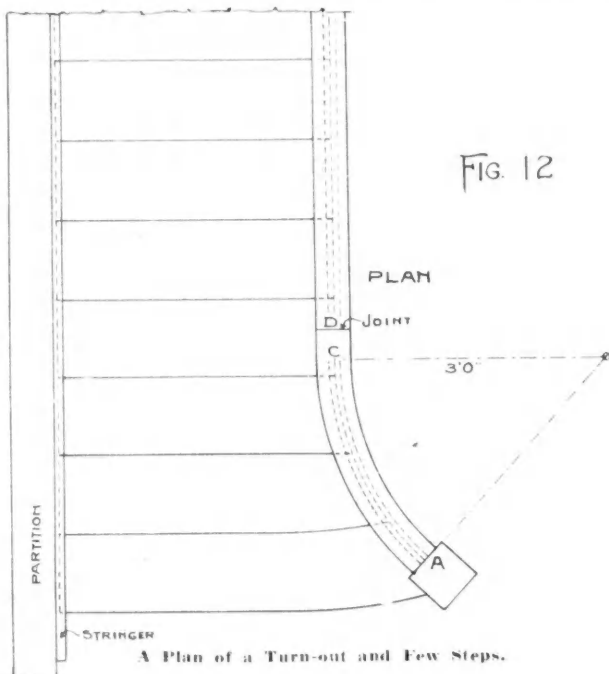


FIG. 12

A Plan of a Turn-out and Few Steps.

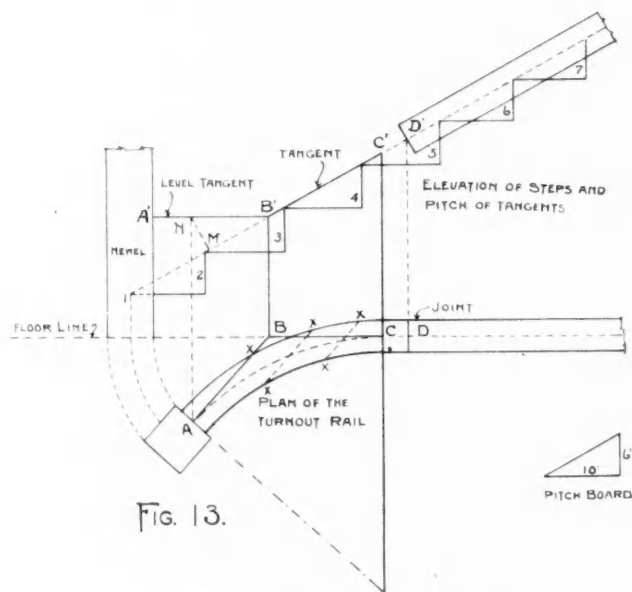


FIG. 13.

Elevation of Fig. 12, Showing Pitch of the Tangents.

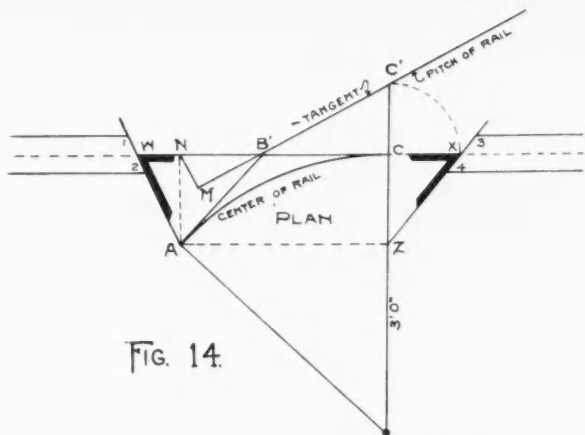


FIG. 14.

Showing How to Find the Twisting Bevels.

the end A' connecting with the newel post.

The plan lines of the tangents are shown right under them at A B and B C, being tangents in the plan position to the center line of the plan rail.

It is shown in Fig. 14 how to find the twisting bevels. Draw the pitch of the rail as shown thru C' and B' to M, and therefrom to N a line square to the pitch.

Now place one point of the com-

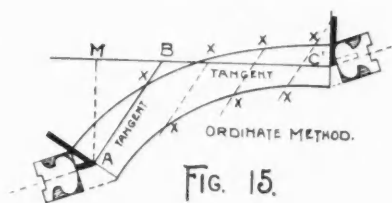


FIG. 15.

Showing How to Lay Out the Face Mould by Ordinates.

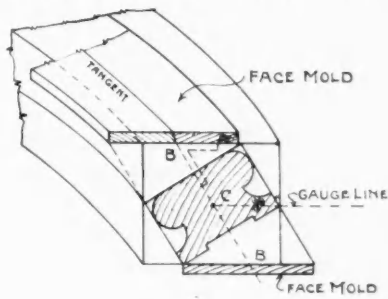


FIG. 16.

Showing How to Apply the Bevels and to Slide the Face Mould to Square the Rail.

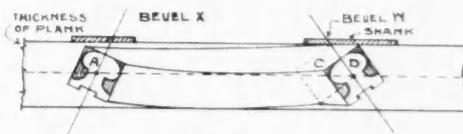


FIG. 17.

A View of the Rail After the Squaring.

pass in C, open out to C', turn around as shown to X, and connect X to Z.

The bevel shown at X belongs to the end A of the wreath.

For the other bevel, place one point of the compass in N, open out to M, turn around as shown to W, and connect W to A. We are now prepared to draw the face mould shown in Fig. 15.

Make the line C' B' M a duplicate of the pitch line C' B' M in Fig. 14. From M drop a plumb line, as shown, to A, and connect A' B, thus fixing the tangents of the face mould at A B' and B' C'.

To draw the curves, divide the tangent B' C' in three equal divisions, and thru each one draw a line parallel with the tangent A B'. From the tangent B' C' measure upon the division lines to x, x, etc., distances corresponding to those shown at x, x, etc., across the plan rail in Fig. 13, and thru the points trace the curves, as shown, either by bending a lath to touch each point or by free hand. The width of the mould at the end A is made equal to the distance from 1 to 2, shown upon the bevel W in Fig. 13, and at the end C equal to the distance shown from 3 to 4 upon bevel X in the same figure.

Apply the bevels as shown by holding the stock parallel with the joint and the blade thru the center point of the plank material.

This feature is more distinctly shown in Fig. 16, which illustrates the joint C in perspective, showing in addition to the application of the bevel the method of sliding the face mould on top and bottom surfaces of the material to mark the waste wood, which is to be chopped off in the process of squaring the wreath.

Observe that the material has been first cut out of the plank to the form of the face mould square to its surface, and the joint square to the surface and tangent; also, that the bevel is applied thru the center C of the material, coming out on top and bottom at B and B. Now, by fixing the mould as shown with the tangent upon B on both surfaces, marking along the edges will determine the amount of waste wood to be taken off the sides, as shown by the shading parts in the figure. After working the sides true, proceed to take off the waste wood from the top surface, working it square to the sides, and complete the squaring by gauging from the top the waste wood to be taken off the bottom. Keep in mind thruout the operation that at every point from one end to the other the sides and surfaces must be truly square to one another.

This is about all that can be said relating to the squaring of the wreath. As to the final operation of moulding, it depends for its success upon the ability of the workman in the use he can make of few tools—gauges, chisels, spokeshave rasps, etc.

The appearance of the wreath after the squaring, the thickness of plank required, and application of the bevels is shown in Fig. 17.

Having shown how to construct the winding wreath rail, we will now explain the best method in use to

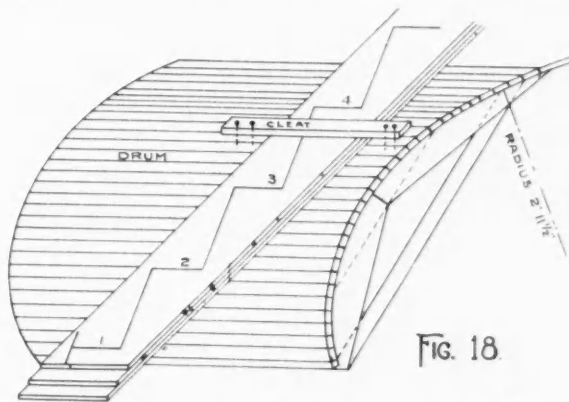


FIG. 18.

Showing How to Bend the Stringer Around the Drum.

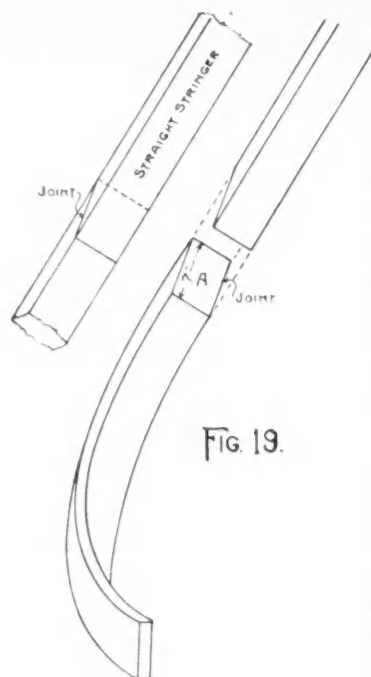


FIG. 19.

A View of the Stringer After It is Bent, etc.

drum and left there for at least 24 hours to set. When taken off, it will stay in its bent state, as shown in Fig. 19, where, also, is shown at A the method of jointing it to the straight stringer of the flight. Make the joint about 7 inches long, as shown; use the best of glue; clamp tight together with hand screws, and allow time to set. If the job is done the right way, the joint will prove to be the best that can be made.



Pickups on the Job

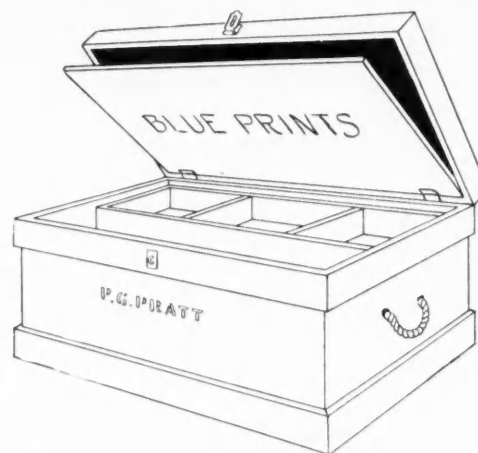
By H. J. Blackledge

SCRATCH GAUGE—Most of us have had occasion to make a temporary gauge at some time or other by nailing two pieces together in the shape of a panel gauge. But the great difficulty has always been to drive the nail thru so the point would come out at exactly the right place. Mark the point where you want it, then drive the nail thru *from there*—"backwards" as it were. Now pull it, turn the gauge over, and drive the nail *back thru the same hole!* The point will be *exactly* where you want it. It is quicker and easier than driving the nail and then marking for, and nailing on, the block.

CHEST COMPARTMENT FOR BLUE PRINTS—A Danish friend carpenter wanted a place for his blue prints, plans, specifications, etc. He got a piece of three-ply veneer like the Victor people make their Victrola boxes out of, and cut a piece the size of the inside of the lid of his chest. To this he fitted a pair of small hinges and hung it at the back of the lid, leaving a space about $\frac{1}{2}$ inch between them. It makes a rattling good place for papers of any kind. Keeps them straight, safe, and in first-class condition.

I used to use a cumbersome tin tube for mine, but of late have been inclined to mailing tubes of card-

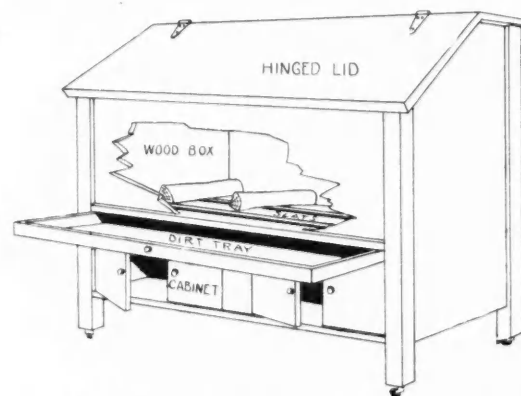
bend the stair stringer. The operation is shown in Fig. 17. The curve of the drum in this figure is made to the radius of the plan stringer shown in Fig. 12, being one-half an inch less than the radius there shown for the center line of the rail. The thin board material to be bent for the stringer is placed upon the drum, as shown, each layer thoroly covered with glue of the very best quality, and pressed tight to the drum by means of cleats nailed or screwed to the



Chest with Blue Print Case in Lid.

board. They are plenty strong to last for several months of ordinary use, and then can be thrown away for new ones.

A WOODBOX DE LUXE—A landlady had me pull a new one on a woodbox the other day. She wanted a rack made for the bottom of it, just like the rack in a refrigerator. This allowed all the fine stuff to drop underneath out of sight and left the wood comparatively clean. But then to top it off, there was a shallow drawer under the rack so that the box could be cleaned easily. Next we put castors on it for her. And I might also mention that it was on legs about twenty inches high—that is the



Wood Box with Removable Dirt Tray and "Catch All."

bottom of the box was twenty inches from the floor. A compartment underneath, reached by small doors, was for stove polish, rags, etc., as well as shoe polish and brushes.

NARROW SPICE CAN SHELF—Another little idea this same landlady had was a shelf only two inches wide with lip along the front, placed over her pantry work table for the spice cans and flavoring extracts. Takes up no room whatever, and its narrow width makes it impossible to have one can hidden behind another.



ANY old rooster can make a noise, but it takes a hen to lay an egg.

Do You Get Paid For All The Time and Material Used On a Job?

By Wesley A. Fink

IT was the custom in the past to use weekly time books, weekly diaries or memorandum books for the workmen, in plumbing shops, carpenter shops, paint shops, to enter up their time and the material used on each job, and at the end of the week these weekly time books or diaries were turned into the office, so that the work could be charged up to the customer's account, and the workmen's time made up in the payroll book. The actual practice in the average shop has emphasized the fact that, where weekly time books or diaries were used, it was the custom for the workmen to wait until the last day or afternoon, prior to turning in their weekly diaries or time books, and then to enter up the whole week's charges for time and material from memory.

In the more progressive shops today, instead of a weekly time book or diary, the workmen are given a Work Order Ticket, as shown in illustration No. 1, for each job. These workmen's order tickets compel the workmen to charge up daily all the time and material used on jobbing work.

These work order tickets can be used as a combination shop order, workman's order, and a price ticket. When an order for work is received, enter it on the coupon at the top of the work order ticket and also on the order ticket itself. The work order ticket should be retained on the order file until a workman is sent to the job, then enter the workman's name on the coupon, detach the job ticket from the coupon, and give the job ticket to the workman sent to do the work. Retain the coupon on order file until job is completed and the job ticket is returned by the workman with a full description of the work done and the materials used, and the time spent entered on the job ticket by the workman.

As soon as a job is completed the work order ticket should be turned into the office; the prices can then be entered right on the job tickets, and the bills made out direct from the job tickets, saving the time and expense of entering the charges in the old-fashioned daybook or blotter.

In addition to the work order tickets, the workmen should enter up their time daily on a weekly time sheet, as in illustration

WEEKLY TIME SHEET

Week Ending 191

DAY	DATE	HOURS	NAME OF FIRM AND LOCATION
Sat.			
Mon.			
Tues.			
Wed.			
Thur.			
Fri.			
Sun.			

Name of Employee _____

Remarks _____

Signed _____

Fig. 2. Weekly Time Sheet on which Workman Enters His Time Each Day.

No. 2, and when these weekly time sheets are turned in at the end of the week, the total time for each workman for the week is entered in the payroll book, after which the time sheets are checked up with the time turned in on the various work order tickets during the week.

Besides the time spent on various jobs, the workmen should enter each day on the weekly time sheets all the lost time in the shop, or the waits between jobs which you have to pay for but cannot charge to any particular customer or job. This lost time during the year amounts to a considerable sum and eats into the contractor's profits, and should be taken care of in your overhead expense account and charged for in the hour rate for mechanics' time in estimating or billing.

In order to be assured that all the material is charged to the various jobs, there should be some method of recording what is taken out of the shop or stock room, as the workmen often fail to charge on their job tickets all the materials used on a job.

The practice of trusting to the memory or checking up the work after the job is completed, instead of making an immediate record when materials and tools are taken from the stock room, makes it almost certain that in the hurry of the day's work, some more or less important items are going to be overlooked.

When any materials or tools are taken from the shop, whether it be for jobbing or contract work, a Requisition Blank as an illustration No. 3, or Material Charge Slip, should be filled in at the time by the workman, and given to the stock man if there is one, or if there is no stock clerk, it should be turned over to the bookkeeper or into the office.

As it frequently happens that the quantity of materials required for a job cannot be exactly estimated beforehand, a larger quantity is often taken to a job than is actually used. In that case the material left over should be returned to the shop, a Material Credit Slip, as in illus-

Order No. Date

Location of Work

Nature of Work

Ordered by Address

Charge to Address

When promised Price

Mechanic

JOB TICKET

Work Order No.

Owner Address

Tenant Address

Work To Be Done

Description of Work and Material Used:		

NAME OF MECHANIC	NAME OF HELPER	DATE	HOURS	CAR FARE

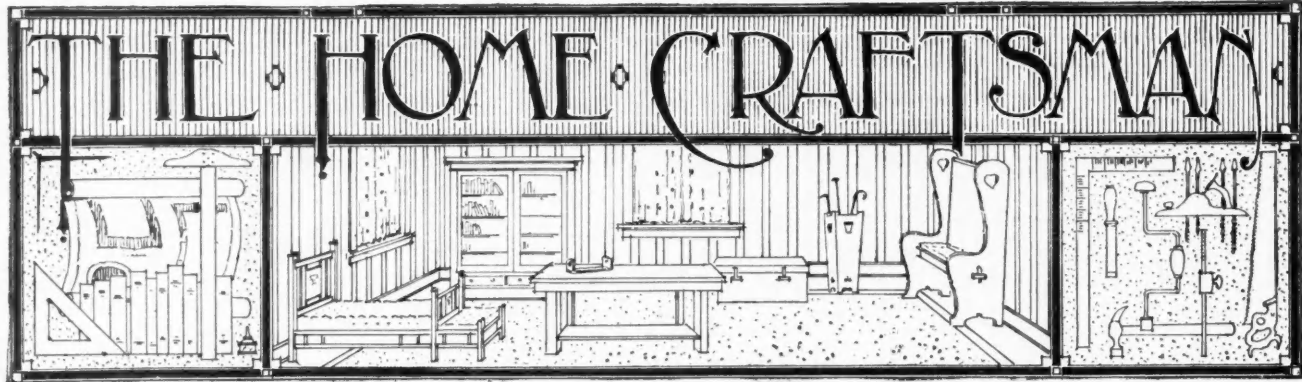
State of Job at this date:

Make note on back of this sheet of any tools or material left on job.

Signed

SPECIAL—Be sure you charge Exact Time and all Material used on job.
 This ticket must be kept accurately and returned to office every night in good condition.

Fig. 1. Work Order Ticket.



A Homecraft Library Desk and Chair

HOW TO MAKE AND FINISH THESE TWO ATTRACTIVE PIECES OF FURNITURE FOR THE LIVING ROOM OR LIBRARY

By George E. Chandler

Supervisor of Manual Training, Rochester, Minn., High School

THE two pieces shown this month are intended to match the homecraft table shown a short time ago, but will look well with almost any style of furniture. It would be well to finish them similar to the pieces it is desired to match. The hinged cover on the desk forms an excellent place for writing when open, and the large drawer just below will be found very handy. Special attention is called to the pigeon hole rack on the inside, for if properly made it should be one of the most convenient features of the desk. In the desk chair it will be noticed that the

back is somewhat straighter than an ordinary chair—a decided comfort in writing. The photograph shows the chair without any lower rails or stretcher. This, while pleasing in appearance, weakens the construction, and should be made as shown in the working drawings.

Construction

The illustration shows the desk and chair made of oak. Birch with a dark mahogany stain would also look excellent. The following pieces will be needed:

STOCK BILL FOR DESK, GIVING FINISHED SIZES.

- Posts—2 pieces $1\frac{3}{4}$ by $1\frac{3}{4}$ by 45.
- 2 pieces $1\frac{3}{4}$ by $1\frac{3}{4}$ by $32\frac{1}{2}$.
- Back—1 piece $\frac{3}{4}$ by $21\frac{3}{4}$ by $25\frac{1}{2}$ (two $\frac{3}{4}$ -inch tenons).
- Sides—2 pieces $\frac{7}{8}$ by $13\frac{1}{4}$ by $20\frac{1}{2}$ ($\frac{5}{8}$ inch rebate on each side and $\frac{1}{2}$ inch on top).
- 2 pieces $\frac{3}{4}$ by $2\frac{1}{2}$ by $13\frac{1}{2}$ (two $\frac{3}{4}$ -inch tenons).
- Front—1 piece $\frac{3}{4}$ by 1 by $25\frac{1}{2}$ (two $\frac{3}{4}$ -inch tenons).
- 1 piece $\frac{3}{4}$ by $2\frac{1}{4}$ by $25\frac{1}{2}$ (two $\frac{3}{4}$ -inch tenons).
- Stretcher—1 piece $\frac{1}{2}$ by 6 by $26\frac{1}{2}$.
- Top—1 piece $\frac{3}{4}$ by $53\frac{1}{4}$ by $26\frac{1}{2}$.
- Cover—1 piece $\frac{3}{4}$ by $15\frac{1}{2}$ by 24.
- Bottom—1 piece $\frac{3}{4}$ by $12\frac{1}{2}$ by 24.
- Drawer—
 - Front—1 piece $\frac{3}{4}$ by 3 by 24.
 - Sides—2 pieces $\frac{1}{2}$ by 3 by 13.
 - Bottom—1 piece $\frac{5}{16}$ by $23\frac{1}{2}$ by 13 ($\frac{1}{4}$ inch rebate).
- Back—1 piece $\frac{1}{2}$ by $2\frac{1}{2}$ by $23\frac{1}{2}$ (two $\frac{1}{4}$ -inch tenons).
- Pigeon Hole Rack—
 - Top—1 piece $\frac{3}{8}$ by $4\frac{3}{4}$ by 24.
 - Bottom—1 piece $\frac{3}{8}$ by 7 by 24.
 - Uprights—9 pieces $\frac{1}{4}$ by 7 by $7\frac{3}{8}$ (two $\frac{3}{16}$ -inch tenons).
 - Shelves—3 pieces $\frac{1}{4}$ by 6 by $4\frac{7}{16}$ (two $\frac{3}{32}$ -inch tenons).
- Drawer—
 - Front—1 piece $\frac{3}{8}$ by 3 by 6.
 - Sides—2 pieces $\frac{1}{4}$ by 3 by $5\frac{1}{4}$.
 - Bottom—1 piece $\frac{1}{4}$ by $5\frac{1}{4}$ by $5\frac{3}{4}$ ($\frac{1}{8}$ inch rebate).



Well Designed and Constructed Desk and Chair to Match.

Back—1 piece $\frac{1}{4}$ by $2\frac{1}{2}$ by $5\frac{3}{4}$ (two $\frac{1}{8}$ -inch tenons).

Hardware—

- 2 draw pulls.
- 4 $1\frac{1}{4}$ -inch No. 8 R. H. blued screws.
- 2 3-inch Steel pins.
- 10 $1\frac{1}{2}$ -inch No. 8 F. H. screws.
- 1 Cylinder Lock.
- 2 Desk slides or chains.

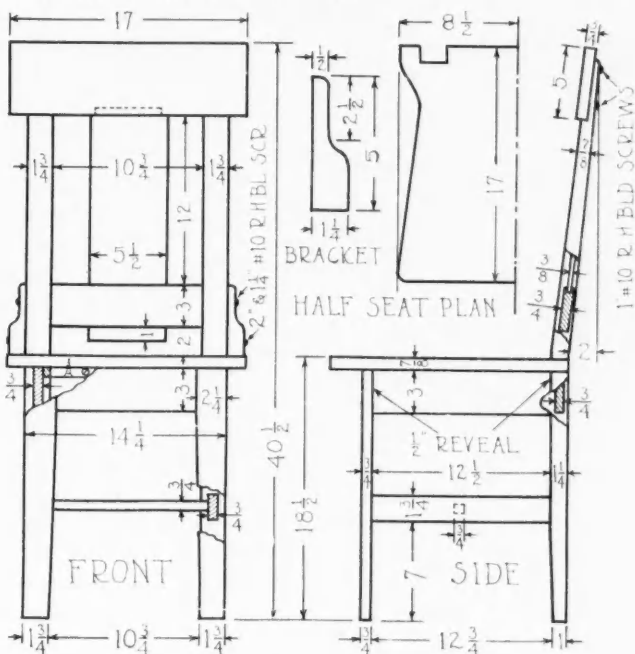
For convenience, the lengths of the tenons have been given in the stock bill. Note that the side pieces are rebated into the front and back posts, allowing the inside to set flush, as shown in "Section A-A." One and a half-inch screws should be used here to reinforce the glue joint.

STOCK BILL FOR CHAIR, GIVING FINISHED SIZES

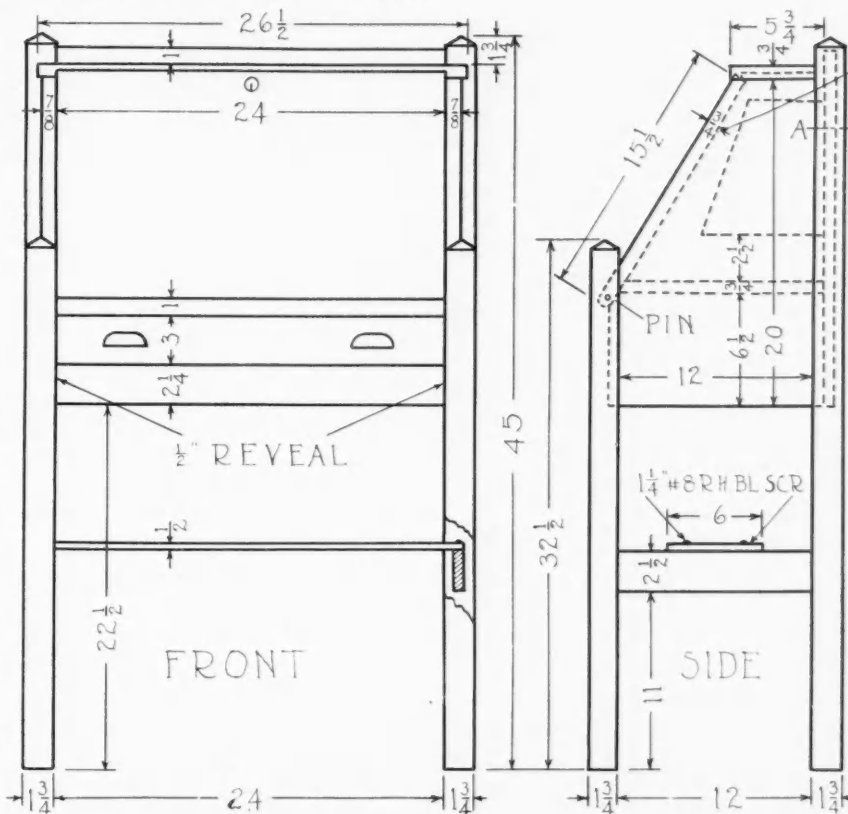
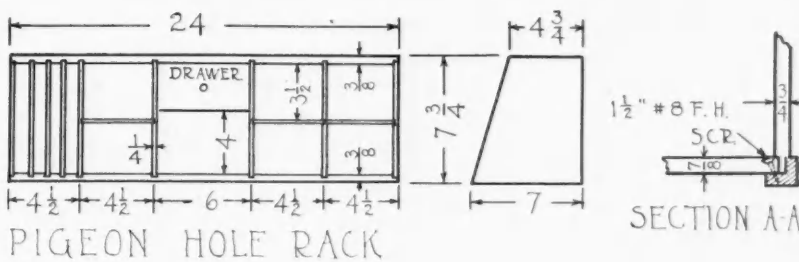
- Seat—1 piece $\frac{7}{8}$ by 17 by 17.
- Legs—2 pieces $1\frac{1}{4}$ by $1\frac{3}{4}$ by 40.
2 pieces $\frac{3}{4}$ by $2\frac{1}{4}$ by $17\frac{3}{8}$.
- Rails—
Front—1 piece $\frac{3}{4}$ by 3 by $11\frac{1}{4}$ (two $\frac{3}{4}$ -inch tenons).
Back—2 pieces $\frac{3}{4}$ by 3 by $12\frac{1}{4}$ (two $\frac{3}{4}$ -inch tenons).
1 piece $\frac{3}{4}$ by 5 by 17.
- Side—2 pieces $\frac{3}{4}$ by 3 by $14\frac{3}{4}$ (one $\frac{1}{2}$ -inch and one $\frac{3}{4}$ -inch tenons).
2 pieces $\frac{3}{4}$ by $1\frac{3}{4}$ by $13\frac{3}{4}$ (one $\frac{1}{2}$ -inch and one $\frac{3}{4}$ -inch tenons).
- Stretcher—1 piece $\frac{3}{4}$ by $\frac{3}{4}$ by $12\frac{1}{4}$ (two $\frac{1}{2}$ -inch tenons).
- Panel—1 piece $\frac{3}{8}$ by $5\frac{1}{2}$ by 13 (two $\frac{1}{2}$ -inch tenons).
1 piece $\frac{3}{8}$ by $5\frac{1}{2}$ by $1\frac{1}{2}$ (two $\frac{1}{2}$ -inch tenons).
- Brackets—2 pieces $\frac{3}{4}$ by $1\frac{1}{4}$ by 5.

Hardware—

- 4 1-inch No. 10 R. H. blued screws.
- 2 2-inch No. 10 R. H. blued screws.
- 21 $\frac{1}{4}$ -inch No. 10 R. H. blued screws.
- 18 $1\frac{1}{2}$ -inch No. 8 F. H. screws.



Working Drawing of Desk Chair.



Working Drawing of Desk.

There is nothing in the construction of the chair requiring special attention. All joints are made at right angles, which eliminates the greatest difficulty in chair building. The seat is fastened to the frame by means of a $\frac{3}{4}$ by $\frac{3}{4}$ -inch strip, as shown in the broken away portion at the left of the drawing.

How to Finish the Desk and Chair

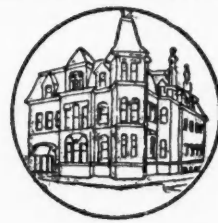
If it is not desirable to match other pieces of furniture, the following finish is suitable.

For oak a coat of fumed oak stain should be applied and allowed to stand 24 hours, followed by a thin coat of shellac and two or three coats of good rubbing wax.

For birch, a dark mahogany stain, followed by a coat of shellac and three coats of varnish, would be the most handsome. The last coat of varnish should be rubbed down with pumice stone and oil.

For the drawer pulls, either wood or a simple pattern in brass may be used. To support the cover of the desk when open, either chains or desk slides will be needed. The later are much more satisfactory.

CORRESPONDENCE



Questions Answered and Ideas Exchanged.

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

Fig. 3 a "Granny"

To the Editor:

Seattle, Wash.

I am not a carpenter, but a retired seaman, and a reader of the "A. C. & B." In your August number, H. J. Blacklidge gives some very good instructions in knot tying, but has made one very serious error. As many of your readers are likely to learn to tie these knots, some serious accidents are likely to occur thru this error; so I take the liberty to correct same, but in no spirit of criticism.

His so-called square knot in Fig. 3 is a *granny* pure and simple, and the only way one can be tied.

To the novice it sure looks to be a square knot, hence the danger. The error is in passing the ends in the second half of the knot; the ends of the lines as shown in Fig. 3 come out on *opposite sides* of the bights from which they go in; in the square knot the ends must come out on the *same sides* from which they go in as in Fig. 4. One has only to remember this to be safe.

OLD SEAMAN.

NOTE: It is only fair to Mr. Blacklidge to state that the error is ours more than his. We should have labeled Fig. 3 "a granny" instead of associating it with Fig. 4, and calling them both "Square Knots."—EDITOR.

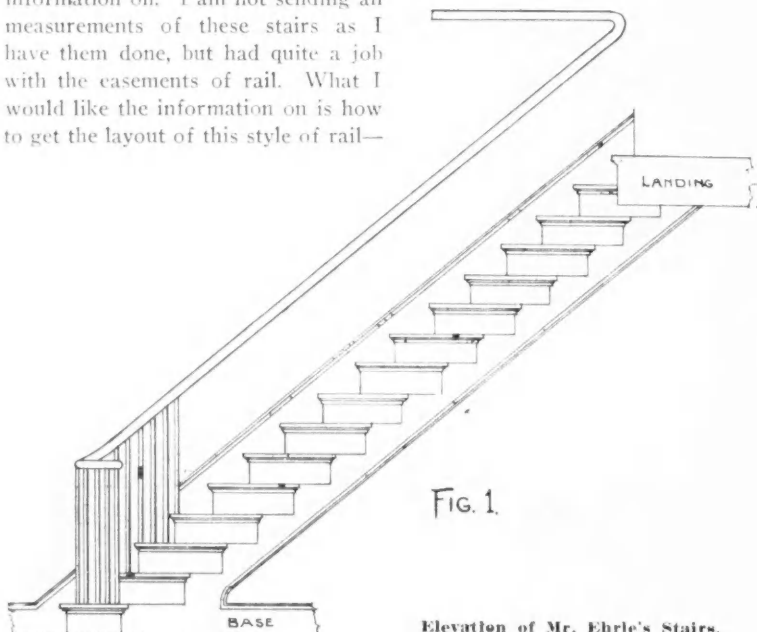


Laying Out a Hand Rail

To the Editor:

East Northport, L. I.

I am sending you a sketch of a flight of stairs and the hand rail. Now, the rail is what I would like to get some information on. I am not sending all measurements of these stairs as I have them done, but had quite a job with the easements of rail. What I would like the information on is how to get the layout of this style of rail—

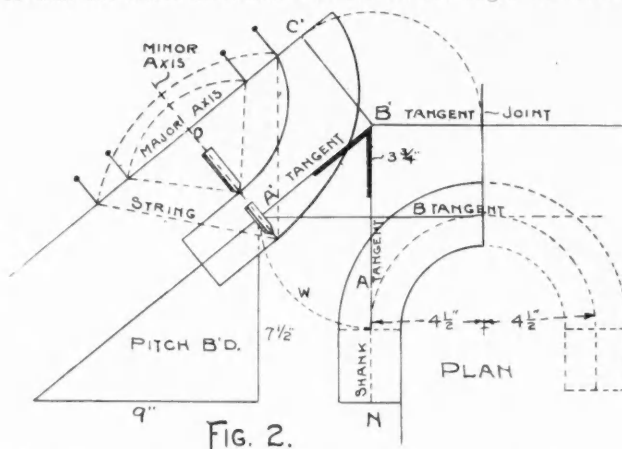


Elevation of Mr. Ehrle's Stairs.

that is, the easements at bottom and top. The level part is easy, but where it winds around is a sticker to me.

GEORGE EHRLÉ.

Answer—Mr. Ehrle, according to what I understand from his letter and sketches, desires to be informed of a method to lay out wreath rails over two specific plan curves, namely, a scroll curve at the bottom and a semi-cylinder curve at the top of a flight of stairs. Instead of sending the elevation, Fig. 1, the thing he should have done was to send a plan figure, so that the exact dimensions of the curves might be known.



Plan, Elevation of the Tangents and Face Mould for the Landing Cylinder.

It would be well for Mr. Ehrle and others interested in handrailing to always keep in mind that wreath rails are merely developments of plan rails upon an oblique plane, thus making the plan in all cases the base of the operations.

Not being supplied with the plans by Mr. Ehrle, I am obliged to draw my own, as shown in the accompanying diagrams, and have made the width of the scroll 18 inches, the nearest in size to what I can figure out from the sketch sent by Mr. Ehrle.

Regarding the cylinder, I have made it the size it should be made according to the rules of correct handrailing, namely, its radius equal to one-half the width of the tread, which is an arrangement that will cause the landing rail to be one-half the width of a riser higher than the length of the short baluster, as shown at B' in Fig. 2.

This figure represents the plan, elevation and the face mould. The dotted line portion shown in the plan is cut out of the plank square to its surface and moulded upon the shaper machine as cut, the rail being a duplicate of the plan.

To draw the face mould for the left-hand

(Continued to page 86.)

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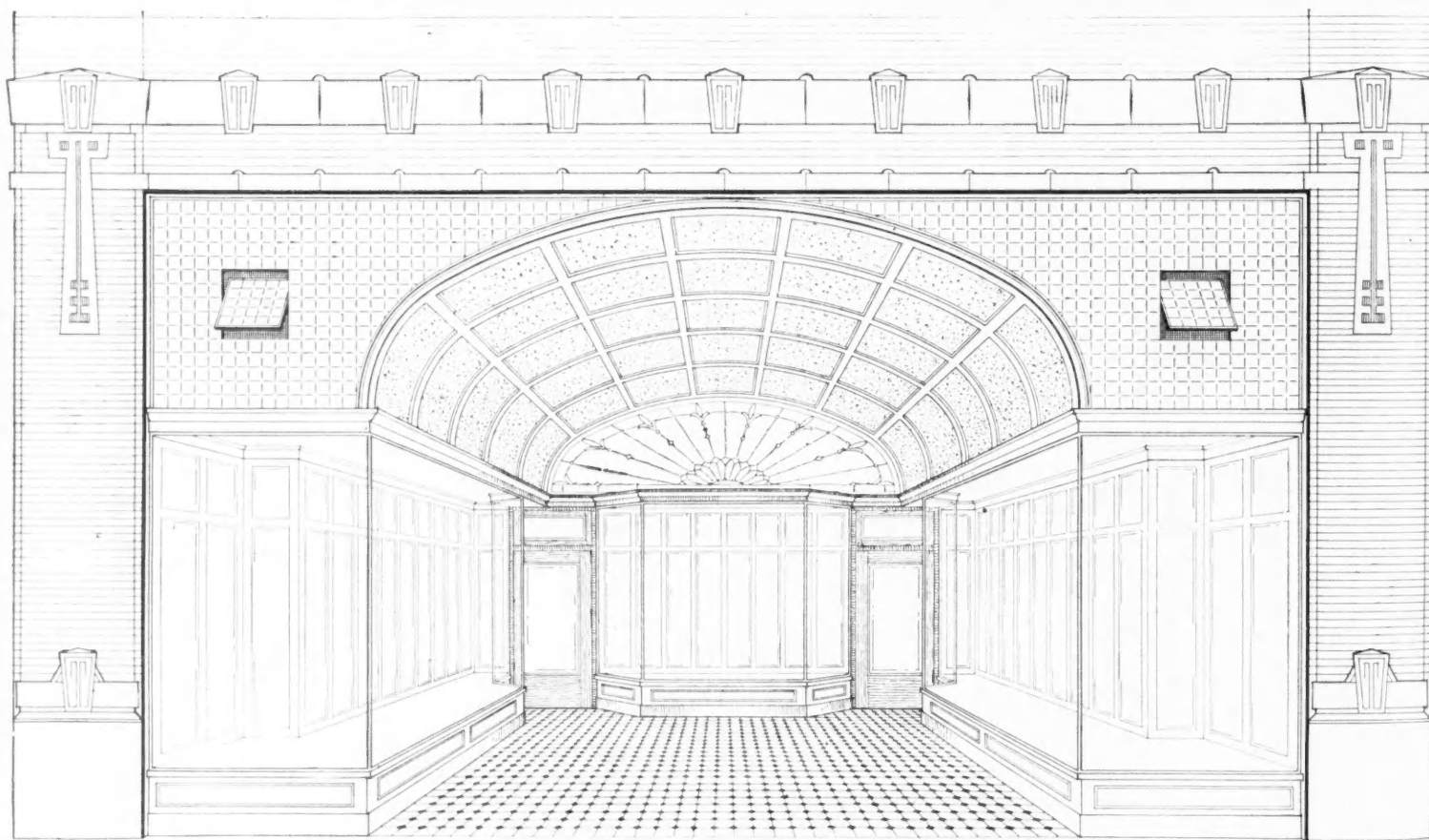
Their Design and Construction

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




IN 17 PARTS, PART 8. (SEE FEBRUARY, MARCH, APRIL, MAY, JUNE, JULY AND AUGUST ISSUES FOR OTHER DETAILS.)

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



TYPE N° 70

TYPICAL ELEVATION OF DRUG STORE

COPYRIGHTED BY KAWNEER MFG CO.

MOST drug stores today have added to the pure pharmacy end of the business such related lines as rubber goods, cigars, magazines, stationery, perfumes, toys, etc. It is therefore necessary that the front for the drug store be so designed that these different lines can each be displayed advantageously. Of course, the entrance must be inviting and the general treatment distinctive.

There is no question but that a front designed, as this one

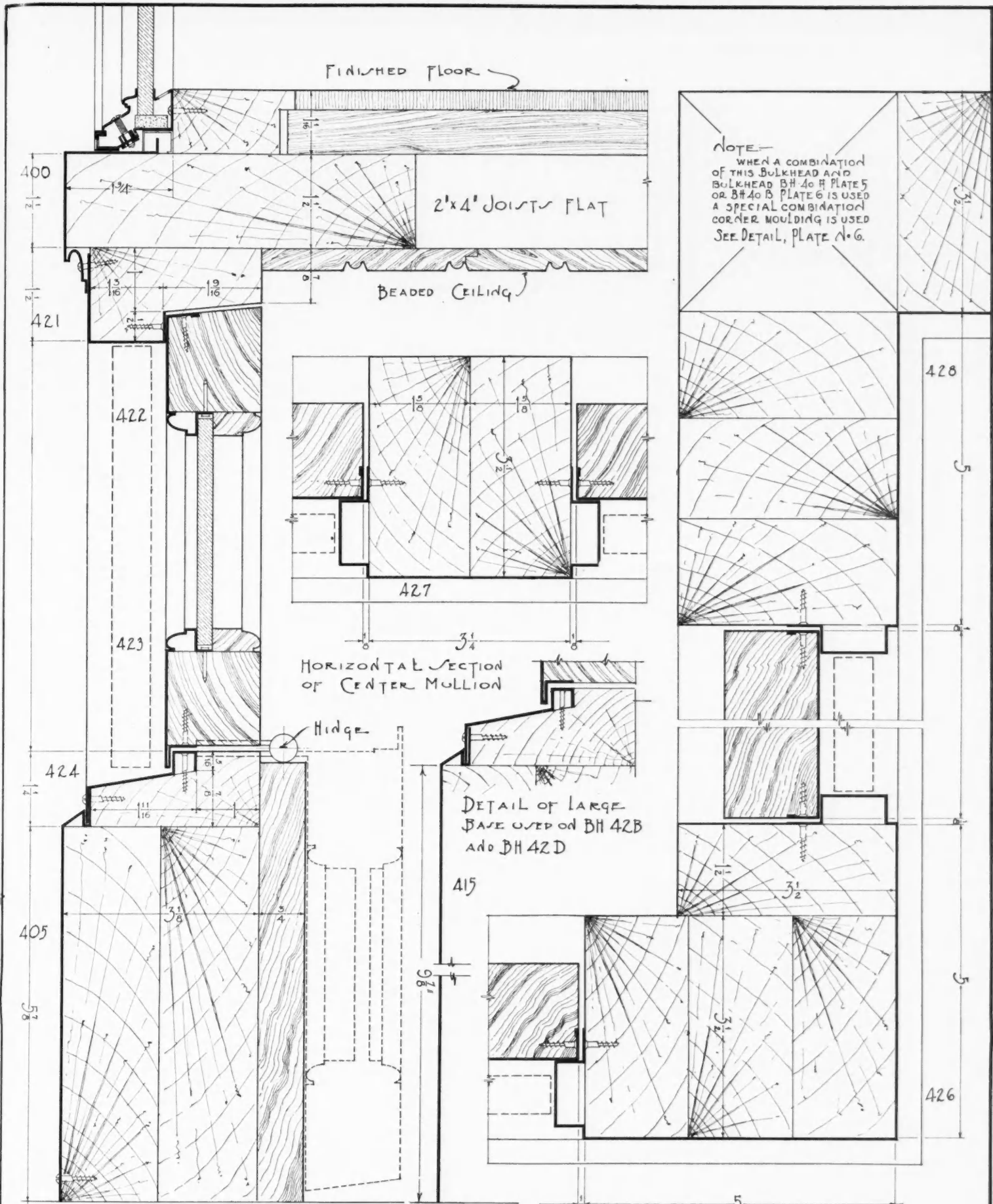
is, along the above lines, will make business for the man behind it.

The Kawneer Manufacturing Company will show "up-to-date" KAWNEER STORE FRONT designs, for various other types of business, such as Grocery, Millinery, etc.

The details on the opposite page, drawn half full size, show some of the members which constitute KAWNEER STORE FRONTS. Readers are asked to cut these out, as they will prove to be a valuable reference asset to them in the future

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 OR BH 40 B PLATE 6 IS USED
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 CORNER MULDING IS USED
 SEE DETAIL, PLATE NO. 6.

VERTICAL SECTION OF BULKHEAD BH 42 A

HORIZONTAL SECTION OF CORNER MULLIONS

PLATE NO. 8  **KAWNEER MFG. CO. — NILES, MICH.**  **Kawneer**
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quadrant, revolve the plan tangent A, as shown by the arc W to A'. Fix the pitch board, as shown at A', and prolong the pitch to B'. Revolve tangent B' to C' and through C draw the major axis parallel with the pitch and the minor axis from A' parallel with the line B' C'.

The curves are shown to have been drawn by means of a string and pins. The twisting bevel is found at the top angle of the pitch board, and is to be applied at the end C' directed towards the outside.

In Fig. 3 is shown how to draw the scroll curve plan.

diagonal line 3-1, and thru the intersection draw the cross lines shown from B and A to C and D, and connect CD and DE as shown. Now take A as a center and draw the first quadrant as shown from 1 to 2. Take B as the second center to draw the quadrant from 2 to 3. Mark the width of the rail at 1 and draw the inside and outside curves from the same centers A and B. The other centers to complete the scroll are shown at C, D, E, F, G, H. Draw the tangents 2A and A1', and from A draw the pitch of the rail to 1', as shown.

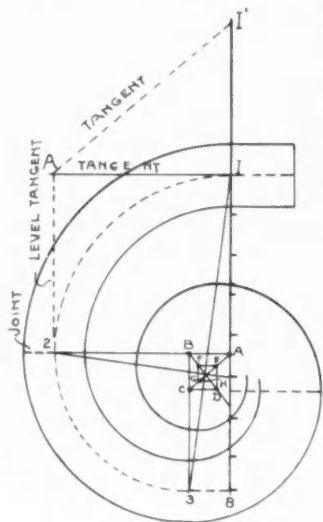


FIG. 3.

Showing How to Draw a Hand Rail Scroll.

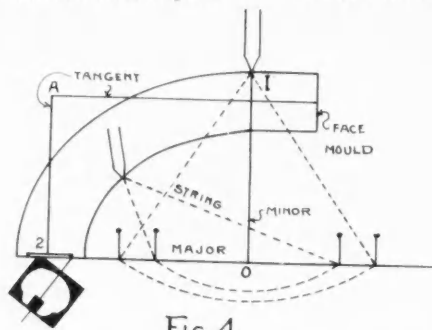


FIG. 4

Face Mould for the Scroll Wreath Over and Above One Quadrant.

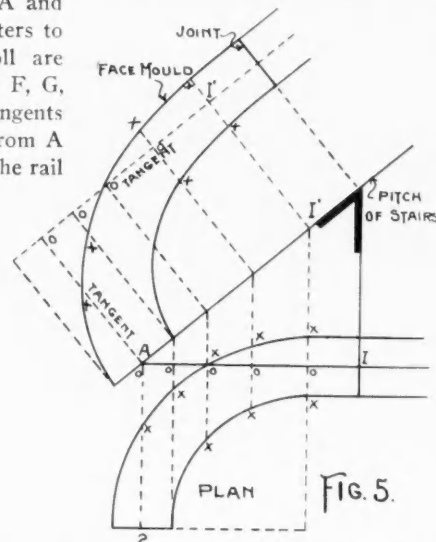


FIG. 5.

Showing How to Lay Out the Face Mould for the Top Cylinder with "Ordinates."

After determining the width required as from 1 to 8 in the diagram, divide the line into 8 equal divisions, and from the center of the fifth division, shown at A, draw a line at right angle to 2. Make AB equal to one of the 8 divisions, and from B draw a line to 3, and from 3 another diagonally to 1, as shown. From 2, draw a line at right angle to the

To lay out the face mould, Fig. 4, draw the lines 1'A and A2 at right angle and equal respectively in length to the tangents 2A and A1', as shown in Fig. 3.

Draw the minor axis parallel to the tangent 2A and the major parallel to the tangent A1'. Make the width of the

(Continued to page 88.)

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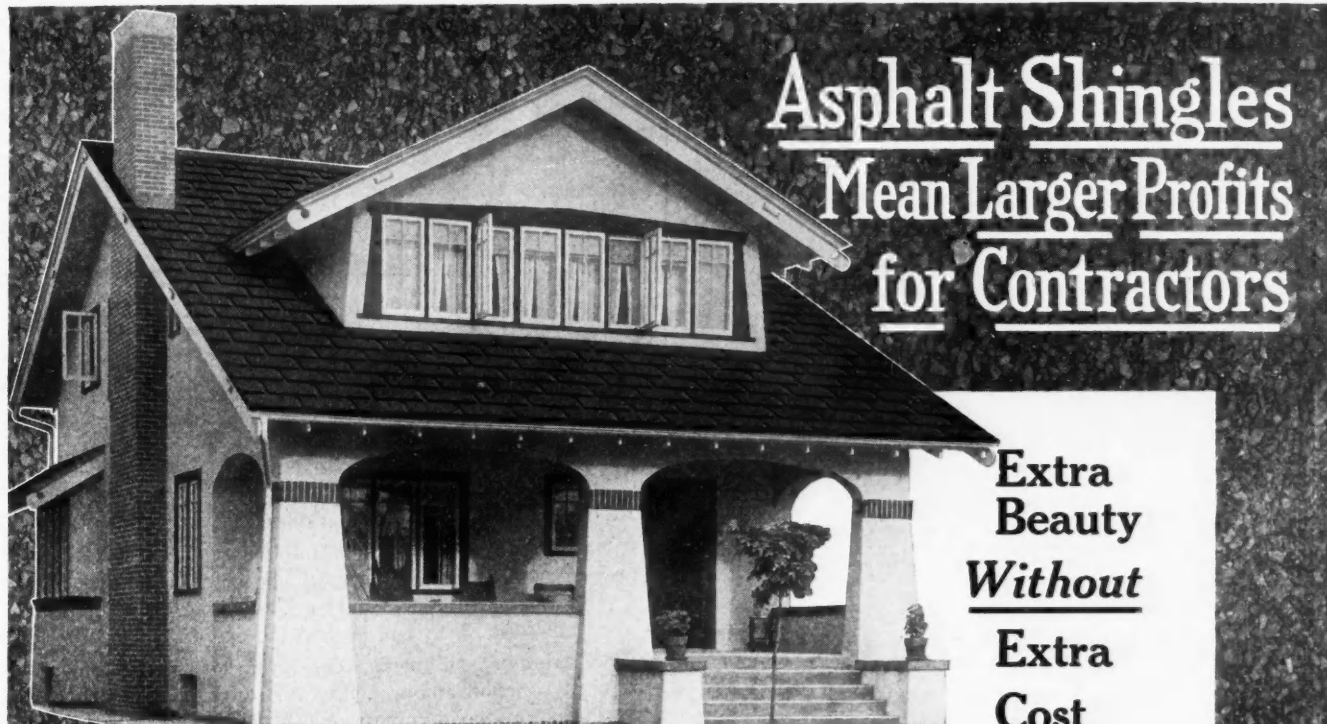
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A HANDSOME, brightly colored roof of *Asphalt Shingles* makes a lot of difference in the way a house looks. Many roofings are so discolored and lacking in decorative effect that they add nothing to the appearance or character of a house.

Asphalt Shingles have a rich, permanent coloring that makes any home upon which they are used stand out among its neighbors. Their shades of red, green, gray, brown or black, with the smooth and regular outline of each separate *Asphalt Shingle*, make the roof an *ornament* to the house.

Asphalt Shingles

"Destined to Roof the Nation's Homes."

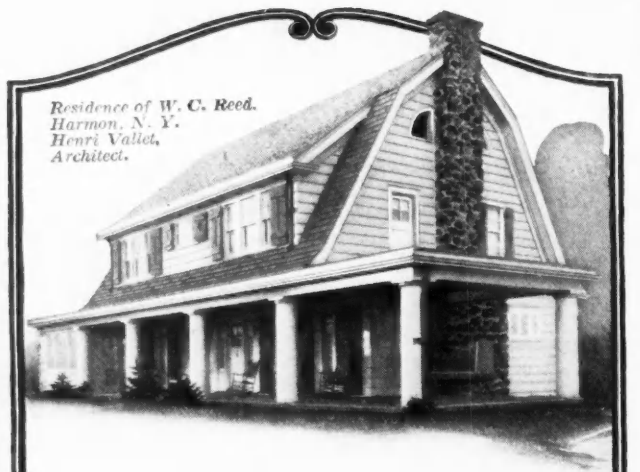
A roofing like this cannot leak and cause complaint from the house owner because it is triple-thick. Nor do *Asphalt Shingles* curl or blow up. They are very fire-resistant and give absolute protection against burning brands or sparks. Their long life makes them a perpetual source of satisfaction to the house owner.

Asphalt Shingles have these advantages, yet sell for practically the same prices as common roofings. Their quick-laying features, which save labor charges, mean that by using them you put yourself in position to get *more business* and so earn larger profits.

All of our advertising always refers the prospective house builder to his Architect and Contractor about Asphalt Shingles.

In Our Booklet "The Roof Distinctive" we tell still more interesting facts about them. This book is worth many dollars in the money-making hints it will give you, yet we will send it free if you write. We will also send new book of Fire Tests if you ask for it.

Asphalt Shingle Publicity Bureau
955 Marquette Bldg. CHICAGO



Residence of W. C. Reed.
Harmon, N. Y.
Henri Valet,
Architect.

These fire-safe Shingles are easy to lay and profitable to handle

Shrewd builders who have sensed the trend toward fire-proof construction are making two profits on

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—one on the sale and one on the laying. These shingles are profitable in a broader sense, too, because they satisfy both parties—builder and client.

The builder adds to his profit on each job a reputation for service which will sell more roofs. The client gets a roof that is safe, sightly, and permanent—free from repair expense—and cheaper than slate or tile.

J-M Transite Asbestos Shingles can't burn, and actually toughen with age—won't warp, rot, split or curl. Made in various sizes, shapes and colors, permitting attractive and distinctive treatment.

Get your name on the J-M mailing list, write the nearest J-M branch for samples and for information of our dealer proposition.

J-M Transite Asbestos Shingles are examined, approved and labeled by the Underwriters Laboratories, Inc., under the direction of the National Board of Fire Underwriters. Laid American method they are given Class "B" rating. Laid French method they are given Class "C" rating.

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mould at 1' equal to the width of the plan rail, and at 2, ¼ inch wider. Find the points upon the major to fix the pins and sweep the curves as shown.

The twisting bevel is found at the top angle of the pitch board and is to be applied as shown directed towards the inside.

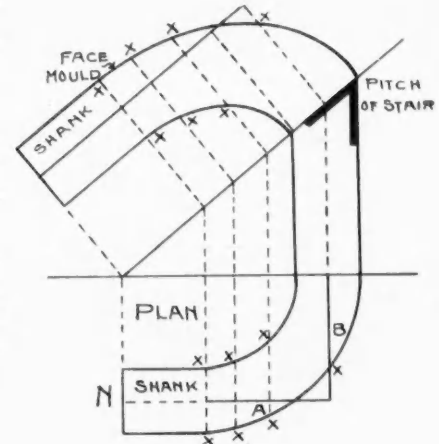


FIG. 6

Showing How to Lay Out the Face Mould for the Scroll Quadrant with "Ordinates."

The remainder of the scroll rail will be a duplicate of

the plain rail cut out of the plank square to its surface and moulded as cut, and that because when fixed over and above the plan, its position will be level all along from the joint shown at 2, Fig. 3, to and around the eye of the scroll.

The string-and-pin method of laying out face moulds is the most common amongst practical stairbuilders, but it will be seen from the accompanying figures—5 and 6—that the "ordinate method" therein shown is considerably more simple and as such better adapted for beginners.

The plan in Fig. 5 is that seen in Fig. 3 of the top quadrant 2A1.

From A draw the pitch of the stairs as shown to 1'. Draw the ordinates x, x, etc. (any number) across the plan curve up to the pitch line, and therefrom draw corresponding ordinates square to the pitch as shown. Upon these mark distances to x and x on both sides of the tangent equal to the distances to x, x, etc., upon the plan from the plan tangent A1, and thru the points determined trace the face mould curves as shown.

In Fig. 6 is shown the same method applied to draw the face mould for the landing cylinder. The plan in this figure is taken from Fig. 2, and there shown to include the quadrant, the tangents A and B and a piece of shank to N.

The operation to lay out the face mould is similar in Fig. 6 to the one shown in Fig. 5.

MORRIS WILLIAMS.



Favors Licensing Builders

To the Editor:

Carlisle, Ark.

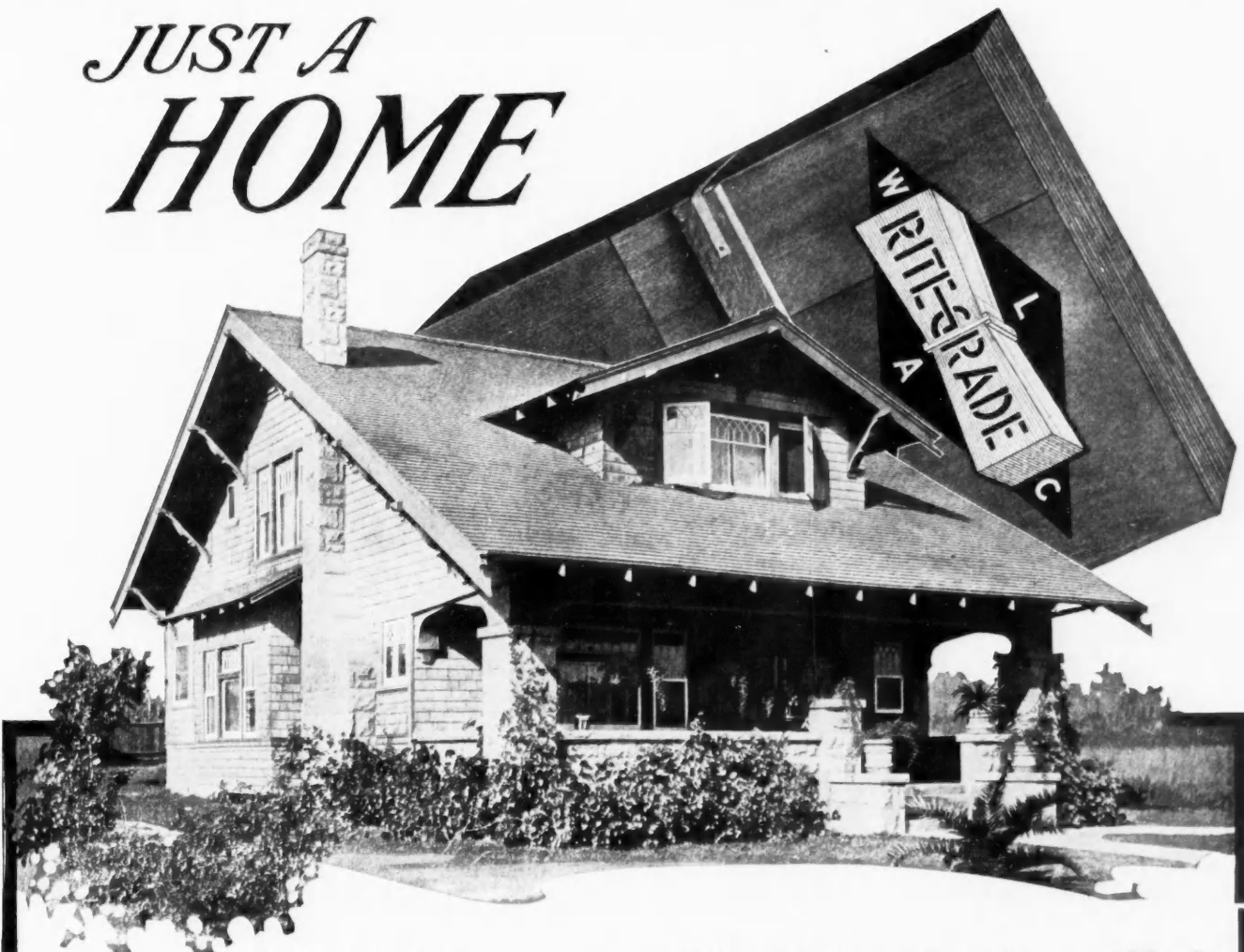
One of the readers of the AMERICAN CARPENTER AND BUILDER asks in a recent issue about state license for carpenters and contractors. I believe that would be a good thing for the public as well as the mechanic if such a thing could be possible. It would be the means or cause of a much higher class of building, which is very much needed, and would add greatly to the progress of the country and profession.

I would like to know how we carpenters could get such a law enacted, and also would like to hear from more of the readers of the AMERICAN CARPENTER AND BUILDER. I will volunteer any service that is possible for me to give, and will promise to stick till the last nail is driven, then stay to see if the paint is properly applied. I hope we will hear more of this, as it is for the good of the country, the profession, and ourselves. Of course, the jack leg will kick, but what's the use, kicking colts are broke of their faults and make good horses, so why won't it help the jack leg, too?

I am young at the business, having only twelve years experience in building and contracting, but have been working

(Continued to page 90.)

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to accomplish something. I do my own planning, drafting, and the work too, if necessary, and also read the AMERICAN CARPENTER AND BUILDER. Yours for all the good I can do.

S. C. SANDERS.



Barn with "Horse Shoe" Roof

To the Editor:

Allenton, Mich.

I am sending you a photo of a barn we just raised on the farm of F. W. Parker, Berville, Michigan. It is 34x80 ft.,



Mr. Hahn calls this a "Horse Shoe" Roof; But if the Two Curves Come Together at an Angle at the Peak as it Seems in the Photo, it Should be Called a "Gothic" Roof.

with a concrete stable 32x34 ft. and a horseshoe roof. The barn is 36 ft. high from the ridge to the sill. OTTO HAHN.



Diagonal Sheathing Stronger

To the Editor:

Tampa, Texas.

I want to ask your opinion as to which is the strongest job—to box or line a house diagonally on 45 degrees, or box it straight thru.

I am a reader of your paper; we always have it in our shop and get a great deal of good information out of it, and couldn't get along without it.

FRANK CRAIGE.

Answer—It unquestionably makes a stronger job to nail on sheathing boards diagonally at a 45 degrees angle. In this position each board becomes a brace and makes the side wall construction into a series of triangles. Horizontal sheathing boards, on the other hand, make the structure into a series of parallelograms or four-sided figures. The triangle is stiff and rigid and cannot be distorted, whereas the parallelogram can be distorted, the only thing that keeps it rigid being the double nailing at each joint.

In spite of the above well recognized principle, the majority of sheathing is put on horizontally. Builders evidently figure that it is strong enough, and use it because they can put it on faster and cheaper that way.

EDITOR.



Furnish the Details First

To the Editor:

Danvers, Mass.

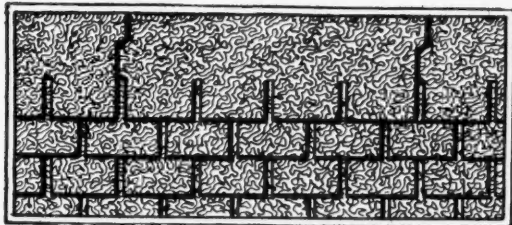
Referring to the article in the August number by my namesake, Mr. G. Alexander Wright, architect, discussing the matter of furnishing details with plans, I feel that a very timely and important matter has been touched upon.

My work has thus far been confined almost exclusively to the dwelling house type of construction, new and remodeling. Therefore, the detail drawings are mostly of an interior nature. But even so, they are, if anything, more essential to

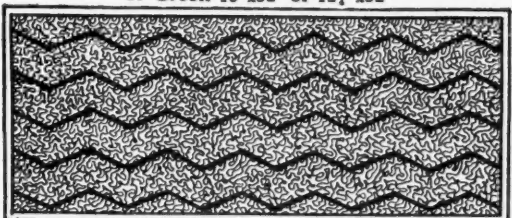
(Continued to page 92.)

Vulcanite

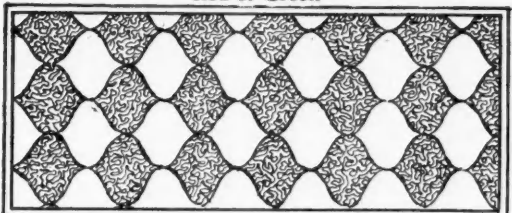
Ornamental Roofing and Shingles



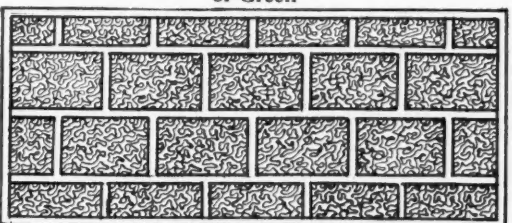
Vulcan Slab Shingles Self Locking in Red or Green 10"x32" or 12 1/2"x32"



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Arkansas Soft Pine Bureau
Little Rock, Arkansas



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the success of the finished product than many of the other items; and no contractor can figure his bids intelligently or with any degree of accuracy unless he has them in their completeness before him. Framing, sheathing of whatever nature, outside trim, painting, plastering, excavations, sash, etc., are a routine matter which are easily figured from plans, elevations and specifications; but those uncertainties contained in the stereotyped phrase, "details of which will be furnished as the work proceeds," contain untold hidden items of mill work, cabinet work, special sizes, hardware, leaded glass, and unheard-of freaks of imagination that can only be properly represented by the algebraic unknown quantity sign, X.

Mr. Contractor scratches his head, thoughtfully chews the end of his pencil for a while and finally concludes that about so many dollars extra will cover the quantity X and takes a chance—a mighty good chance in many cases of losing.

On the other hand, with the detailing sheets at hand, he can accurately figure every piece of work that is going into that particular job, give an intelligent figure and also feel that he is protected in his competition with the other fellows because they have the same basis to work upon.

It is just as fair to expect a contractor to give a snapshot, guesswork figure on the entire job and be done with it, as to ask him to accurately figure the job along certain lines and jump at conclusions on the rest—and more so.

Of course, we have to take into consideration the impatient client who expects his finished plans within forty-eight hours from the time he blows into the office with his first preliminary sketch, but even he can be brought to see the direct disadvantages that will eventually accrue to him in the final figures.

Give the contractor a fair show. He deserves it. And incidentally, he will be likely to return the favor by recommending your office to prospective builders as the place where things are done right in the first place.

G. HERBERT WRIGHT,
Architect.



Braced Scaffold Brackets

To the Editor:

Emerson, N. J.

Enclosed is a photo of a house which I recently built. I have been reading your magazine for over six years and have



In the Background are Shown Three Braced Scaffold Brackets.

found every number interesting and useful. I am keeping every number for reference.

I wish to call your attention to my easy method of placing scaffold in any position that is desired without much aid.

NATALE LUCIA,
Carpenter and Contractor.



DOORWAY,
ISAAC ROYALL HOUSE
at Medford, Massachusetts.
Built of White Pine in 1732.

While the Royall House as it now stands was built in 1732, a section of it—which was originally the Winthrop Farm House—was built in 1631. This is the oldest section of any house now standing in this country.

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

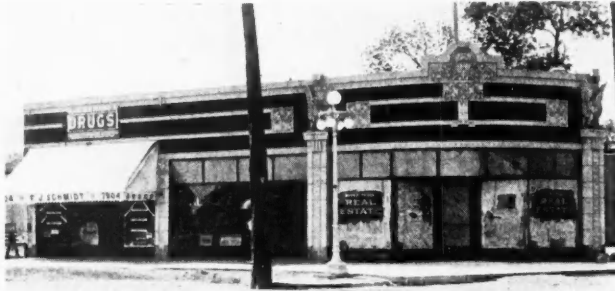
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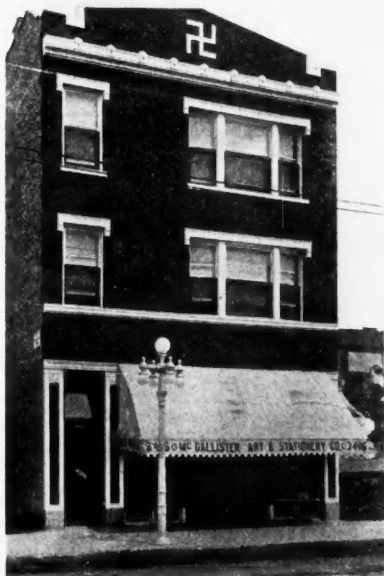


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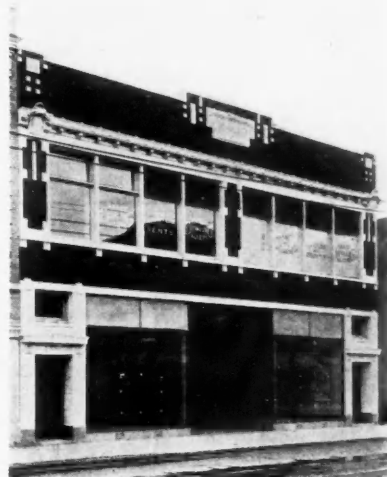
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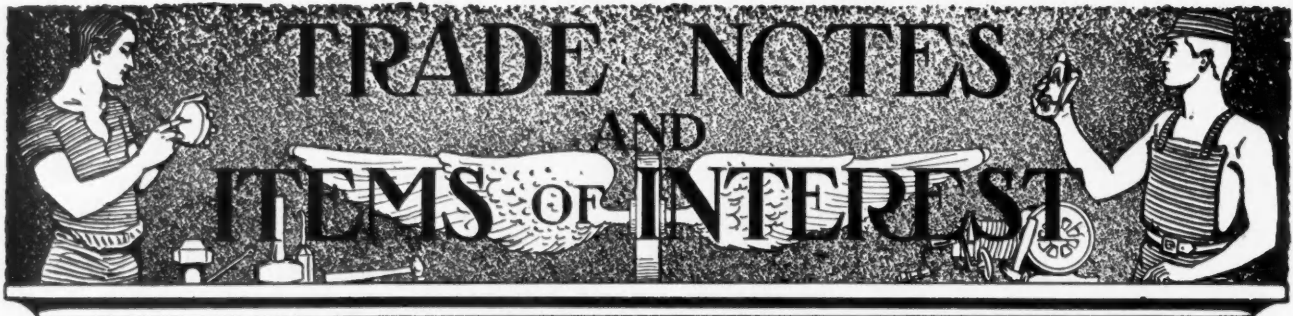


A bright enamel terra cotta front that stands out conspicuously and attracts attention, OR one that is old-fashioned and dingy looking and is passed by unnoticed.



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New Booklet on Galvanized Sheets

A booklet has recently been brought out by the American Sheet & Tin Plate Company, Pittsburgh, Pa., which contains information pertaining to the Apollo Best Bloom galvanized sheets and the Apollo-Keystone copper steel galvanized sheets. Photographs are liberally supplied thruout the booklet to illustrate the use of these galvanized sheets in underground work and culverts, for flumes, tanks, cisterns and silos, for roofing and siding and for general sheet metal work.

The Keystone copper steel sheets have exceptional rust-resisting qualities which provide long life even under trying conditions. These sheets are made from a copper-steel alloy consisting of a scientific combination of copper and high-grade steel. This alloy has been selected as the result of extensive laboratory research tests and actual usage tests

conducted on a great number of different substances for the purpose of determining the ideal composition for the base sheet metal.

Readers who are interested in knowing to what extent galvanized sheets may be used in the building field will find interesting information in this booklet.

Buckeye Ventilator Catalog

A very artistic and carefully written booklet bearing the title, "The Proper Ventilation of Farm Buildings," has been prepared by the Thomas & Armstrong Company, 120 Union St., London, Ohio. This booklet contains a great deal of valuable ventilation information and is also given an added touch of interest by the very numerous illustrations both in black and white and colors.

(Continued to page 98.)

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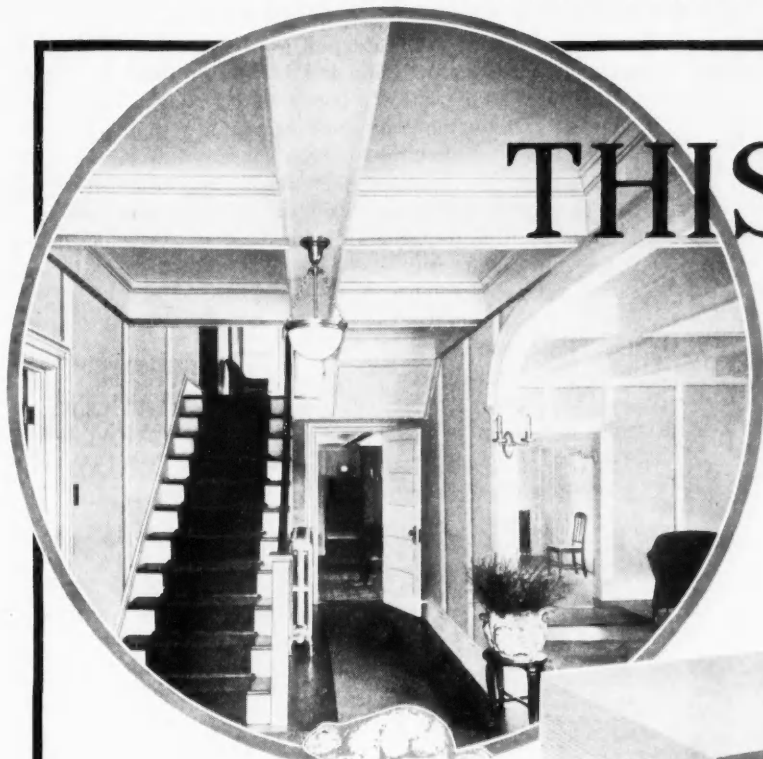


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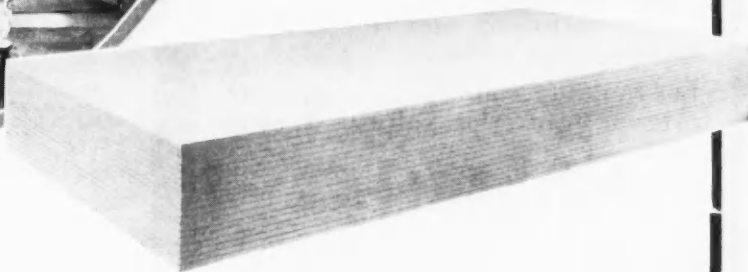
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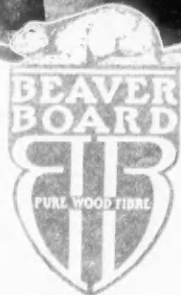
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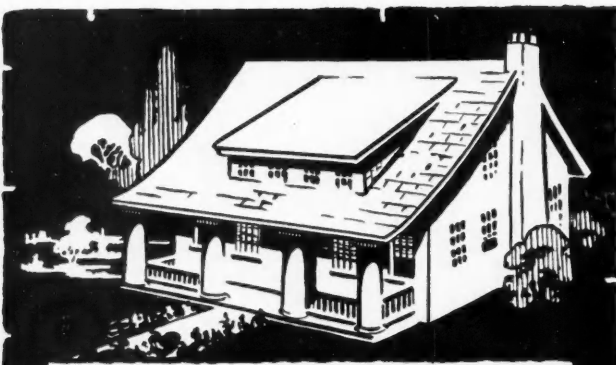
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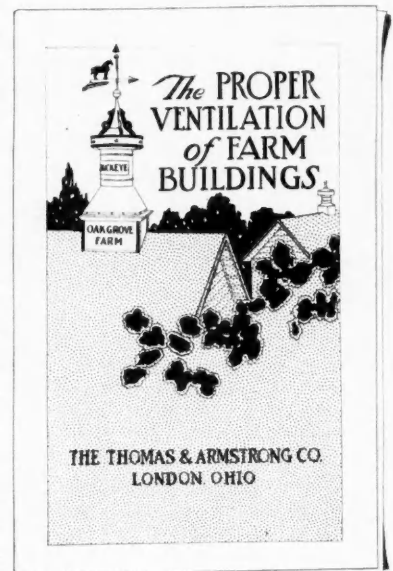
North Carolina Pine Association
Norfolk, Virginia

**NORTH
CAROLINA
PINE**

A discussion of the ventilation problem gives a thoro analysis of the entire proposition and its solution from the original suggestions of the late Professor F. H. King of Wisconsin University to the modern cupola ventilator system. The dangers of poor ventilation have been conceived as falling under eight heads: Insufficient oxygen supply, accumulation of carbon dioxide, excess moisture in confined air, which robs the stock of their vitality, rapid deterioration of everything which comes into contact with this moist air, accumulation of harmful bacteria which attack the live stock, formation of ammonium carbonate, continuously dust-laden condition of the atmosphere in the barn, and high tendency toward fire either due to accidental ignition or spontaneous combustion.

The principle and construction details of the Buckeye cupola ventilator are fully explained and illustrated. The all-metal base is described and the method of installation of the ventilator using this base is given. Four pleasing designs are offered for the weather

vane, which is securely mounted on a galvanized pipe pro-
(Continued to page 100.)



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Not an experiment.

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*Build Your
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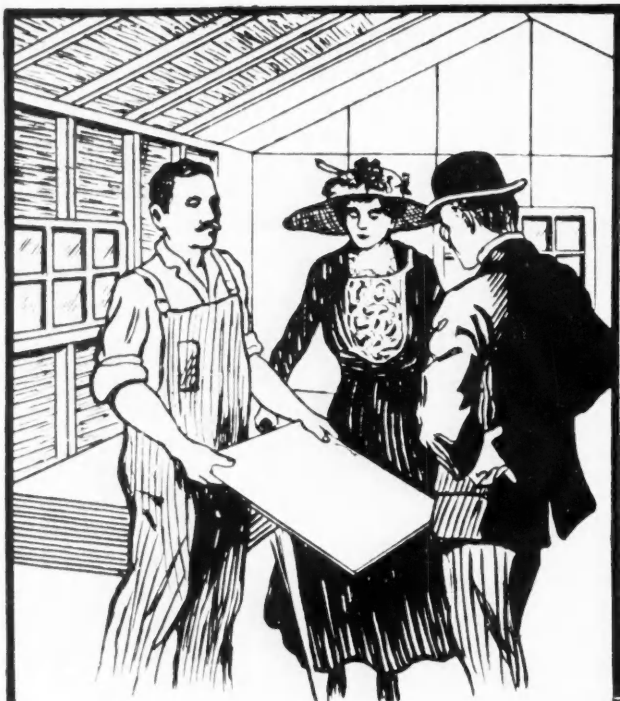
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Black Rock - - - New York



Don't Divide Profits with the Plasterer!

Every fall thousands of attics are converted into livable rooms, either by the use of lath and plaster or by means of some substitute for plaster. In either case, the carpenter is called to set the necessary supports. If he is awake to his own interests and to the interests of the owner, he recommends

CAREY
Ceil-Board
SUPERSEDES PLASTER FOR WALLS AND CEILINGS

No sensible man will have his home mussed up with plaster when he knows that he can have his remodeling done with Ceil Board which is applied by the carpenter with hammer and nails. No housewife will consent to have her attic floors ingrained with mortar nor to wait for weeks while the plaster is drying when she knows that the carpenter can do a better job, with no dirt or delay, by means of CAREY CEIL BOARD.

There will be business of this kind in your community. Be prepared to handle it promptly. Send for samples of Carey Ceil Board in plain and natural hard wood finishes.



The Philip Carey Company

1021 Wayne Avenue, Lockland
Cincinnati, Ohio

Offices and Warehouses in Principal Cities

jecting from a cone attached to the top of the ventilator. The colored illustrations show what an artistic effect may be produced by the use of a catchy color scheme in painting the ventilators. The metal ventilators furnish what is needed to break the monotony of the wide expanse of roof on a large barn.

General information dealing with the necessity of ventilation for proper condition of the live stock is freely distributed thruout the booklet, and the proper solution may be clearly outlined for any particular barn by a study of this material. Readers of the AMERICAN CARPENTER AND BUILDER who are interested in the problems of barn or other farm structure ventilation should write the Thomas & Armstrong Company for one of these catalogs.



Louden Barn Equipment

Are you aware of the opportunity which is offered at this season of the year in the field of barn improvement? Farmers are beginning to think of the coming winter and now is the time to interest them in barn equipment which will enable them to cut down the heavy labor of winter chores. At no time of the year is the farmer called upon to exert greater care in the maintenance of his dairy herd and other live stock than he is in the winter months when the barn is kept closed tightly most of the time and the litter is collecting most rapidly. The contractor or builder who is ready to furnish the farmer with information which will help him to prepare his barn for the winter months is the one who is going to cash in on this opportunity.

Not only is the field open in the improvement of barns already built, but there is the possibility of working the installation of barn equipment right into your fall barn building business. Modern barns are being equipped with modern barn improvements as a matter of necessity, for the farmer is growing to know that he is not fitted to handle his work in the best way without them. Steel cow stanchions, steel stalls and stall partitions, litter carriers and feed carriers have proven their worth.

The Loudon Machinery Company of Fairfield, Iowa, manufacture a very complete line of barn equipment and their wide experience in all matters pertaining to barn construction and improvement place them among the best equipped in the country to furnish contractors and builders with the information which will meet the farmer's needs. Several interesting booklets covering the subject of barn equipment have been published by the Loudon Machinery Company and a great number of excellent barn plan suggestions are offered in their handbook on that subject. Readers of the AMERICAN CARPENTER AND BUILDER who wish to avail themselves of the opportunity to catch the fall barn improvement business should take advantage of the information which the Loudon Machinery Company has to offer them now, while the time is ripe.



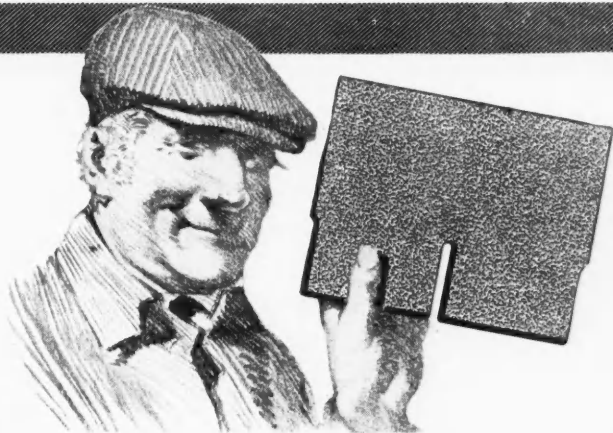
"Synstone" Construction

FIRST ANNOUNCEMENT OF MR. FERGUSON'S SYNTHETIC STONE BUILDING UNIT

For more than three years John A. Ferguson has been perfecting and testing a machine and its product. Some would call this a cement block machine, yet the building units it produces have so little in common with the ordinary run of cement blocks that it seems only fair to give it an entirely new name, and not to think of it in terms of the ordinary cement block business.

Mr. Ferguson calls it the Synstone machine, and the building units it produces are called Synstone; in other words, synthetic stone, or artificial stone put together by man instead of by nature.

(Continued to page 102.)



"You can just bet my 'shingle' is hung out—it's all over town, and out in the country, too.

"And more of them are going up all the time—everywhere around here you will find the handsome red, gray and green roofs of

NEPONSET TWIN SHINGLES

"People in this locality don't worry any more about their roofing problems—they just put them up to me—for I am the Neponset Man.

"But I don't worry, either; my shingles are made of the same materials as in Paroid Roofing and I know that hundreds of roofs covered with Paroid are in perfect condition after 18 years' service.

"Maybe you can become the Neponset Man in your section—try—send the coupon today.

BIRD & SON Dept. C EAST WALPOLE, MASS. (Established 1795)

Chicago: 1434 Monadnock Building
New York Washington
Canadian Office and Plant:
Hamilton, Ont.



NEPONSET WALL BOARD

For Walls and Ceilings

is daily growing stronger as an important factor in the business of carpentry and building.

It takes the place of plaster and lath, and lumber for

Walls and
Ceilings

Wainscoting

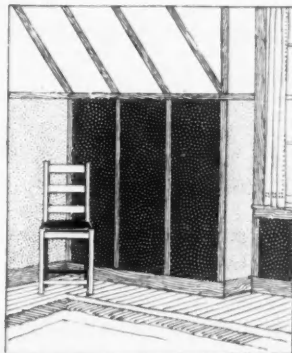
Partitions

Closets

Booths

Window Displays
and a thousand
other uses

The coupon below will bring you full information about Neponset Wall Board as well as Neponset Shingles.



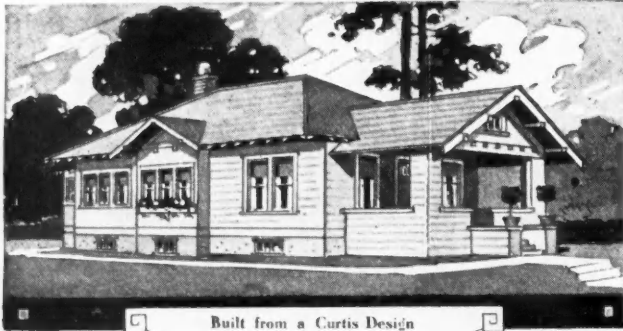
BIRD & SON, Dept. C, East Walpole, Mass.

Please send me information about Neponset Shingles and Neponset Wall Board. Also a copy of your book, "Repairing and Building." This request does not obligate me in any way.



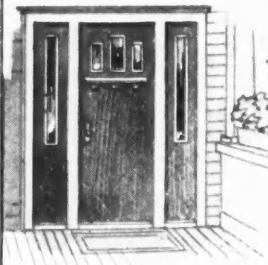
Name

Address



Built from a Curtis Design

Service That Helps Profits



CURTIS "On-Time Service" makes quick building possible. Materials leave the factory as nearly ready to be put into place as we can make them. You are saved the labor of sanding, and remember it

costs \$50 to use 75 cents' worth of sandpaper.

There are no delays in delivery when once you have arranged delivery dates with your Curtis dealer.

This "On-Time Service" means money to you. Let us tell you more about it and explain the advantages of Curtis Woodwork. Drop us a card today.

THE CURTIS COMPANIES

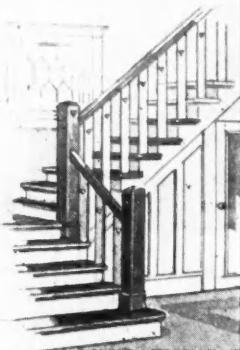
Service Bureau

1495-1505 S. Second St., CLINTON, IOWA

Manufacturing and distributing plants at
 Clinton, Iowa Sioux City, Iowa Chicago
 Wausau, Wis. Oklahoma City Detroit
 Minneapolis Lincoln, Neb. Topeka, Kan.

Eastern Offices at Pittsburgh and
 Washington

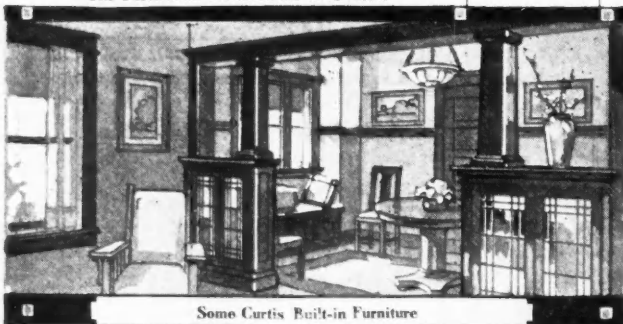
The makers of CURTIS Woodwork guarantee complete satisfaction to its users. "We're not satisfied unless you are."



Doors
 Windows
 Window and Door Frames
 Storm Doors and Windows
 Screen Doors and Windows
 Stairways
 Newels
 Sideboards
 Colonnades
 Bookcases
 Mantels
 Window Seats
 Wall Panels
 Ceiling Beams
 Mouldings

1866 CURTIS WOODWORK

"The Permanent Furniture for Your Home"



Some Curtis Built-in Furniture

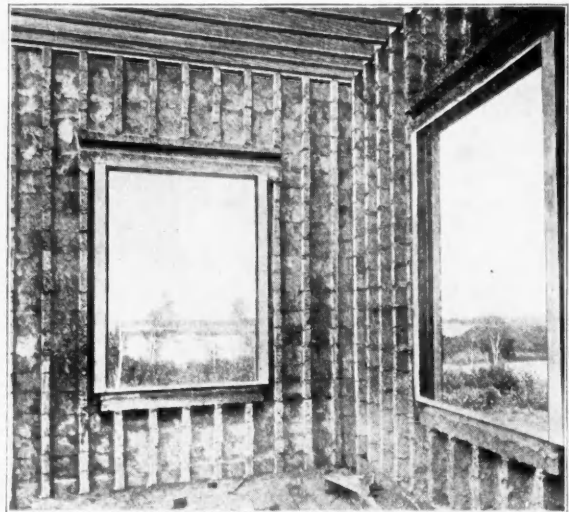
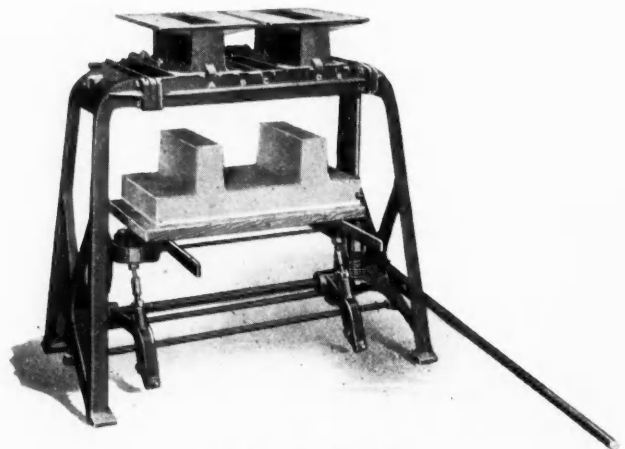


Photo of Interior Construction, Before Furring and Plastering, Showing Interior of Synstone Wall Construction.

The form in which Synstone is produced has permitted Mr. Ferguson to work out several revolutionary changes in building construction. He builds a moisture-proof, fireproof, masonry wall that costs no more than common frame construction.

Several years ago, Mr. Thomas A. Edison predicted that science would some day give every man a concrete house at no greater cost than a frame house. The world gave eager ear to his words, and there are today thousands of home builders awaiting the realization of his prophecy. Those who have examined and tested Synstone, and have studied the possibilities of the Synstone System of construction, are confident that it means Edison's dream come true, that is, a concrete home at no greater cost than an ordinary frame house—a home, the exterior of which may be faced with beautiful granite, white marble, sandstone or other desired finish.

The Synstone unit is made of wet concrete, carrying a con-
(Continued to page 104.)



The Synstone Machine.

The Synstone System Machine uses wet mixture. Operates by hand—requires no power pressure.

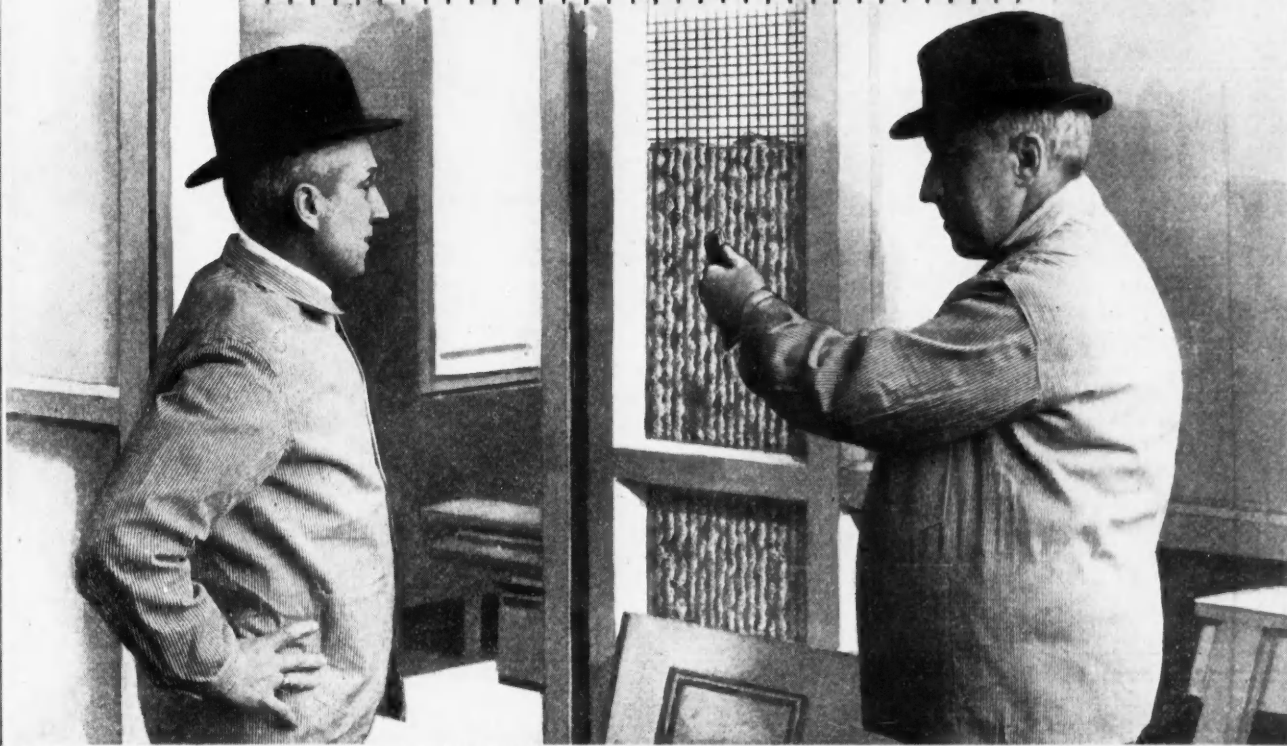
In the above position the machine has discharged the 3-inch-thick wall block. The lug boxes have been dropped forward in place.

In releasing the block from the machine, the operating lever travels a curved path, thereby lowering the pallet on which is the finished Synstone block.

The block is then removed on the pallet. A clean pallet is then placed in position, the operating lever thrown back, and the machine is ready for another block.

"NOTICE THE KEY SIDE"

CLINTON WIRE LATH



"NOTICE THE KEY SIDE OF THIS JOB HERE. CAN
 you imagine any more thorough clinch? I always specify *Clinton Wire Lath* because it affords such perfect results. Now this complete imbedment of the lath in the plaster coat gives rigid work. It also means that the lath will always retain its original strength because it is protected from the corroding effects of air and moisture."

"Fire, should it run up between partitions supported by *Clinton Wire Lath*, can do but little damage. It cannot reach the lath because that is buried in plaster."

Send for our profusely illustrated book, "Successful Stucco Houses;" also "Clinton Handbook on Lath and Plaster." Both mailed free.

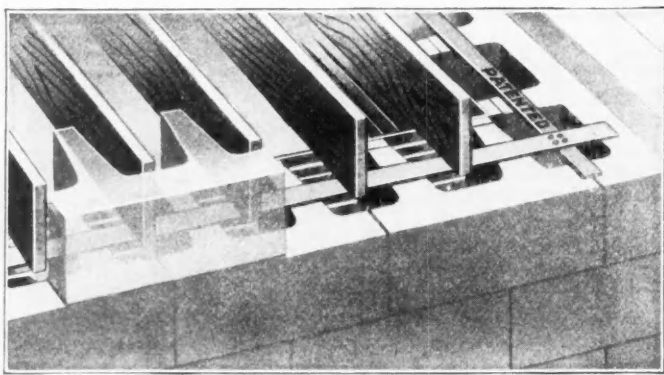
CLINTON WIRE CLOTH COMPANY

First Power Loom Weavers of Wire Cloth in the World

69 PARKER STREET :: CLINTON, MASSACHUSETTS

NEW YORK :: BOSTON :: CHICAGO

Makers of "Pompeian" and "Golden Bronze" Screen Cloth, "Clinton" Painted Wire Screen Cloth, Clinton "Silver Finish" Screen Cloth, Clinton Poultry Netting. Clinton Electrically welded Fabric for reinforcing Concrete. Hunt Corner Bead, Tree Guards, Fence Gates, Clinton Perforated Steel Rabbish Burners, Perforated Metals, Perforated Grilles for all architectural purposes.



Section Showing Synstone System of Building Walls Tied Together with Steel Band and Joist Support at Each Floor Course, Imbedded in Cement Mortar and Bolted at the Four Corners of the Building. This Revolutionary Feature Fully Protected by Patents.

siderable quantity of large size aggregate. Everyone knows that a wet mixture means a solid, strong, impervious stone. The problem has been that a wet mixture has always meant slow handling, or in other words, costly production. The Synstone method solves this speed problem. The shape of the block enables it to stand up when immediately removed from the machine.

The blocks are made with two prominent lugs, and this is the second great advantage of this building unit, since with this style block a very economical, tho strong and beautiful wall can be erected, as illustrated in the photograph and drawing herewith.

Notice how the metal nailing plug is placed in the cement mortar between the lugs. To this are nailed the furring strips. To these furring strips any type of lath construction may be nailed, either wood, metal or plasterboard. It insures a warm, damp-proof wall.

Joist ends are supported by a strip of $\frac{3}{8}$ -inch flat steel

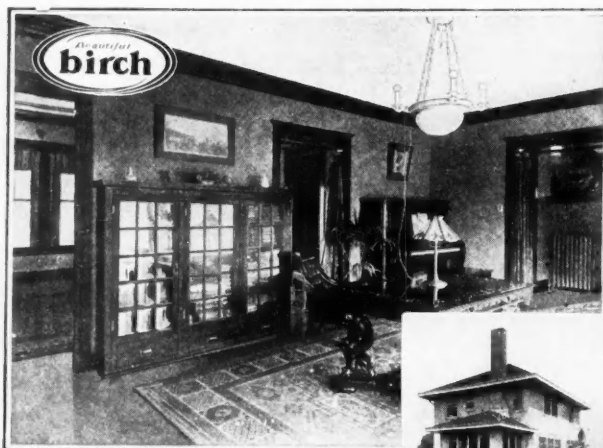
laid in the mortar joint toward the back of the blocks. These steel straps are bolted together at the corners so that they are perfectly secure. Where extra strength is wanted, as for instance, in earthquake regions, such straps may be laid in every few courses to reinforce the wall.

Simple adjustments of the Synstone machine permit blocks of many different sizes and styles to be produced. The average cost of manufacture, including materials and labor, is a little more than 5 cents per square foot of wall surface. The blocks can be laid in the wall at an average cost of about 6 cents per square foot, making a total cost to make and lay Synstone (without profit, but including royalty), about 12 cents per square foot of wall. A handsome profit can be added, and the price still be low enough to land almost any contract.

This is a big, interesting subject, and we wish it were possible to give all of the details of it here and to show more of the very unusual photographs and drawings which are needed to do the proposition justice. However, our lack of space prevents this, and we accordingly refer our readers to the Ferguson Synstone Company, Old Colony Bldg., Chicago. They will send free on request their illustrated handbook and full particulars concerning their exclusive license proposition. They are leasing this system to one responsible building contractor or concrete man in each locality. A nationwide advertising campaign is to be launched that will make Synstone a household word in America as commonly known as the words "brick," "lumber" or "stone." It is expected that this advertising will create for Synstone a good-will and prestige, and consumer demand of inestimable value. Local representatives of the Synstone System will naturally reap the benefit of this.

Investigate this proposition today.

(Trade Notes Continued to page 108.)



(Living Room)

"Beautiful birch" for Beautiful Woodwork

"Beautiful birch" is so hard it takes a wonderful polish, either glossy or egg-shell. It is so light in color it will produce PERFECT EFFECTS IN ALL STAINS from silver gray to dark brown or red. In veneered doors and panels it shows a handsome but not gaudy figure. It makes a hard and handsome floor. Unselected birch makes the natural base for enamel. AND—it is very reasonable in price. What more could you ask of a trim wood? Is it any wonder it is used both in homey cottages and palatial hotels and office buildings?

THOUSANDS OF "COMFY" HOMES LIKE THIS ONE ARE TRIMMED WITH



The illustration shows a homelike residence in La Grange, Ill., trimmed throughout in "Beautiful birch." Architect, Ralph W. Ermerling, Chicago.

FREE For your own information and to show to prospective builders: A handsome set of "beautiful birch" panels in many finishes (some new) with a fine illustrated book — both free.

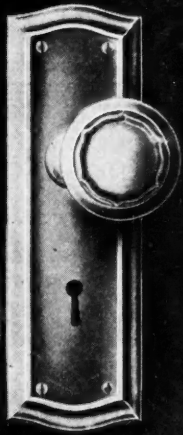
**Northern Hemlock
and Hardwood
Manufacturers
Association**

Headquarters
201 F. R. A. Building
Oshkosh, Wis.



(Dining Room)

CORBIN



WAKEFIELD



PRINCETON



ANVERS

RONDO



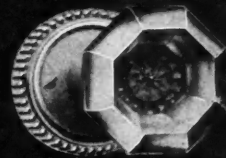
PASADENA



VICTOR



PORTLAND



BIG VALUE FOR THE MONEY

Corbin hardware for moderate-priced houses has the same artistic merit, the same excellence of finish and the same attention to detail as the most expensive. It makes the use of poor hardware inexcusable. Ask your hardware dealer or write us for particulars.

P. & F. CORBIN

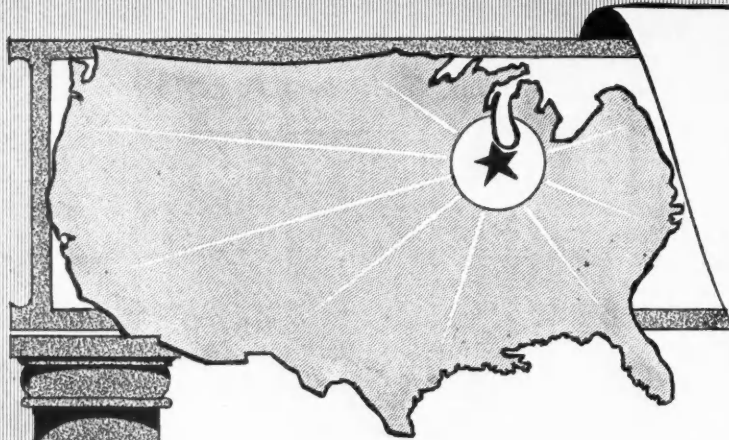
The American Hardware Corporation Successor

NEW BRITAIN, CONN.

NEW YORK

CHICAGO

PHILADELPHIA



Look Before You Build

Get the habit of writing to us in regarding to your building wants. This exhibit is a regular clearing-house of building information—the market where you can do your buying to the best advantage.

We Are Saving Builders Thousands of Dollars

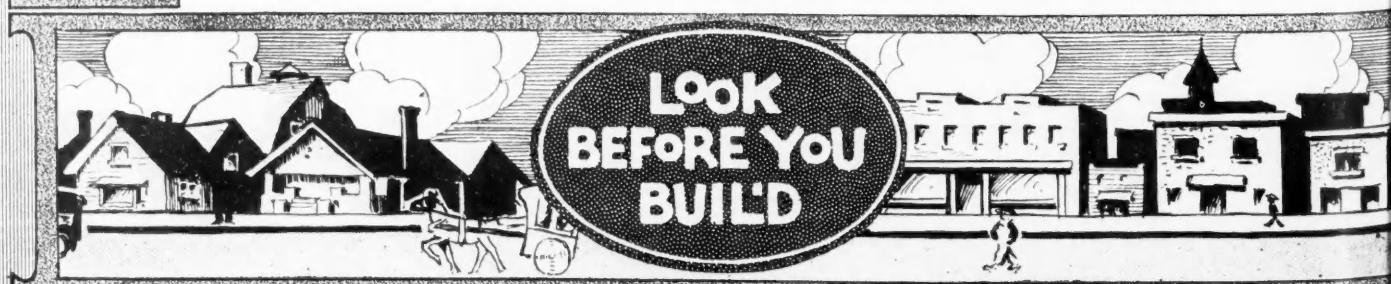
HUNDREDS of builders, architects and contractors are visiting Chicago's great **Building Material Exhibit** every day.

They recognize its unique value—have found by personal experience that they can save not only time but hard cash by coming to the **Exhibit**, where they can see the actual products they need—compare various makes side by side—pick the best for their purpose—secure the lowest figure without loss of valuable time—and be **sure** that it is the lowest.

They do all this at this vast Building Exposition—why not **you?**

Over 200 elaborate and interesting displays by America's leading manufacturers of building material and equipment. This great permanent **Exhibit** is one of the showplaces of Chicago—worth coming far to see. For those who cannot come we have a special market-investigation Service. Send us your plans and we will secure bids on any material or equipment for you without charge. Write us today.

BUILDING MATERIAL EXHIBIT, Entire Second Floor, Insurance Exchange
CHICAGO, ILL.



Look Before You Build

Here is your opportunity. Under one roof and on one floor all your building wants can be supplied. Here you can get in direct touch with the manufacturer and effect big sales.



Let Us Show You Where You Can Save Money on All of Your Building Materials—Send Coupon Today

This huge permanent building material exhibit is established primarily for your benefit. Here 200 manufacturers have come together under one roof—condensed their business into 200 intensely interesting displays, and invite you—for your own profit—to come and see and learn.

As a builder you are invited to make our beautiful display rooms your Chicago headquarters. We are here for that purpose. If you cannot come to Chicago yourself, get acquainted with us by mail, and let us be your Chicago representative. This service will cost you nothing, and will add materially to your financial welfare.

BUILDING MATERIAL EXHIBIT
Insurance Exchange
CHICAGO

Gentlemen:—I am in the market for the following. Please put me in touch with manufacturers.

.....

Name.....

Street.....

Town..... State.....

BUILDING MATERIAL EXHIBIT, Entire Second Floor, Insurance Exchange
CHICAGO, ILL.

**LOOK
BEFORE YOU
BUILD**

The Julien Coal Chute

It is very logical to assume that the wear and tear of placing coal in a basement on a wooden window frame will show its effect even if this operation is carried on only once a year. What is more, the side of the house directly above the window into which the coal is thrown is usually marked with evidences of abuse. Taken from any standpoint, a wooden framed window is not meant to be used as a coal chute.

The illustration shows what the Loetscher-Ryan Manufacturing Company of Dubuque, Iowa, think a coal chute for this service should look like. The frame and door of this chute are made of strong cast iron. The frame is reinforced with steel, and an angle iron which stiffens the sides and makes an anchor for holding the frame in the masonry. The lights are 1/4-inch wire glass set in putty. The chute may be opened from the inside and locks automatically from the outside.

A chain attached to the latch makes it possible to open the door from the inside without climbing over the coal. The door swings up and locks above the frame, thus protecting the side of the building. A metal shield covers the glass when the door is in this position, protecting it while coal is being put in. This shield is automatically removed from its position in front of the glass when the door is closed. The shield may, however, be latched against the glass after the door is closed. The chute is burglar and storm proof and its rigid construction insures long life.

The manufacturers furnish these coal chutes in two sizes



The Julien Coal Chute Open.

and four styles. Complete information may be had by addressing the Loetscher-Ryan Mfg. Co., Dubuque, Iowa.



Using Hydrated Lime in Concrete

No material that has been offered as an admixture in concrete has met with as much general favor as hydrated lime. This material is offered to improve concrete, and is accepted by prominent engineers and contractors and is being used on many concrete jobs.

The effectiveness with which hydrated lime acts as a waterproofing material is well known, but it is not so generally known that hydrated lime introduces other characteristics into concrete that result in producing concrete of first class quality.

It is well known that when hydrated lime is used in cement mortar, the mortar can be more easily worked under the trowel and better bearing surfaces for the bricks can be made. Make an addition of a small amount of hydrated lime to concrete and the same thing happens; the concrete becomes closely compacted, and the result is a uniform, dense, waterproof piece of concrete. Concrete containing hydrated lime will flow freely thru the chutes or spouts, or out of barrows without the use of excessive quantities of water. Excessive quantities of water that are usually used to make concrete flow and work easily, reduce the strength; therefore, the use of hydrated lime will be the means of keeping the strength of concrete more nearly normal.

Hydrated lime is the most plastic of any building material, and the added plasticity which it gives to concrete is the basis of the advantages to be derived from its use. Ten pounds of hydrate to each bag of cement used in a batch is the recommended quantity. An ordinary eight-quart pail holds

(Continued to page 110.)

“THE conflagration hazard will hang over every town and village so long as wooden shingles are used for roofings.”

—Insurance Post.



Shall we send our latest booklet on Terne Plates?

This is equally true of all inflammable roofings. Lasting and absolute protection from fire and weather is secured by using

KEYSTONE COPPER STEEL Terne Plates

Within a short period of twenty-four hours four disastrous fires with tremendous property losses were suffered by Paris, Texas; Tulsa, Okla.; Nashville, Tenn.; and Augusta, Ga. Combustible roofings simply fed the flames.

Use Keystone Copper Steel terne plates for good tin roofs. Grades 8 to 40 pounds coating—stamped “Keystone Copper Steel” as indicated by the MF brand. Our *Apollo*-Keystone Copper Steel Galvanized Sheets are unequalled for exposed sheet metal work.

American Sheet and Tin Plate Company

GENERAL OFFICES: Frick Building, PITTSBURGH, PA.

DISTRICT SALES OFFICES:

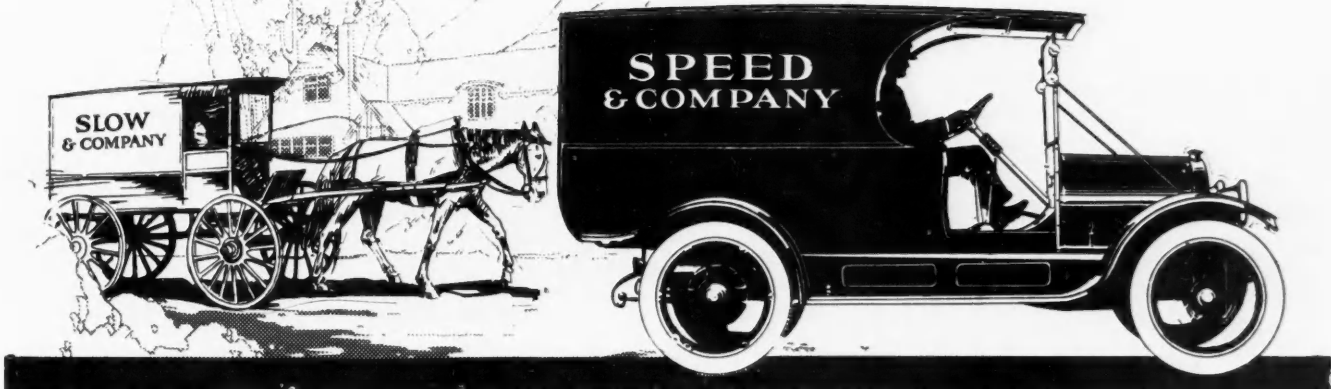
Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis
Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City
Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle

Overland
TRADE MARK REG.

Delivery Cars

\$ 695

Model 83 B f.o.b. Toledo



Which Are You?

Service is success.

Your competitor, Slow & Company, can buy and sell the same merchandise.

You must beat him on service.

Trade now-a-days goes to Speed & Company.

Are you equipped for speed?

An Overland Delivery Car will enable you to go faster, farther, for a better, bigger business.

Nothing else at anywhere near the price is so efficient—or does you so much credit.

The Overland Delivery Car has the style, power, snap and speed.

It comes complete, electric starter and all—the best known, best rated car of its kind at anywhere near the price.

Speed up your business.

The Overland dealer in your town will help you.

Write us for catalog and full information. Please address Dept. 734

The Willys-Overland Company, Toledo, Ohio

"Made in U. S. A."

approximately ten pounds of hydrated lime, so that accurate measurements may be made.

These are all demonstrated actions of hydrated lime and should excite the attention of everyone doing concrete work to the possibilities which hydrated lime offers.



Importance of Good Crating

The Kohler Co., Kohler, Wis., manufacturers of enameled plumbing ware, have hit upon a clever idea which is being turned to the benefit of plumbers and dealers who handle these products. The Kohler people have given considerable study to the crating of bath tubs, lavatories, and sinks, and by exercising special care they are able to make crates that can be stored easily and without a waste of space.

They have devised a special crate for each piece of ware; a crate that is exactly adapted to it; one that will save space and weight, and is economical in every respect. This becomes an important matter where rents are high and room, either in warehouses or plumbing establishments, is scarce.

Another feature that makes Kohler packing of advantage to the dealer is the protection which it gives to the product. The crates are strong yet comparatively light in weight, while adequate padding is an additional safeguard against damage. Nothing short of a train wreck is likely to prevent the ware from being in perfect condition when it reaches its destination.

Even the small ware, such as sinks, sink backs and drainboards are packed in individual crates which are bundled together when shipment is made in lots. This allows the dealer to re-ship a single piece without the inconvenience or cost of re-crating, while it does not demand an increase in storage space.

Architects specify Kohler ware and builders purchase it

because of its beauty and general excellence, but, aside from that, such attention to details as has been mentioned is important to the dealer and the plumber, and provides an actual saving for them in dollars and cents.



Hydrated Lime Plaster

The use of hydrated lime plaster for scratch and brown coats is gradually growing in favor with architects and builders. Up to 15 or 20 years ago, it will be recalled by some of the older contractors, that when any interior plastering was to be done, it was always done with lump lime, sand and hair. In those days it was necessary to slake the lime after it was delivered on the job. This operation of slaking often required several days to complete, and was looked upon as being inconvenient.

Hydrated lime plaster has, however, been in the market for several years past. It gives all the advantages in finished walls of old fashioned lump lime, but eliminates all the inconvenience, for hydrated lime is delivered on the job slaked all ready for the addition of sand and can be mixed and applied with the same convenience as other plaster in the market today.

One other big point in favor of hydrated lime plaster is that it is a nonconductor of sound. Acoustical experts are agreed that old fashioned lime plaster and lath was the best nonconductor of sound, and as hydrated lime plaster gives the same good results that were formerly accomplished with lump lime, architects and builders are quick to grasp the value of this material for residences, churches, school buildings, hospitals, and all other buildings where quiet conditions are desirable or good acoustics are essential.

The advantages to be gained by the use of this material warrant the consideration of all builders.

IT GETS TO YOUR JOB QUICKLY

PAINTERS, decorators, carpenters and roofers all over the country save time and worry in getting men, ladders, material, etc., on the job quickly with this new KisselKar "Tonner." They find it the most practical truck for this purpose on the market.

It is used by general building contractors who are continually rushing special workmen, tools, etc., from one special job to another.

The larger sized KisselKar Trucks are proving most practical for heavy haulage work, such as cement, stone, sand, lumber and mill work. If desired special devices for quick dumping are built.

Every KisselKar Truck is backed by Kissel reputation with the matchless Kissel-built motor, perfected worm-drive rear axle and sturdy chassis insuring dependability and durability.

*Write for direct information on your problems.
See our local representative or address*

KISSEL MOTOR CAR CO., 546 Kissel Avenue, Hartford, Wis.

Branches, Display Rooms and Service Stations in all Principal Cities and Towns

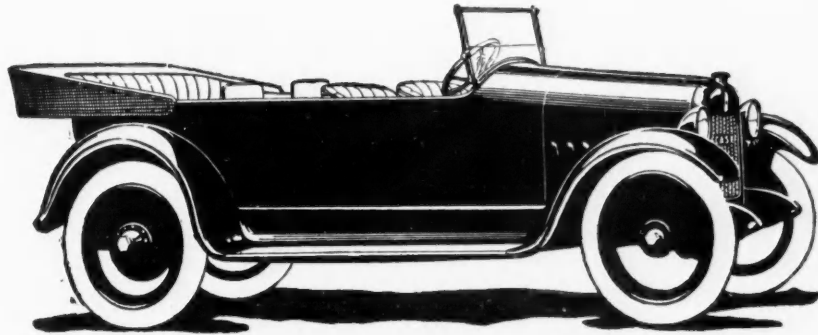
KISSELKAR TRUCKS



**New KisselKar Worm Drive Truck
"Built to Carry a Ton"**

Four new sizes... Chassis prices \$950 to \$2850

The New Case 40—\$1190



From Generation to Generation

Since 1842 Case manufacturing principles have followed the *uncompromising* standards of excellence outlined by the *founder* of this company, Jerome I. Case.

During these years buyers throughout the world have been made happy by the *excellence* of Case products—from the *simplest* to those which solve the *more difficult* problems of power.

From grandfather to father to son has passed the word that the honored name of Case is a *guarantee* of satisfaction, excellence in design, sincerity in manufacture and straightforwardness in sales, which have been the *foundation* of Case success.

The new Case 40 commands the strict attention of *thinking* buyers, who want thorough excellence at a *moderate* price. We are firmly convinced that we offer you unusual quality in the new Case 40.

You *cannot* duplicate this car at this price. Remember, this car has 120-inch wheelbase, 7-passenger, all-steel body with removable upholstery, waterproof, flexible conduits for all electrical wiring, etc., etc.

Before deciding on which car appeals to you most, it would be a good move on your part really to know the new Case 40, *not* merely by sight, but *mechanically*. May we send you illustrated description by mail?



The Sign of
Mechanical
Excellence
the World Over

J. I. Case T. M. Company, Inc.

784 Liberty Street

Racine, Wisconsin



The Sign of
Mechanical
Excellence
the World Over

Build Your Barns The Louden Way



**Wm. Louden
Barn Expert**

When you figure on a barn building contract, you can secure a decided "lead" on your competitors by approaching your prospect with A DEFINITE PLAN for his barn. You not only give him valuable information, but impress him with your ability and desire to render complete service.

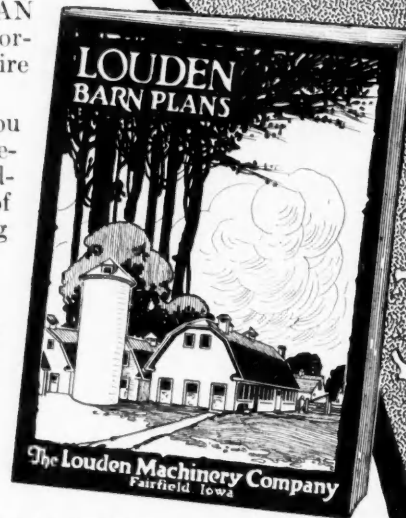
Complete building plans are valuable both to you and to your patron. They prevent waste of material, time, and labor. They prevent misunderstandings between builder and owner. They help to adjust loss in case of fire. They enable you to bid low on a contract without sacrificing your legitimate profit.

The Louden Barn Plan Service

is the kind of service you want to be able to pass on to your patrons. It is the kind of service that lands contracts.

It is complete in every detail, from the preparation of preliminary sketches and suggestions—a valuable service which costs you nothing—to the preparation of complete working plans and material specifications, a service which costs you a fee so modest you can't afford to build without it.

William Louden, whose fifty years of practical barn construction experience has made him the leading authority on all barn problems, has associated with him the most efficient corps of exclusively barn architects in America. The services of the Louden Architectural Department are at your disposal. Write us about your plans and your needs.



Write for Our Valuable Book of Practical Plans

"Louden Barn Plans" (112 pages) contains 74 representative plans for barns, hog houses, and other farm buildings, with full description and estimated cost of each. It treats in a clear, understandable manner the subjects of grading, drainage, concrete work, framing, strength of materials, lighting, ventilating—every problem, in fact, that confronts the barn builder. If you build barns we will gladly mail you a copy of Loudon Barn Plans free. To others the price is \$1.00. Write for your copy today. Don't wait until you're ready to use it.

When You Specify Equipment

remember that the equipment of the barn is just as important to the owner as its construction. You can't afford to recommend anything but the best.

Louden Barn Equipment is standard everywhere, and will give your patron long, satisfactory service. It will pay for itself again and again during the life of his barn.

Ask for our big illustrated catalog showing the complete line. It will be mailed you promptly, postpaid.

The Louden Machinery Company

5506 Court St.
FAIRFIELD,
IOWA

Established
1867

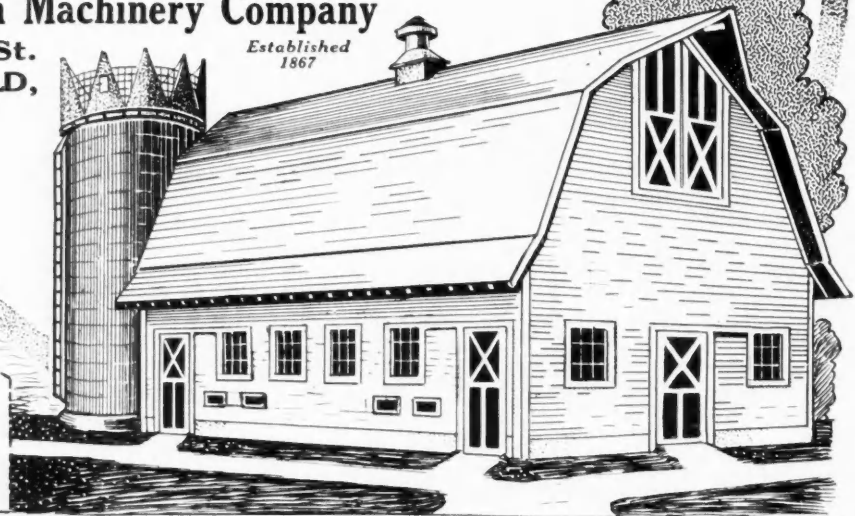
The Louden Machinery Co.,
5506 Court St.,
Fairfield, Iowa.

Please send me free of charge the books I have checked below:

- Louden Barn Plans
- Barn Equipment Catalog

Name

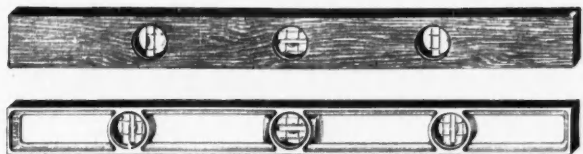
Address



New Sand's Aluminum Level

As the result of five years' experience in making aluminum levels, J. Sand & Sons, of Detroit, Mich., have placed on the market a new carpenter's level which, they believe, expresses their highest result in aluminum level manufacture. This new level, No. 28, is a very neat, narrow and durable level which will work in any position. It contains the six-glass feature, which was originated by this company, and is 28 inches long, 2 1/4 inches wide and weighs 2 3/4 pounds.

The spirit glasses used have a slight crown, a quick acting bubble, and are very accurate. They are set in such a manner as to give the least amount of trouble and the greatest saving in time. The wire bands on the glasses, one at each end of the bubble, define the exact center and facilitate reading



Two Popular Styles of Sand's Levels.

of the bubble even at a considerable distance. A heavy plate glass protects the spirit glasses from breakage and also makes these important parts dust, dirt and waterproof. Aluminum levels cannot warp, split or crack like the ordinary wood levels and they are light and yet strong and durable. All unnecessary weight is left out of the Sand's aluminum level and at the same time the open spaces in the frame make it much easier to handle and less easy to drop.

This company is also bringing out a line of black walnut levels which is intended to meet the demand for a type of level which will stand hard service and yield accurate results. These levels will plumb with any end up or level

with either edge up. They are excellent for every-day service of the hardest kind.

The complete list of levels manufactured by this company includes one for every purpose and they are all backed by the experience of a firm which was established in 1895. Full information concerning any of the wood or aluminum levels for either carpenters or masons may be obtained by addressing this firm.



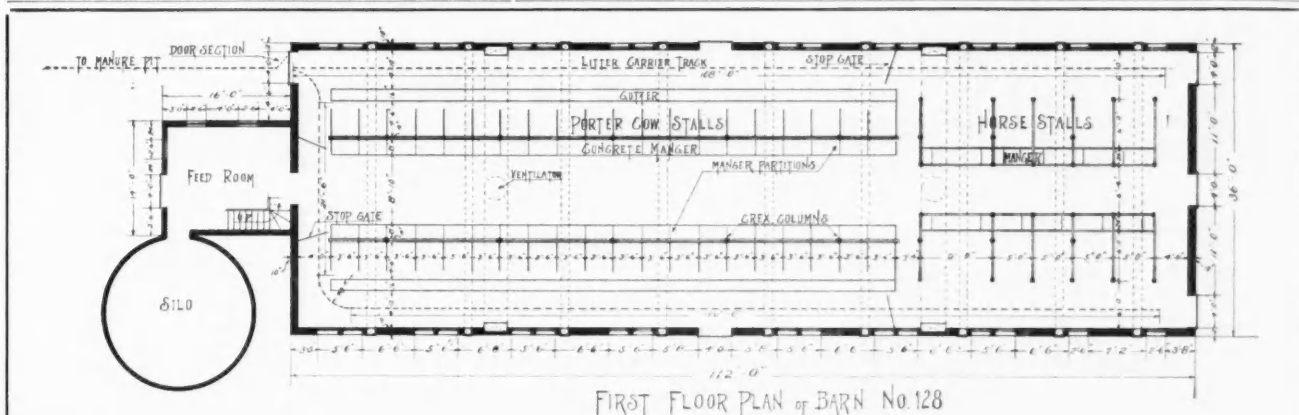
Have You Analyzed Your Haulage Costs?

Perhaps the last thing which the ordinary contractor or builder gives his undivided attention to is his haulage cost. He will have "Jim" haul a load of equipment over to the job—"Jim" is an old friend and never charges very much—and then he will send a man back to get that small set of saws that "Jim" didn't see standing on the porch steps. That man's time is costing "the boss" money. Maybe he frets a little at the delay; but it is seldom that he thinks of the cost.

Things are done in a hurry now days, and the little delays may amount to a great deal when they are summed up over a period of a week or a month. The contractor who first found that an automobile would help him eliminate lost time by furnishing a means of rapidly carrying light equipment and a few men to the job was making his first step a big one. Nearly every contractor or builder who has made any progress in his haulage cost analysis has now added an automobile to his equipment. But his analysis should not let him stop here. In order to make his automobile pay the maximum return from the money invested, it must be equipped to haul its maximum load.

From the service standpoint this maximum load is not the greatest possible load which may be safely carried on the frame of the car, but it is the maximum possible load which

(Continued to page 114.)



PRACTICAL BARNNS

We offer free co-operative service to all contractors and carpenters engaged in building or remodeling barns. A planning department which has specialized in modern barns and their equipment is ready to furnish detailed information to interested parties. Use the coupon today.

NO EXPENSE NO OBLIGATION

Ask for the new Barn Equipment Catalogue No. 62 just off the press. Mailed promptly upon receipt of the names of those who will remodel or build barns. BARN EQUIPMENT—HAYING TOOLS—DOOR HANGERS.

J. E. PORTER CO.

620 Fremont Street

Ottawa, Illinois

J. E. PORTER CO.
620 Fremont St., Ottawa, Ill.
I attach herewith the names of parties who will build or remodel barns. Send catalogue with barn plan booklet and complete detailed information.
Name.....
City..... State.....



Hanneman Bros., Detroit, Mich., Contractors, Hitched a Miami Trailer to their Ford Car and Hauled a Crew of 15 Men, Night and Morning, to this Grandstand Job 20 Miles Distant.

the motor will pull with the traction furnished by the friction of the rear wheels upon the average road traveled. It is safe to say that this load is far greater than that which can safely be placed on the frame of any car. It is necessary to provide, then, an additional capacity for loading the motor without endangering the frame of the car. The answer is, of course, a trailer. However, this is not the complete answer,

for a lumber wagon tied to the rear axle housing with a log chain will not do.

There are certain fundamental prerequisites which a trailer suitable for use by the contractor or builder must have. Among these, the motor and transmission of the car must be protected from excessive jerking; advantage of the spring sus-

(Continued to page 116.)

Ransome's Bantam Mixer

Designed to Meet a Long-Felt Want

"Well Mixed Concrete For Permanence" Ransome for Better Mixing

A light, easily portable mixer which has a sufficiently large capacity to take a **one-bag batch** of any of the standard mixes **without bag splitting**. And the price is very moderate. Look over these specifications, and then write for our new catalog.

Ransome Bantam Mixer Specifications

Capacity	One bag batch up to 1-3-6
Engine	Hopper Cooled, Vertical or Horizontal Type
Horsepower of Engine	3
Height of Feed Platform	27 in.
Weight Without Runways or Platform	2,275 lbs.
Weight With Platform and Runways	2,700 lbs.
Height of Discharge	26 in.
Thickness of Drum Shell	No. 10 Gauge
Thickness of Mixing Blades	No. 10 Gauge
Wheels	20 by 3 in.
Rollers	Self-Oiling



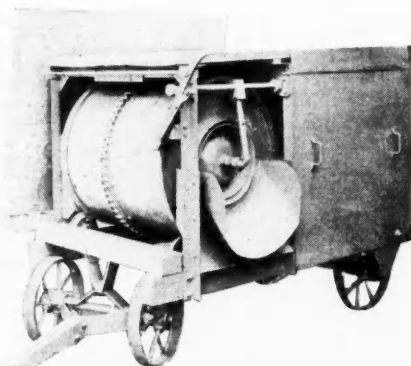
The Ransome Sudden Service is being maintained throughout the country in the delivery of our Bantam Mixers.

RANSOME CONCRETE MACHINERY CO.

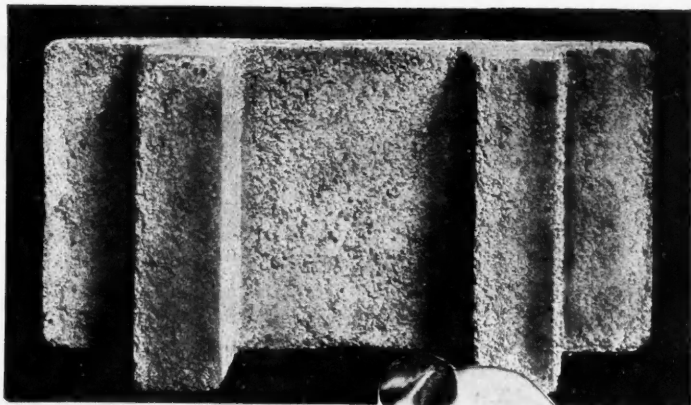
Factory Dunellen, N. J.

115 Broadway

New York City

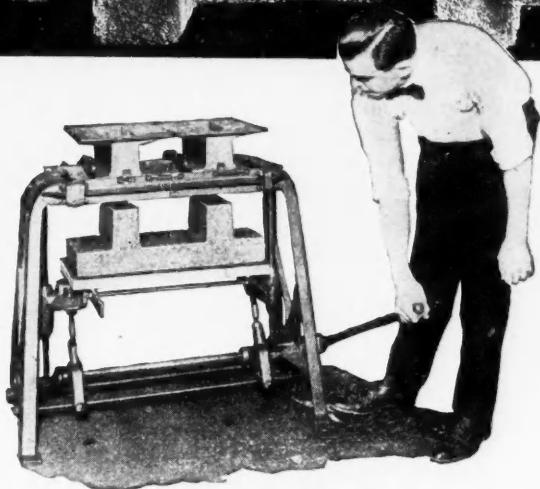


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**New Building Method
offers
Big Opportunity for One
Man in Every Town**

One man and *just* one in every community can secure the rights to build "Synstone" buildings. We furnish all machinery and instruments and give every assistance to each licensee of the



THE SYNSTONE MACHINE makes 2 square feet of wall per minute—one man and helper—aggregate mixed. The wet block releases instantly immediately after hand tamping is completed.

**FERGUSON
SYNSTONE
(SYNTHETIC STONE)
SYSTEM**

It is confidently predicted by leading builders, that Synstone Blocks are going to supersede all other forms of cement construction.

Uses wet concrete from which water flushes freely when tamped. Aggregate graded to 1 inch in size. The Synstone Blocks are hand tamped. No pressure is necessary. Blocks are solid pieces

of indestructible stone. Waterproof, damp-proof, fireproof.

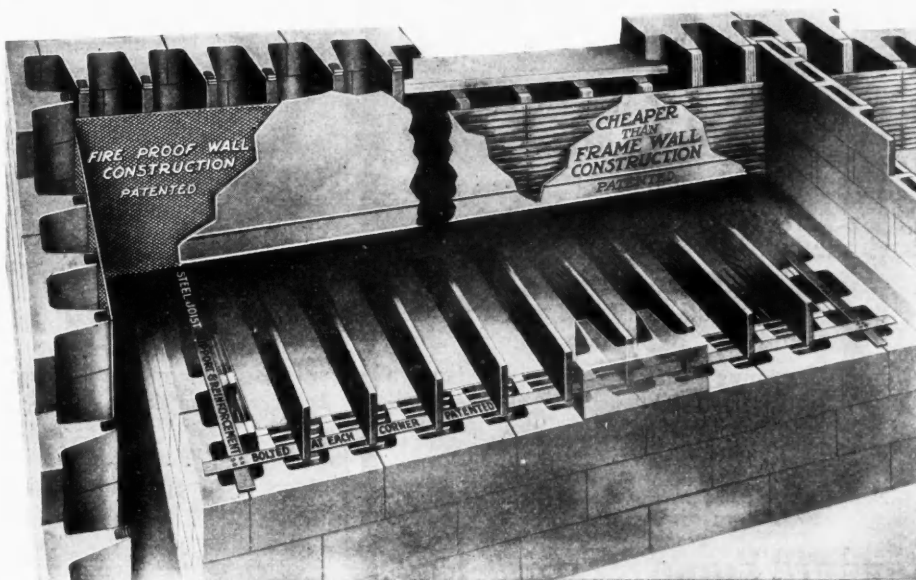
They are cheaper to make than the ordinary cement block. They don't even cost any more than frame construction. And think of the immense difference in **appearance, strength and durability**. Without lost time or extra handling, Synstone blocks can be faced with beautiful granite marble, sandstone, stucco, etc.

The walls are tornado and earthquake proof—impervious to water or moisture and absolutely fireproof.

Now, look at the cost of making a Synstone block compared with the making of a one-piece cement block.

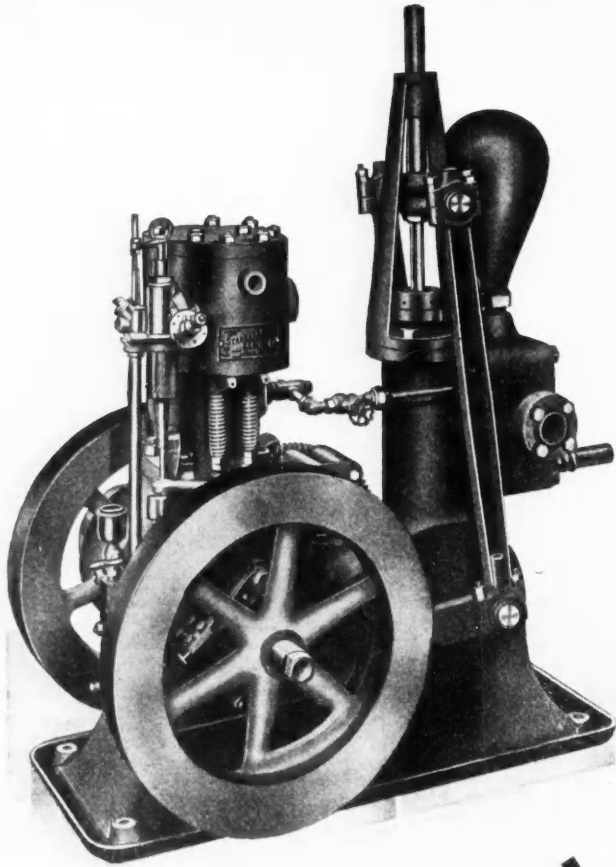
The average cost of a square foot of a wall made with hollow cement block, including cement, sand, gravel, and labor is 8.1 cents, of a Synstone wall 5.3 cents per square foot—a percentage of 57.5 in favor of Synstone.

If you are interested at all, write us today for our Synstone Book, and our proposition. See how this wonderful system will benefit you and your locality. We shall be glad to go into all details, but we want one man in your town quickly.



**The
Ferguson
Synstone
Co.**

Old Colony Bldg.
Chicago, Ill.



YOU Get Them at the SPENDING MINUTE

When a man is building or remodeling a house a few dollars more makes little difference. He's thinking in big sums. After the house is built it's twice as hard to get him to put in an extra.

You are in touch with customers when they are building and ready to spend. This makes you a logical man to sell

Standard Pumping Units

They make farm and small town homes modern. Running water in house and barn. Electric lights if wanted.

All parts standardized and easy to install. You don't have to be an expert engineer to put in the Standard and take down your profit.

Standard Pumping Units are specified by architects of experience because they are economical, durable and dependable. We help you with an effective advertising campaign.

Write for Catalog and Details of Our Proposition

Standard Pump & Engine Co.

745 Carroll Street, Akron, Ohio

pension of the car body should be taken if possible; construction of the trailer should follow the dictates of automobile construction experience, and the trailer should be so constructed that it will always track with the automobile. Its capacity will depend upon the exact use to which it is to be placed, but it should be capable of carrying a load at least as great as the car itself can handle.

The Ford in the photograph (page 114) is itself pretty well loaded, but it hauls an unbelievable trailer load beside. Take another look at the photograph and then read this letter:

The Miami Trailer Co. July 14, 1916.

Gentlemen: While building a concrete grandstand near your town we were in need of some kind of a light trailer, which could be pulled by a Ford, also carry about ten men a distance of twenty miles, also do draying on a small scale. The only thing we could find for that purpose was your Model No. 2 Trailer. We have been using this now going on to five months, and have our first dollar to spend for repairs. It has given us very good service and we do not hesitate to recommend this trailer to anybody in need of a light trailer that will carry about 1,200 pounds. We at times have hauled 2,000 pounds without any trouble.

Very truly yours,

Hanneman Brothers, Detroit, Mich.

Hanneman Brothers found that an added capacity of 1,250 pounds would solve their haulage problem, and that the Miami trailer would meet their needs. Since making their decision experience has proved that their judgment was correct. Many contractors and builders could duplicate the experience of Hanneman Brothers if they would take time to let a haulage cost analysis prove to them that something should be done.

One of the best ways to solve the problem is to place the proposition before those who devote their entire time to the solution of just such problems. The Miami Trailer Company of Troy, Miami County, Ohio, is a company devoting their entire time to the construction of trailers and the solution of haulage problems. They will furnish a thoro analysis of your haulage problem and if their trailers do not fit into your case they will tell you so.

There are both two-wheel and four-wheel models to choose from in the Miami line of trailers, with capacities varying from 800 to 2,500 pounds. All fully meet the prerequisites which have been mentioned as necessary for the trailer of the contractor or builder. A special feature which needs comment is the shock-absorbing drawbar. The designers of the Miami trailers were especially impressed with the necessity of protecting the automobile from all shocks and vibrations, and this shock-absorbing drawbar has been produced as the result. On this bar the pull is thru a spring 9 inches long operating against a bumper spring 5 inches long. These springs compress under 35 pounds pressure. As an additional precaution, the connection was so designed that the bar is attached to the chassis of the machine, thus utilizing the resiliency of the spring-suspended frame. The connection consists of a ball and semi-socket with a leather bushing which fastens by drawing a lever over an eccentric or anti-rattler spring which not only gives a very quick and convenient connection, but also eliminates all noise as well. All models except the smallest are fitted with Timken roller bearings, a feature which all readers will appreciate. The trailers are simple in construction with nothing to get out of order.

Readers of the AMERICAN CARPENTER AND BUILDER who have not found a satisfactory solution of their haulage problem should take advantage of the experience of the Miami Trailer Company and ask for their suggestions in regard to the matter.

NOVO

and **ENGINES and OUTFITS**

The Standardized Power

Why wait till you're cornered to be converted to Novo Power?

Suppose you go on hoisting by steam, pumping by hand and running compressors by some other method. How are you going to compete with the contractor who uses just one power—when that power is the cheapest, handiest and most reliable power possible?

Remember, too, that this Novo Power contractor has the advantages that come with Standardized Power.

One man can keep all the Novo outfits on a job running. City regulations on boilers do not trouble him. A crew of high priced operators is not necessary. There is the advantage, too, of Novo Quick Service, should anything go wrong.

Here you see a Novo Air Compressor operating a riveting hammer; Novo Trench-Pump taking muddy water from the excavation; Novo D H Double Drum Hoist taking care of all hoisting requirements on this job; Novo Saw Rig saving much time and labor, and Novo operating a concrete mixer. Here is Standardized Power and greater profits.

Sooner or later you're going to come to Novo Power. Concrete mixer manufacturers did long ago. Now eight out of every ten mixer manufacturers have adopted Novo Power. No other power could successfully compete with Novo on these racking machines.

Only your prejudice keeps you from doing *all* your work with Novo Power. There are over 75 Novo Outfits—hoists, pumps, air compressors, saw rigs—all easily portable—all ready for delivery.

If you care to know more about them and what they can do for you, write for our book, "Reliable Power." Our Engineering Department will gladly answer any power problem you send us, without charge.

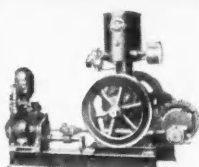


Fig. 14139—Novo High Pressure Type "U" Pumping Outfit

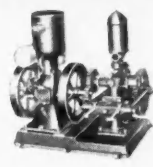


Fig. 268—Novo Suction and Force Pumping Outfit

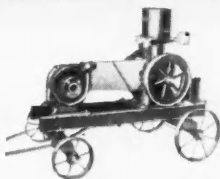


Fig. 265—Novo Chain Drive Centrifugal Pumping Outfit

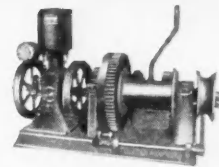


Fig. 1447—Novo Single Drum Type "T" Hoisting Outfit—3-15 H. P.

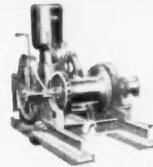


Fig. 193—Novo D H Single Drum Hoist

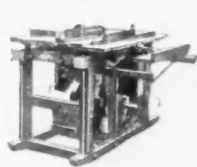


Fig. 134—Novo Portable Saw Rig

NOVO ENGINE CO.
 Clarence E. Bement, Sec. & Gen. Mgr.

440 Willow Street, Lansing, Mich.
 CHICAGO OFFICE: Lytton Building
 MINNEAPOLIS OFFICE: 517-519 North Third Street

Novo Engines are furnished to operate on gasoline, kerosene, alcohol or distillate



20 Extraordinary Features
of the One Register Pipeless
Sanit-Air System

It is the only genuine sanitary heating system on the market that effectively combines **heating** power and **ventilation**.

Its air washing feature guarantees perfect freedom from smoke, dust and dirt in the building.

Pure air, properly moistened is quickly circulated through one powerful register, requiring no repairing for installation.

Its location in the cellar (only 4 square feet) allows the full space of every room for living or other purposes.

It warms buildings in one-tenth the time required by steam or hot water.

Overcomes all common objections to furnaces.

Occupies small space, and saves basement for storage.

Requires no hot air pipes, or cold air ducts.

Wastes no heat in the cellar.

It is the one system that produces more heat and distributes it just where you want it—with a distinct saving of one-half the fuel expense over any other method.

With our card of complete instructions for installing this system, one man can put it in place, ready for operation, in one day.

And it is fully guaranteed by our **Standard Bond** to be more efficient and economical than any other system.

Send in the coupon below for our special offer; our free plans; and our specifications.

**STANDARD
SCHOOL
HEATER
COMPANY
CHICAGO**



Standard School Heater Co.,
Chicago.
Kindly send me your free plans,
specifications, and special offer.

Name

Address

"The Ceresit Waterproofer"

In the August issue of the little house organ bearing the above title are some very interesting photographic illustrations showing scenes from the beautiful Japanese gardens surrounding the home of T. C. Brown, Emerson Hill, Staten Island. The beauty of many pools surrounded by thick natural growth and many rocks, ravines and artistic little bridges is aptly pictured in this pamphlet.

The use of Ceresit waterproofing in such beautiful constructive work as this gives a new impression of the many uses to which waterproofing material may be put. Its field is not alone in the walls and floors of buildings nor in those of tanks and reservoirs, but it also has a place in the adaptation of Nature's beauty to the desires of mankind.

In addition to the illustrations already mentioned several notable examples of the more common uses of waterproofing materials are pictured. Closely allied with the purely waterproofing material is Indurite, which is used to prolong the life of concrete floors by transforming the floor surface into a flint-like film which will not dust and is waterproof and oil-proof. The dust nuisance is eliminated by the use of Dustite, which is easily mopped and brushed over the concrete floor, the operation resulting in the formation of a non-dusting surface which does not stain and is not affected by scrubbing. These two of the eight products of the Ceresit Waterproofing Company are described in the pamphlet and an offer is made which helps the user of either of these preparations to prove to his own satisfaction that he will be benefited by their use before he need invest in a large quantity of the material.

Readers will find this August issue of "The Ceresit Waterproofer" very interesting. A copy may be obtained from the Ceresit Waterproofing Company, 910 Westminster Building, Chicago, Ill.

A Low Cost Concrete Mixer

The illustration shows a Frank concrete mixer mounted on trucks with the gasoline engine placed in a sheet metal housing. This outfit solves the problem of a contractor or builder who is looking for a mixer which will handle a fairly large quantity of material in a satisfactory manner with a low initial and upkeep cost.

The quality of simplicity has been carried to a high degree in the design of a mixer which has few parts to wear out and which has all of its parts so easily accessible that good care may be taken of the machine without any difficulty. In the main, this mixer consists of a mixing drum 13 inches high and 3 feet in diameter which has mounted in a vertical housing at its center a shovel shaft 1½ inches in diameter. At

(Continued to page 120.)



Frank Mixer Mounted on Trucks.

Your Chance for Winter Work

and an opportunity to make money during the dull winter months. Sell and install the Majestic one Register Duplex Heating System, with the patented projecting register.

This projecting register is the reason for the Majestic success. It's a big talking point and gets the business. But only on the Majestic can it be secured.

Majestic Heating System

The projecting register does away with every disadvantage of the floor level register and affords many varieties for placement. It can be set at the side of the wall and opening into two rooms, and the heat diffused evenly or otherwise. Or it can be placed between two rooms in the base of the colonnades. Built-in bookcases can be placed directly on top of the register.

Or an extra pipe or two can be run to any out-of-the-way, hard-to-heat-rooms without interfering or affecting the direct central heat flue. (See Illustration.)

The Majestic may be installed in any size cellar and is as easy to erect as a stove. It does not matter if the entire basement is excavated or not. Just a small part of the cellar space is needed.

We are furnace specialists and build one of the best lines of standard type in America. The popular Majestic Down Draft Furnace is famous the country over and is in use in thousands of homes. So when you sell the Majestic you are selling a furnace that gives universal satisfaction. Be the one in your community to show the Majestic and get all the "pipeless business."

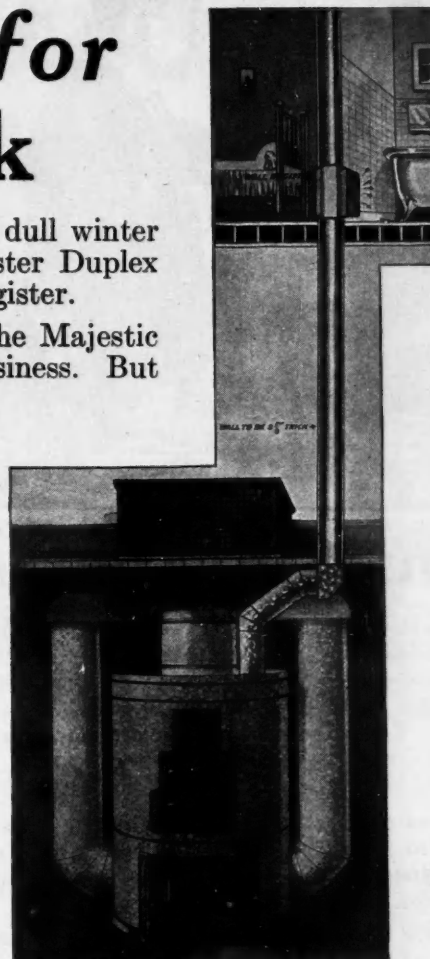
SEND FOR MAJESTIC CATALOG

Investigate the Majestic Heating System as a possibility for winter profits. It represents the first really practical pipeless furnace that you can profitably sell. Get the whole story in our catalog.

THE MAJESTIC CO., 610 Erie St., Huntington, Ind.



Manufacturers of Coal Chutes, Garbage Receivers, Milk and Package Receivers, all-metal Basement Windows, Rubbish Burners, Street and Park Refuse Cans, Metal Plant Boxes, Pipe and Pipeless Warm Air Furnaces, etc.



Showing how an extra pipe may be used with the Majestic Duplex Heating System, to heat some out-of-the-way room.



"You Get The Job"

"We've been watching you, young man. We know you're made of the stuff that wins. The man that cares enough about his future to study an I. C. S. course in his spare time is the kind we want in this firm's responsible positions. You're getting your promotion on what you *know*, and I wish we had more like you."

The boss can't take chances. When he has a responsible job to fill he picks a man *trained to hold it*. He's watching *you* now, hoping you'll be ready when the opportunity comes.

The thing for you to do is to start today and train yourself to do some one thing better than others. You can do it in spare time through the International Correspondence Schools. Over 5000 men reported advancement last year as a result of their I. C. S. training.

The first step these men took was to mark and mail this coupon. Make your start the same way—and make it right now.

I. C. S., Box 8134, Scranton, Pa.

INTERNATIONAL CORRESPONDENCE SCHOOLS

Box 8134, 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"/> 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 |
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| <input type="checkbox"/> Foreman Plumber | <input type="checkbox"/> SALESMANSHIP |
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| | <input type="checkbox"/> German |
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WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

the upper end of this shovel shaft is mounted a shovel arm which carries a blade at each end. In operation these blades are forced to turn about the shovel shaft, one shoveling the material away from the shaft and the other shoveling toward it. The concrete is thus thoroly mixed.

In loading the mixer, the blades may be brought to rest without stopping the engine by means of a friction clutch. The concrete is discharged by turning a door in the bottom of the drum. This door is circular on its outside edge and the shaft which opens the door is mounted at the center of the circle. Any amount of concrete may be taken out at a given time by properly adjusting the opening. The wheelbarrow may be run under the end of the frame of the truck and the concrete is then discharged directly into it without the use of a chute.

Since all of the working parts are in plain sight and the entire drum is open on top, it is easy to determine the exact condition of the concrete being mixed at any time. This open feature also furnishes an opportunity to keep the machine in the best of condition at all times. Mounted on the solid truck, it is a very easy matter to move the equipment from place to place. These features indicate the ease with which work may be handled with this outfit.

Complete information may be obtained from the Frank Manufacturing Company, 241 Century Building, Des Moines, Iowa.



The Jaeger Big-an-Little Concrete Mixer

The concrete mixer which is to yield the greatest satisfaction to the average contractor or builder is the one which will stand the hard knocks of every day usage with the smallest outlay of time and money for repairs. The machine which will yield this service must be built like a battleship and designed with a great deal of care. Simple, solid construction is absolutely essential to satisfactory operation. Careful protection of all wearing surfaces is necessitated by the nature of the work which the mixer must perform. If we speak purely from the average contractor's standpoint, the size of the ideal mixer will be such that a daily output of about 75 cubic yards of well-mixed concrete is possible. A mixer larger than this will necessitate needless expense on the smaller jobs, and one smaller than this will be crowded to keep up on a job of average size. An occasional large job can often be handled in the most economical manner by the use of two average size mixers rather than by one large mixer. The final expense is a minimum when the two smaller mixers keep right on earning the contractor his profits from smaller jobs after the large one is finished.

The Jaeger Machine Company, 318 W. Rich Street, Columbus, Ohio, have, for some time, been building an average size concrete mixer which they call the Jaeger Big-an-Little concrete mixer. This machine is very carefully designed to stand the hardest possible usage and in addition it has built into its few sturdy members a great many features which the average contractor will find greatly to his liking.

The drum is of the single cone tilting type. This type of drum is not only particularly suited to thoro and rapid mixing, but it also makes possible several other features which are important to the user of concrete mixers. The drum rests on the yoke and revolves around an axis which is held at an angle by the yoke. Heavy bearing legs support the yoke at each end. Power to rotate the drum is taken from the drive pinion, which has its bearing in the center of one end of the yoke. The drum may be discharged while turning. Rapid discharge is possible on account of the extra wide mouth of the drum, and thoro discharge is assured since the concrete is poured out in the same manner in which water is poured from

(Continued to page 122.)

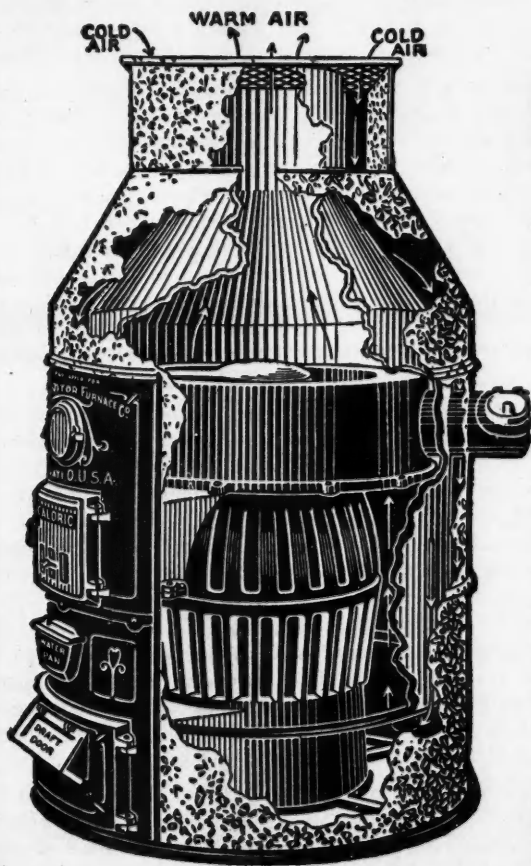
Extra Profit on Every Job

Get This Money---It Belongs to YOU

You say furnaces are not in your line. Anything is in your line that turns an honest penny, sir!

You can include the Caloric Pipeless Furnace in your contract easily because it's so different from ordinary furnaces. No cutting holes through different floors, no estimating of pipes or registers.

It's practically as easily to install as a stove. Yet you get a selling commission the same as you would on a furnace full of pipes and fixings. The



PIPELESS
TRADE MARK CALORIC TRADE MARK
FURNACE

The Original Patented Pipeless Furnace

heats an entire house comfortably with just one register and is guaranteed to save 35% of fuel. The firepot is guaranteed for five years. Burns coal, coke or wood.

The heat goes up instead of spreading through the cellar. It will not spoil produce.

The Caloric Pipeless Furnace heats any size dwellings, schools, churches and stores.

Our Engineering Department gives you complete instructions for correct installation and you install this furnace under our guarantee of perfect satisfaction.

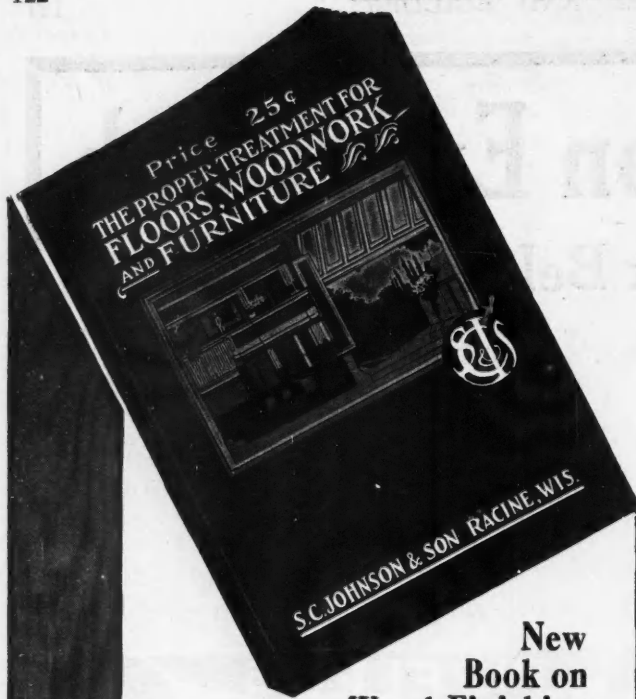
Here's a proposition you can't profitably turn down. It means money for you and satisfaction for your customers. The furnace is just

as much a part of the house as the floors or roof. The profit is honestly yours. Take it.

Write for Full Details of Our Proposition

Let us tell you about our advertising and our plans for helping you sell the Caloric Pipeless Furnace. We're back of you every minute and help make sales easy. Write us for complete information now. Your name on a post card brings opportunity

THE MONITOR STOVE & RANGE CO.
 4318 Gest Street - - - Cincinnati, Ohio



New Book on Wood Finishing

EVERY architect, contractor and builder is entitled to one of these new books free for the asking. It is a valuable handbook on interior finishing, beautifully illustrated in nine colors.

It tells how to finish inexpensive soft woods as beautifully as hardwoods and gives complete specifications for finishing woodwork and floors with

Johnson's Wood Dye

These dyes are not pore-filling varnish stains but coloring matter that penetrates deeply into the wood without raising the grain.

Johnson's Prepared Wax

is the most extraordinary polish for interior woodwork and floors. It gives a hard, dry, glass-like surface that does not collect dust.

If you are not familiar with Johnson's Wood Dyes and Prepared Wax we shall be glad to send you samples for experimental work or finished wood panels showing the various shades of Johnson's Wood Dye.

A.C.B.-9

Please send me free and postpaid my copy of your new 25c Instruction Book, "The Proper Treatment for Floors, Woodwork and Furniture."

Name _____

Address _____

City and State _____

Fill out this coupon and mail to

S. C. JOHNSON & SON
"The Wood Finishing Authorities"

RACINE WISCONSIN

a pail. This method tends to keep the interior of the drum clean. The engine furnished with this machine is made by the manufacturers of the mixer, and is protected by a sheet metal housing with doors to make all parts readily accessible. The mounting is strong and rigid in compliance with the scheme of design which prevails thruout.

The Big-an-Little mixer is fitted with an exceptionally well-designed loader for those who want it, and other useful and time-saving features have been perfected for use with this machine.

The Jaeger line of concrete mixers also includes a larger and a smaller machine, both following the general design of the Big-an-Little. Full information in regard to any or all of these concrete mixers may be obtained from the manufacturers.



Get Acquainted with "Almetal" Store Fronts

After working with the architects and contractors thruout the country for the past 27 years in the building of store fronts the Detroit Show Case Co., makers of the "Almetal" Store Front construction, are thoroly convinced that their latest achievement is bound to show a great increase in use during the next few months.

In talking with a representative of this company, he said: "In all the years we have manufactured store front construction, always have we aimed to so design our product that the ordinary carpenter, without previous experience, can install it with assurance of safety to glass, attractive appearance and permanence. We have always guided ourselves in this respect, knowing that in thousands of instances it is necessary for inexperienced carpenters to install the store front construction, and almost always it is under such conditions that safety to glass is of greatest importance, because distance from glass-shipping sources is generally great and replacements always cause great delays and expense.

"We are thoroly convinced that 'Almetal' construction is meeting with a common demand. This has been proved by its ready acceptance. It is the latest achievement of our designers, and because of the fact it is simple and built around the old, time-tried wood-top method, contractors are enthusiastic about it. Glass set in 'Almetal' sash rests against creosote-dipped blocks and is held in place by a resilient metal face piece which, along with the wood blocks, 'gives' and 'takes' for the glass expansion and contraction. This basic feature of 'Almetal' sash is not new—simply an old method made modern. This particular method of setting glass has actually been in use for generations; first, because of its safety, second, because of its simplicity of installation, and third, because of its comparatively low cost.

"'Almetal' corner and division bars are alike simple in construction, sturdy, comparatively small in size, yet grip the glass with a firm, resilient hold that along with the sash offers a 'give' and 'take' for glass expansion and contraction. The 'Almetal' bars are of the two-piece construction, which very much simplifies their handling on the job."

Continuing, the Detroit Show Case Co. representative said, "Each of our 27 years has shown a substantial growth, and with our excellent production facilities, experienced organization and active advertising and sales campaign we contemplate a greater gain for the ensuing year. The manner in which 'Almetal' construction has been accepted, we believe, proves our contention of simplicity, appearance, safety, and moderate prices."

The Detroit Show Case Co. have prepared detail sheets of the "Almetal" Store Front construction for the use of architects and contractors, and if you have not as yet received your set one will be gladly sent to you upon request.

"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.

EFFICIENCY

Time lost on a job from whatever cause, means a hole in your profit you can't afford.

First—Cost of equipment which insures you against loss is the highest efficiency possible in your business.

THE "New-Way"

LIGHT WEIGHT HIGH SPEED ENGINE
"GOES AND GOES RIGHT"

We are prepared to furnish you with power for your equipment, of the highest mechanical efficiency.

"NEW WAY" light weight high speed engines are furnished in all sizes with or without sub-base to accommodate various equipments.

Our special features of construction, such as high tension magneto—float feed carburetor—fully enclosed, dust proof crank case—high speed, throttle governed—light weight—guarantees you the efficiency you need in your power driven equipment.

Write us today for dimension blue prints and tell us your requirements so our Engineering Department can study your problem.



THE "New-Way" MOTOR COMPANY
LANSING, MICHIGAN, U.S.A.
12 Pine Street

"The Modern Way"

A Real Warm Air
Pipeless Furnace
Heats, Ventilates and Satisfies

A constant money-maker for the contractor who will "push" it in his town.

The advantages of this furnace are so apparent, and so far outweigh the old system, that when once explained to your customer, they will clinch the heating contract on the spot.

And you get a nice profit on every sale.

We guarantee every furnace we put out; send full instructions telling how to install each one properly; and give you exclusive territory. Write today for our proposition.

THE MODERN WAY FURNACE CO.
Offices—Shoaff Bldg.
FORT WAYNE, IND.



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

REPRODUCED BY THE AMERICAN CARPENTER AND BUILDER PUBLICATIONS DEPARTMENT

For the consideration of builders

Hygienic designs which have artistic simplicity, are characteristic of all KOHLER Bathtubs, Lavatories and Sinks.

The superior enamel, with its clear whiteness is another of the noticeable features of

KOHLER WARE

The "Viceroy" one-piece built-in bath, shown in this illustration, is a remarkable achievement in the manufacture of enameled plumbing fixtures.

Patterns provide for right and left corner, recess and wall installation.

Owing to manufacturing economies the price is surprisingly modest.

All KOHLER WARE is of one quality—the highest. The permanent trademark, faint blue in the enamel of every KOHLER product, is our guarantee of excellence.

Write for a free copy of our interesting book, "KOHLER OF KOHLER." It contains illustrations of the many styles and types of KOHLER WARE.

"It's in the Kohler Enamel"

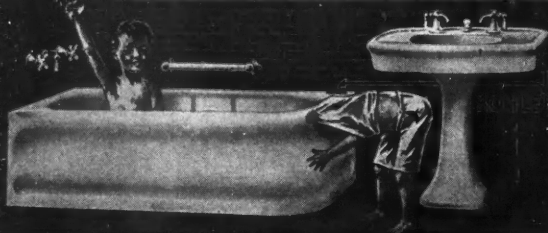
KOHLER CO.
Founded 1873
Kohler, Wis. U.S.A.

BRANCHES

Boston	New York	Philadelphia	Pittsburgh
Atlanta	Detroit	Chicago	Indianapolis
St. Paul	St. Louis	Houston	San Francisco
Los Angeles		Seattle	London

Plate V-14-A
"Viceroy" Bath
(Patent Applied For)

Plate K-145-FA
"Belmore" Lavatory



Willis Skylight

These skylights are of the best quality of galvanized sheet metal in gauges best adapted to the size of the skylight. The construction is such that they offer the largest possible glass area, and are perfectly dust and waterproof. They are built in all sizes and styles to take care of all conditions.

One big feature of the Willis is the ease of erection, an ordinary man with a hammer and screw-driver can erect these skylights without any previous experience. They are shipped knocked down, which saves large freight charges.

The Willis Manufacturing Company, Galesburg, Illinois, is one of the oldest and best known manufacturers of sheet metal building materials. They have pleased the public with their products for the past twenty-five years, and today hold a reputation of being one of the largest and most reliable manufacturers of sheet metal products. Willis Products cover every requirement in sheet metal building materials.

Any of our readers who might desire to investigate the possibilities of big business to be obtained in these products should write this company for their new 170-page Catalog, which is mailed entirely free to contractors and builders.



Waterproofing Facts

A collection of valuable methods of treating structures to produce water-tightness is found in the Waterproofing Hand Book of the General Fireproofing Company of Youngstown, Ohio.

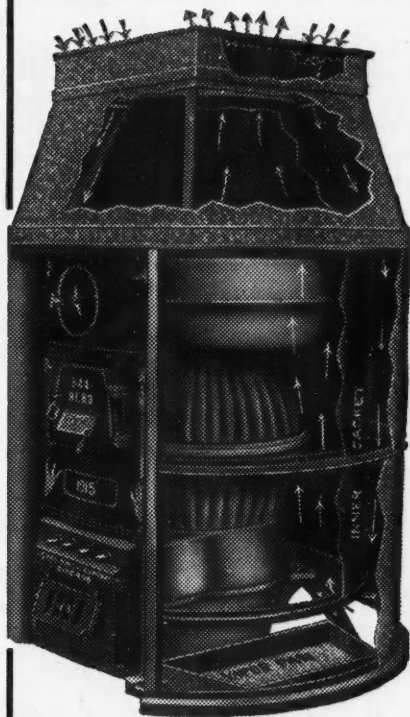
The material contained in this booklet is arranged in such a manner that it will be of the greatest possible value to the reader. A specification guide included in the first few pages gives in condensed form a proper treatment for a great variety of structures subjected to numerous conditions requiring special attention either in construction or after construction. This guide is really a summary of the detailed information which follows in the subsequent 71 pages of the handbook. It lists conditions which must be met, methods of meeting these conditions, materials recommended for use in applying the methods and reference to the most complete data to be found in the handbook. Information is furnished in detail on each of the following subjects: Substructural waterproofing; dampproofing above grade; waterproofing containers; stainproofing; floor waterproofing; roof waterproofing; bridge waterproofing; dustproofing, hardening and finishing of cement floors; decorating interior walls; and protective coatings for steel, galvanized iron, etc.

Waterproofing, in general, is attained by two methods; the first is called the integral method which consists in the incorporation of a waterproof material into the voids of the concrete or mortar during the process of mixing, and the second consists in placing a waterproof sheet of material or membrane over the surface requiring waterproofing or between two portions of the structure in such a manner that the sheet will be supported by the pressure between these structural members. This company carries out the first method by the use of either a paste to be mixed with the tempering water, or by the use of a dry powder to be mixed with the cement. The second method may be carried out in the use of waterproof felt in connection with a mop coating, a combination of waterproof mastic and saturated fabric, a brush coating or a trowel coating. A great number of special preparations are manufactured by the company to meet special conditions, each being carefully described in the handbook. In addition to the information which applies directly to the subject considered, tables are given which are valuable in the design of simple floor slabs and estimation of materials necessary for concrete construction.

The comprehensible arrangement and completeness of mate-

(Continued to page 126.)

The Hero Pipeless Furnace



Heavy Cast Iron
Good for 20 years

Let us help you
with your

**Heating and
Ventilating**

We make a complete line of warm air furnaces and room heaters.

Good commissions paid to Contractors and Builders.

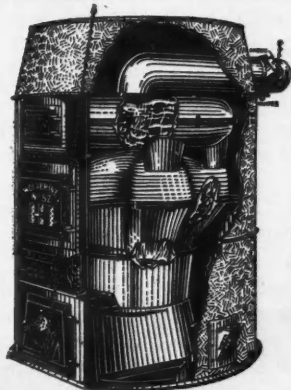
**CHAS. SMITH
COMPANY**

180 N. Dearborn St.
Chicago, Ill.

WOLVERINE FURNACES

and the WOLVERINE SYSTEM of Heating and Ventilating are something you want to investigate. You buy direct from our factory at manufacturers' prices—furnace, registers, cold air faces, pipe and fixtures already cut and ready to put together. We send our own mechanics to install complete if you are in our local territory. If not we send complete plans and specifications that any good mechanic can follow

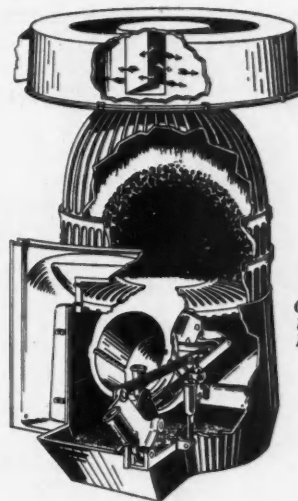
We have been making furnaces and nothing else for 36 years. Our experience is at your command.



It costs you nothing to get our plans for your building and receive our written proposal.

Wolverine Furnaces are constructed on scientific principles which makes them durable and economical in fuel. Easy to clean and operate and sold under the most liberal guarantee ever given with heating apparatus. Write for large 32-page illustrated catalog that describes and shows these furnaces. It is FREE, a postal card will fetch it. Ask for catalog No. 63.

MARSHALL FURNACE COMPANY
12 Dobbins St. - - Marshall, Mich.



Cut-Out View
UNDERFEED
Furnace

Let It Work for You

The Williamson New-Feed UNDERFEED will make a friend for you of every person who purchases it through your recommendation or specification. The reason is that it will save one-half to two-thirds on coal expense.

It will create business for you because the news of its money saving efficiency will spread far and wide, bringing you inquirers who can be turned into customers.

And the UNDERFEED advertises you because you can make the startling guarantee that it will cut coal bills one-half to two-thirds. A million dollar corporation backs that guarantee—you risk nothing.

WILLIAMSON CUT COAL BILLS
NEW-FEED UNDERFEED
Furnaces and Boilers $\frac{1}{2}$ to $\frac{2}{3}$

Over 35,000 enthusiastic users can tell of better, cheaper heat the UNDERFEED Way. Builders, contractors, and architects everywhere are cashing in on this nation-wide approval.

The UNDERFEED has succeeded because it burns the cheaper grades of coal without smoke, gas, dust, smell, or clinkers. Fuel is fed from below: fire is on top, free to play right against the radiating surfaces, and not smothered by half-burned coal. Adapted to warm air, steam, hot water or vapor.

The coupon below brings our special data for contractors, builders, and architects. Send now; you'll be interested and pleased.

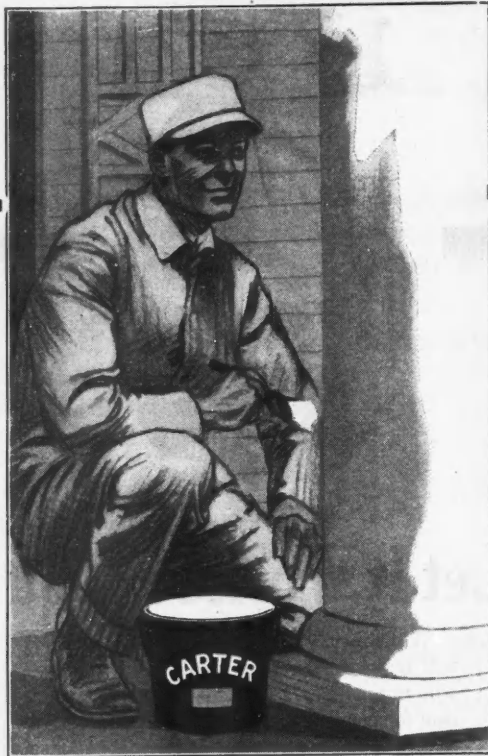
The Williamson Heater Co.
87 Fifth Avenue CINCINNATI, OHIO

Sign and Mail Now

The Williamson Heater Company,
87 Fifth Ave., Cincinnati, O.
I would like to know how to cut customers' coal bills from one-half to two-thirds with a Williamson New-Feed UNDERFEED.

Warm Air..... Steam or Hot Water.....
(Mark X after System interested in)

Name.....
Address.....
My Dealer's Name Is.....
My Business Is.....



White Paint

People really do want *white* paint. Certain styles of architecture cannot well be painted anything but white, and there is always one detail or another about a house, whether frame, brick or cement, that calls for white paint; and then it cannot be too white.

You can't make white paint with white lead that is not itself white. The whiter the lead the whiter the paint.

When you write "Carter" into your white lead order you are sure of getting the whitest white lead on the market—the Carter process excludes everything that might discolor the lead or impair its paint value. Carter is the whitest white lead because it is perfectly corroded.

A complete system of warehouses insures your getting Carter White Lead promptly and conveniently, no matter where you are located.

When you want to know the details of painting the Carter Paint Calculator will interest you. The price is 25 cents, but it will be sent to any contractor or architect with our compliments on request.

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

rial included in this handbook render it very valuable as a reference book and every contractor or builder who has any need for information such as that contained in it should communicate at once with the General Fireproofing Company, 6007 Logan Avenue, Youngstown, Ohio, in regard to obtaining a copy.



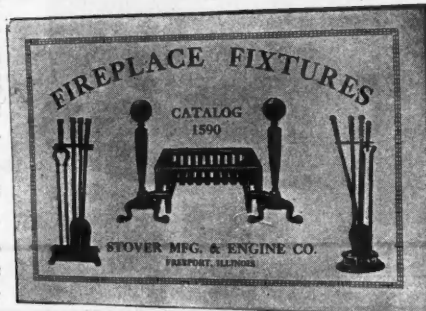
Fireplace Fixtures

The catalog No. 1590 of the Stover Manufacturing and Engine Company of Freeport, Illinois, presents a very extensive list of fireplace fixtures. The cover design of this booklet, as reproduced here, is representative of the contents of the catalog.

There are sixteen pages of clearly illustrated types of andirons offered to meet nearly any style of surroundings which might be suggested. Colonial style of several designs, Totem Pole design, German Renaissance style, Georgia style, Jacobean style, Mission style, Art Nouveau style, Chippendale style, Adams style and other distinctive designs are all represented. The possibilities of satisfying personal desires for "something a little different" are numerous.

Fire baskets simple or elaborate add further opportunity to make the fireplace a useful and attractive part of the house. Here again is offered a liberal assortment of styles from which to choose: Italian

Renaissance, Empire, Colonial and Adams. A special club house basket is very well designed for its purpose. Steel fire grates are listed in a standard size, but they may be obtained in any special size or shape by special



Reduced View of Stover Catalog.

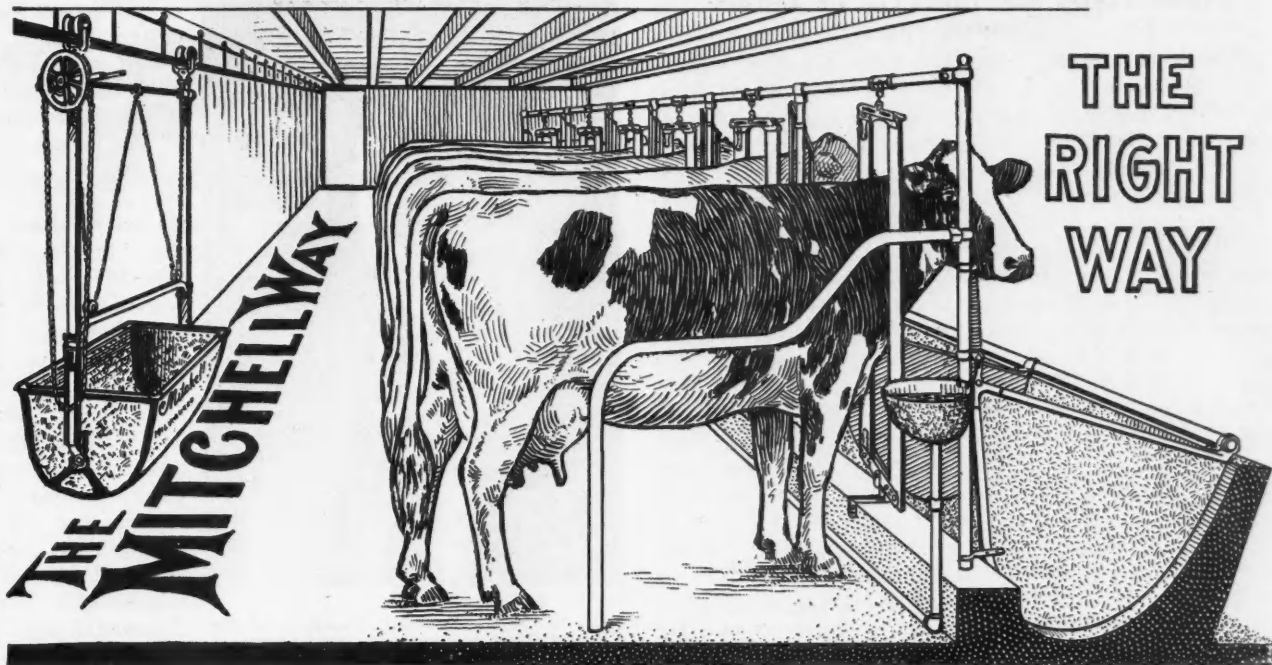
arrangement with the manufacturers.

One very attractive design of fire guard intended to prevent the burning fuel from rolling forward on the hearth is illustrated. This guard serves a double purpose in that it furnishes a greatly improved appearance to the fireplace in addition to its protective feature. Spark guards or fire screens are shown in several different designs of frame and wire mesh. Fireplace sets to match the different styles of andirons and fire baskets are listed in both iron and brass. The finishing touch in equipment is added in several artistic fire-wood holders.

For those who object to the trouble of carrying wood or other fuel into the room for a grate fire, this company builds a terra cotta gas log set which is a very satisfactory piece of equipment.

One of the first necessities which are required of a fireplace, if any pleasure is to be obtained from its use, is a damper which can be operated easily and will insure the utilization and control of the chimney draft. The Stover designs include many interesting features in dampers. A few pages are given, in the back of this catalog No. 1590, to various metal articles such as fireplace ash trap doors, chimney thimbles, clean-out doors, angle steel, cast-iron cistern covers, furnace check drafts, solid brass door knockers, detachable screen door hinges, double-acting jamb hinges, stovepipe registers and double-acting floor hinges. The last page gives a complete list of the great number of articles manufactured by this company.

Readers of the AMERICAN CARPENTER AND BUILDER who are interested in fireplace hardware may obtain one of these catalogs by addressing the Stover Mfg. & Engine Co., Freeport, Illinois.



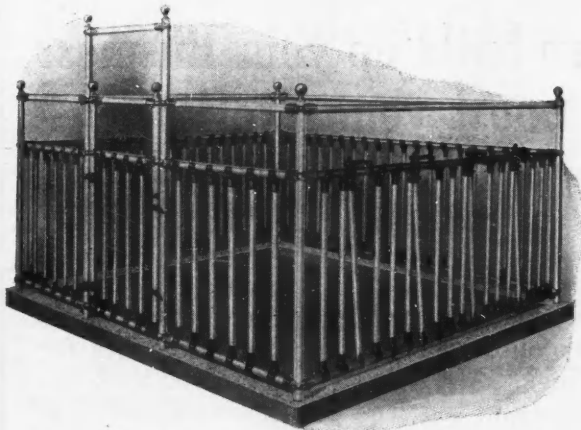
MODERN SANITARY BARN EQUIPMENT

Adjustable STANCHIONS to fit a Cow or Calf

Steel STALLS with Stationary or Folding SURE-STOPS

26 STYLES of CARRIERS

Sanitary Horse Stalls, Ventilating and Watering Systems



Bull, Cow and Calf Pens Made in Any Size



Mitchell Patent Swinging Crane

For Complete Catalogue Write

Mitchell Mfg. Co.

2951 Forest Home Avenue

Milwaukee, Wis.

Sole Makers of

MITCHELL SANITARY BARN EQUIPMENTS



Mitchell Horse Stall

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Nash Plans Big Increase in Jeffery Production

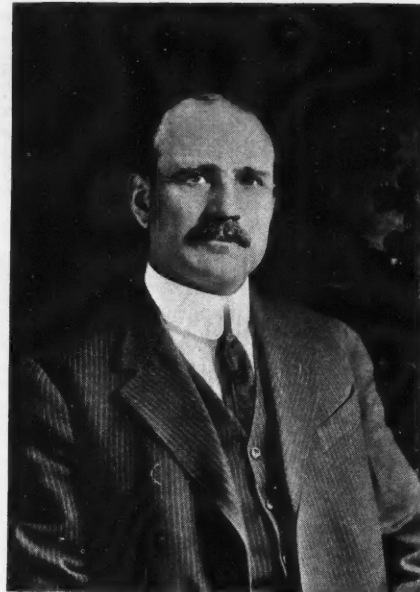
Plans have been launched to multiply as rapidly as possible both the pleasure car and the truck output of The Thomas B. Jeffery Company, of Kenosha, Wis., which recently changed ownership. Mr. C. W. Nash, foremost among the purchasers and the company's new chief executive, is now located at the big works personally directing the steps toward its expansion.

Mr. Nash is a production expert. Indeed such a statement is superfluous, for everyone is familiar with his activities in building up the General Motors Company. His resignation as president of that concern became effective August 1, at about which time it was announced that General Motors had done \$135,000,000 worth of business during the year. Its net earnings for the year were \$26,000,000.

C. W. Nash was born in De Kalb County, Illinois. When he was two years old the family moved to Michigan, and four years later he found himself without a home—dependent on his own resources at the meager age of six!

From then on, by dint of hard work and much courage, he worked his way thru the country schools of his day. As he grew up, he served some time at the carpentry trade and as a hay-presser. At 25 we find him starting with the Durant-Dort Carriage Company, working at the bench at the extremely modest wage of \$1.00 a day. He helped build the first buggy the company turned out.

Step by step, Mr. Nash began filling the various executive positions in the Durant-Dort organization, his promotions covering a period of twenty years. Eventually, he became that company's vice president and general manager, in full charge of the manufacturing end of the business. Moreover, he bought all the materials, designed and built, and sold at least half of the production—at that time the largest in the



C. W. Nash, Formerly President of the General Motors Company and Foremost Among the Purchasers of the Thos. B. Jeffery Co., of Kenosha, Wis.

entire carriage industry.

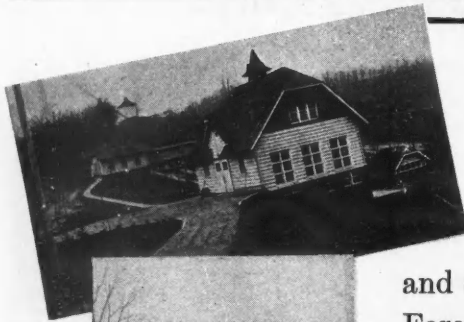
Now we see him, in 1910, responding to the greater call of the automobile industry. He was selected to guide the Buick Company out of the financial difficulties surrounding it. He was made its president and general manager.

Two years after he accepted the challenge to rid the Buick Company of its financial ills, Mr. Nash was elected president of the General Motors Company, comprising the Buick, Cadillac, Olds, Oakland, General Motors

Truck Company, the Northway Motor and Manufacturing Company and the Jackson, Church and Wilcox Company interests.

"The policy of this company will be to increase the production as fast as is consistent with quality," Mr. Nash said the other day when interviewed at his desk at the Jeffery plant.

"We shall also improve the quality, if that is possible.



Ceresit can build up your Business and boost your Profits

Your reputation as a builder depends on the kind of work you do. You can't be a successful contractor and do poor work.

Foreman & Putnam, Marietta, Ohio, are the contractors who constructed the buildings at Millgate Farm. Ceresit was used to waterproof the concrete tank and the basements for the various farm buildings. Mr. Mills was so pleased with the results that he told us so and sent the pictures we show here.

Whenever you build a watertank, cistern, silo or basement, use Ceresit Waterproofing Compound and be safe. It is cheap insurance against leakage.

There are five C. W. Co. Products to protect every kind of construction against water, and there are three C. W. Co. Products for securing permanently durable, dustless and oil proof concrete floors. Our catalog tells about them.

The Ceresit Waterproofer is our little monthly magazine. If you are not receiving it, write us today and we will put you on the mailing list.

Ceresit Waterproofing Co.

910 Westminster Bldg.

CHICAGO

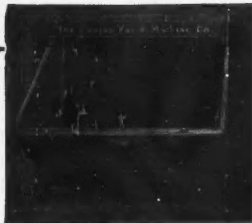
Canton Coal Chutes

HERE'S the coal chute you've wanted, the kind that protects your foundations, is insurance against cracked walls, broken windows and dirty lawns.

Wooden chutes are out of date—the modern improvement is the Canton Cast Iron Chute—and the man who installs one is progressive.

Give your customer a chute that will satisfy—that he will show to his neighbor and say, "There's a mighty good investment."

Our catalog "B 4" tells all about Builders' Iron Work. Write for it.



Canton Foundry and Machine Co.
Canton, Ohio

Comfort Indoor Closet

ODORLESS—SANITARY—GERM-PROOF
No Sewer, No Waterworks, No Plumbing Needed

This modern home necessity is fast taking the place of the unsightly, unhealthy, inconvenient out-house in the back yard. Thousands now in use and all giving complete satisfaction. Can be put wherever convenient in the house. No odor whatever. Gives city convenience in the country or town.

Costs Less Than Out-House
Anybody can afford one. May save cost in doctor's bills first month. Saves those cold night trips out-of-doors. Impossible to get same amount of comfort for the money another way. Sold on 30 days' trial and under sworn guarantee to refund all money if not entirely satisfactory. Send for description and prices today. Be fair to your family.

Agents Make Big Money Easily
Comfort Indoor Closets sell themselves as fast as people understand about them. Contractors and carpenters are making big money by merely suggesting this closet. Write for details of our exclusive agency offer. Send postal now before somebody else gets your territory.

Comfort Chemical Closet Co., 309 Factories Bldg., Toledo, Ohio



The Caldwell Auger Bit is an Efficient Tool

To the ordinary user, all bits are much alike until they are put into use. When this is done the superiority of The CALDWELL is evident.

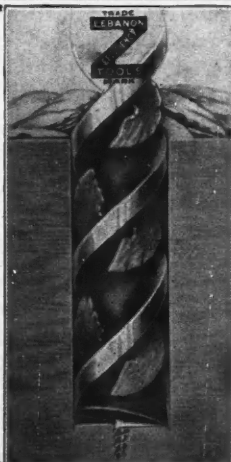
This is because of the exclusive mechanical features in its construction.

The construction, as shown in detail in illustration, enables The Caldwell to work several times faster and with less friction than any other known bit.

Regular Prices: 4 5 6 7 8 9 10 11-12 13-14 15-16—16ths
35 35 35 40 40 45 50 55 60 65 —cents

COMPLETE SET OF 13 BITS, \$6.00
Until your dealer is supplied, remit direct to us. We will deliver without further cost to you. Send for Catalog.

The LEBANON MACHINE CO., Lebanon, N. H.



The New York Aqueduct

(the greatest water tube in the world) in the construction of which were used more than 4½ million bags of

ALPHA THE GUARANTEED PORTLAND CEMENT

THIS, the most notable aqueduct ever built, is 111 miles long, with a diameter up to 17 feet. In places it runs 1,100 feet below the surface. It is subjected to a pressure as high as 90,000 pounds per square foot and delivers up to five hundred million gallons a day. Constructed on such a stupendous scale, this great water tube is expected to supply the needs of the metropolis for generations.

Such an undertaking demands the most dependable materials, as well as the highest engineering skill. That more than four and a half million bags of ALPHA were used in this huge aqueduct is, therefore, a significant tribute to the uniformly high quality of ALPHA—the Guaranteed Portland Cement.

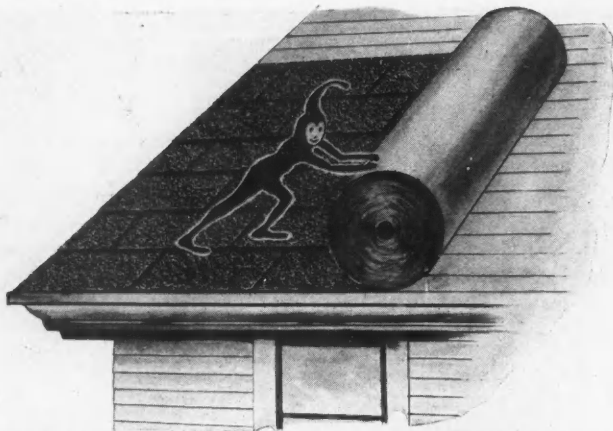
In composition, fineness and tensile strength ALPHA is guaranteed to meet fully all standard requirements. Plants on six trunk line railroads (one on the Hudson River) and storage warehouses with a capacity of 2,000,000 barrels give unusual facilities for prompt deliveries.

Art Envelope No. 10, showing views of notable concrete structures and 80-page handbook, "ALPHA Cement—How to Use It," sent on request.

ALPHA PORTLAND CEMENT COMPANY

General Offices: EASTON, PA.

Sales Offices: New York, Philadelphia, Boston, Pittsburgh, Baltimore, Savannah



FLEX-A-TILE

Roll Shingle

(PATENTED)

SOME building owners say: "I like the looks of an asphalt shingle roof, but I'm afraid I can't afford it."

Inexpensive as Flex-A-Tile Asphalt Shingles are, we have produced this Flex-A-Tile Roll Shingle to meet just such conditions.

A roof of Flex-A-Tile Roll Shingles looks the same as a roof of individual Flex-A-Tile Shingles. No paint or imitation process is used to give the individual shingle effect. No substitution of material is made. The Flex-A-Tile Roll Shingle contains the same identical material that goes into all our famous Flex-A-Tile Asphalt Shingles.

It gives all the advantages of an asphalt shingled roof with the extra economy and ease of application of a roll roofing.

Put up in 32-inch wide rolls—
108 square feet in each roll.
Packed with nails and cement.
In either red or green natural
stone surfacings.

**GET FULL DETAILS—
WRITE TODAY**

A generous sample and complete particulars about this Flex-A-Tile Roll Shingle will be sent you gladly. Our capacity is limited. Write now.

THE HEPPE'S COMPANY

Dept. 1-1010 Fillmore Street, Chicago, Illinois

Flex-A-Tile Style 4 and Diamond Point Slabs

Utility Board No-Tar Asphalt Paint

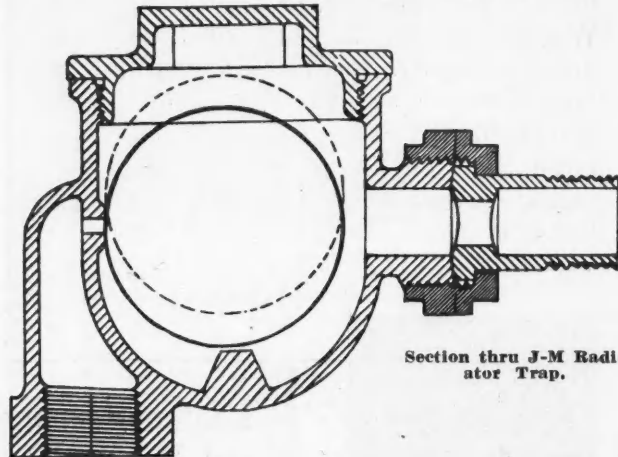
Other Guaranteed Heppes Products

J-M Radiator Trap

An interesting development in economical heating came to light in a recent test of the J-M Radiator Trap, a new and modern trap now being marketed by the H. W. Johns-Manville Company.

It is found that the Roger Morris Apartment at Colonial Avenue and 160th Street, New York City, in which 502 J-M Radiator Traps are used on the radiators and on the drips of risers, can be heated with a half-pound gauge pressure when the temperature outside is 10 degrees F. When the gauge hovers around zero the radiators on the top floor are hot.

The Superintendent says that even with quick steaming it is impossible to hear any hammering in the pipes.



Section thru J-M Radiator Trap.

The J-M Radiator Trap operates on the same principle as the J-M Steam Trap, recognized as a standard device of its kind.

There are but three parts—the body, connecting union and the rolling ball. There are no springs, counterweights, thermostatic parts, regulating screws, expanding liquids or restricted air passages commonly encountered in other types of radiator valves. There is nothing to get out of order.

The J-M Radiator Trap can be used on any radiator connected on a two-pipe heating system, and under any pressure ordinarily met in heating up to 10 pounds. It will take care of the condensation from any radiator having a heating surface of 250 square feet or less.

The hollow, seamless, unattached copper ball covers the discharge orifice and prevents the loss of steam. When condensation enters the trap the ball rolls up, exposing the discharge opening, which permits a discharge of water and air without any loss of steam. This discharge is constant and automatic.



Exceptional Typewriter Offer

Are you proud of your handwriting? If you are, your case is exceptional. Most of us have to study a little while today over what we wrote last week before we are ready to take oath as to its meaning. It is risky business to rely on handwriting in sending instructions to the foreman or requesting that large rush shipment of material.

Many contractors and builders have already found that their business could not be handled in a satisfactory manner without the use of one or more typewriters. They are able to save a great deal of time by using this modern business method of writing, and can better arrange the details of their entire organization because of the easy and rapid means it provides for building up a card index system or some other filing system which puts every detail at their instant command. What is more, the typewritten letters, statements, specifications and other matter which is sent out from the contractor's office, and read by the public with which he

(Continued to page 132.)



BAYONNE

Economy

Bayonne will outwear any other prepared covering and tar roofing because it does not shrink or expand—never blisters or crumbles—is absolutely water-proof—and far less costly than copper.

BAYONNE

is Real Economy at all times. But at the present time, although the first cost may appear high, Bayonne is far cheaper than even the lightest and poorest of ordinary canvas, when you consider the extra labor and painting—with paint at \$2.50 a gallon.

Bayonne is laid on the dry boards—requires no filler and only one light finishing coat.

And any canvas filled and painted—no matter how well done—cannot come up to Bayonne.

Write for Sample Book "N" giving prices and laying instructions. See Sweet's, Page 426

JOHN BOYLE & CO., Inc.
 112-114 Duane St.—70-72 Reade St., New York
 Branch House 202-204 Market St., St. Louis



Residence
 H. B. Jackson,
 Houston, Texas
 J. J. Marett,
 Architect

It isn't finished until it is coated—

Concrete and stucco need coating—need it for *permanence* and need it for *beauty*. And you should use coating, for it will add to your reputation as a *thorough builder*. Use this *thoroughly reliable* coating—

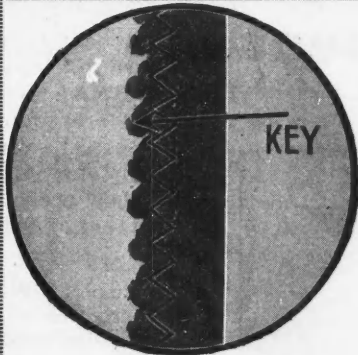
Bay State Brick & Cement Coating

which is guaranteed to give absolute protection, produce a beautiful soft finish and preserve the texture of the surface to which it is applied. Comes in white and various tints.

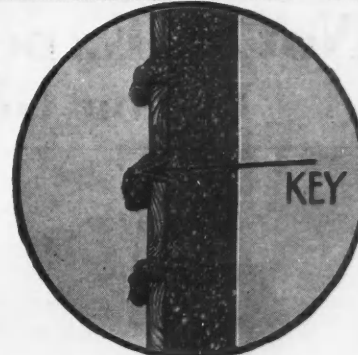
Write for new booklet 30, illustrated with well-known buildings coated with Bay State—concrete, stucco and brick. Also ask for sample can and say what tint you prefer.

WADSWORTH, HOWLAND & CO., Inc.
 New England's Largest Paint and Varnish Makers
 Boston, Mass. New York Office: Architects' Bldg.

Use Bay State Agatex on cement floors—dustproof, waterproof and wearproof.



Lock the Plaster and Stop Cracked Walls



The two cross sections above show you just why you can bank your reputation as a builder on Kno-Burn Expanded Metal Lath. The plaster clinches around the strands because the mesh is fine and embeds itself in the plaster so firmly that there's no coming out to it. This one point is enough to win you to Kno-Burn Expanded Metal

Kno-Burn
 TRADE MARK
 Expanded Metal Lath

Lath; but it's only one of many. Take cracks that come in the wall surfaces.

They come when the type of lath used does not expand or contract in the same ratio as the plaster itself. "Kno-Burn" always does. Finally, it makes

fireproof, dirt proof, vermin proof walls.

Send for booklet 33 for full particulars.

North Western Expanded Metal Company

(Manufacturers all types of Expanded Metal)

903 Old Colony Building,

Chicago, Illinois

deals, creates an impression which is a credit to him.

Perhaps the expense of installing a typewriter has prevented some contractors and builders from acting when the first need for such equipment is felt. They preferred to wait until conditions would warrant the purchase of the high grade machine before taking definite action on the proposition. To those who have taken this stand, the offer which has just been made by Harry A. Smith, 721, 231 N. Fifth Avenue, Chicago, Illinois, will be interesting news. This offer will enable them to purchase a Standard Visible L. C. Smith typewriter at a very reasonable total cost on easy monthly payments.

This typewriter is of standard size, having a keyboard of the Standard Universal arrangement capable of writing 84 characters. The writing is entirely visible at all times and the machine is equipped with all of the modern, time-saving improvements. Some of these features are the tabulator, the two-color ribbon, automatic reverse on the ribbon spools, back spacer, ball bearing type bars, ball bearing carriage action and ball bearing shift action. The machine is sold with a full equipment of tools, cover, operating book and instruction book, ribbon, practice paper and everything necessary for immediate use.

For full particulars in regard to this typewriter offer refer to the advertisement in another part of this issue or write Mr. Smith at the address given.



White and yellow pine are the woods most used for boxes, each contributing more than a billion feet annually.

Economy Methods in Concrete Foundation Construction

The economy of low charging and portability of a concrete mixer in building foundation work is shown in the methods used in the construction of the foundation for a three-story and English basement, fifteen-flat building recently constructed for F. J. Campbell at Dorchester Avenue and 67th Place, Chicago, by Bundo Brothers, Contractors, 938 East 75th Street, Chicago.

(Continued to page 134.)



Bundo Bros., Chicago, Contractors, Using "The Standard" Low Charging Mixer on Apartment Building Foundation.

Not an Expense—An Investment If You Get Tapered Shingles



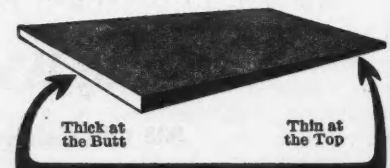
A home in Waterloo, Iowa, less than five years old, originally roofed with wooden shingles, now being roofed with Winthrop Tapered Asphalt Shingles

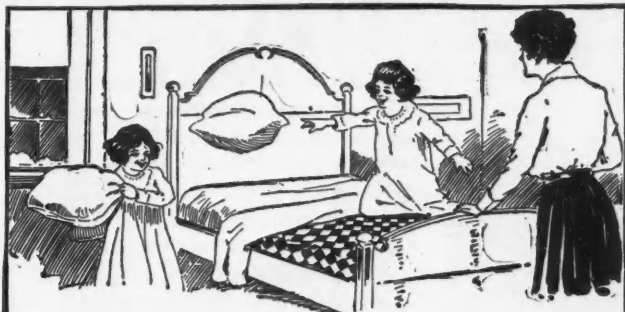
That's What They All Say—and wherever the Winthrop Tapered Asphalt Shingles are introduced, they sell themselves. They win out with less argument than anything you ever tried to sell, for they look better than wood shingles, and they have all the protection of asphalt. Drop us a line for samples, prices, etc.

The Beckman-Dawson Co. Asphalt Shingles
Factory: Argo, Ill. 1413 Y. M. C. A. Bldg., Chicago, Ill.

Here's how they feel down in Cleveland; Tapered Shingles are going strong all over Ohio—in one city alone they are on more than 1,000 houses.

H. P. Lampert, 1269 West 116th Street, Cleveland, Ohio, writes Dec. 26, 1915: "Have had Winthrop Tapered Asphalt Shingles on my roof since June 12, 1913, and am more than pleased with them. I do not consider them an expense, but an investment. They are neat, durable, non-breakable—therefore do not need repairing. At this time I would consider no other."





Let Them Play—They Won't Take Cold

THERE is a thick "quilt" of Linofelt under the floor. No air can get through. Floors, walls and ceilings from cellar to attic, are air-tight, draft-proof—a policy of even-temperature insurance.

LINOFELT

"Between You and the Weather"
(Copyright 1914, Union Fibre Co., Winona, Minn.)

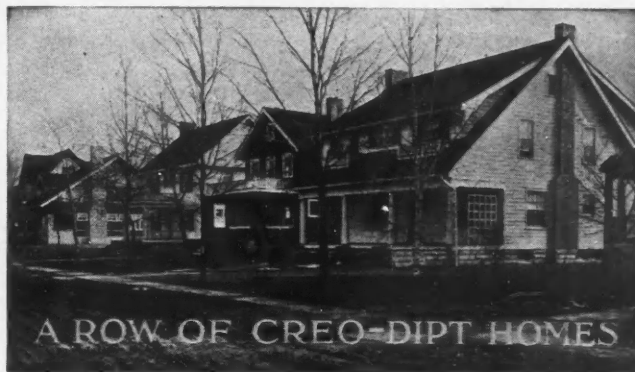
It is made of a tough, woolly flax fibre, chemically treated and stitched in between heavy strips of Kraft paper. The millions of air cells catch and imprison the drafts.

Builders, Architects and Contractors specify Linofelt because they know that "porous" houses don't bring repeat orders.

Linofelt Saves 30% in Fuel Bills

Why not get samples and dealers' terms, now, so you can furnish Linofelt upon order? Write today for Linofelt Booklet.

Union Fibre Co.
118 Union St., Winona, Minn.



- to insure satisfied customers
 - to build reputation
 - to figure profits sure
 - to prevent labor waste
 - to save shingle waste
 - to get beautiful effects
- Be sure you use

"CREO-DIPT" STAINED SHINGLES
17 Grades—16, 18, 24-inch—30 Colors

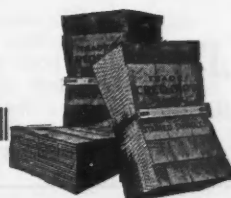
You cannot afford to stain on-the-job at any price.

You cannot afford to substitute inferior materials.

You have no trouble pleasing a patron or a buyer with the lasting colors in "CREO-DIPT" Shingles. They save him paint and repair bills.

Book of Homes and Sample Colors on Wood on Request.

Standard Stained Shingle Co.
1028 Oliver St., No. Tonawanda, N. Y.
Factory in Chicago for West



Going to Build, Remodel, or Repair?

GET A COPY OF THIS VALUABLE BOOK

ROOFING FACTS and FIGURES

Every carpenter and contractor needs this book. Your opportunity is here to make extra profits this season. Use roofing material that gives service and satisfaction, that costs less than most others, is easy and inexpensive to lay, and makes a neat durable surface.

On repair jobs or new buildings your estimates will be much lower, your profits bigger if you use

Con-Ser-Tex Canvas Roofing

Send a postal for our new interesting book on this roofing material.

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



View of "The Standard" Low Charging Mixer in Use by Bundo Bros., of Chicago.

This firm of contractors specialize in concrete foundation work for buildings and mix all of their concrete in a 12 cubic foot "The Standard" low charging concrete mixer.

The accompanying photographs show the mixer in operation on this job. Another "The Standard" mixer employed in the construction of the foundation of an adjacent building is also illustrated.

In this work there were 5177 cubic feet of concrete in the footings and four foundation walls. The time required to construct the forms, mix and place the concrete was 42 hours and the cost for setting forms and pouring concrete was 2¾ cents per cubic foot.

Bundo Brothers employ only five men to operate the

in operation. Other builders should investigate this mixer.



Best Roof Under the Sun

Montross Metal Shingles for House or Barn or buildings that require durable, economical roofs. Easily applied. Fire, lightning and storm proof. Nine different designs. Write for illustrated catalog and testimonials from satisfied customers who have used Montross Roofing for a "Quarter Century." Liberal commission to good, live agents.

Montross Metal Roofing Co., 110 Erie St., Camden, N. J.

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.

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

SAN-TI-LITE

Easy to Lay


THE all mineral Composition floor material that is the standard from coast to coast. Sold only to builders and contractors under positive guarantee. The best all purpose sanitary floor in the world. Attractive profits. Write us today for samples.

THE SANTILITE CORPORATION
166 PLUM STREET SYRACUSE, N. Y.

SAN-TI-LITE

Easy to Lay

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
and
Slate Blackboards
quarried from our famous GFT quarry, opened in 1846, stand ALONE in a combination of Durability, Serviceability and Beauty at a most reasonable cost. Why not buy the best as the best is the cheapest in the end?
Write for our July 1st, 1916 Price List today.
Sole Manufacturers
Slatington Slate Co.
Slatington, Pa.




THE ROCK OF AGES CLEFT FOR YOU
SHELDON'S SLATE
RED PURPLE GREEN BLACK
THE ROOF FOR AGES ALWAYS NEW
ECONOMICAL — ARTISTIC — FIREPROOF
Outlast the building. First cost, only cost. The only roof you can afford to consider for a permanent investment. Artificial substitutes bring endless expense for upkeep. Post a postal and get posted.
F. C. SHELDON SLATE CO., Granville, N. Y.

Your Reputation Demands
UPSON PROCESSED BOARD
—the Most Dependable Wall Board
Made in America
Contains no dirty, black materials or cheap, punky "jack pine" fibers.
Write for Samples and Information
THE UPSON CO. Fiber Board Authorities 16 1/2 Upson Point, Lockport, N. Y.
LOOK FOR THE FAMOUS BLUE CENTER



LOOK INTO



Trade Mark Reg. No. 94745

—you'll never find another building material or wall lining like this—none so flat and strong, with so slight a tendency to warp or shrink, none so easily handled, sawing so clean and smooth; none so durable; none with such a stubborn resistance to air, cold, heat, moisture and fire. None so adaptable to so wide a range of uses.

Compo-Board has all these features as a result of its patented wood core construction.

How important it is, then, that you get Compo-Board, when you ask for it. You can't be fooled, if you look for the wood core, for it is easily and quickly identified.

You can get just the amount you need for any job in strips four feet wide and in even length up to 18 feet long.

Sold by Dealers Everywhere
Write for interesting book and free sample piece

The Compo-Board Company
5777 Lyndale Ave. No. Minneapolis, Minn.

Eight out of Ten Railroads entering New York and many others use



Protection Brand Roofing Mineral surfaced. Has 6-inch lap (Pat. Nov. 18 — 02) Laid with all nails covered. Joints absolutely tight.

Hudson Asphalt Shingles Slate surfaced. (Red or Green.) Artistic, Durable, Economical.

Rockland Roofing Mineral surfaced. Red, Green and Gray.

Arrow Brand Roofing Sand or Gravel surfaced.

Hudson Brand Asphalt Felts For sheathing building. For reinforcing Slate and Tile Roofs.

Materials used by Railroads are very carefully selected for merit, quality and reputation for the service which they have given in the past. If you want samples of roofings and shingles which are reliable and which will protect as well as beautify the houses which you are building, just cut out this advertisement, write your name and address on the bottom lines, and send it to

ASPHALT READY ROOFING CO.
Room 453, 9 Church Street New York

Name.....
Address.....
Put an X in the circle O opposite the materials which you are interested in.



Here's a Profit for You

The Builder should supply all that goes into the building. It is his contract, and for his own protection, the satisfaction of the owner and the convenience in his work, he should have all the details. Farm buildings use our sheet metal products largely. They afford a considerable profit to the contractor, and they are the best of the kind.

That is more than true of the Buckeye Cupola Ventilator. It is the latest word in scientific barn ventilation, and it's as handsome as it is effective. No up-to-date farmer would build a barn nowadays without providing for the health of his stock and the storage of his products, and thousands who investigate the question thoroughly are putting in the Buckeye, the ventilator with the curves.

A consistent advertising campaign brings us thousands of inquiries, which we refer to our dealers. We sell these people on the Buckeye through the best book on the subject published. The farm journals tell of our Buckeye Ventilating Cupola, and when we get a man to looking into the subject he wants the Buckeye in preference to all others.

You might as well have this business as to turn it over to somebody else. There's more profit to you in selling this ventilator than in building the old wooden cupola. Send us the plans and we will figure out a guaranteed ventilating system without charge.

Get in touch with us. We also manufacture the famous Buckeye Metal Shingles, and many other builders' articles you can use to advantage, and our proposition will interest you. Write for it today.

The Thomas & Armstrong Co.

120 Union Street

London, Ohio

A Progressive Agency Plan

The Diamond Metal Weather Strip Company, whose home office is located at 626 Kerr Street, Columbus, Ohio, have offered contractors and builders an unusually good opportunity to gain some very pleasing profits out of the metal weather strip business.

The proposition which is offered consists in furnishing the prospective agent with a complete agent's outfit, consisting of models, estimating tables, contract blanks, advertising matter and other material which will aid him in placing Diamond metal weather strip before his customers in a forceful manner. After the material has been sold, the agent is furnished with full instructions for its installation. This proposition does not involve the investment of any capital until actual orders have been taken. The contractor or builder who "makes good" on the "try out" is given the exclusive agency for his territory. The offer has especial interest because of the fact that the time required to carry on this business need not be a detriment to the regular course of the agent's regular work. It consists in the addition of a side-line which he may see fit to work right into his main business as his customers become more and more acquainted with just what the metal weather strip means in building construction.

The Diamond system of installation considers each piece of work a problem in itself, which is to be given attention as such and solved by the application of the type of strip which will most fully meet the needs of the particular case. A very complete line of weather strips is assurance that every need may be satisfied. The agent is not only furnished the interesting work of determining just the proper equipment to install in each case, but he also has the satisfaction of seeing this equipment placed as he intended it should be placed—and his income on the work is that of both the dealer and the installation man. His field is not restricted to the new buildings which are being erected, but it includes the structures which have already been completed.

Readers who have a desire to investigate this agency "try out" proposition may obtain full information by addressing the Diamond Metal Weather Strip Company.



Complaint-Proof Casement Windows

It has been the aim of architects and builders to find a casement window that could be forced tightly in place when closed, and yet when opened, relieve itself so there would not be any wood friction between the sash and the casement. The answer to this problem has come to light in a new type of patented window control as manufactured by the Whitney Window Corporation.

Artistic effects for both the interior and outside of a house or building may be obtained by the Whitney casement window hardware. An opening in the wall of any desired length can be treated as a single window, or group of windows, by means of this device. The window sash may be used either singly or in pairs. In the latter instance, adjacent sides are hinged together, while the outer edge of each is mounted at the head of the casing on a roller bearing that moves in a groove and at the sill with an interlocking shoe that slides in a flange or track. The windows open outward, folding together, and since their pivoted points are not fixed, they may be readily moved to either side. As many pairs as are needed to cover the opening may be used together. In no case is there any hinged connection between one pair and another, or between them and the sides of the casing.

In this manner they overcome the many troubles of the ordinary casement windows in a very simple and clever man-

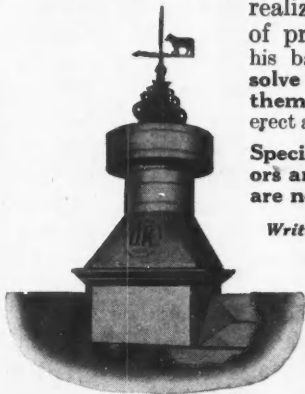
(Continued to page 138.)

Get All The Profit

Profit is figured in two ways—that which you make on the job and the jobs your reputation brings you. Get both profits by recommending and equipping the barns you build with

Heavy Galvanized Steel CUPOLAS

They are easy to erect—shipped ready to install. Absolutely Bird, Storm, Rust and Rot proof. Neat in appearance. Every owner



realizes the importance of proper ventilation in his barns. **O-K Cupolas solve the problem and sell themselves.** Every one you erect adds to your reputation.

Special prices to Contractors and Builders where we are not represented.

Write For Full Particulars, Sent FREE

PHILLIP BERNARD CO.
2400 Floyd Ave.
SIOUX CITY IOWA



Simplicity

"GLOBE" Ventilators, first of all are designed for **SERVICE**—to operate efficiently under all weather conditions. That means **SIMPLICITY**. And their simple, graceful design harmonizes perfectly with every style of Architecture.

No matter what you build, a "GLOBE" Ventilator will add to the value and attractiveness of the building.

For Complete Information Address
Dept. F.

GLOBE VENTILATOR CO.
Troy, N. Y.



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

CHIEF ALL-STEEL CUPOLA

New-improved, scientifically designed ventilating cupola for all buildings. Up-to-date in design, material and construction. Used and approved on hundreds of farms. Made of heavily galvanized steel with base strongly braced. Can't rust, rot, or blow off. Absolutely storm-proof and bird's-nest proof.

Easy to Install—Sure to Please Your Customers

Chief Cupola saves time and labor installing—base bolts directly to roof and cupola bolts to the base. Only six bolts needed. Meets all requirements—insures adequate ventilation—satisfies all users. Write for full description, prices, etc.

Shrauger & Johnson Co.

430 Walnut Street, Atlantic, Iowa



Which One?

Nearly everyone admits the necessity of ventilators.

"Tip Top" Ventilators

(Double Diaphragm)

solve the problem. This is the modern way—the true method of econom-

omy. Many of your customers don't realize the importance of ventilation. You can tell them, and both get on the simplest and most direct route to profit. "Tip Top" ventilators are differently and better constructed than others. Send for our co-operative plan and complete description.

Anderson Manufacturing Co., Des Moines, Iowa
Manufacturers of "Tip Top" Ventilators,
"Tip Top" Sanitary Cistern Filters,
Anderson Water and Lightning Conductor

Monitor Cupolas

BUILT TO VENTILATE

Proof against wind, weather and birds. Made of the best grade of galvanized steel. the Monitor will not rust, crack or dry out.

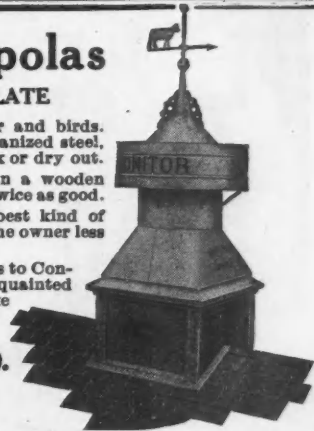
It will circulate more air than a wooden cupola twice its size, and looks twice as good.

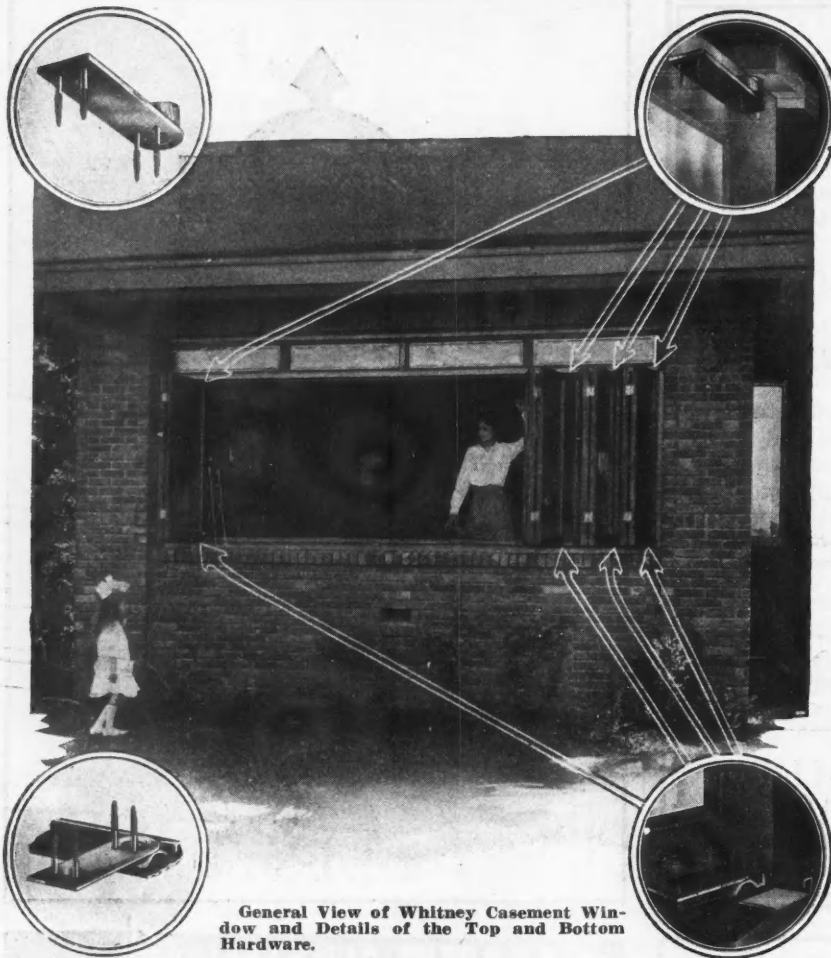
Always on the job with the best kind of service, the Monitor will cost the owner less every day it is in use.

Write for our special discounts to Contractors and Builders. Get acquainted with the cupola that will make the most money for you.

B. F. Lichty & Sons Co.

Station A
WATERLOO, IOWA





General View of Whitney Casement Window and Details of the Top and Bottom Hardware.

ner. They fill a long-felt want and have all of the necessary requirements to give entire satisfaction. Windows with the Whitney casement window hardware control eliminate the complaints that architects and builders are constantly receiving from their clients, as "the windows stick and leak," "the adjusters won't work," the "fly screens are not right," etc.

Every prospective home or building owner, as well as all architects, builders and carpenters, should investigate the merits of Whitney casement window hardware, as its adoption will mean the saving of considerable trouble as well as much unnecessary expense.

A study of the window view as shown and phantom views of the working of the hardware, together with the cuts of the hardware as shown in the circles, will quickly convince everyone of the merits of such a control.

We suggest that you send for catalog and working drawings of this hardware. They will be sent you free of charge upon request. Address Whitney Window Corporation, 309 South Fifth Street, Minneapolis, Minn., if you live West of the Mississippi River, and to H. E. Holbrook Company, 446 John Hancock Building, Boston, Mass., if you live East of the Mississippi River.

They will also supply you with drawings

(Continued to page 140.)



DELCO-LIGHT

Put Electric Wiring into the Blue Prints

When you build a house—no matter where it is located—be sure it is wired for electricity.

Delco-Light is carrying electric current and its conveniences into every nook and corner of the country, making electric light and power available on the farm, in the country home, the country store or church, the summer cottage.

Delco-Light is a complete electric plant—with ample capacity for the average home, and with sufficient power for operating small machinery.

It is simple, compact, economical and trouble proof.

The price is \$275 complete with batteries, F. O. B. Dayton

Write today for illustrated book

The Domestic Engineering Company, Dayton, Ohio

Offices in all principal cities

**GERMANTOWN
MASTER BUILDER**



HATCHETS
Are in the
Kits of
**MASTER-
BUILDERS**
Everywhere

In the beginning the steel from which they are made is of the finest selected quality. They are forged under the most modern conditions, and thoroughly tested at every step of their manufacture. Handles are made of the sturdiest second-growth hickory and will positively not come loose or break under the hardest service. Perfect hang and balance combined with the keenest of cutting edges.

**Price
\$1.50**

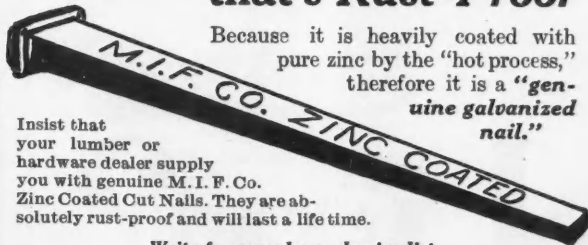
Two sizes, Nos. 319 and 320.

GERMANTOWN TOOL WORKS

Philadelphia, Pa.

Branch: 62 E. Lake Street, CHICAGO

— Here's a Nail
that's *Rust-Proof*



Because it is heavily coated with pure zinc by the "hot process," therefore it is a "genuine galvanized nail."

Insist that your lumber or hardware dealer supply you with genuine M. I. F. Co. Zinc Coated Cut Nails. They are absolutely rust-proof and will last a life time.

Write for samples and price list.

Malleable Iron Fittings Company
Branford, Conn.

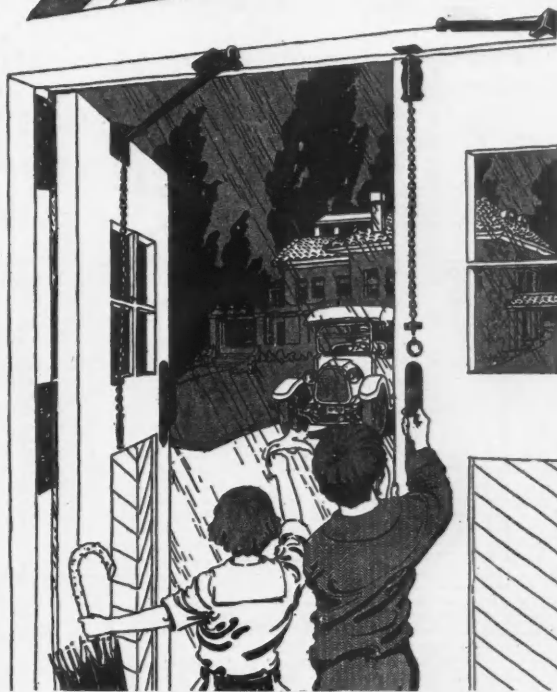
Linclad

SHINGLE NAILS

WRITE FOR SAMPLES AND PRICES

W. H. MAZE COMPANY

PERU, ILLINOIS



THIS garage hardware is especially designed to accomplish its purpose. It is on sale by most hardware dealers and can be secured quickly and easily by contractors and builders.

**Stanley
Garage Hardware**

is of special interest because it is a necessity for every modern garage. The Stanley Garage Door Holder, illustrated above, is an arm of steel which holds the door open, preventing it from slamming and injuring the car while entering or leaving.

There is nothing to break or get out of order. A pull at the chain releases the door and permits it to swing shut.

If you are not already familiar with this device, and the complete line of Stanley Garage Hardware, we suggest that you send for information.

Write today for illustrated booklet "A" on Stanley Garage Hardware

**Stanley
S.W.
Works**

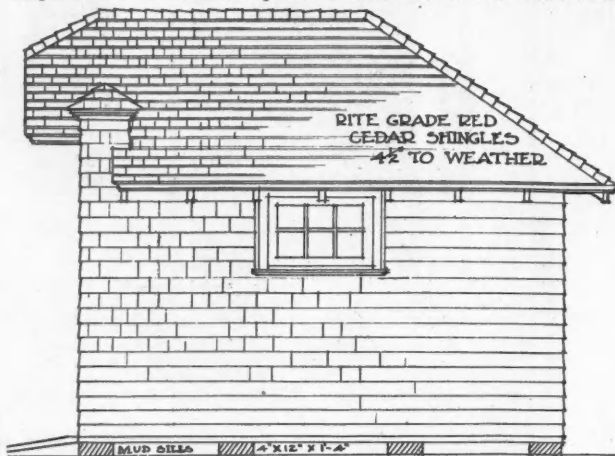
NEW YORK
100 Lafayette Street

CHICAGO
73 East Lake Street

to fit your particular needs on any job you are working on, so that you may transfer them to your blueprints and specifications.

Carpenters Approve Shingle Campaign

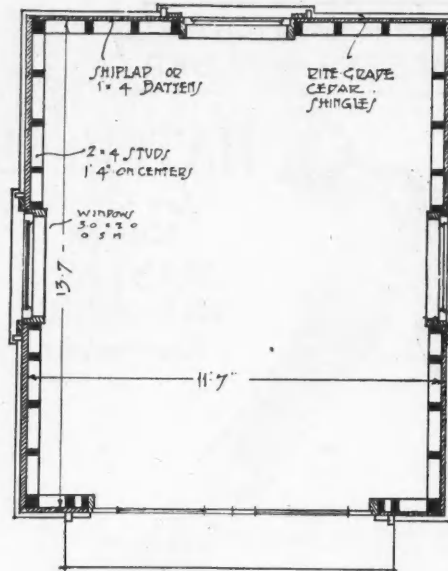
The aggressive advertising and educational campaign being put out by the West Coast Lumbermen's Association regarding red cedar shingles has the hearty approval of the carpenters and builders quite as much as of the lumbermen.



Side Elevation of Shingle Garage.

Carpenters like a good fair fight, and they don't want it too much of a one-sided affair. They are glad to see the prominent shingle producers standing up for good old wood shingles in the face of the combined "gas attacks" by those interested in manufactured roofing materials.

For several years it seemed to be the most popular kind of argument in favor of any of the various types of manufac-



Floor Plan of Garage.

tured roofings to knock wood shingles and so, we suppose, think to gain in the estimation of the public by finding fault with and running down shingle roofs.

This is back-handed advertising and very seldom accomplishes the purpose intended. In fact, under the law of psychology that "every knock's a boost," it often produced

just the opposite effect from the one desired.

You don't see very much of this slanderous advertising any more, and we are very glad of it, for certainly the space is used to much better advantage in describing the characteristics and uses of the particular building material under consideration than in running down the competitive products.

Carpenters and builders have used red cedar shingles for years. They know their value and, while recognizing their shortcomings in some particulars, know from long experience that they make a good-looking, home-like, economical, satisfactory roof. They have been glad, then, to see the

(Continued to page 142.)

—mere Paint

or

Pyrolin?

(Fire-Resisting Paint)

Before you paint your fall buildings, either inside or out, consider the advantages of specifying this fire-resisting Pure Linseed Oil Paint and Shingle Stain.

It means lower insurance risks. (Government and expert chemists have found it to be absolutely fire-resistant.)

It enables you to combine the advantages of wood with the safety and durability demanded by modern construction, without any additional cost.

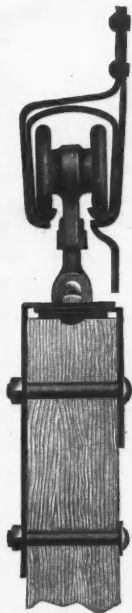
It will add greatly to your reputation for conscientious work.

And in addition to being fire-resistant, it ranks with the best Pure Linseed Oil Paints on the market. It is made in any color and can be used on any wood with the most pleasing results.

Before you consider painting again, send for our booklet, "Pyrolin Stops Fire." It is worth money to you, but costs you nothing.

PYROLIN PAINT MFG. CO., Fort Dodge, Iowa

Hang Them Right The First Time

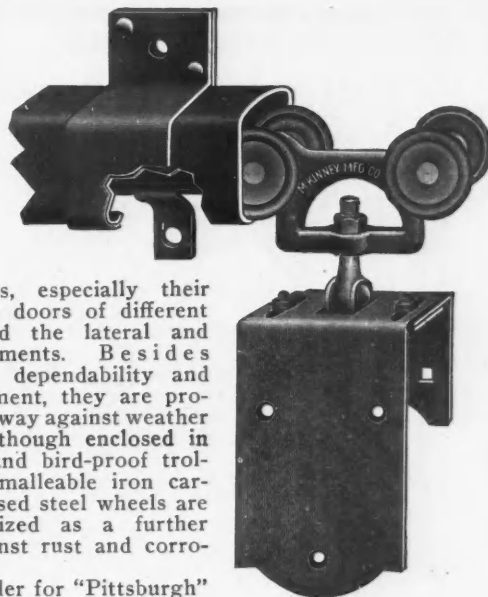


TOO much importance cannot be attached to the hanging of the modern barn and garage door. The farmer wants barn door hangers that'll last as long as the barn itself, and certainly the garage owner wants the best. Thousands of barn and garage doors are rolling easily and quietly today because they were hung properly in the beginning—with "Pittsburgh" Trolley Hangers and Track. Use these hangers on all future barn and garage work and you'll run no risk of incurring your client's ill-will.

As a builder you will be interested in knowing of their many

salient features, especially their adjustability to doors of different thicknesses and the lateral and vertical adjustments. Besides their strength, dependability and ease of adjustment, they are protected in every way against weather conditions. Although enclosed in strong storm and bird-proof trolley track, the malleable iron carriages and pressed steel wheels are heavily galvanized as a further protection against rust and corrosion.

Ask your dealer for "Pittsburgh" Trolley Hangers and Track. Write for a copy of our Builders' Catalog "A."



McKinney Manufacturing Co.
Pittsburgh, Penna.

Strap and T Hinges, Butts, Builders' Hardware



Our Free Plans Will Help You—

Meadows
TRADE MARK REGISTERED

Don't figure on any crib or granary without consulting our Free Plans. They will show you how to get greatest capacity at least expense by installing Meadows Inside Stationary Cup Elevators.

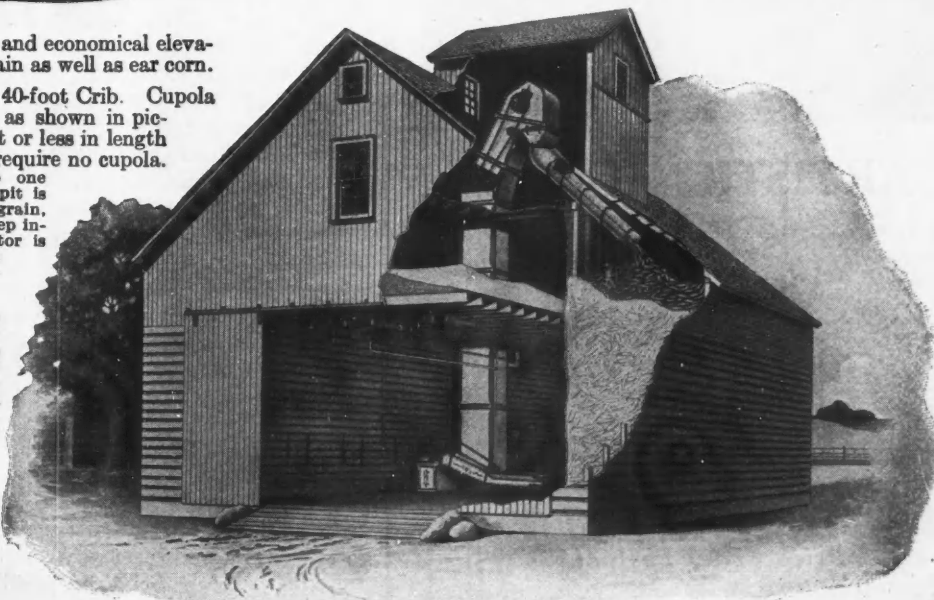
The most convenient and economical elevators, carrying small grain as well as ear corn.

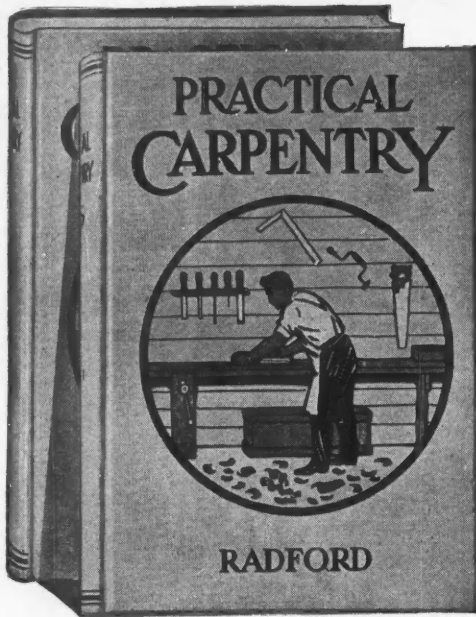
The picture shows a 40-foot Crib. Cupola need not be as large as shown in picture; and cribs 36 feet or less in length with half-pitch roofs require no cupola.

Elevator is confined to one side of driveway. No pit is necessary for dumping grain, just a hole 16 inches deep into which boot of elevator is set. The wagon jack is entirely overhead, fastened to the joists.

But write in today for our free Crib and Granary plans, catalogs and large posters telling all about our outfits and their application. Valuable information for the builder, and writing for it obligates you in no way.

**Meadows
Mfg. Co.**
Pontiac, Illinois





**PRACTICAL
CARPENTRY**

RADFORD

Two volumes of reliable textbooks to which to refer in work that is new and unusual. **PRACTICAL CARPENTRY** is the most complete, most accurate, most practical and most up-to-date work of its kind. It describes the best and quickest methods for laying roofs, rafters, stairs, flooring, mitering, coping, splayed work, circular work, and, in fact, for forming all kinds of joinery and carpentry work.
Bound in cloth, over 600 pages of useful and necessary information. Complete information from foundation to roof.

Price \$2.00 Postpaid

American Carpenter and Builder
1827 Prairie Ave., Chicago



ARTISTIC HOMES

A book of 280 (8 x 11 inch) pages showing perspective views and floor plans of 250 artistic modern homes. A large variety of designs are given so as to meet the taste of the majority of home builders. There are artistic houses for people of moderate means and others for the more wealthy, but in every case the design is made with reference to comfort and economy.

Every design shown has been made by best architects in the world, who have made a study of home architecture and that alone.

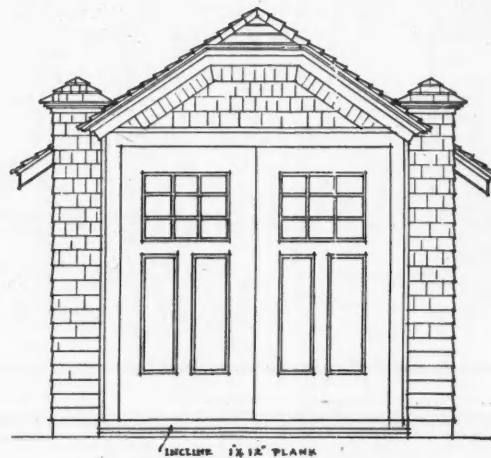
Price \$1.00 Postpaid

American Carpenter and Builder
1827 to 1833 Prairie Avenue, Chicago, Ill.

West Coast Lumbermen's Association come forward with their campaign in defense of their old standby—red cedar shingles. They relish a fair fight with something doing on both sides of the line.

There is keen competition among the various building materials for public favor, and in the main it is clean, good-natured competition calculated to encourage building improvements and increase the general public's confidence in building materials, building specialties and in the expert services of architects and builders. The building field is so vast in extent and so varied in its requirements that there is a legitimate place, and a large one, for every type of construction and every building material, without damaging any other.

Many of the advertising announcements and the booklets, hand-books and catalogs being distributed by building material manufacturers are really constructive in their nature. They are educational, show how the material is used, and lead to an active desire on the part of the reader for building improvements of a similar sort. This is the right kind of advertising because it leads to business for everyone. The



Front Elevation of Shingle Garage.

Shingle Branch of the West Coast Lumbermen's Association has prepared a series of handbooks that are quite remarkable along this line. One of them is an illustrated booklet of sixteen pages entitled "Boys' Builder and Garage Book." They believe in catching their customers young and showing them how to do good work at building various interesting little structures, incidentally using a respectable quantity of "Rite-Grade" red cedar shingles. One of the designs in this book is a neat little private garage which we reproduce herewith. Other designs in the book are bird houses, bird shelters, dog kennels, pergolas, ornamental gateways, outdoor sleeping house, camp pavilion, poultry house, etc.

Other booklets in this same series are "Bungalow Homes Book," "Distinctive Homes Book," and "Farm Buildings." Any or all of these will be sent free on request. Address Shingle Branch West Coast Lumbermen's Association, 1022 White Bldg., Seattle, Washington. They ask that a two-cent stamp be sent for each book requested, to defray mailing costs.



A Correction

In the August issue of the **AMERICAN CARPENTER AND BUILDER**, attention was called to the possibility of an inexpensive solution of the cartage problem by the use of the "Kalamazoo" trailer. It was stated in the descriptive matter that the body of this trailer is 40 inches by 72 inches. This statement was incorrect since the size of the body used on the regular "Kalamazoo" trailer is 40 inches by 7 feet. The trailer is manufactured by the Kalamazoo Carriage and Harness Co., Kalamazoo, Michigan.

Keep Busy Every Day



We furnish the easiest and most profitable sideline ever offered to a contractor; and we give carpenters and builders exclusive territory and special factory prices on

Pullman Metal Weather Strip



Show your customer that he can make his windows weather-tight and make a big saving on his fuel bill—a saving that will soon pay for the weather strips.

Get the agency for your town now. Write immediately for literature and terms of our proposition.

Pullman Metal Weather Strip Co., York, Pa.

A piece of ALLMETAL Weatherstrip



There is nothing complicated about

Allmetal WEATHERSTRIP

Old, shrunken, warped and out-of-square openings of every kind made dust and draft-proof.

EASIER TO INSTALL.
This pattern is used more than all others combined.

EASIER TO SELL.
This kind made metal weatherstripping a business.

ASK ANY ARCHITECT.
Noiseless, easy-running, non-rattling sash; better than storm sash; absolutely permanent; sash instantly removable for repairs; coal saving pays the cost; solid comfort with a smaller heating plant.

ARE YOU THE MAN?
We guarantee a money-making business for a live carpenter or builder who will follow our selling plan.

Allmetal Weatherstrip Co.
226 West Madison Street : CHICAGO, ILL.

That Ugly Open Space Under the Door!

Who in the wide world can fix that wide space under the door? You can, whether it be wide or narrow, if you are in the weather strip business. You can fix it right, too, with the Eveleth Door Bottom Weather Strip.

It is being used more and more each year in many of the leading cities by the leading weather strip men.

It is being specified by the ablest architects the world knows, for the most expensive doors made.

We will furnish prices, larger cut showing mechanical operation, and other interesting information.



EVELETH MFG. CO.
(Not Inc.)
12 Ashland Ave., River Forest, Ill.
(2 miles west of Chicago City Limits)

Note "That Positive Grip" in Felt.
Don't Write Today, But Tomorrow

Mr. Contractor-Carpenter

Write today—now for the best agency "try-out" proposition for the largest and most complete line of metal weather strips on the market.

Turn Your Idle Hours Into Money

We supply you with a complete agent's outfit consisting of models, estimating tables, contract blanks, advertising matter, etc.

We don't ask you to invest a dollar of your money until you get actual orders, and we show you how to get them at a good profit.

We give exclusive agency to the ones who "make good."

We give full instructions for installation.

Many contractors have taken up this business as a side line and developed it into their main business. You can do the same.

We Have Some Excellent Territory Still Open

ADDRESS:

THE DIAMOND METAL WEATHER STRIP CO.

626 Kerr Street
COLUMBUS OHIO

A New Barn Door Latch

The new barn door latch illustrated here has just been placed upon the market by the Watrous-Acme Mfg. Co., Des Moines, Iowa, whose sole sales agent is The Stanley Works of New Britain, Conn.

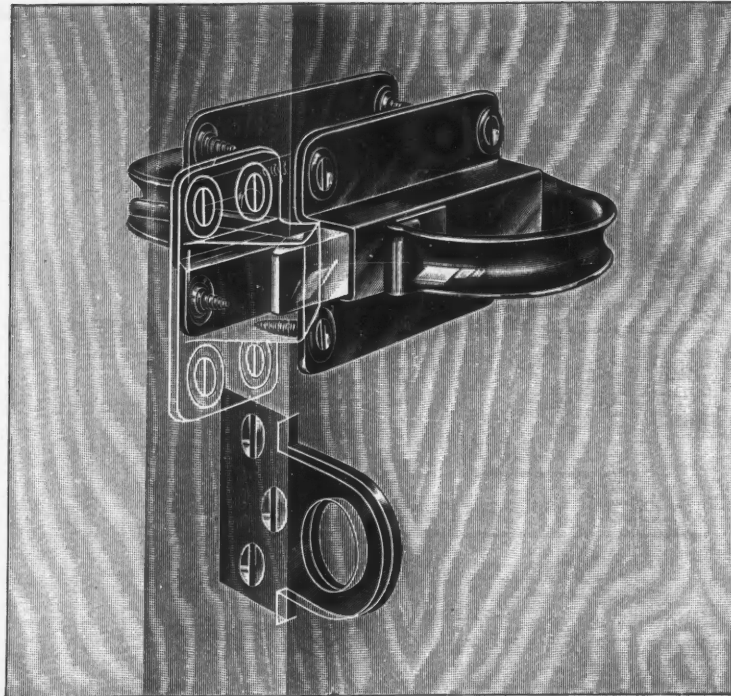
Durability is the idea around which this new door latch is built. Its few parts are heavy and strong. The latch locks automatically and it is easily operated from either side of the door by means of a roomy, comfortable handle. It is adjustable for doors all the way from 3/4 inch to 1 3/4 inch thick.

This latch is carefully protected against rust. The bolt is tinned, the spring is sherardized, and the handles, plates and strikes are heavily coated with japan. The latch is also furnished with a galvanized finish for those who desire it.

The angle slant on the strike and the bevel on the bolt allow this latch to lock automatically. The bolt is wrought steel, solid at its working point. It has a 15/16-inch throw. One easy motion—a pull on either handle—slides the bolt back. The two handles are connected by a steel bar 1/4 inch thick.

Note how the inside plate is applied well back from the jamb so that there is no danger of injuring the hand. This inside handle may be left off and the latch converted into an extra heavy catch. The strike is made wider than the bolt to allow for any sagging of the door.

This barn door latch is packed 1/4 dozen in a carton with



Half Size Illustration of No. 1240 Door Latch.

3/8-inch No. 10 screws, one pair of safety padlock eyes (as shown in illustration above) and illustrated directions for application. The net gross weight of a carton is 5 pounds; net shipping weight, per gross, 175 pounds.

EVANS "ALMETL" APPROVED FIRE DOORS

RIGID—

INDESTRUCTIBLE

NON-WARPING

ALL STEEL

AND ASBESTOS

CONSTRUCTION

EASY TO INSTALL

COST NOTHING

TO MAINTAIN

WE HAVE 150 COMPETENT ERECTING LICENSEES ALL OVER THE COUNTRY

OTHER FIRE PROTECTION LINES

FIRE RETARDING "STAR" VENTILATORS

HIGH GRADE ROOFING PLATES

MERCHANT & EVANS CO.

Offices and Warehouses:

Philadelphia
New York
Baltimore
Kansas City

Works:

Philadelphia
Wheeling
Chicago

WHITNEY
CASEMENT
WINDOW HARDWARE

Makes Trouble-Proof Casements

Casements that have no "come-backs" —that always open easily and quietly, do not interfere with screens, open outward, out of the way; can be easily moved to any point in the opening, permitting an unobstructed view; are self-adjusting, affording perfect control of ventilation, and are weather-proof when closed.

We sell only the patented Whitney Window hardware that is giving satisfaction in all types of buildings from coast to coast—use any style sash you wish. Write for full information and some interesting pictures.

Whitney Window Corp'n.,
309 S. Fifth St.,
Minneapolis, Minn.

H. E. Holbrook Co.,
446 John Hancock Bldg.,
Boston, Mass.

Painters and Dealers everywhere have learned that the DEVOE Guarantee of Purity and Satisfaction protects them as well as their customers.

DEVOE

The oldest manufacturing concern in the United States
Founded in New York 1754

F. W. DEVOE & C. T. RAYNOLDS CO.
New York

DEVOE & RAYNOLDS CO.
Chicago



PAINT DEVOE PAINT

DUTCH BOY WHITE LEAD

is pure lead reduced to paste form—white but readily tinted. Indispensable to good painting. Sold in 12½, 25, 50 and 100-pound, black, steel kegs. Look for the Dutch Boy guaranty label and the words "Dutch Boy White Lead" in orange on the side.



Folders FREE A

Our handy painting specifications and useful color chart should be in your catalog file. Write nearest branch for Folders "A."

NATIONAL LEAD COMPANY

New York Boston
Buffalo Cleveland
Chicago Cincinnati
San Francisco St. Louis

(John T. Lewis & Bros. Co. Philadelphia)

(National Lead & Oil Co. Pittsburgh)

The Answer to the Outside
Painting Problem

ZINOLIN

NAME the most difficult-to-meet requirements you ever made of any paint before using it or specifying it. Then, from the below list, see if Zinolín, the "Arnold-ized" Zinc, has not only met but exceeded any expectation you ever dared hold concerning a paint.

This Revolutionary Paint—

- 1—Permanently holds its luster.
- 2—Gives a whiter white than ever before known for outside.
- 3—Holds its colors absolutely fast.
- 4—Covers 30 per cent more surface per gallon than white lead.
- 5—Does one coat work which quite often equals two.
- 6—Hides jet black with two coats of pure white.
- 7—Gives a tougher, more durable coat.
- 8—Does not crack, chalk, blister or peel.
- 9—Is easier and quicker to apply.
- 10—Breaks up easier than white lead saving the painter's time.

The full facts are given in our LEAFLET and you ought to have this LEAFLET at once. Send for it now.

Keystone Varnish Company

Makers of the justly famous Keystona, the original washable wall paint

1110 Keystona Building BROOKLYN, N. Y.

TYPEWRITER SENSATION



Free Trial

Use as You Pay

Only \$2.50 a month until the low total price of \$48.80 is paid, and the machine is yours.

This is absolutely the most generous typewriter offer ever made. Do not rent a machine when you can pay \$2.50 a month and own one. Think of it—Buying a \$100.00 machine for \$48.80. Cash price, \$45.45. Never before has anything like this been attempted.

Standard Visible L. C. SMITH

Perfect machines, Standard size, Keyboard of Standard Universal arrangement writing 84 characters—universally used in teaching the touch system. The entire line of writing completely visible at all times, has the tabulator, the two color ribbon, with automatic reverse, the back spacer, ball bearing type bars, ball bearing carriage action, ball bearing shift action, in fact every late style feature and modern operating convenience. Comes to you with everything complete; tools, cover, operating book and instructions, ribbon, practice paper—nothing extra to buy. You cannot imagine the perfection of this beautiful reconstructed typewriter until you have seen it. I have sold several thousand of these perfect latest style Model No. 2 machines at this bargain price, and every one of these thousands of satisfied customers had this beautiful, strictly up-to-date machine on five days' free trial before deciding to buy it. I will send it to you F. O. B. Chicago for five days' free trial. It will sell itself, but if you are not satisfied that this is the greatest typewriter you ever saw, you can return it at my expense. You won't want to return it after you try it—you cannot equal this wonderful value anywhere.

You Take No Risk—Put In Your Order Now

When the typewriter arrives, deposit with the express agent \$8.80, and take the machine for five days' trial. If you are convinced that it is the best typewriter you ever saw, keep it and send me \$2.50 a month until our bargain price of \$48.80 is paid. If you don't want it, return it to the express agent, receive your \$8.80 and return the machine to me. I will pay the return express charges. This machine is guaranteed just as if you paid \$100.00 for it. It is standard. Over one hundred thousand people own and use these typewriters and think them the best ever manufactured. The supply at this price is very limited, the price will probably be raised when my next advertisement appears, so don't delay. Fill in the coupon today—mail to me—the typewriter will be shipped promptly. There is no red tape. I employ no solicitors—no collectors—no chattel mortgage. It is simply understood that I retain title to the machine until the full \$48.80 is paid. You cannot lose. It is the greatest typewriter opportunity you will ever have. Do not send me one cent. Get the coupon in the mails today—sure.

HARRY A. SMITH, 721, 231 N. Fifth Avenue, Chicago

H. A. SMITH, 721, 231 N. Fifth Ave., Chicago, Ill.

Ship me a No. 2 L. C. Smith F. O. B. Chicago, as described in this advertisement. I will pay you the \$40.00 balance of the SPECIAL \$48.80 purchase price at the rate of \$2.50 per month. The title to remain in you until fully paid for. It is understood that I have five days in which to examine and try the typewriter. If I choose not to keep it I will carefully repack it and return it to the express agent. It is understood that you give the standard guarantee for one year.

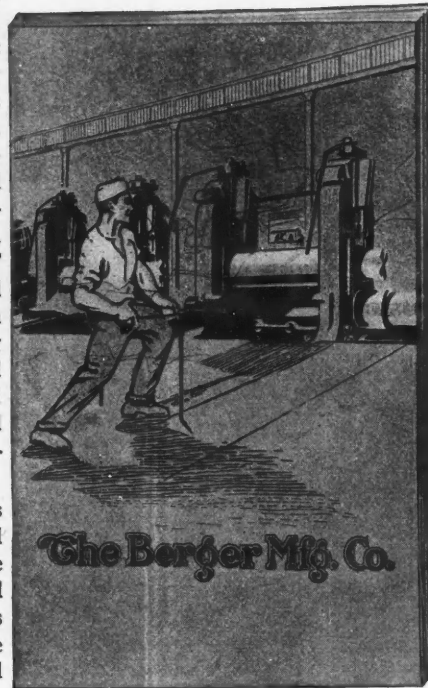
NAME

ADDRESS

New Sheet Metal Products Catalog

Any one interested in sheet metal products will find the new No. 10 Catalog, recently issued by The Berger Manufacturing Company, Canton, Ohio, of inestimable value and convenience.

This company is one of the largest sheet metal works in the world, manufacturing a diversified line of products, among them being flat sheets, roofings and sidings, tin and terne plate, artistic siding and roofing trimmings, eaves trough, gutters, pipe, etc., ventilators, skylights and special work, galvanized cornices, finials, etc., tinner's accessories, steel ceilings, metal lath and reinforcing materials, metal lumber, bins and shelving, metal furniture and lockers.



These products are illustrated and described in the order named, and the many tables thruout give the catalog added value.

This is one of New Sheet Metal Products Catalog. the most complete catalogs on sheet metal products ever issued, containing 184 pages, nicely printed in black and red on white enamel stock. The very attractive cover design, typifying the steel industry, is reproduced in miniature here. This design is printed on heavy gray stock, which furnishes the book with a neat and durable cover.

A copy of this catalog will be sent free by The Berger Mfg. Co. to any reader interested in any of the products mentioned.

WITTE ENGINES

NOW PRICED AS LOW AS \$152 PER H.P.



WITTE Engines are just as good as I can build them—regardless of price and profit. Back of every WITTE engine is a clean, 30-year record, and the largest direct-selling, exclusive engine factory in America. We make nothing but engines and sell direct from factory to user. No dealers.

WITTE Engines are built in 2, 3, 4, 6, 8, 12, 16 and 22 H.P. sizes and in different styles to operate on Kerosene, Gasoline, Naphtha, Distillate or Gas in stationary, hand portable, portable and saw-rig types.

Write today for free book, "How to Judge Engines," and my 90-day trial offer; 5-year guarantee; cash or easy terms of payment offers and complete price list.—ED. H. WITTE.

WITTE ENGINE WORKS
1716 Oakland Ave., Kansas City, Mo.
1776 Empire Building,
Pittsburgh, Pa.

Stearns

No. 10



**Try This Scraper on Your Floors
at Our Expense**

Here's a Scraper that scrapes clean and smooth, in the corners, close up to the walls, and scrapes without those wavy lines so often caused by "chatter". Our knife with double edge wears twice as long as any other Scraper knife. Our adjustable handle, rubber tires and the way the weight is thrown on the knife are all exclusive features of the Stearns No. 10. We don't ask you to "beware of other Scrapers", but we do ask you to accept this machine on a fifteen day FREE TRIAL OFFER, so you may "compare it with other Scrapers," for by test the Stearns is best. There are fifteen days in which you can test its easy running, smooth shaving and sturdy qualities at our expense. Write us about it. Sold by dealers, direct from the factory or on fifteen days' trial. Particulars will interest you.

E. C. STEARNS & CO.
500 Oneida St. Syracuse, N. Y., U. S. A.

**Mr. Carpenter
You Can Make a Lot More Money**



An Agency for the METAL SHELTER CO., Inc., will bring you more business, more profits, more customers, better and quicker results all along the line, and it will be

A REAL BUSINESS OF YOUR OWN

Don't wait until someone else gets the agency for our garages, cottages, bungalows, stores, etc., etc.

It is easy to sell them and easy to set them up—a building a day. An investigation will cost you nothing. Write NOW for our descriptive circulars and proposition.

Metal Shelter Co., Inc.
Whitehall Bldg. New York City



**"Uncle Si" Says:
"I Tell You Its
a Great
Saw"**

He is the man who should know—the man who has handled saws for years, who prides himself on his ability to pick a good one. He will tell you that

Simonds Saws

are all that a master-workman could desire, and that they will last twice as long as a cheaper saw.

84 years have been spent in perfecting Simonds Saws—in securing the confidence of the "Uncle Si's."

We have built our own steel plant that we might put our saws thro' the

exclusive tempering process that give a Simonds its toughness and hardness enabling it to hold its quick-cutting edges under long, hard usage.

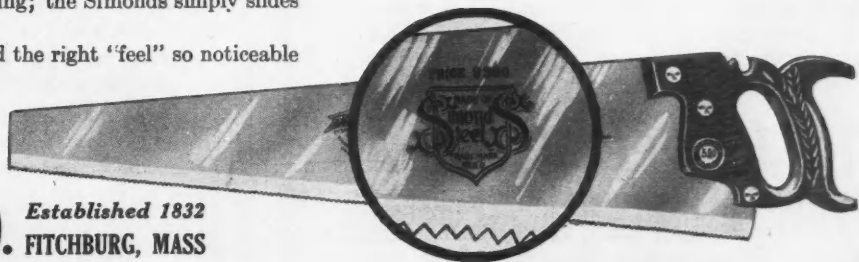
The ordinary saw requires pushing; the Simonds simply slides thro' wood.

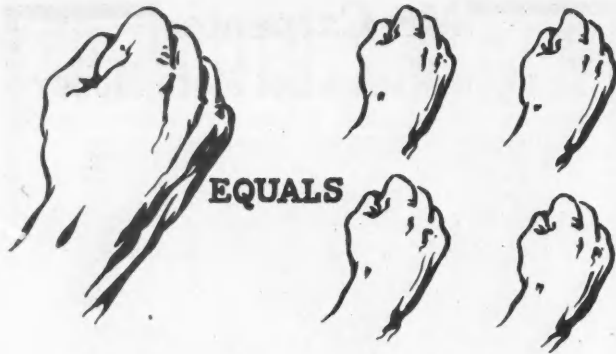
And it has the right "hang" and the right "feel" so noticeable to the experienced carpenter.

But let us send you our free book "Simonds Guide for Carpenters."

It explains in full why you "can't own a Simonds saw and be dissatisfied."

SIMONDS MFG. CO. Established 1832
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ONE hand does the work of four hands, when you roof with Flex-A-Tile Style 4 Asphalt Slabs.

One workman lays four shingles with one motion instead of four shingles with four motions.

No time is wasted in chalk-lining as when single shingles are used. Flex-A-Tile Style 4 Asphalt Slabs automatically space and gauge themselves. When laid they give the appearance of rectangular-shaped singleshingles.



FLEX-A-TILE

Style 4 Slab

Flex-A-Tiles in slab form are recognized as the roofing industry's most important improvement in a decade. We make them in Diamond Point Style as well as the Style 4 here pictured.

It's simply a matter of individual preference which style is used. Get samples of both styles. Supplied in the two regular Flex-A-Tile natural stone colors of red and green.

We Want Good Agents in every section of the country to handle the Flex-A-Tile sales. Perhaps your locality has no Flex-A-Tile agent. Write and ask for our proposition. Write today.

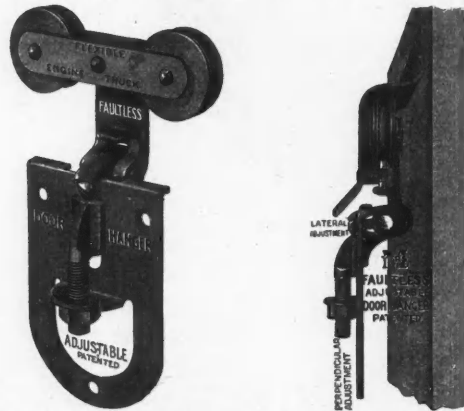
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 Flex-A-Tile Roll Shingles Utility Board No-Tar Asphalt Paint
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New Door Hanger Equipment

A new adjustable tandem door hanger and self-cleaning door hanger track have just been placed on the market by F. E. Myers & Brother of Ashland, Ohio. The special features claimed for this equipment are the full protection from snow, ice and dirt and the flexibility of adjustment and ease of operation.

The wheels of the Myers Faultless Adjustable Tandem Door Hanger are turned from steel shafting and are mounted on hard steel roller bearings. The truck is pivoted at the



Front and Side Views of Myers "Faultless" Door Hanger.

center, which allows it to adjust itself to any irregularities in the track. A lateral adjustment provides for various thicknesses of door and also furnishes a means of closing any cracks which exist between the door and building. A vertical adjustment makes it possible to raise or lower the door. A device has been included for preventing the trolleys from being thrown off the track. This consists in a projection on the side of the trolley frame which extends under the track. A flexible joint is used which permits the door to adjust itself to even surfaces on the building and also allows it to swing out at the bottom when necessary.

A special feature of the Myers faultless self-cleaning door hanger track is the continuous opening between the track and the building. The details of construction of this track follow:

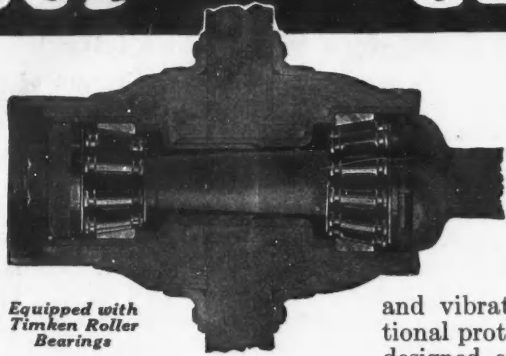


View of Barn Door Hung on Myers "Faultless" Door Hanger.

The covering is attached to the building at the upper edge by means of lag screws or spikes, and this extends downward and outward to a point below the top of the door, covering it completely. The track proper is a flat steel bar attached to the cover by means of steel stud rivets. The open space between track and cover furnish a path where dirt may fall out, keeping the track clean. Stud rivets are placed directly beneath the lag screws, which prevents buckling of the track. The joint in the track cover is made rigid by a heavy sheet steel clamp which is bent into the shape of the track cover and bent under the lower edge of the cover. The track joint is made to register perfectly by means of interlocking lugs. The end stop is designed to stiffen the track as well as to stop the door.

Further particulars in regard to this new equipment may be obtained from F. E. Myers & Brother, Asland, Ohio.

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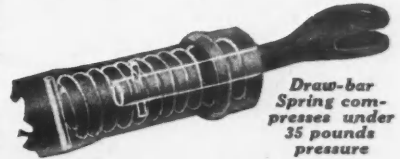
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and vibrations. And as an additional protection, we use a specially designed connection for attaching

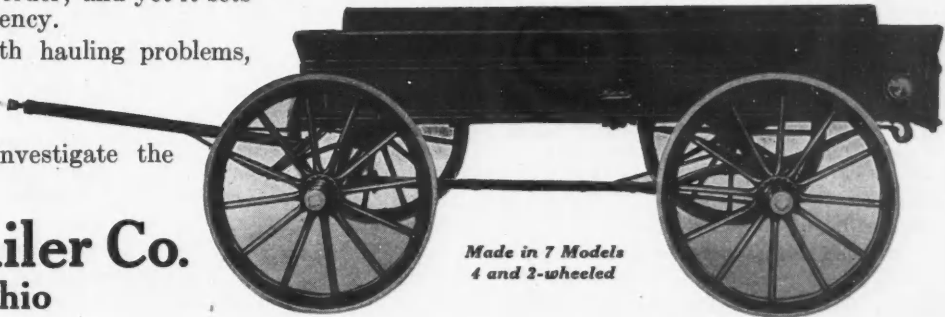
the trailer to the chassis of the car, instead of the axle.

Hanneman Bros. of Detroit have used a Miami for five months without spending a dollar for repairs. There is nothing complicated about the trailer to get out of order; and yet it sets the pace for trailer-efficiency.

If you are bothered with hauling problems, write today and get full information. It will pay you in actual dollars and cents to investigate the Miami.



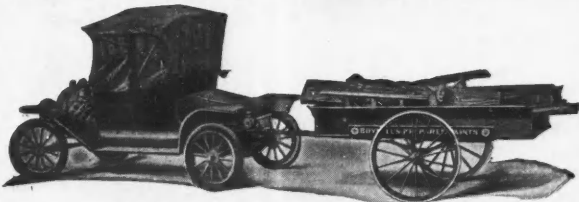
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Spring com-
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Adjustable Draw Bar and a Coupling which takes care of every movement even to the most severe twist.

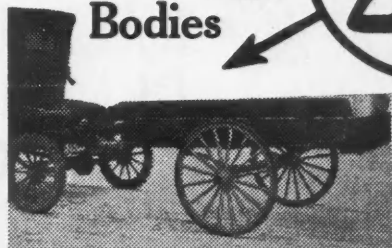
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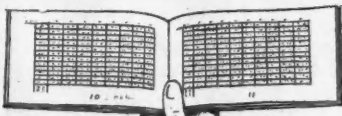


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complete—
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on any style
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Northwestern Concrete Mixers Prepare the Way for Canadian Army

The illustration shows the Northwestern mixer used by Mr. Robt. Lewis of Montreal. Many Northwestern mixers of different sizes are being used on a wide variety of jobs and the Canadian Government likes this type of machine. One recent shipment consisted of Model 610 mixer having a capacity of 12 cu. ft., weighing 6,000 lbs., which was ordered



Northwestern Mixer in Use at Montreal, Canada.

to go forward by express—an indication of how anxious the Canadian authorities were to get the machine at work on permanent improvements for their largest concentration camp. This mixer is "somewhere in Canada." The censor prefers that we do not make further mention of the facts. All this, however, is suggestive of the way the Northwestern has made good with our friends across the border.

These machines are made by the Northwestern Steel and Iron Works of Eau Claire, Wis. They report a surprisingly heavy business in concrete mixers, even for a "boom" year.

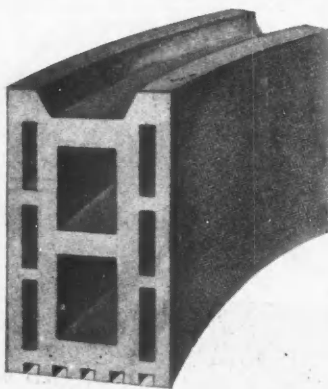


"Modern Way" Simplicity

It is interesting to note how the development of nearly every modern device for the comfort and convenience of mankind has passed thru a cycle leading out of a simple idea which finds its first expression and early development in a complicated combination of details all of which, at the time, seem necessary, but many of which, upon subsequent improvement, are eliminated until the final expression of the fundamental idea is altogether in keeping with its inherent simplicity.

The simplicity of the idea of heating air in some form of furnace and allowing this heated air to circulate thru rooms above the furnace cannot be questioned. In the early development of the idea, however, it was thought necessary to incorporate a complicated system of pipes and registers in the device employed to carry out this simple idea. It is only recently that the cycle has carried us around to the point where simplicity can be said to exist in the expression of the heated air method of warming a home. The device which embodies this quality is the so-called "pipeless" furnace. The complication of the numerous small pipes leading to the various rooms with their several registers has been eliminated and the complete circulation of heated air is obtained, in this new furnace, by the use of one large register which serves as both the inlet for the cold air and the outlet for the heated air. The old, simple principle still obtains: heated air rises until it fills the upper layers of the rooms, forcing the cold air to the lower layers. The only difference between

(Continued to page 152.)



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impervious to moisture. You save the farmer cost in the movement from kiln to cars thence to home town, then you save in handling. Get the Early-in-the-Year proposition, which carries savings to the buyer in many ways.

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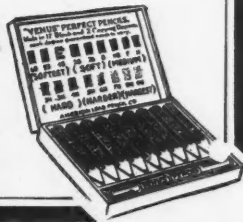
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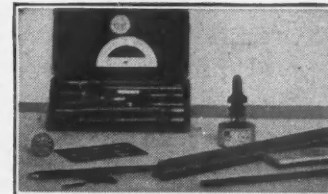
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the "pipe" system and the "pipeless" system is that the latter assumes the entire house as a unit while the former assumes a single room as a unit. The question which naturally arises is expressed as a doubt as to the possibility of carrying on a heating system based upon such a large unit. The answer



The Pipeless Furnace Offered by the Modern Way Furnace Co.

is usually found in the fact that if a sufficient quantity of air is furnished, space of any volume may be filled. The size of the single register must, of course, be quite large, the total volume of air necessary to supply the whole house being the determining factor.

A furnace of the "pipeless" type is made by the Modern Way Furnace Company of Fort Wayne, Indiana. The details of construction are interesting and the installation is very simple, any contractor or builder being qualified to install one of these furnaces without previous experience. The base of the furnace is made of one piece of cast iron, the ash pit being enclosed tightly so that no dust can escape. A special grate construction is used which greatly facilitates keeping the fire clean. The firepot may be had in either one or two piece construction. A large combustion dome tends to promote complete combustion of the fuel, thus saving money and eliminating soot. The inner shell is built up of two sheets so joined together that a dead air space is furnished which keeps the heat from passing out into the air of the cellar. The heat loss is prevented principally by passing the cold air down the outside passage, as is shown in the illustration, where it will catch any heat which tends to leak out. A considerable saving in fuel is possible by cutting down the heat loss around the furnace.

These furnaces are liberally guaranteed by the manufacturers and many satisfactory installations have been made. Several important details of construction have not been mentioned here, but those who are interested in considering the advantages of the "pipeless" furnace will find The Modern Way Furnace Company well equipped with complete data which may be had for the asking.

